WELLAND CANAL VITAL "LINK" IN ST. LAWRENCE SEAWAY

PROFILE VIEW

(Concluded on Page Eight)

Reynolds Metals’ Grant to Permit Publication of American Canal Guide

A grant of $1,000 from the Reynolds Metals Company of Flinchmond, Virginia will permit the American Canal Society to proceed with the publication of Part Three of the American Canal Guide. This section, which covers all the canals along the lower Mississippi and on the Gulf of Mexico, is a comparatively lengthy one of about 22 pages. The American Canal Guide continues under the general editorship of William E. Trout, III, PhD., one of the world authorities on canals.

The grant from Reynolds Metals is typical of the cooperation it has given to canal restoration and other worthy projects in the Richmond area and elsewhere. The American Canal Society is very grateful for the generosity of this public-minded corporation.

It is anticipated that each American Canal Society member will be provided with part three of the American Canal Guide. Copies will also be available for general sale to the public.

American Canals, No. 30 – August 1979

Page One
American Canals

"DEDICATED TO HISTORIC CANAL RESEARCH, PRESERVATION AND PRESERVATION"

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 82.00

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Editor's Column

It hardly seems possible that thirty issues of American Canals have come and gone. Though this does not necessarily call for a celebration, it does cause me to reflect briefly on the nearly eight years which have gone by since the first edition.

The United Kingdom has had for many years a concern for the preservation of its national industrial monuments. The Inland Waterways Association and the Waterways Recovery Group have had a major role in achieving an understanding of the study, preservation and use of the historic waterways of the U.K. Moreover, there is an official arm of the government, The British Waterways Board, which has national control of the maintenance and restoration of many of the waterways of the U.K.

Until the formation of the American Canal Society in 1972, the United States and Canada had no national organization interested in historic canals of North America. While attending functions of individual canal organizations I noted that some were fighting for the preservation of individual monuments that were less important (from an engineering, architectural, and historical point of view) than others. Some individuals had a broader outlook than the individual canal or canal structure, but there was no place where they could channel their interest and activity. At the time, Canada had no canal organizations, though there was an interest in the historic canals by the provincial historical societies.

I began correspondence with Bill Trout and Bill Shank in 1971 about the formation of an international canal organization which would provide a clearing house for the study of canals. This resulted in the American Canal Society (Canada (and the rest of the Western Hemisphere) was included because of the absence of other national canal organizations.

Earl Minderman, Maryland Canal Artist, poses with several of his paintings of Chesapeake and Ohio Canal operations. In the foreground are several canal boats locking through the highest lock on the series of locks by-seeing the canals at Great Falls. Here the old canal hotel, now preserved by the National Park Service as a canal museum, is shown behind the lock.

A most intriguing way to view old canals is through the eye of the artist. A large number of canal artists have had the good fortune to view the water color paintings of old scenes of the 1845-mile-long Chesapeake and Ohio Canal through the public exhibition of landscape artist Earl Minderman (A.G.C.) of Bethesda, Maryland. His exhibition closed last week at the Georgetown (D.C.) Canal Visitors Center sponsored by the National Park Service, and his exhibition at the Georgetown University Hospital in June of this year, drew many thousands of visitors. The exhibition was entitled "Views and Vistas: Today and Yesterday on the Chesapeake and Ohio Canal." The collection contained paintings done by Mr. Minderman over a period of some 35 years. Each painting is accompanied by a detailed caption, making the work both historically and artistically interesting.

Before turning his full time to painting, Earl Minderman was a newspaperman, a government information officer, and a general communications consultant. His address is 3510 Jamestown Road, Bethesda, MD 20816.

We discovered that no one really knew how many canals we had, or the relative physical condition or importance of their respective structures. We began a study into these matters, which continues, but it has been a difficult task operating on a volunteer basis, in spite of the high quality of the individuals who have cooperated in these efforts. There just doesn't seem to be a practical way to match government funds with small, national organizations like ours. We tried to get a federal agency to support $2500 of our budget but they estimated we would need $4000 to do the work. We couldn't even get $2500.

It was therefore with much appreciation that we received a recent grant of $1,000 from Reynolds Metals Company of Richmond, Va. Virginia so that we could proceed with Part Three of the American Canal Guide. Reynolds Metals realizes that it's good public relations to support the preservation of the U.S. Government could learn a lesson from industries such as Reynolds Metals.

