

INDIANA WATERWAYS

Volume 3, Issue 3; February, 1984



'84 Giles Meek
From 84 photo
by T. Meek

Canal Society member David Freund stands at the North Portal of the Harrison Tunnel on the Cincinnati & Whitewater Canal in Cleves, Ohio. (see articles in this issue)

Dear Reader;

INDIANA WATERWAYS is running behind its publication schedule by about two months. This is the February, 1984 issue, and it is going to press in early May. This makes the April issue late already by a couple of weeks, and we haven't even begun to put it together.

We apologise for the delay, and we ask your patience. We also feel that we owe our readers a few words of explanation.

As you know, we are amateur magazine publishers, and we get out INDIANA WATERWAYS entirely in our spare time. This includes gathering or writing material, typesetting, paste-up, making plate-ready negatives. Then, when the sheets are printed, they need to be collated, folded and stapled, and then mailed out. We don't mind doing all this, and because we don't charge the Canal Society for our labor, we are able to provide our readers with a high-quality publication at a price which falls within the \$5.00 yearly dues being asked.

In addition to INDIANA WATERWAYS, we are also engaged in other canal history-related projects such as the Canals Indexing Project, Canal Markers and other research. We both have full-time jobs as well, so you can see that our time is limited and there are many demands upon it.

Therefore, we beg your continued patience and understanding when, as now, we get behind in our schedule. We've been behind before, and have caught up, just as we will this time.

Articles submitted by readers, in addition to providing a greater variety of interest, are a great help, since gathering and writing of the text requires about half of the total time involved.

Thank you for your patience, and we hope that you enjoy INDIANA WATERWAYS as much as we enjoy bringing it to you.

Thomas and Julia Meek, Editors

SUGGESTIONS FOR CANAL NAVIGATION

by Max Adeler

(Published in the Indianapolis Evening News Dec. 9, 1873.)

We see in the papers that a man in New York proposes to keep canal navigation open all winter by heating the water by means of iron pipes through which a current of hot water is passed. A Norristown Journal suggests that this will be a good thing, if for nothing else because it will prevent the ice becoming so cold as to be uncomfortable to sit on.

But we may say, seriously, that we doubt the feasibility of the pipe plan. Our method would be to make the canalboats red-hot, and to keep them running up and down by means of incandescent mules. And if this should not be efficacious, the water

might be made hot with mustard, smeared along the bottom of the canal. A mustard-and-water canal would be interesting merely as a curiosity: and in case of sudden stomach-ache among the bold navigators of the boat it would be very convenient.

All a sufferer would have to do would be to dive overboard and lay himself upon the mustard at the bottom, and stay there until he got well.

A friend at our elbow suggests that the tow-path might be taken up and replaced with a warm cast-iron tow-path, which the old towpath could be cut into lengths, the pieces laid side by side and sold to somebody as a farm.

But this is treating the subject with too much levity. If we can't consider the matter with proper solemnity we decline to allude to it at all.

THE CINCINNATI AND WHITEWATER CANAL

by F.W. Trevorrow

(Reprinted from Vol. IV, No. 4 of TOWPATHS, the journal of the CANAL SOCIETY OF OHIO, by kind permission of the C.S.O.)

The high point in enthusiasm for canals among the people and in the Legislature of Ohio was reached in 1836 and 1837. The Cincinnati and Whitewater Canal was one of several canal projects being considered by the Legislature in that period. Although undertaken by a private company, the State was to subscribe to \$150,000 of the stock. The General Assembly, by resolution passed March 11, 1836, had directed the Board of Public Works to have the route of the proposed canal surveyed.

The survey was made by Darius Lapham, in December of 1836, for the officers of the Board of Internal Improvement of Cincinnati. Lapham was then Resident Engineer of the Miami Canal, but the expense of the survey was borne by the Cincinnatians. It was quite common at the time for Canal Engineers in the employ of the State, to take employment on other projects when it did not interfere with their regular duties. Lapham's report, dated Jan. 23, 1837, was submitted by him to Samuel Forrer, Principal Engineer, who transmitted it to the Board of Public Works and by the Board to the General Assembly.

Darius Lapham's report described in detail the proposed route of the canal, the principal works required, the levels, and an estimate of the cost. The unusual feature of his report was his recommendation of a tunnel through the ridge between the Great Miami and the Ohio rivers.

Lapham's survey proposed that the Cincinnati and Whitewater Canal join the Whitewater Canal of Indiana

in the pool of the dam three-fourths of a mile South of Harrison, or, by continuing for a short distance into Indiana (if such a provision could be made, a safer connection could be built). The construction of the Whitewater Canal in Indiana had only begun in 1836 and its route below Harrison was not settled, so the point of connection could not be fixed.

