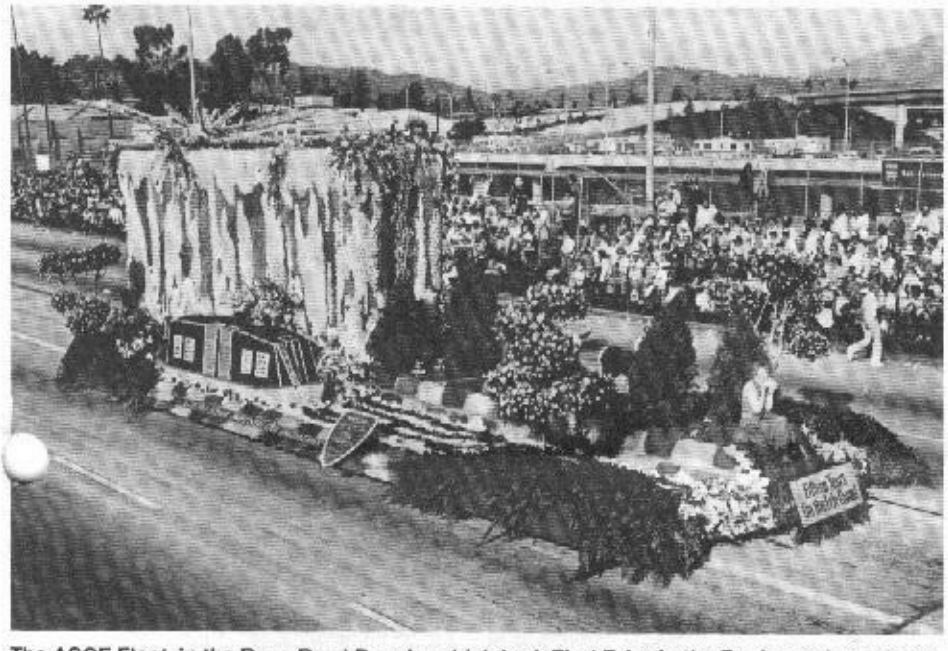
AMERICAN CANALS

BULLETIN OF
THE AMERICAN CANAL SOCIETY

BULLETIN NUMBER 32 Editorial Address – Box 310, Shepherdstown, W.Va. 25443 FEBRUARY 1980

ASCE CANAL FLOAT CAPTURES PRIZE



The ASCE Float, in the Rose Bowl Parade, which took First Prize in the Business Association category. Note the Erie Canal (and boat) in the left foreground.

New York City, Jan. 7, 1980; The American Society of Civil Engineers Rose Bowl Float, highlighting an ASCE National Historic Civil Engineering Landmark, the Erie Canal, captured first prize among Business Association Floats at this year's Rose Bowl Parade.

The float depicted an Erie Canal boat being pulled along the waterway by a mule. A beautiful backdrop of Niagara Falls was topped by the spreading rays of the sun. Islands of roses framed the bucolic setting.

The float featured as guest celebrity Lauren Tewes, who plays the pixyish cruise director on the television hit series, "The Love Boat".

In keeping with the theme of this year's parade, "The Music of America", the song which has become synonymous with the Erie Canal, "Low Bridge, Everybody Down", was playing in the background.

The panel of Rose Bowl judges awarded the prize, one of several given in different categories, based on the float's overall beauty, the execution of the parade theme, excellence of design, originality, use of flowers and the photogenic impact the float would have on the television audience. Both song and float celebrate the journey of a canal boat along the 364-mile Erie Canal, running from Albany to Buffalo, N.Y. The Canal was built in 1817 under the direction of Benjamin Wright, founder of an organization precursor to the American Society of Civil Engineers. In 1968, ASCE named Wright "The Father of American Civil Engineering".

CANAL CALENDAR

March 18th – (7:30 P.M.) Illustrated lecture by Dr. Mark Baldwin, Imperial College, London, "Commercial Inland Navigation in the USA and Canada". Location: Sutton College of Liberal Arts, St. Nicholas Way, Sutton, England. Sponsored by the United Kingdom Section of ACS. Contact: Dr. Roger Squires, Bailiff's Cottage, 4 Manor Way, Beckenham, Kent BR# 3LJ.

May 2-4 – Bus Tour of Ohio and Erie Canal, Scioto River Valley from Portmouth, planned by Canal Society of Ohio and Scioto Valley Canal Society. Write: John Wunderle, 401 Ivan Dr., Kent, Ohio 44240

May 3-4 – Canal Society of New Jersey field trip to northern section of Delaware and Hudson Canal. Contact: Bill Moss, Box 127, Fanwood, New Jersey 07023.

May 10-11 – Pennsylvania Canal Society Tour, lower section of the Schuylkill Navigation, Philadelphia to Reading. Write: Harry Rinker, 414 Third Avenue, Bethlehem, Pa. 18018.

Spring, 1980 – Annual Justice William O. Douglas Hike of the C & O Canal. Write: C & O Canal Assn., Box 66, Glen Echo, Maryland 20768.

PRESIDENT'S MESSAGE

Perhaps the item of most interest to our members of the Society is the fact that we are about to publish a ninety-two page book entitled "The Best From AMERICAN CANALS". As the name implies, it will be a collection of some of the most interesting and informative feature articles in AMERICAN CANALS since we started publication eight years ago. We have been given most welcome financial assistance in this project by the Reynolds Metals Company of Richmond, Virginia, and hope to recoup some of the additional funds invested by a modest charge to ACS members wishing to add this important volume to their canal library. You will be hearing more about this publication very shortly.

We are pleased to report that since the last issue of AMERICAN CANALS, we have added three more names to our LIFE MEMBERSHIP ROSTER – that of *John A. English* of Troy, New York, *David J. Williams III* of Columbia, Maryland and *Tom Hahn* of Shepherdstown, West Virginia. We thank them for their financial support.

Our Secretary-Treasurer, Charlie Derr, reports he is re-invoicing a few of our members who have over-looked the payment of their 1980 dues. Mail processing costs and ever-increasing postal rates prevent us from carrying along indefinitely individuals who are not interested in paying our very modest ACS dues. Regretfully, therefore, we must drop from our active mailing list any members whose dues remain unpaid at the time of the issuance of our May Bulletin.

On the plus side, our dues-paying membership roster continues to expand and we are currently approaching a total membership of six hundred canal buffs in the United States, Canada and the United Kingdom.

Happy cruising to all of you!

Bill Shank

Lock House Plot Deeded to Havre de Grace

The Lock House in Havre de Grace, Maryland was the scene of a ceremony on June 17th, 1979, during which the Deed for the Lock House Area was officially presented to the City of Havre de Grace and the Susquehanna Museum of Havre de Grace by the Susquehanna Power Company. The latter company has held title to the properties through which the former Susquehanna and Tidewater Canal ran in Maryland, for a number of years. Susquehanna Museum now maintains the old Lock House, adjacent to the Outlet Lock of the S & T Canal, as their headquarters and repository for canal artifacts, furniture, maps, photos and drawings.

American Canals

BULLETIN OF THE AMERICAN CANAL SOCIETY

"DEDICATED TO HISTORIC CANAL RESEARCH, PRESERVATION AND PARKS"

AMERICAN CANALS is issued quarterly by the American Canal Society, Incorporated. Objectives of the Society are to encourage the preservation, restoration, interpretation and use of the historic navigational canals of the Americas; to save threatened canals; and to provide an exchange of canal information.

Annual subscription to "AMERICAN CANALS" is automatic with a minimum ACS dues payment of $8.00 Individual copies may be purchased at $2.00

EDITOR – Capt. Thomas F. Hahn, USN (Ret.), Box 310, Shepherdstown, WV 25443.