Canal restoration civicizes have improved in Canada recently with the transfer of many of the historic canals to Parks Canada, under the Department of Northern and Indian Affairs. In Parks Canada we see good research being done by capable people, followed by good examples of canal restoration. In some of the U.S. States (usually under the conservation of environmental resource departments) such as South Carolina (the Landstil Canal) and Illinois (the Illinois and Michigan Canal) we see good examples of careful canal research and restoration. One would expect the same kind of technical leadership on the part of the U.S. Federal Government, but this is often not the case. One would expect to walk into any national park and be met with the highest kind of professional in keeping with the nature of the park. Where are the historians, archeologists, and naturalists that were assigned to the parks many years ago? Where are the industrial archaeologists who could help the busy park manager and his superiors in prudent, historically authentic, and sensitive preservation decisions?

Perhaps with the publication of American Canals #50 all this will have changed. In the meantime, let's all hang in there and accomplish what we can with the means at our disposal.

Tom Hahn

(Twenty-five States)

AMERICAN CANALS, NO. 30 – August 1979

PRESIDENT'S MESSAGE

As we go to press, we are pleased to report that the response to our Welland Canal Tour indicates that this will be the best-attended meeting of the American Canal Society since its formation in 1972. We are particularly pleased at hearing from so many members of the Marine Historical Society of Detroit, co-sponsors of this event, both in the United States and Canada.

I am sure all of us are sick to death of the gloomy predictions emanating from Washington these days and are ready for a weekend of optimism and good fellowship with our associates in Canada. We are particularly indebted to Lou Cahill, our Canadian Director; Colin Duquemin of the St. Catherine's Historical Society; and Dave Glick of the Marine Historical Society of Detroit for all the work they have done to make this event an unparalleled success! I look forward to greeting many of you in person the weekend of September 14-16 at the Holiday Inn, St. Catharines, Ontario.

Bill Shank
CANAL DEVELOPMENT IN EARLY AMERICA (Part 1)

by Richard G. Waugh, Jr.

Early in his life, and long before he became our first president, George Washington advocated building canals to connect the East with the interior regions of the United States as a means of expanding trade and settlement. Interest in canals preceded the American Revolution. It is known that small-scale canals existed in Ipswich, Massachusetts on the Chebacco River in 1635. In 1673, Louis Joliet explored the upper Mississippi River Basin and, in 1674, associated a canal that followed the route of the later Illinois and Michigan Canals. Proposals were made for a Cape Cod Canal in 1676. By 1850, William Penn proposed a canal to connect the Schuylkill and Delaware Rivers with the Susquehanna River in Pennsylvania. In 1716, Governor Spotswood of Virginia suggested a canal connecting the Ohio and James Rivers. Ben Franklin advised the Mayor of Philadelphia, in 1772, that a canal connecting the Schuylkill and Susquehanna Rivers would have advantages over river navigation. Canals on the Mohawk and Hudson Rivers in New York were proposed by governor Henry Moore of New York in 1768 and by George Washington in 1784.

In the 1750s, a number of major early canals were started. It has been said by many that canal construction provided the first practical school of civil engineering in this country. To overcome such problems as severe and long grades, waterway crossings, and water shortages, many ingenious and monumental engineering works were devised. Remarkable feats were accomplished with locks, inclined planes, and aqueducts and tunnels. Several of the major works are discussed in this article.

EARLY CANALS 1786-1808

At the age of nineteen, George Washington was already an experienced surveyor and a large landowner. For his participation and leadership in the French and Indian War, Washington was granted 30,000 acres of land, much of it in the Ohio and Kanawha River Valleys. Washington eventually acquired about 30,000 acres along the waters of the Ohio and Kanawha Rivers. It was to his financial interest to provide a water connection between these rivers and the seaboard. In the 1750s, Washington surveyed the route of a Chesapeake and Ohio Canal on the Potomac River and in 1763, he inspected the route of the proposed Dismal Swamp Canal. In 1770, 1772, and 1774, he inspected the route of the proposed James River and Kanawha River Canal.

Washington promoted the charters of private companies to open the first major canals in the United States. In 1785, charters were granted to the James River Company and the "Patowmac Company" for canals on the James and Potomac Rivers. The following year, a charter was granted for the South and Cooper River Canal and, in 1787, a charter given to the Dismal Swamp Canal Company.

