

A Bridge Over Troubled Waters, 1978

While the District had the massive snow removal mission underway in Indiana another emergency occurred at Markland Locks and Dam, one equal to any film ever produced in Hollywood concerning earthquakes, upside-down ships, or skyscraper infernos. The scenario included an upended and sinking towboat, an enormous ice gorge crushing downriver and smashing barges against the dam, helicopters circling overhead and crashing, demolition teams blasting at the ice, petroleum barges jamming a lock and leaking explosive gasoline, and big towboats ramming repeatedly into an iceberg. And all the action was part of a race against time, for cities along the Ohio were running short of salt to melt ice-glazed roads, fuel for heating and for emergency vehicles, and coal for electric-power production; the Ohio River had to be reopened to traffic for delivery of those and other commodities. For a time the emergency became so nerve-fraying the public affairs officer representing the District at the scene pencilled at the bottom of his neatly typed list of police and emergency telephone numbers the number for "Dial A Prayer."⁵⁰

When the ice jam developed in January 1978, the District had under construction a bridge over Markland Locks and Dam to connect Kentucky with Indiana. Pedestals to support a bridge had been put on the dam in 1964, and in 1975 construction of the bridge had begun. It lacked only paving and painting for completion when the emergency occurred in 1978, and thus all construction equipment was out of the way and the bridge arched well above the troubles in progress below.⁵¹

As it had in 1977, ice formed along the

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 Leland R. Johnson (1984)

Ohio during January 1978 and began piling up in the approach to Markland Locks. By January 21, Lockmaster Carroll Sheldon and his crew were struggling to pass tows through the lock because of thick ice clinging to the sides of the barges. "We're just keeping on chugging, pushing and pulling in an effort to get the tow through and open up the locks," said the lockmaster. In the meantime, waiting towboats circled upstream, trying to keep open a channel to the lock.⁵²

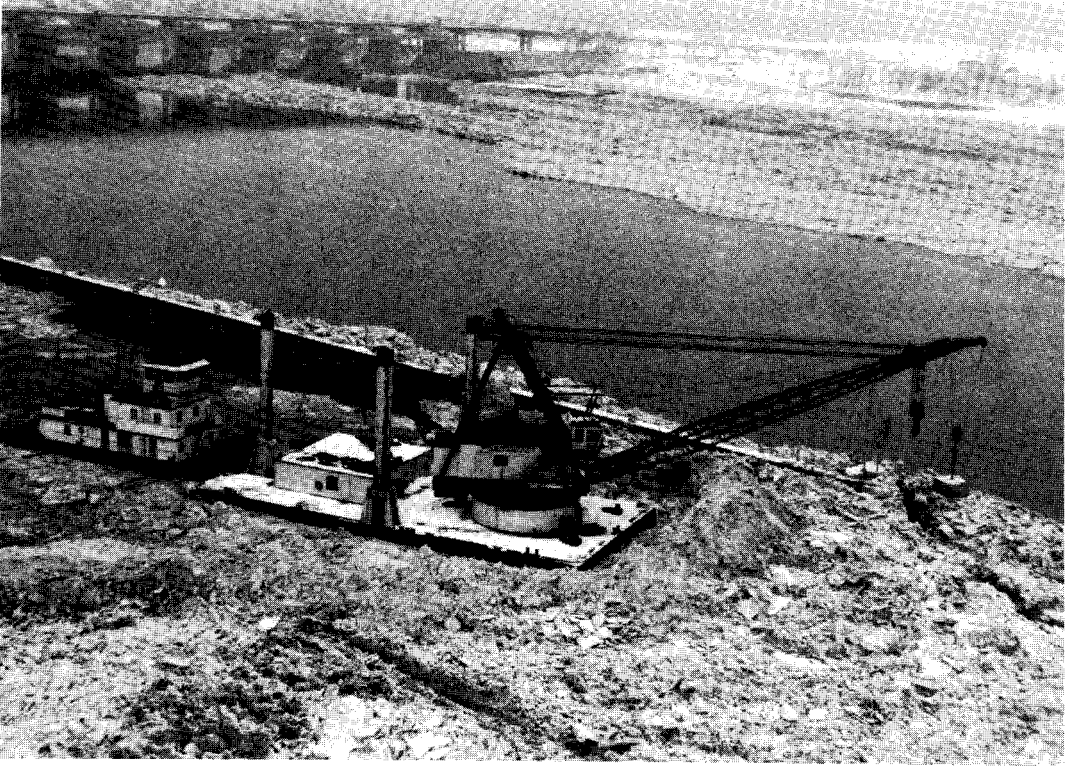
Seventeen miles upstream of Markland an enormous ice gorge had lodged against Big Bone Island, and on January 27 the gorge broke free and surged downstream, carrying dozens of barges along with it, wedging those that did not sink smack