PRESIDENT – William H. Shank, P.E., 809 Rathton Road, York, PA 17403.

VICE PRESIDENT – Dr. William E. Trout III, 1932 Cinco Robles Dr., Duarte, CA 91010. Editor, AMERICAN CANAL GUIDE.

SECRETARY-TREASURER – Charles W. Derr, 117 Main Street, Freemansburg, PA 18017.

JAMES RIVER AND KANAWHA CANAL

I have read with interest Richard Waugh's articles, "Canal Development in Early America – Parts 1 and 2" in the August and November issues of "American Canals," but am distressed at the near total omission of the *James River and Kanawha Canal*.

Parts of this canal formed the first canal system in the United States. Construction was begun in 1785, and by December, 1789, one canal was open to navigation around the falls in the James River at Westham, just west of Richmond, and another extended into the city itself.

The James River and Kanawha Canal, when completed in 1854, ran from tidewater east of the falls in Richmond west for 197 miles to Buchanan, Virginia (sixth longest in America).

The canal had ninety lift locks for an aggregate lift of 728 feet (seventh largest number of locks and eleventh greatest lift).

"Judge" Benjamin Wright was also long associated with the James River and Kanawha Canal, consulting with the State Engineer, Claudius Crozet, in 1824, being appointed a State Assistant Engineer in 1831, and finally becoming Chief Engineer of the James River and Kanawha Company in 1835.

Initially, the locks on the James River and Kanawha were dissimilar and some inadequate in size. However, when Judge Wright became Chief Engineer in 1835, he adopted uniform dimensions and specifications for all locks along the entire length of the canal.

For example, the lock chambers were to be 100 by 15 feet, the height of the walls and gates to be determined by the lift required. The foundations were to be laid on solid rock or built on hard pine or white oak, 12 inches thick, on a gravel base. The floor was to be of similar timber, spiked with 6-inch nails. The granite blocks were to be at least 9 inches thick and 12 inches broad and were to be laid with not more than one-quarter inch between them. The lock gates were to be of well-planed heart pine timber, the balance beam 23 feet long and 15 inches square at the larger end. The gates were to be 12 inches thick at the bottom and 10 inches at the top.

From the exactness of the specifications and the quality of the craftsmanship, much of which can be seen today, it is little wonder that the James River and Kanawha Canal locks were known as "works of art"! (Submitted by A.R.D. Perrins)

(Mr. Perrins makes the claim that this was the oldest canal system in the United States. Are there any takers on this perennial argument? I claim, for example, that the locks on the Potomac Canal at Great Falls, Virginia, first used 1802, are the oldest extant locks in the U.S. – Editor.)

EDITOR'S CORNER

Tom Hahn (left) with Justice Douglas on a recent Annual Justice William O. Douglas Hike of the C&O Canal.

Justice William O. Douglas was buried in Arlington cemetery today. I think of this on a bus cautiously making its way over the Allegheny Mountains through the snow. I should probably have been at his funeral, as were the President and the other dignitaries. But Bill Douglas would think no less of me for thinking quietly of him in the lonely bus as we paralled the Potomac River and the *Chesapeake and Ohio Canal*. As the bus pulled out of Cumberland, Maryland, I thought of his words of 15 January 1954: "The stretch of 185 miles of country from Washington, D.C. to Cumberland, Md., is one of the most facinating and picturesque in the nation . . . It is a refuge, a place of retreat, a long stretch of quiet and peace at the Capitol's back door . . . a wilderness where man can be alone with his thoughts, a sanctuary where he can commune with God and nature, a place not yet marred by the roar of wheels and the sound of horns."

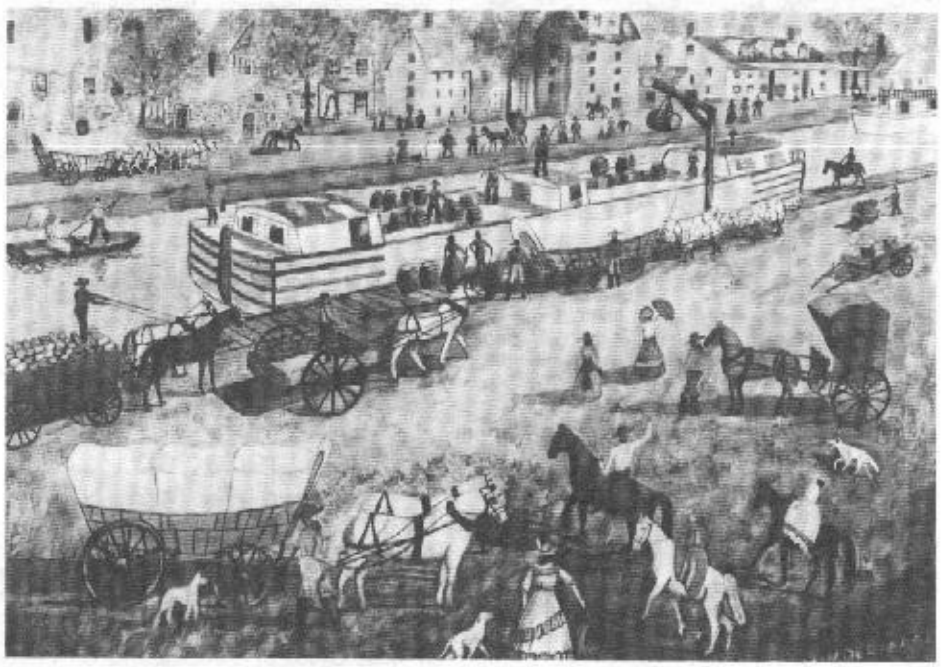
I wondered how many lives were touched by his liberal position regarding human rights, and how much of the environment was protected by his regard for Nature. Justice Douglas introduced me to the world of canals and conservation. In so doing, he changed the entire direction of my life. He taught me the lesson of the need to be individualistic and the need to have integrity. With humility, several years ago I took his spot as a director of the C&O Canal Association realizing even then that it would take many people to fill the spots he occupied on this earth.

William O. Douglas was an early Director of the American Canal Society, followed by his wife, and our friend, Cathy.

May his life be an example to those who follow as to what one human being can accomplish in this difficult world.

Jan. 23, 1980 Tom Hahn

Another Minderman "Original"



"THE ARRIVAL OF THE CUMBERLAND" depicts the replica of an old Chesapeake and Ohio Canal boat of the same name. The replica rests on dry land at Lock 75 at North Branch and is now operated as a historical exhibit under a cooperative agreement between the National Park Service and C&O Canal Cumberland. The painting is another in the series on the C&O Canal by Maryland artist Earl Minderman (See *American Canals* Summer 1979). In this painting, the artist has endeavored to convey some of the flavor and aura of the heyday of the C&O Canal operation.

MY FIRST I.W.A. RALLY

by Bev Wm. Morant

The above title sounds like one a sixth grader might choose for a class assignment after a summer vacation. That is how I felt about the Inland Waterways Association National Rally August 26 and 27, 1979 at Northwich, England in the old salt mining county; also one half mile to the north is the famous Anderton lift lock that was built in 1875. I am still on "cloud nine".

What is a "Rally"? In Great Britain, (which consists of England, Scotland and Wales), the canal societies have banded together under the I.W.A. Since 1946 thousands of canal buffs and historians who believe in living-canal-history have gotten together to re-dig, re-brick and in general restore over 2,000 miles of canals that had fallen into decay. Under the leadership of the I.W.A. a Rally (like a convention) is held every year during the month of August on a river or large canal. In 1980 the Rally will be called the Lee Valley National Festival on the River Lee on the North Side of Greater London. In the case of the 1979 Rally, 622 boats cruised to Northwich over many canals and rivers and through hundreds of locks. A great number of canallers came by car and of course the local population were a big part of the crowd. The official attendance count went well over 30,000.