Lapham proposed an excavation through irregular terrain below Harrison for about two miles, where he would place the Guard-lock, with four feet of lift. He recommended this position as affording protection against floods in the Whitewater River. From the Guard-lock, the canal was to continue on that level across the Dry Fork on an aqueduct, beyond which another lock would be necessary.

After crossing Dry Fork, the method of crossing the ridge between the Great Miami and the Ohio rivers would determine the amount of lockage required. Here, Lapham proposed a tunnel through the ridge in preference to an open cut. By means of the tunnel, the level of the canal would be brought down to the required level in the Ohio River valley by one lock and the expense of crossing the Great Miami River would be reduced.

Lapham proposed to cut through the ridge by means of a tunnel 15 chains (990 feet) long, with the arch extended another 12 chains (792 feet) in the open cut, to protect the cut from filling by wash from the banks.

According to the proposal, the masonry arch would extend for a total distance of 1782 feet. He estimated the cost of the excavation and the tunnel thus:

| | |
|---|------------------|
| EXCAVATION IN OPEN CUT, 55,390 YDS @25¢ | \$13,848.00 |
| EXCAVATION IN TUNNEL, 12,450 YDS @\$1.30 | 18,675.00 |
| MASONRY OF ARCH IN TUNNEL, 6,600 PERCHES @\$3.00 | 19,800.00 |
| MASONRY OF ARCH IN OPEN CUT, 5,280 PERCHES @\$2.50 | <u>13,200.00</u> |
| TOTAL | \$65,523.00 |

Against the estimated cost of the tunnel, Lapham estimated the cost of an open cut at \$91,434.50, involving 246,938 cubic yards of excavation and 11,880 perches of masonry arch. In either case, the arch was considered necessary.

The proposed tunnel was a daring engineering innovation at the time it was made. Only four canal tunnels had been dug in the United States up to that time. The Schuylkill and Union Canals each had one and the Pennsylvania Main Line had two tunnels. James Brindley's Harecastle tunnel on the Trent & Mersey Canal in England had set the example for the use of tunnels in canal ham was of the opinion that the conditions were favorable and had no hesitation in recommending the

construction. The art of tunnel building was new to Ohio, but Lapham plan over the open cut. The tunnel was built and proved the most lasting work on this canal.

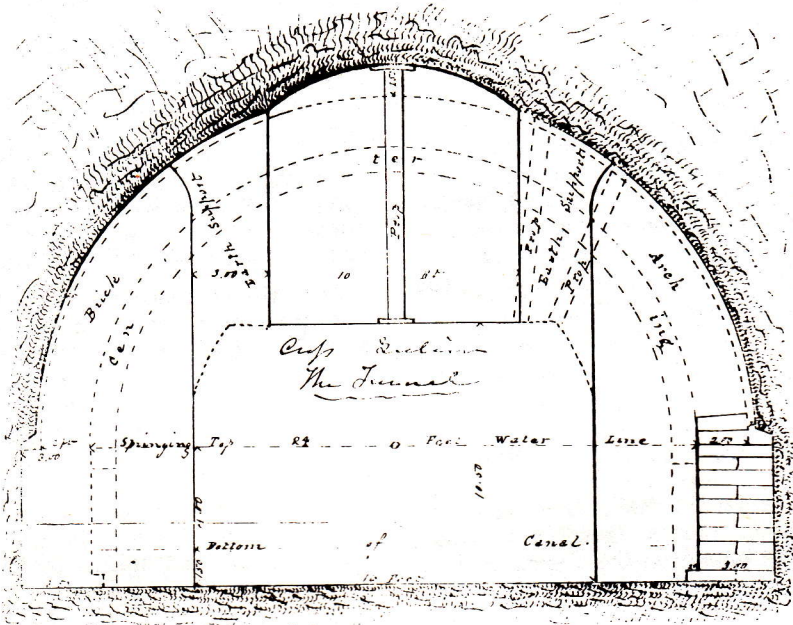
From the southern end of the tunnel, the survey ran the canal along the North bank of the Ohio River, crossing Mill Creek on a masonry culvert, with the termination near the foot of Fifth Street in Cincinnati. The survey pointed out that the canal could be carried through the lower part of the city to connect with the Miami Canal. The level of the Cincinnati and Whitewater Canal as proposed, corresponded with the level between the 5th and 6th locks on the Miami Canal.