against Markland Dam. Lieutenant General John W. Morris, Chief of Engineers, after inspecting the mess at Markland, commented: "I've seen lots of ice in my time and I've seen a lot of waterways, but I never saw so much ice and barges all packed up against a structure before."⁵³

Ice continued running downriver, jamming the gorge before the dam ever higher, reaching sixty feet in thickness and filling the channel from riverbottom to ten feet above the river surface. Fuel and road salt shortages in the Ohio River valley grew increasingly serious in the meantime, and towboat captains who had those commodities aboard barges ready for delivery as soon as they could get past Markland



Towboat and petroleum barges lodged in Markland Locks during the February 1978 ice jam. Visible at the top is Markland Bridge then under construction with safety nets suspended below it.



District towboat and derrickboat breaking ice at the entrance to Markland Locks, February 3, 1978.

grew irritable during the delay. “I’ll tell you why Markland didn’t open up and let the ice through,” said one irate captain: “It was simply because Louisville didn’t want the ice down there. Someone in Louisville has a lot of pull and it doesn’t take long to figure that out when you realize the Louisville District, Corps of Engineers, is headquartered there.”⁵⁴

No mode of operations at the Markland Dam could have passed such a huge gorge through the dam, and the Engineers at Markland were doing all in their power to get the ice on its way toward warmer climes. Towboats braved the ice upstream of the dam, pulling barges free from the

gorge and “fatiguing” others—ramming them to flex them in hope the barges would break in two, freeing the gates of the dam. During that operation, Captain John Beatty’s towboat *Clare E. Beatty* became trapped in the jam and capsized, sinking to the bottom. The owners of one barge trapped against the dam with a cargo of steel hired a helicopter “sky crane” to move the steel to bank; it hovered over the barge while its lifting sling was filled with steel, flying to the bank for unloading, then back to the barge. The troubleshooters from the Louisville Repair Station also arrived with their towboat and derricks to begin smashing ice from the lock gates and chamber with clamshell dredge buckets.⁵⁵

An attempt to use explosives to break up the gorge began on February 1 by a demolition firm under emergency Corps contract. Helicopters put the demolition team down on the icepack while they set the charges, then removed them to a safe distance before the charges detonated. After two days of futile blasting, it appeared the removal of the gorge would require too much explosives and too much time and the effort ceased.⁵⁶

The towboats went back to work, ramming the ice to crush it at the edges and sending it downstream through the dam with their propeller wash. At the controls of the towboat *Charles Lehman* was Captain N. "Sonny" Ivey, who had pulled the chemical barge away from Markland in

1974, moving the ice alongside the towboats *Bessie Walker*, *Steel Forwarder*, and *Exxon Pennsylvania*. Captains Charles Decker and J. C. Thomas were alternating at the controls of the District's towboat *Person*. "Since I've been on the river—that's thirty-one years," said Captain Thomas of the ice, "it's the worst; it's the granddaddy."⁵⁷

Smashing into the ice time and again, riding up atop it until their weight crushed the frozen mass, then turning and jettisoning their prop wash to free broken chunks, the towboats inched their way upriver. The District derrickboat *Brown* dropped a fourteen-ton "headache" ball onto the ice; it sometimes bounced without making a