A few of the 622 canal boats which congregated for the Northwich Rally, on the Weaver River. (Waterways World)

On the deck of the "Goole Star", below the Anderton Lift. Bev Morant is on the extreme right, his wife, Dollie, next, and in the center Bill Bankes, Rally Director. The boat skipper is on the left, with an unidentified observer behind him. (Sheila Doeg of BWB)

A great land area had been set aside at the British Waterways Board maintenance-launching ways in the middle of Northwich on the Weaver River. A tent with a large seating capacity was set up over the B.W.B. ways. A large covered barge was moored next to the tent to act as a floating stage. The setup gave the cruising officials easy access to the stage by coming down the river to the applauding audience on shore, after which the boats were moored to the barge.

Dollie, my wife, and I are not boating novices (for we have been cruising the rivers and canals of Canada, England and the United States for over 15 years), but this Rally idea was a new and very enjoyable experience for us. We recommend all of you to hire a narrow boat during your vacation time that spans the two days of the Lee Valley Festival in August 16 and 17 of 1980. The excitement of seeing those historically-shaped boats in their ancient coloring and the intense enthusiasm of the canal-loving fraternity plus the dedication of each person to his or her job made such an impression that we too caught the fever and asked for a job as A.C.S. volunteers. We were assigned to help in the I.W.A. book-stall selling lottery tickets (legal in England) under the direction of John Gale; our teachers were Mr. and Mrs. Allan Clegg of the Shropsire Union Canal Society. We had so many pleasant conversations in the roll of lottery ticket sellers that we became integral to the Rally pattern.

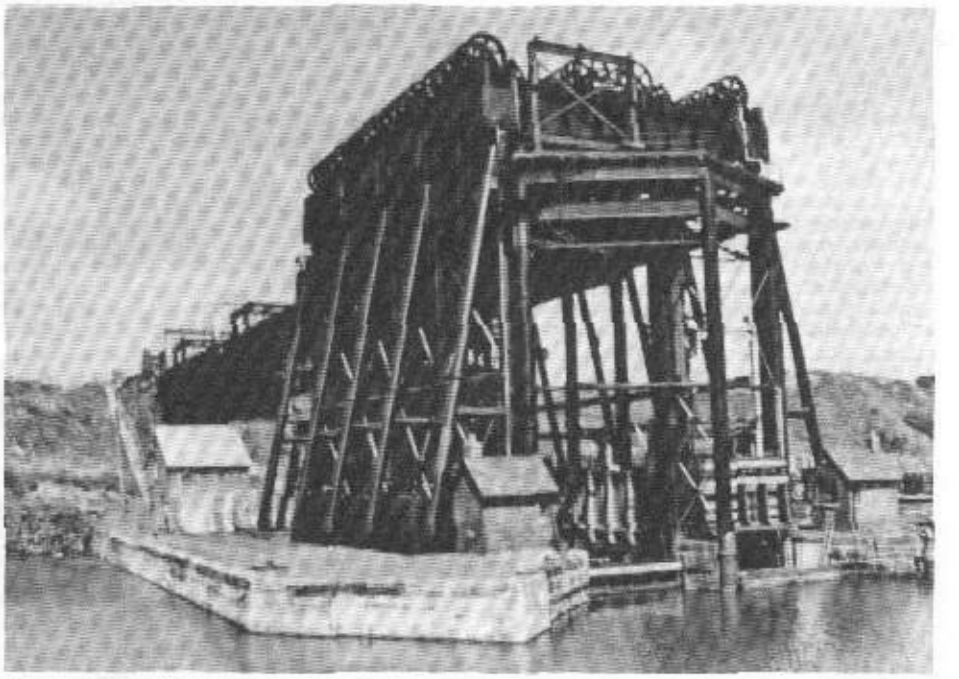
I had called Bill Bankes, the Rally Director, a week before the Rally. Bill took us in tow and made us feel like stars of the Rally instead of just a couple of sold-on-Britain-living-in-a camper-American tourists. Sir Geoffery de Freitas, I.W.A. President, and Rally Chairman John Heap made us feel at home when they came over especially to welcome us. Daryl Helliwell set up our volunteer stint and Mrs. Helliwell helped us find beautiful Verdin Park, about three blocks away for our camp on wheels for the whole Rally. You will find the British exceptionally friendly.

The most striking spirit of all was that of the Waterways Recovery Group (WRG) "Navvies". In the old days the Navvies were the laborers who dug the canals at 4 pence per day. This time the Navvies were volunteers from the canal societies and the I.W.A. who restore the canals as a labor of love. (Restoring over 2,000 miles takes a lot of love.)

Saturday, the tent activities start about 9:00 AM. for the children. This gives the parents a chance to walk to Rally grounds, checking new boats and accessories, chatting with society and I.W.A. friends and generally taking it easy. After lunch the officials for the Rally and the many public officials cruised downstream to the barge stage for the formal activities that started the weekend festivities. Later in the evening there was a parade of beautifully lighted boats. The Navvies, next, put on their one-and-one-half hour slide show of fun, spoofing each other, a continual "laugh-in", as well as restoration accomplishments of the past year.

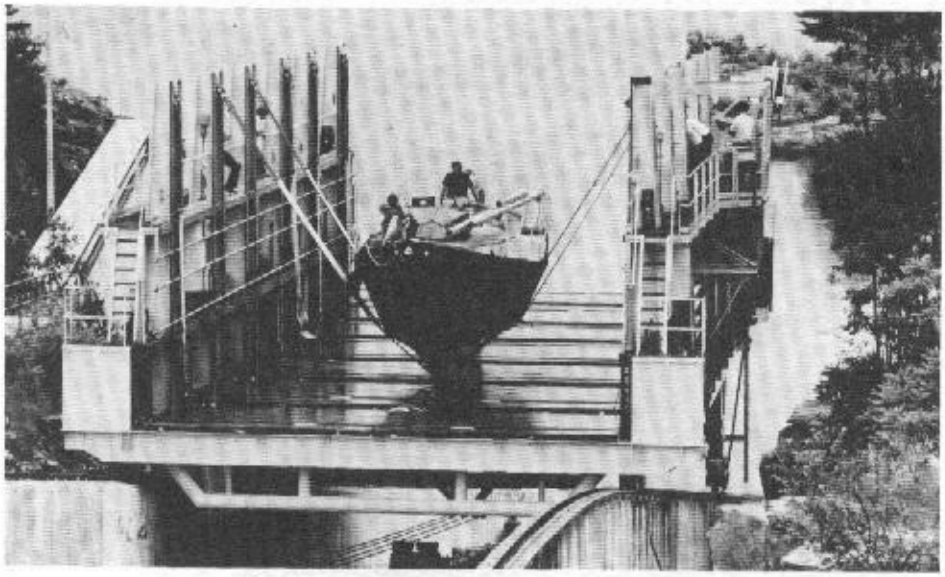
Later Bill Bankes and his wife, Marie, their daughter and son-in-law picked us up to go Navvie-pubbing at the "George and Dragon".

(Concluded on Page Five)



The Anderton Lift, the fabulous mechanism which drops or raises whole boats, some fifty feet, between the Trent and Mersey Canal and the Weaver River.

NEW 100-TON MARINE RAILWAY ON THE TRENT-SEVERN WATERWAY



A fixed-keel sailboat coming up on the carriage.

During the summer of 1978 a new marine railway went into operation on the Trent-Canal at Big Chute near Georgian Bay. After years of studies, discussions, public participation and political considerations, the Engineers finally came up with a solution to the somewhat unique boat transfer problems that prevail at this site.