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ENGINEER'S WORKING DRAWING OF CANAL TUNNEL CONSTRUCTION

From the Erasmus Gest Papers, Letter Book #2, the Ohio Historical Society Library

(Reprinted from Vol. IV, No. 4 of TOWPATHS, the journal of the CANAL SOCIETY OF OHIO, by kind permission of the C.S.O.)



Original drawing of a cross section of the tunnel on the Cincinnati & Whitewater Canal, showing the method of construction. The upper center and the two side sections were first excavated, leaving the lower center and the two side sections as

leaving the lower center and the two upper side sections as roof supports. These latter were removed just ahead of the masons and the lower center last of all.

The tunnel was 24 feet wide at the water line and the center of the arch was 15½ feet above the bottom of the canal. A smaller drawing indicates a towpath about 4 feet wide on one side. It is not clear whether this was of masonry or timber.

The tunnel still exists under the hill, although not in condition for casual exploration.

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THE CINCINNATI & WHITEWATER IS COMPLETED.

*(From the Erasmus Gest Papers,
Letter Book #2, The Ohio Historical
Society Library. An undated
manuscript, but probably written in
1843 or 1844. Reprinted from
TOWPATHS Vol. IV, No.4, Oct.'66).*

CINCINNATI and WHITEWATER CANAL

| | |
|----------------|---------------------|
| Darius Lapham | Resident Engineer |
| Clement Dare | Senior Assistant |
| Charles Taylor | Assistant Engineers |
| Erasmus Gest | |
| Thomas Fallus | Rodmen |
| Taylor | |
| Morgan Ruffner | |

\$542,928 total cost at contract price or \$21,890 per mile.
Original estimate made in Dev. 1837, per mile \$18,173 or
\$454,326.

The Indiana Canal is tapped on the farm of John Godley, Esq.
on the level which receives its supply of water from the foot
of the dam.

After crossing into the State of Ohio it follows along the
dividing Ridge between the Whitewater and Miami Rivers until
the termination of the same where it crosses the Miami River
over an aqueduct of 8 spans of 60 feet each to the town of Cleves.

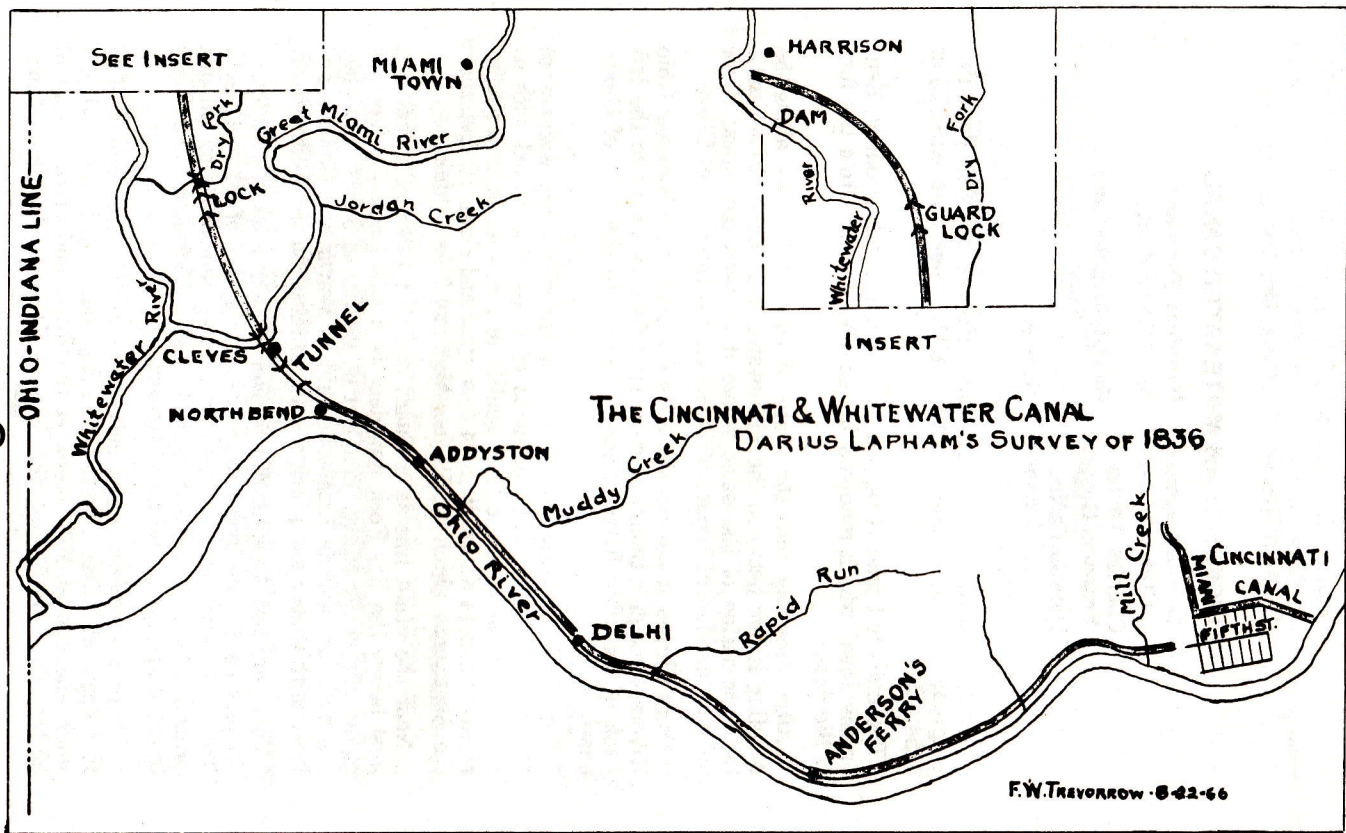
From Cleves it passes the hills dividing the Miami and Ohio
Rivers through a tunnel of over 1600 feet in length to the left
bank of the Ohio River which it follows to the City of Cincinnati.