The first major canal construction began in 1786 on the James River and Potomac Canal, the forerunner of the Chesapeake and Ohio Canal. George Washington was the president of the company that funded the canal. Rather than construct a canal on this river system, this effort consisted of several short canals with locks to navigate around the several falls on the Potomac River from Georgetown to about 8 miles above Harpers Ferry. The next year, another enterprise in which Washington had an interest, the Dismal Swamp Canal, was initiated in construction. By 1808, the following canals were completed:

- Appomattox, Va.
- Bellefontaine, N. Y.
- Cape Fear, N. C.
- Canandaigua, La.
- Conewago, Pa.
- Dismal Swamp, Va.
- Middletown, Mass.
- Mohawk and Ontario, N. Y.
- Montague Falls, Mass.
- Patowmac, Va.
- Pawtucket Falls, Mass.
- Saratoga and Cooper, S. C.
- Schuylkill and Susquehanna, Pa.
- South Hadley Falls, Mass.
- Susquehanna, Md.

The total length of these canals was only about 115 miles. Canals of major importance in this period were the Dismal Swamp, the James River, the Middlesex, the Patowmac, the South and Cooper, and the Schuylkill and Susquehanna. The Dismal Swamp Canal was the largest at 27 miles and had the most locks (22), covering a total lift of 136 feet. The Dismal Swamp was 13 miles long and had 9 locks originally. These locks were the largest of the period, 100 feet long and 18 feet wide, as were three of the locks on the Potowmac Canal. The Saratoga and Cooper Canal was also 22 miles long and had 13 locks. The James, Potowmac, and Schuylkill and Susquehanna Canals were forerunners of more important later canals.

THE GALLATIN REPORT

In 1807, the United States Senate, in response to many obits for internal improvements, asked the secretary of the Treasury, Albert Gallatin, to study the matter. His report of 4 April 1808 on "Roads and Canals" contained his proposals for major canal improvements, including a series of great canals along the Atlantic Coast connecting New England with the South; connections between the Atlantic Ocean and Western waters; and connections between the Atlantic Ocean, the St. Lawrence River, and the Great Lakes. On the coastal route, Gallatin proposed canals across four regions of lands: (1) Barnstable in
Canal Development in Early America

(Continued from Page Three)

Massachusetts, New Jersey from the Hackensack River to the Delaware River, 3. The Connecticut, Delaware Bay, and the Chesapeake Bay, and (4) the Chesapeake Bay to Alexandria.

Next, Gallatin proposed the construction between the Atlantic Ocean and the Great Lakes via two canals, one connecting the Mohawk River in New York with Lake Champlain and the other connecting the Hudson River with Lake Champlain. Both these routes had been discussed at length previously and both soon became integral to the expansion of the canal system of the State of New York.

Finally, Gallatin proposed that four major navigable systems — the Mohawk-Ganatoca, the Mayflower, the Kennebec, and the Tennessee — be connected to the nearest Atlantic rivers by four roads. This was, then, the first proposal for a national system of integrated transportation.

Canal Construction 1796 - 1823

<table>
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<tr>
<th>Period</th>
<th>Mileage Built During Period</th>
<th>Total Mileage on Canal</th>
<th>Mileage Under Construction End of Period</th>
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<td>110.0</td>
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<tr>
<td>1800 - 1805</td>
<td>75.0</td>
<td>185.0</td>
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</tr>
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<td>384.0</td>
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</tr>
<tr>
<td>1816 - 1821</td>
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<td>574.0</td>
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</tr>
<tr>
<td>1821 - 1826</td>
<td>185.0</td>
<td>759.0</td>
<td>525.0</td>
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<tr>
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<td>1,769.0</td>
<td>100.0</td>
</tr>
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</table>

Of no little importance to the early national interest in canals is the value of their in time of war. Joshua G ePub, writing to Gallatin, as a director of the Chesapeake and Delaware Canal Company on 4 January 1808 stated:

"It should beg leave to mention one object more which makes the canal of great and increasing importance, that is, as a military work during the revolutionary war this importance was somewhat less, as it must again in any hostile contest with any other nation... The chief, and indeed, the only safe conveyance for (the Army) was by the route I have mentioned, where it is important to consider that the want of provisions would altogether shut the roads on such day and reduced the army to great distress. Those delays were, also, severe any march of the army toward Yorktown, particularly on that to Yorktown, and must be again felt in similar circumstances."