These problems were:

1. To reduce the traffic bottleneck. The old railway was too small to cope with the peak summer traffic.
2. To allow the transfer of larger boats that could not be handled by the old system.
3. To develop a transfer system that, like the old one, would not allow migration of lampreys into the Severn water shed.
4. To ensure that such a system would compare favourably in cost with a standard lock of comparable capacity.

The new and the old marine railway by-pass Big Chute which drops 58 ft. in approximately 600 ft. Both railways can operate at the same time, if necessary and lengthy delays due to heavy traffic volume have been eliminated.

The maximum size boat which can be carried on the new marine railway is given below. Figures for the old marine railway are given in brackets:

Displacement:	100 tons (20 tons)
Length:	100 ft. (50 ft.)
Draft: 6 ft.	6 ft. (4 ft.)
Beam:	24 ft. (23.5 ft.)

The boats are transported on a carriage 80 ft. long and taller than a 3-story building. The weight of this carriage is approximately 110 tons. One of the most impressive parts of this whole installation is probably the boat supporting system on the carriage. It consist of a series of slings arranged in such a way as to accommodate all boat sizes up to the maximum of 100 tons and with practically any conceivable type of hull. These slings are manipulated by a total of 40 hydraulic cylinders operated from one power source. It is amazing how fast the operators can secure the position of ½ a dozen 20-30 ft. boats on the carriage and complete the transfer. Small boats can sit right on the carriage floor. Samll cruisers are deposited on the triple slings. Larger cruisers are supported in the double sling system and the largest ones are placed in the middle of the carriage and supported laterally by the double slings arranged in a single sling cradle. Most boats are partially supported on the floor. A sling system of this type can accommodate the various hull profiles of flat bottommed house-boats, cruisers, stem drivers, outboards and sailing crafts with fixed keels.

The slings are made from nylon over steel wire rope thus combining the strength of steel with the protective covering of nylon.

Underwater viewing chambers on the side of the carriage allow the operators to check and adjust the position of the slings and floor supports under the boat to avoid damage to equipment or devices on the underside of the hull.

The carriage rolls on a double track system which slopes 20' from the summit to the water at both ends. In spite of this slope the carriage is held in an almost level attitude throughout the full length of the travel. This is made possible by the so called "cam-track" arrangement. The front wheels of the carriage do not run on the same rails as the back wheels, thus necessitating the use of 4 parallel tracks, which are arranged in pairs at different levels, depending on location. The carriage could have been kept perfectly level, at all locations, but a 5% beaching angle has been introduced at each end of the tracks to facilitate handling of the boats.

The carriage is pulled by four 1¼" diameter steel wire ropes powered by four 100 hor power, 240 volt direct current electric winc These form two drive groups in a co-ordinated system to vary the tension in the four cables so the carriage is pulled smoothly over the summit of the 870 foot traverse. Controls that regulate and monitor the speed and torque applied to all winches are programmed.

The operation is also programmed to automatically accelerate, decelerate, perform the summit transfer and stop the carriage at specified positions. Carriage speed is limited to max. 200 feet per minute.

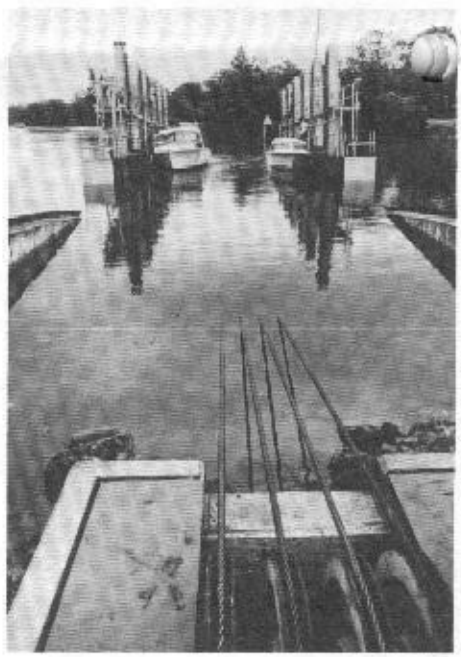
The operator can control the carriage starting, stopping and speed up to the speeds programmed, with a master control switch located on the upper deck of the carriage.

Power is supplied to the carriage via a cable reel system with an open cable trench located alongside the track. The motor-driven reels are located on the side of the carriage.

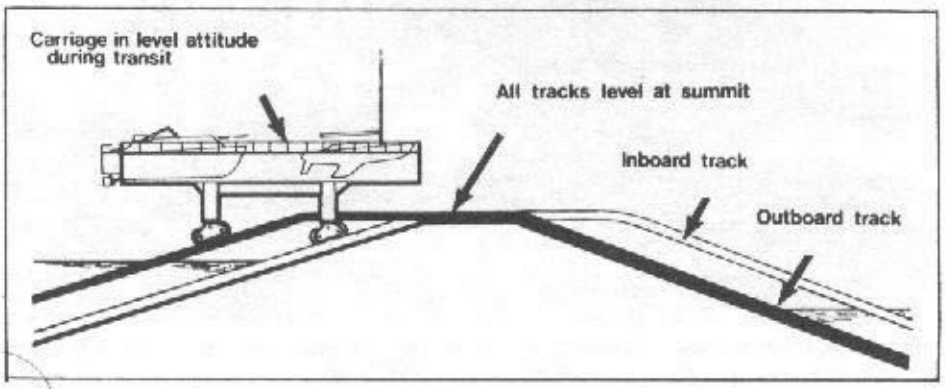
The auxiliary control station, winches, regulators, tacho-generators, program switch, control panels and other integrated devices are located in a control building. An observation deck for public use is also included in the building.

Docking facilities have been constructed at the upstream and downstream entrances of the marine railway.

The earlier marine railway, at the site, is being maintained in operating condition *(Contributed by W.E. Keenan, Chief, Restoration Services, Engineering and Architectural Branch, Indian and Northern Affairs, Ottawa, Ontario).*



Taking on pleasure craft at the up stream end.



F. C. SOULE

From ACS Life Member William Tumbridge we have learned of the untimely pass of F. "Chan" Soule of Fayetteville, N. "Chan" was an avid canal buff and President of the Canal Society of New York State. Memorial services were held February 7, 1980. Our heartfelt sympathy is extended to his wife and family.

THE LOVE CANAL

by Ronald Findlay

(In the November 1978 issue of American Canals we requested information on the Love Canal at Niagara Falls, New York, the chemical pollution of which caused the evacuation of over two hundred families. Several members sent newspaper clippings regarding the emergency; Ronald Findlay, ACS, has submitted this article on the history of the Love Canal. Ed.)

Niagara Falls, New York, widely acclaimed as the "Power City" has long been known for its beautiful natural wonder, the Falls of Niagara. But recently it acquired a more dubious reputation as the place where man's environmental mistakes have come to haunt him. Niagara Falls is the site of the infamous Love Canal, where toxic materials have escaped in recent years.

Last summer, when the story of what was happening here became national news, a visiting reporter asked one of the State officials why it was called the Love Canal. The official replied that before it was developed the vacant area was much used as a lover's lane by teenagers to park and neck, hence the name Love Canal. A good story, but not so.

The water of the Upper Great Lakes on its way to the sea passes over the Falls of the Niagara. There are higher and wider falls, but none have the volume of water that flows over Niagara's brink, about 93,150,000 gallons a minute. The power in all this water has been exploited for over 200 years, but only really mastered with the advent of electricity. Love Canal was but one of many attempts to harness the Niagara.