The tunnel passes through clay mixed with small water-worn
Pebbles and has pieces of limbs of trees also mixed with it.
The Arch is made of the Best quality of Brick made by a Machine
and burnt in Kilns. It is 24 feet span and rises 12 feet above
the Abutments which are 5½ feet high and 3 feet thick.

Near the State line is a Guard and Lift Lock of 4 feet lift.
Just below the Dry Fork Aqueduct is a Lift Lock = 8 feet and
at the end of the Miami Aqueduct is another of 5 feet lift. They
are built of common limestone laid in Mortar and Grouted and
lined with timber and plank similar to those on the White Water.

There are two Aqueducts: one over the Dry Fork of 4 spans of
50 feet each, one over the Miami of 8 spans of 60 feet each.
They are constructed of wooden trusses supported by wooden
arches and rest on substantial Stone Abutments and Piers
founded upon two courses of timbers.

There are several large culverts: one at Indian Creek of 18
feet span; at Muddy Creek, Rapid Run and Bold Face of 30 feet
each and one at Mill Creek at the lower end of the canal of
50 feet Span and 20 feet rise. It is an Elliptical Arch and stands



upon stone Abutments 10 feet high and 6 feet thick. The abutments are built of common lime stone, the Arch of Sandstone brought from Rockport near Portsmouth.

From the foot of the lock at the Miami River to the city there is a descent in the canal of 7/100 to the mile.

DISCOVERY OF A CANAL TUNNEL

by Hugh Fuller

While travelling along U.S. Hwy. 50 in the vicinity of Cleves, Ohio, my good friend John Clark and myself had often talked about the existence of a canal tunnel through the hill separating Cleves from North Bend. At the time, John and I were more interested in railroads than canals. John told me that he had read in a very well researched (not quite as it turned out) and popular book entitled *The Railroad and the City* by C.W. Condit that the canal tunnel had been open-cut by the Indianapolis and Cincinnati Railroad Company when they bought out the canal company. As John and I became more interested in canals, our curiosity about the Cincinnati and Whitewater Canal increased. One day, on one of our occasional visits to the Cincinnati Historical Society Library, John culled from the card catalogue titles relating to the canal. He showed me a booklet by F.W. Treverrow which had a sectional plan of the tunnel and some information, including a statement that the tunnel still existed under the hill.

Written by a library vandal next to this line in the booklet were the words "*It is still there, I have seen it!*". This I showed to John, and there was no doubt in our minds about what we had to do next. We jumped in the car and drove out to the hill between Cleves and North Bend to find the tunnel. We were bothered by what was written in *The Railroad and the City*, though.

Combining the information we had at this point, we began our search along the existing Conrail track (successor company to the I&C Railroad). No luck. We walked along both sides of the hill west of the railroad. We went into Cleves to see if we could find anyone with information.

At the town hall, a caretaker and his wife live in the back. We asked this patient lady if she knew of the tunnel. She said she had heard of it but didn't know where it was. However, she did have a pamphlet celebrating the sesquicentennial of Cleves which had a photograph of the tunnel and no other information. That just whet our appetites. However, we had run out of time and had to leave until another day.

Perhaps a week later, I went driving around the area of Cleves while on a country drive. Along Miami Avenue in Cleves on a hill stands a small house with eaves so long it must have been a railroad depot, we decided. But I thought the hill was too steep for a train and that it must have been moved. Anyway, who cared, it wasn't a canal or better yet a canal tunnel.