Cartoon concerning the ice jam at Markland Locks printed in *Louisville Times*, February 8, 1978. Courtesy: *Louisville Times*.

dent. Concern about slow progress increased, and Brigadier General E. R. Heiberg, III, of Ohio River Division warned traffic might be delayed for weeks, resulting in the shutdowns of industries dependent on supply by river. "This could cause immense damage to the economy," he said: "What does this mean to the average citizen? It interrupts transportation of energy materials—coal and petroleum— and chemicals that keep industry going."⁵⁸

By February 6, towboats had opened a path through the thickest part of the gorge and they picked up their tows below the dam to head upriver through the lock, expecting to ram through remaining ice with the barges. The *Steel Forwarder* first passed through the 110-foot lock with a tow that was 105 feet wide, followed by the *Wally Roller* and its tow, and finally the *Exxon Pennsylvania* with a 108-foot tow of eight barges full of gasoline and fuel oil. The latter entered the lock chamber from below and when the upper gates were open started out of the lock. Part of the way out, the tow wedged tight, held by the ice as if in a vise. The towboat rocked the barges back and forth most of the day, proving only that they seemed concreted in place, and during the effort one barge ruptured, spilling gasoline into the lock chamber. Because each of the eight barges carried more than a million gallons of fuel, the spill presented an extreme hazard and all except essential personnel evacuated the vicinity of the locks, while the Gallatin County fire department sprayed the barges with foam to suppress fire hazards. During the turmoil the bright yellow helicopter transferring steel from a barge at the dam to the bank went out of control, crashing onto the Indiana bank.⁵⁹

Water in the lockchamber was alternately raised and lowered to free the

barges, but merely ruptured another barge and spilled more gasoline into the water. As the fire department continued spraying the tow, the fuel was pumped out of the leaking barges. Four days of effort failed to move the tow an inch until Saturday, February 11, when the water level in the lock was lowered and the *Exxon Pennsylvania* spun its props in reverse, pulling the tow back into the lock. The groan of metal was audible as the barges pulled free of the ice and lurched backwards a few inches. Repeated efforts dragged back the barges inches at a time until at last the upper gates could be closed, allowing the lockmaster to lower the tow so it could back out of the lock. After six days of difficulties, at 2:30 p.m. on Saturday afternoon, the lock opened to traffic once again; the sun shone and the ice melted.⁶⁰

"Even a schoolboy could have predicted the odds against the success of that venture," said a Cincinnati newspaper editor with full benefit of hindsight concerning the lock blockage. The decision to send the tow through actually was made by many 'schoolboys,' some with graduate degrees in engineering, who were under considerable pressure to get fuel barges upstream to their destination at fuel-starved cities. A flurry of litigation and soul-searching followed the emergency. Patrick Carrigan, chief of construction-operations for the Ohio River Division, admitted the Corps had made "errors of judgment" during the ice gorge crisis and declared there would be changes in future operations procedures, while Richard C. Armstrong, chief of engineering for the Division, promised the adoption of means to avert future icing problems at Markland.⁶¹

Part of the engineering solution was installation of a bubbling ice control system in 1979, with air compressors pumping air

through submerged pipes at the upstream entrance to the locks; the air escaping through holes in the pipes bubbled to the surface to form a curtain that shunted ice away from the lock entrance toward the center of the dam. Another problem was solved by the ice gorge itself, which sheared off most of Big Bone Island against which the gorge had formed. Shown on river maps since 1794, the island was cut down by the ice and entirely removed by the 1979 flood.⁶²

When the blizzards and ice of the winter of 1978 had disappeared, work resumed on the bridge over Markland Dam, and it was completed on September 16, 1978, and dedicated by a parade of dignitaries in automobiles. One of the participants in the

dedication ceremony quipped that it surely was "a bridge over troubled waters."⁶³