The first power canal was dug here in 1757 by the French on the bank of the American Rapids just above the cataracts for a sawmill destroyed during the French and Indian War in 1759. It was later rebuilt with the raceway extended for other mills. After the War of 1812, a new canal, the "Upper Raceway," was built to expand mill sites. Enlargements were made in 1826 and 1845.

In 1853, work began on the "Hydraulic Canal," which ran from a point on the Upper River about 1½ miles above the cataracts for 1¼ miles to the "High Bank" on the Niagara Gorge-Lower River. After numerous bankruptcies and changes of ownership, the canal was completed in 1875; the Gaskill flour mill became the first site to be built using a twenty-five foot fall of water to power its turbine, no turbine at the time having yet been built to withstand the available 200-foot fall at the High Bank.

In 1884 the state created the New York State Park Reservation to preserve the beauty of the Falls, turning the islands above the cataracts and the land bordering the Upper Rapids into a public park. The mills located there were razed; as there was no room to relocate at the High Bank, many industries and people left Niagara Falls.

Folks began to kick around ideas to harness the power of the river again at some new site, but only two make it past the talking stage to the beginning of construction. The first was proposed by Thomas Evershed, State Engineer, Western Section, Erie Canal. He proposed a tunnel some 2½-miles long to be built under the city as a tail race for mill sites on the Upper River above the park reservation. Work began on the project c-1890, but much of it was altered during construction, the plan to provide hydraulic power to individual mills being dropped in favor of building an electric generating plant. And so the first large-scale alternating current hydroelectric station was built, mainly to provide electric lighting. But what with the development of the electric motor, industry no longer had to locate on the old millstream. (See **Industrial Archeology** by Theodore Anton Sande, pp. 54-55.

The other plan was made and promoted by William T. Love. He planned a canal that would run from 7½ miles to the north from a point on the Upper Niagara River near the Village of LaSalle some 6½ miles above the Falls, going over the Niagara Escarpment in the Town of Lewiston. There at the northern end and below the escarpment Love planned his "Utopian" or "Model City." The latter name was the most commonly used and is still in use, at the Post Office there is designated Model City.

Apparently the plan was to build a power house on the escarpment using the sixty-foot fall of water supplied by the water for electric lighting and also to distribute power by means of an endless wire rope on towers (much like a ski tow); to industries which would locate there. This endless wire rope would have entered the upper stories of industrial buildings, wrapping around a great wheel, the motion of the moving wire rope transmitted to the great wheel and on to the customary 19th century factory power transmission system of shafts, pulleys, and belts.

The canal was also promoted to possible investors as a **navigation canal between Lakes Erie and Ontario.** Although the proposed canal would have been of a depth equal to the 1887 enlargement of the Welland Canal, its eighty-foot width was but one-half of that of the Welland. Stock was sold and work began in 1892 at the canal's north end on the Tuscarora Indian Reservation and at the intake at LaSalle on the Upper River. When work came to a halt with the Panic of 1893, only a couple of hundred feet had been excavated on the northern end and about a mile at LaSalle. The extensive land holdings of the company went on the block for back taxes in 1910 and largely remained vacant.

Love's Model City later became the United States Government's Lake Ontario Ordinance Works where waste from refining African uranium ore for the Manhattan Project (development of the atomic bomb) was buried, chemical wastes from the Hokker Chemical Company (and others), and sewage disposal by the city itself. Remedial work to date has included the installation of a drain tile system and a new clay cap, but not before 235 homes were contaminated in varying degrees by some 300 different chemicals. (Ronald Findlay, ACS, 230 Sixty-Sixth Street, Niagara Falls, NY 14304)

Winter Meeting of the PCS Board

The Board of Directors of the Pennsylvania Canal Society are a dedicated group who usually turn out, on nearly a 100% basis, no matter what time of year a meeting is called. The group of PCS Directors shown here met, with only one member missing, on November 11th, 1979 at the Embers Restaurant in Carlisle, Pa. Around the table starting at the left are: Karl Yungel, "Zip" Zimmerman, Steve Humphrey, Earl Heydinger (Treasurer), John Miller (President), Denver Walton (Bulletin Editor), John Frey, Charles Derr (Vice President), and Hayward Madden. Backs to camera, left to right: Bill Yoder (Curator), Axel Peterson and Bob Mayo. Present, but not shown in the photo, were: George Johnson, Dave Wright and Bill Shank (who took the picture). Surely – a quorum!! Many items of business were discussed, including Spring and Fall Field Trips for the next several years.

My First I.W.A. Rally

(Concluded from Page Three)

We picked up our pint at the bar and upon entering the Navvie spirit room we were sure not another person could squeeze in, but in true Navvie gallantry, room was made for all six of us. This evening the singing Navvies were at their best with their old songs, fun songs, canal songs and historical orations such as "Harold at The Battle of Hastings". Bill Bankes introduced Dollie and me as American A.C.S. members. Immediately the Navvies honored us with their rediton of the "Star Spangled Banner".

Perhaps the highlight of our visit was the hour that Bill Bankes took us over the Anderton Lift lock that joins the Trent and Mersey Canal to the River Weaver. The Anderton Lift is a wonderful double elevator built in 1875 to take boats from the Trent and Mersey Canal in a gentle 50'-4" drop into the Weaver River in about 15 minutes. James Brindly was the Chief Engineer on the Trent & Mersey, but this canal was not completed until after his death in 1792. Each Anderton Lift tank was designed to take two 6'-10" x 70'-0" narrow boats. The total weight of each tank with a full load of water floating two boats is 250 tons. Each tank is controlled by steel cables over pulley and counterweights with an electric drive. This mechanical design supplanted the hydraulic design, as engineered by Leader Williams, a Trent and Mersey Canal Engineer; the hydro equipment ruptured in 1882. The Roy Carnall family, of Leicestershire, invited Dollie and me on board there new 50-footer narrow boat "Woodlark" for the exciting ride down to the River Weaver below. If you wish to see a similar elevator but of hydraulic design, you must travel to Peterborough, Ontario, Canada on the Trent-Severn Waterway, built in 1904. (see American Canals #19 page seven)

Sunday was the last day of the Rally. Church was scheduled in the morning and afterward the boating activities started again. The excursion boats were still running at capacity and there was a parade of veteran historical boats, with lots of applause from the audience as they were recognized. There was even a dinghey sailboat demonstration by the younger set. After lunch many of us gathered in the main tent for the awards event. At this time the services of the officers were recognized as were other valiant I.W.A workers who had done their share to keep this wonderful Rally together.

SANDY & BEAVER RESTORATION

"Jim Crowe's Army" at work on the Sandy and Beaver Canal in Ohio. They are cleaning up Lock Number 24 on the Western Division. Dam Number Six may be seen at the right.

by Terry K. Woods

Like a modern day Phoenix, a two-mile stretch of the *Sandy & Beaver Canal* between Waynesburg and Magnolia, Ohio has once again risen from its weed-grown, dry bed. When this privately-financed canal connecting Ohio and Pennsylvania was abandoned in the 1850's, a few small sections were obtained from the company and maintained for milling purposes. At least three of these lasted well into the twentieth century.

A section of a little over a mile long from Nimishillen Creek to the Welker Mill in Sandyville was abandoned in 1935 when the Muskingum District Flood Control project usurped the blood plain of the Big Sandy as far east as Magnolia. About 2½ miles above Malvern, Dam #4 fed water through Lock #19 (acting as a gate) to power the Hardesty Mill until the 1940's. The relocation of State Route #43 in the late 1950's erased all trace of the canal from the basin just east of town past the mill site.