Again, John and I made a trip to the Ohio Historical Society Library, but this time we were intent on finding an exact description of where the tunnel was. In this quest we were quite successful, because we found a pamphlet on the history of North Bend called *It Happened 'Round North Bend* by M.B. Burress.

In this, we found the information that the tunnel was behind a depot. Naturally, we jumped in the car and went screaming out to Cleves to the old train station next U.S. Hwy. 50, the only train station we knew of. This station had been converted to a store, and it used to serve the railroad owned by Conrail.

John and I searched for hours all around this station and found nothing. We were thoroughly fed up. On the way home, we drove past the little depot on the hill, and I remarked dejectedly to John, "The tunnel could just as easily be down in that hollow (behind the little depot) as anywhere else.", and we continued unwittingly on our way.

Sometime during the next week, I was reading over the description of the tunnel location, and I noticed that the depot it was talking about was for an interurban trolley. Ever so slowly it began to dawn on me. The station we went to was for a train. The depot we should have been at was for a trolley!

Trolley cars can climb hills, unlike trains. Therefore, the depot on the hill had never been moved at all. It had actually served trolley cars.

The hollow behind the depot was the location of the tunnel! It had to be! I called John right away. Again, we jumped in the car and flew out to Cleves, We ran down the hill, and there it was!

We couldn't believe our good fortune. After all the trips to the library and to Cleves, we had found a remarkable feat of civil engineering that even very learned people think no longer exists.

However, all that one can still see of the tunnel is the top third of the portal. The other portion is covered in mud and silt. One can still enter the tunnel, but you very nearly have to crawl in mud and water as it is now only three feet high. It would probably be unsafe to venture into the tunnel.

I feel that at the least, what needs to be done now is to erect a historical marker and at best, uncover a portion of the tunnel and create a small park around it.

Editors' Note;

Considerable thought and debate went into the decision to publish the above article by Hugh Fuller, and whether to accompany it with a map or specific instructions for finding the North Bend Tunnel. The problem here has nothing to do with the quality or interest of the article itself. (It is well written, good reading, and gives some good insights on what "canaling" means to many of us.) Here is the question: "How might publication of a map or directions affect the fate of the tunnel?"

We know that the people of the Cleves/North Bend area have a right to feel a bit uneasy about the continued existence of a 140-year-old brick tunnel of unknown but doubtful safety in their town. If the existence of the tunnel and easy directions for finding it were published, would they suddenly find themselves with a dangerous tourist attraction on their hands? The next question, we fear, would be whether to use dynamite or bulldozers in ensuring that no unfortunate accidents occur.

On the other hand, if no mention is made of its existence, the tunnel will either be forgotten and slowly covered up by the forces of erosion, or eventually destroyed to make room for something. Or, in the words of one of our members: "In my County, they'd waste no time in blowing it to hell."

We don't want that to happen, but we think it's worth the chance. We have written to the Canal Society of Ohio, and some of them knew of the tunnel and had seen it; others were surprised to learn that any trace still exists. We suggested that the first thing to do would be to place a strong fence around the tunnel entrance to discourage would-be explorers, and then to call a lot of attention to it in order to try to raise money to dig the North Portal out and otherwise make it presentable-looking. The first stage should come about as quietly as possible,

because a lot of publicity, without the fence, will probably result in the tunnel being blown to hell instead of being preserved and enjoyed.

Terry Woods, the President of the Canal Society of Ohio, has been most encouraging and has got some of their people trying to find the name of the property owner and also the general feeling around Cleves as regards the tunnel. We'll try to keep you posted on this, but if you have any specific inquiries or suggestions or if you are, or know of, a generous fencing dealer in the southeast Indiana/southwest Ohio region, please write:

Terry K. Woods, President
CANAL SOCIETY OF OHIO
6939 Eastham Circle
Canton, Ohio 44708



PHOTOGRAPH: THOMAS MEEK

Looking more like a stone culvert than a canal tunnel, the Harrison Tunnel lies half-buried in silt and hidden by weeds and brush.



PHOTOGRAPH: THOMAS MEEK

The fine stonework used in the Portal is shown in this picture. The figure at right (C.S.I. member Paul Baudendistel) gives an idea of the large size of the arch.



Hinge-pins for doors? Finger points out top of iron piece which has been leaded into the stonework. There are two of these on each side of the opening and others may be buried in silt.



A look inside, showing the brick arch, which begins a few feet from the entrance, where the stonework of the Portal Facade ends.

READER INFORMATION

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