Elson's Mill in Magnolia maintained the possibility of running on water power into the late 1960's. A two-mile stretch of the canal from Dam #6 and Lock #24 was kept in repair just for that purpose. As the years went by, however, steam-powered mill machinery (and later electric) made water power more of a luxury than a needed stand-by service. Accordingly, maintenance of that canal section became fitful.

Finally, in December of 1968, the Big Sandy, a creek full of wanderlust, creeping south toward the canal, tore out a great breach in the towpath bank a bit east of the Magnolia Basin and the canal went dry. Elson's Mill didn't miss the canal much, but the people of Magnolia and Waynesburg did. The canal had always been there. Generations had fished it in summer, skated it in winter, and just plain enjoyed it year round. Somebody, everybody thought, should do something about it. In late July, 1971, everybody (at least everybody in the Sandy Valley Jaycee's) did do something. Scores of people turned out to fix the breach, clear nearly three years of brush out of the canal bed and dozens of years of undergrowth from the towpath. Finally, at 6:00 A.M. on November 20, 1971, water was let into the Sandy & Beaver Canal at Lock #24 and began to inch its way, literally, toward the Mill. The 126-year-old lock, inner planking long since rotted away, leaked badly; the raw earth at several spots in the repaired bed also leaked. And much more seriously, a leak appeared in the towpath bank just above the highway bridge at Magnolia. But the canal did fill, and it remained filled! Children skated it in winter, fished it in summer and enjoyed it immensley all year long.

This 1971 Jaycee project carried a two-fold object lesson. One, that ordinary people, working together, can accomplish things that may never get done if everyone were to wait for "someone" to do it. Object lesson number two was perhaps even more important – that when such a project is "complete" it has just begun. Without an ongoing program, without proper maintainence, what was accomplished at so great an expenditure of time and effort would be only a fleeting thing.

So it was with this two-mile canal stretch. Sometime during July, 1977, nearly six years after that small leak was first noticed near the highway bridge, that section became so weakened that it tore out, draining the canal again. This last section of the Sandy & Beaver was finished– this time for good. Everybody said so. Well, maybe not everybody. Jim Crowe, a life-long Magnolia resident thought that something could be done about it. Jim was a busy man; busy helping to raise a family of eight children; busy being Superintendent at Whitacre-Greer in Waynesburg; busy helping out the Magnolia Volunteer Fire Department.

One day early in April of 1979, Jim and a couple other residents were helping some of the firemen fill a pumper from a small tributary of the Big Sandy south-east of town, someone, no one can remember just who, remarked that "It sure would be nice if the canal still ran through town." The need for a handier water supply had been emphasized earlier that winter in February when a near disastrous fire had threatened to burn down half the downtown area.

The incentive was there. April 14, 1979 saw Jim Crowe and three or four lieutenants leading a group of young men and boys into the canal bed. Throughout the summer and early fall this group that had now swelled into an army of 75 (50 of them under 25) attacked that two miles of breached towpath, leaking berm banks and mucky beds.

The Sandy & Beaver had been a private canal and the right of way reverted back to the original landowners when the Canal Company failed. Mack Elson, a direct descendent of founder Richard Elson, owned 14½ acres around the mill and pond and 11 acres around Dam #6 and Lock #24, but he only held water rights to the canal in between.

The first order of business, then, was to contact each of the more than one dozen landowners and get their permission to rewater the canal. This seemingly insurmountable hurdle was "no real problem". "I've known these people all my life", said the 53 year old Mr. Crowe, "And we all wanted the canal."

A gas pipe-line company, the telephone company and a couple of Oil Well Drillers had needed to cross the canal. During this most recent "dry spell" it had become convenient for several of these to build earthen crossings across the canal bed. These people had to be contacted and agree to repair their crossings and "go around" in the future. Without exception, each company contacted dredged their obstruction from the bed and, in more than one case, the equipment stayed longer than was necessary just to "lend a hand" with the general restoration.

Local business flocked to help. The Bank Magnolia reactivated the old 1971 Canal Ba[illegible] Account and "sweetened" it a bit. The Ohio Bell Telephone Company graciously and quickly relocated one of their poles to allow heavy equipment to get into where it was needed. As already mentioned, the Columbia Transmission Company, Beldon & Blake and M. & B. Oil repaired their crossings and lent equipment. The quantities and types of loaned equipment from various sources was staggering. Another oil company donated topsoil and Elsons Mills the grass seed to green up and hold the rebuilt berm banks. Whitacre Greer donated clay, equipment and a bit of Jim's time. Several local citizens donated eats to Jim's weekend army and one of them is seriously considering changing the name of his canal side Magnolia Steak House to "The Sandy & Beaver Tavern".

Not everyone thought Jim's army could accomplish their objective. Many thought, and some said, "That old canal will never hold water," "Its best to bulldoze it over and plant crops". To insure that these people would be proven wrong, the Project 79 Canal Group, as they were then being called, planned for more than just plugging the hole in the towpath, brushing the bed and adding water.

Much of the berm bank leaked. It had "always" leaked. So it was rebuilt from the basin east of town to nearly Lotz's bridge – a distance of close to ¾ of a mile. The sod from the canal side of the bank was removed and placed on the outer bank. An earth to earth bond could then be made as the bank was built up. Compacting and reseeding completed this work.

Fifty, two-ton truck loads of rubbish were removed from the Lock #25 & #26 area (adjacent to the Village Park). The cut brush from clearing the towpath and canal bed were burnt ou[illegible] town. For the breach, itself, 200 tons of cl[illegible] donated by Whitacre-Greer, and 400 tons of dirt gleaned from land between the canal and creek were used.

The job was immense, difficult and muddy. Every piece of equipment nearly buried itself more than once. If it wasn't able to extricate itself, a wrecker or "Big Cat" would suddenly arrive on "loan" from an interested local construction firm or oil rig and quickly get things moving again.

Jim Crowe and his army set a goal for themselves of Christmas to complete the first portion of their project, and they met it. Water entered the canal at Dam #6 at 1:00 P.M. on Sunday, December 23 and reached Elson's Mill some 22 hours later on Christmas Eve, 1979.

But, as Jim says, "This is only the first act." "We still have ten or so more to go". There are a few leaks. These have been located and temporary repairs made. Permanent repairs will be made in the spring when heavy equipment can get back in along the creek and regular maintenence of what exists will be performed.

Back in the 1930's, the Flood Control Project placed a dike around Magnolia. The canal enters through four iron slice gates. But when the creek is high, canal water must be pumped back into it from an Army Corps of Engineers station near the southern edge of town. Some sort of operating procedure still has to be worked out that will satisfy the Army Engineers and allow an even flow of water in the canal.

That stretch of canal through the Village Park will be graded, reseeded and beautified in the spring. Its pretty definite that Magnolia will host an OLD CANAL DAYS event in May, 1980. This first affair will be of one day duration and feature refreshments, hay rides, walks along the c[illegible] and several events only now in the plan[illegible] stage.

Sitting down with Jim Crowe, Dan & John

(Concluded on Page Eight)

PANAMA CANAL SWEEPSTAKES: POLITICS VS ENGINEERING (Part 1)

by Ernest H. Schell

"There are many things that we can learn from engineers; there are many things that we must accept from scientists; we must take a great deal in this world upon faith.

Senator Philander Knox, 1906

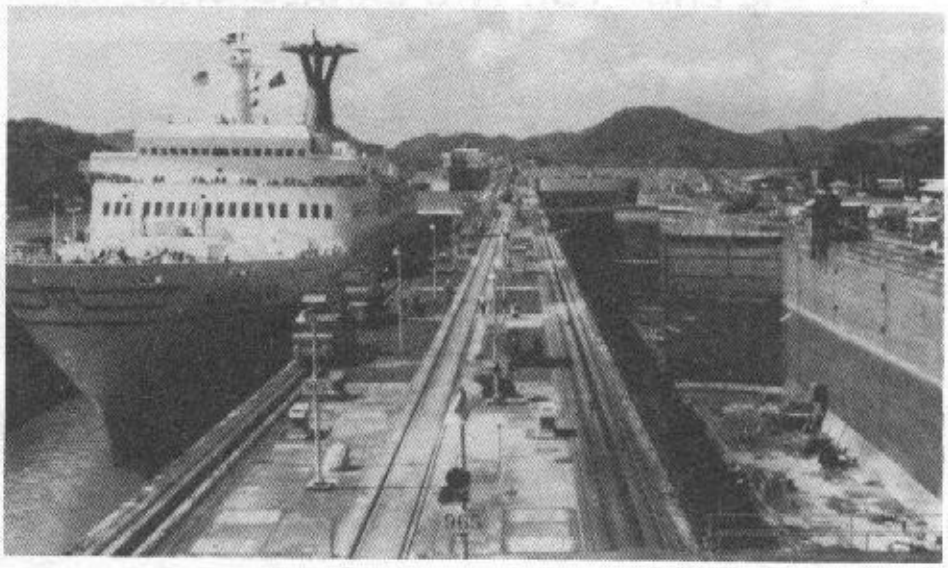
The conquest of the isthmus of Central America in the name of commerce posed an irresistable challenge to seafaring Europeans virtually from the moment the geography of the narrow isthmus was recognized. Only three years after Balboa discovered the Pacific in 1513, he transported four brigantines, disassembled, over the mountains at Panama, making this the first "passage" of ocean-going vessels across the isthmus from sea to sea. The Spanish soon afterward built a rough but paved road through the Panamanian jungle, wide enough for two wagons. Dredging of the Chagres River as far as Cruces allowed shallow draft vessels to pick up shipments there from the roadway, and traffic in dyewood, tobacco, gold, and silver was brisk.

While the search for a natural waterway across the isthmus went on continuously, the first proposal for a man-made canal came in 1528, when Spanish engineers suggested extending the route of the Chagres from Cruces to Panama City. Cortes wrote to King Ferdinand the next year urging a canal be built, no matter what the cost.

Several surveys followed in subsequent decades, but neither the Spanish nor anyone else had developed the technology needed to undertake the enormous work of constructing a transoceanic canal, the enthusiasm of the historian Francisco Lopez de Gomara notwithstanding. "There are mountains," he wrote in 1552, "but there are also hands. Give me the resolve, and the task will be done . . . " Determination alone was clearly no substitute for a capacity to conceive and carry out the engineering of such a monumental project.

Indeed, an Italian engineer, surveying the isthmus at Nicaragua in 1567, concluded that a transoceanic canal was impossible. One hundred seventy years later, the French Academy of Sciences came to the opposite conclusion, but when the Spanish conducted a survey of Nicaragua in 1779, they dismissed the idea of a canal there as impractical. British agents who had gone along with the survey party disagreed, however.

The debate over the feasibility of constructing an isthmian canal continued until the middle of the nineteenth century, when the capacity of engineers to build a transoceanic canal caught up with the exuberant vision of the politicians and merchants who recognized the immense value of such a route for military purposes and world trade, and whose idealism knew no bounds. Simon Bolivar, the Liberator President of Columbia, had confidently exclaimed in 1815, for example, that a canal across the isthmus was inevitable, and when it was built, he predicted, Central America would become "the emporium of the universe."



In this 1974 photo, the right chamber of Miraflores Locks has been dewatered for overhaul. (The Military Engineer).

By the time of the gold rush to California in 1848, it was no longer a question of whether a canal could be built, but only where it should be located. The first completely systematic survey of the isthmus accompanied the building of the Panama Railroad by an American company between 1850 and 1855. Aside from discovering a gap in the continental divide at Culebra, the railway survey did little to encourage plans for a canal across Panama; whatever advantages the surveyors found with respect to elevation were dramatically offset by the ravages of disease in the Panamanian jungle.

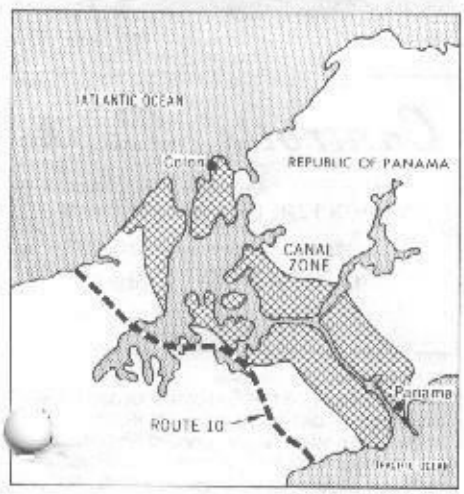
From the early days of Spanish exploration until the end of the nineteenth century, a total of five routes had received serious consideration from Americans and Europeans interested in building an isthmian canal: one was at Tehuantepec; another across Nicaragua, utilizing that nation's major lake; a third from Colon to Panama City; the shortest, from the Gulf of San Blas on the Atlantic south across the isthmus of Darien in Panama; and finally a fifth from the Gulf of Uraba on the Atlantic following the Atrato River to Cupica Bay, where Central America joined the southern continent. There were actually more than a dozen other routes mentioned at one time or another – some of them utterly mythical – but these five were the only ones taken seriously enough to be explored by official United States Navy survey parties in the 1870s and reviewed by the United States Interoceanic Canal Commission. Issuing its report in 1876, the Commission recommended that a canal be built at Nicaragua. All of the other proposed routes, the Commission found, either posed insurmountable geographical difficulties or, as in the case of Panama, would subject construction crews to excessively hazardous conditions.

The most fundamental question, of course, involved not only where a canal was to be built across the isthmus, but what kind of canal it was to be. In the 1880s, the renowned bridge engineer, James B. Eads, had promoted a transoceanic ship-railway project that would have transported ships across the isthmus on a gigantic dolly, pulled by three locomotives running side-by-side. For this remarkable system (one that recalled Balboa's dismantled brigs) the perfect location was Tehuantepec. The Navy surveys had shown, on the other hand, that if a sea-level canal were to be built, it could only be constructed at Panama. Though all things considered Nicaragua was the preferred route, the terrain required that a lock canal be built there.

Ferdinand de Lesseps, the leading light if not the father of the ill-fated French canal project of the 1880s, had risen to prominence as the builder of the canal at Suez. His experience with a sea-level canal in Egypt made him unalterably predisposed to a similar undertaking at sea level in Central America. The French syndicate that organized the canal project had only obtained legal jurisdiction for a canal in Panama east of the railroad, but this coincided perfectly with de Lesseps' preconceptions. Panama was the ideal location for a sea-level canal. So certain was de Lesseps of the wisdom of his own preference that he high-handedly manipulated the international congress convened in Parris in 1879 to discuss the interoceanic canal project, dictating the vote of the congress in favor of a sea-level canal at Panama.

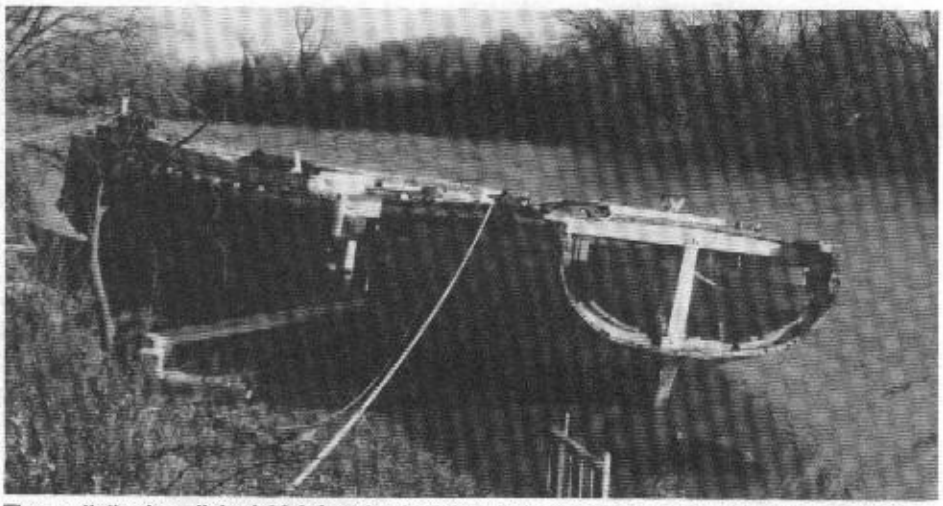
None of the five delegates from the French Society of Engineers endorsed the proposal. Nevertheless, the ultimate failure of the French project had more to do with tropical disease and financial mismanagement than with the technical challenge of building a sea-level canal across the isthmus. After all, the engineers consulted in designing the French canal were themselves not unanimously critical of the sea-level plan. The project had the firm endorsement of numerous reputable scientists. Thus, there was no clear-cut choice between what was considered technically feasible and what was bound to fail. In a situation as complex as an interoceanic canal project in Central America, ambiguities could not be eliminated. In fact, the contradictory assessments of professional engineers was one of the more exasperating aspects of the whole business. When the United States began to consider plans for its own canal, the discussion was no less immune from conflicting views and the influence of politics than the French effort had been.

Part II will be published in a subsequent issue.



The route for a sea-level canal at Panama, as recommended by the Atlantic-Pacific Interoceanic Canal Study Commission about six years ago. (The Military Engineer).

"THE END – FOR TWO CANALBOATS"



The partially demolished 96.9 foot by 21.5 foot hull of "J.B. Wright" on Racoon Creek on December 8, 1979. (Bill McKelvey.)

Sandy & Beaver Restoration

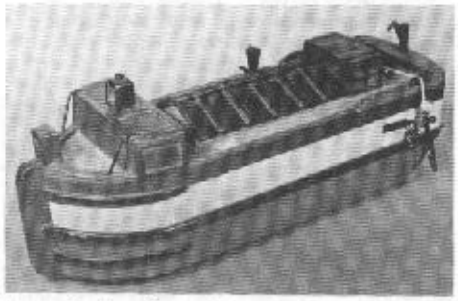
(Concluded from Page Six)

Joseph, Bill Woodward, Art Shilling, Tom & Al Witts, Tom Trushel & Joe Owens the other day in the "Sandy & Beaver Tavern", we got to discussing some of the future acts in this project. Some sort of formal organization is no doubt a must, with at least consideration being given to placing this stretch of the Sandy & Beaver on the National Register. Dragline dredging of the bed will begin in the spring. A lot of work has to be done on the towpath to stabilize it and locks #24 and #25 need some additional stonework and at least an inner planking – someday.

Then the workers of Magnolia's Project 79 will get a far away look in their eyes as someone mentions the possibility of a full size canal boat replica. That seems to be in the distant future. That is until one remembers what this portion of the Sandy & Beaver was like a short nine months ago and the tremendous effort that took. Don't tell the people of the Sandy Valley that something can't be done. I, for one, am looking forward to that canal boat ride. (Terry K. Woods is a director of the American Canal Society.)

OVERSEAS MAILING

As an experiment, this issue of AMERICAN CANALS is being sent *air-mail* to our overseas members. Due to the heavy mailing expense involved, any members wishing us to continue this service will be asked for an extra $4 (U.S.) dues per annum.



Fore-shortened model of a Pennsylvania Canal Freighter in the Lycoming County Historical Society Museum. Richard Mix, who supplied this photo, tells us that the model was built by Elmer Ellsworth Ebert about 1890, and later donated to the museum by Howard C. Ebert of Ralston, Pa.

Nineteen seventy-nine was the final year for the last two freight canalboats which had survived from New Jersey's canal era. Early in 1979 Captain John Wright gave M/V J.B. WRIGHT to Henry (Pete) Powers for disposal. Pete, who worked as a crew member on the vessel from 1959 to 1962, pulled the engine out and shipped it south for use in South America.

In April J.B. (Josiah Brick) WRIGHT was towed up Racoon Creek from Bridgeport to the I-295 bridge by the tug SHELLY KEANE. From that point three outboard powered rowboats were used to tow J.B.W. to an isolated location to the rear of the Matlack truck terminal near Swedesboro where the vessel was grounded and is being dismantled. Powers has salvaged all items worthy of preservation, including the cherry wheel which originally came from a *Chesapeake and Delaware canal* barge. Several items were given to Bill McKelvey who will display them at the museum of the Canal Society of New Jersey at Waterloo when it reopens on April 8th, 1980.

Sister ship M/V WRIGHT BROS., sold to a new owner in Panama in 1976, sank in Guatemala in the summer of 1979. Both vessels were built of wood at the Paul Boatyard on Mantua Creek in Paulsboro, N.J. The J.B. WRIGHT was launched in 1919 and WRIGHT BROS. in 1923. Each hauled cargoes to and from New York until the Delaware and Raritan canal closed in 1932. They also plied the old *Chesapeake and Delaware* lock canal until 1927 when it was converted to a sea level waterway. The pair of Wright vessels continued to use the new Chesapeake and Delaware canal until 1968 when they were laid up in Racoon Creek for lack of work. Four and a half pages of illustrations of these two canal veterans appear in CHAMPLAIN to CHESAPEAKE: A CANAL ERA PICTORIAL CRUISE by McKelvey.

PACKET BOAT COMPLETES THIRD SEASON

The 1803 Middlesex Canal packet boat "Colonel Baldwin" completed its third season of operation. The horse-drawn packet carried over 1,000 visitors between July 1 and September 2 along a restored stretch of the historic waterway, from the Baldwin Mansion (Rts 38 and 128) in Woburn to a point just below Nichol's Bridge in North Woburn and return, for a round trip distance of over one mile.

CLASSIFIED ADS

HOLIDAY 1980? SPEND A WEEK OR LONGER EXPLORING THE INLAND WATERWAYS OF ENGLAND AND WALES. OUR AGENCY OFFERS YOU OVER 500 TRADITIONALLY STYLED NARROWBOATS FROM BASES ALL OVER THE CANAL AND RIVER SYSTEM. CHOOSE BETWEEN SELF-CRUISE BOATS ACCOMMODATING 2-10 PERSONS OR HOTEL BOATS WITH SKIPPER AND CREW. MODERN CONVENIENCES ON ALL BOATS INCLUDE HOT AND COLD RUNNING WATER, HEATING, FLUSH TOILET, FULL SIZE COOKER WITH OVEN, SHOWER, FULL LENGTH BERTHS, TILLER STEERING AND ECONOMICAL DIESEL ENGINES. COLOUR BROCHURE AND FURTHER DETAILS FROM: ANGLO CONTINENTAL BOOKING AGENCY, 43, BLEAN HILL, NR. CANTERBURY, KENT, ENGLAND. Tel: 0227 77 543.

On June 22, 1979 the Delaware Division Canal was officially designed as a "National Historic Landmark" and a Plaque erected and dedicated. Ceremonies were held at the Canal Museum in the Hugh Moore Park, Easton, Pa. C. P. "Bill" Yoder was "Emcee". Speakers included John P. Miller, President of the Pennsylvania Canal Society and the Hon. Clifford L. Jones, Secretary of the Pennsylvania Department of Environmental Resources.