The Delaware's, in his opinion, "it must not be omitted that the facility of communications constitutes, particularly in the United States, an important branch of national defense. Their existence forms an obstacle to the progress of an enemy; and, on the other hand, the number of regular forces which may be raised, necessarily limited by the population will, for many years, be considerable when compared with that extent of territory. It is quite a different case in the Delaware.

Manayunk Canal in 1797

Our last issue mentioned the restoration work being done on the Manayunk Canal along the Schuylkill above Philadelphia. This article prompted Bill Eichberger, of Lebanon, Pa., to visit the area and make this photo of the cleared-out channel of the Manayunk Canal, now partially re-watered. For history and photos of the Manayunk Canal during its operating days in the early 1900's, see issue Number 46 of CANAL CURRENTS, quarterly publication of the Pennsylvania Canal Society.

AMERICAN CANALS, NO. 30 - August 1979
AVEC THOMAS JEFFERSON SUR LE CANAL DU MIDI!

by William E. Trout III

"There is nothing in France as well worth your seeing as the canal and country of Languedoc, and the country which takes the Bonoire," wrote Jefferson to a friend 200 years ago (Boyd, The Papers of Thomas Jefferson, vol. 14, p. 702). Jefferson was a canal enthusiast, and the Canal of Languedoc -- also known as the Canal Royal or Canal des Deux Mers, and the Canal du Midi -- was one of the first modern canals and one of the greatest public works of the engineering wonders of the world. Already a century old, it had been completed in 1681 to link the Mediterranean with the Atlantic, across southern France. In 1794, the French Duchy of Bridgewater had travelled its length and had gone on to begin England's Canal Era. And now, Jefferson, in France in 1789 as U.S. Ambassador, realized that the canal could also become an inspiration to the Americans. "I propose," he wrote, "to make a tour into the South of France, as far as the Canal of Languedoc which I have a great desire to examine minutely as at some future time it may enable me to give information thereon to such of our states as are engaged in works of that kind." (Boyd, 10:365).

Jefferson took his canal trip in May, 1787, a leisurely eight-day, 150-mile voyage from Castel to the Mediterranean, to Toulouse at the head of the river navigation to the Atlantic, plus 40 miles by horse travel to the mountains to see the extraordinary network of feeder canals and dams, and the tunnel, which supplied water to the summit. With typical Jeffersonian attention to detail, he describes his voyage a Great Adventure by placing his glassed-in carriage (his phaeton, brought from America), on a 28-foot barn, and it towed along the canal. His letter written on board his carriage, "Approaching Toulouse" (reproduced by the Memesaires Gift Shop), tells the story: "I have passed through six hours' passage into the Mediterranean at Castel to this place, & shall be immediately at Toulouse, in the whole 200 American miles, by water, having employed in examining all its details nine days, one of which was spent in making a tour of 40 miles on horseback, among the Montagnes noires, to see the manner in which water has been conducted to supply the canal, the other eight on the canal itself. I dismounted my carriage from it's wheels, placed it on the deck of a light boat, and was thus towed on the canal instead of the post road. That I might be perfectly master of all the delays necessary, I hired a boat for myself by the day, & have made from 20 to 35 miles a day, according to circumstances, always sleeping aboard. All of the methods of travelling I have ever tried this is the pleasantest. I walk the greater part of the way along the banks of the canal, level & lined with a double row of trees which furnish shade. When fatigued I take seat in my carriage where as much at ease as in it. I study, read, write, or observe, my carriage being of glass all round, admits a full view of all the varying scenes thro' which I am shifted: corn, rice, melon, vine, fields, forests, villages, & farms. I have had some days of superlative weather, enjoying two parts of the Indus or woods, cloudless skies & limpid waters. I have had another luxury that he could not wish, since we have driven them from the country of Mocking birds, a double row of nightingales along the banks of the canal, in full song." (Boyd, 10:371).

Jefferson sent a report to President Washington (a fellow canal enthusiast), who thanked him for the information and said it would be of all theoretical interest. "When America will be able to embark in projects of such curricular extent, I know not," he replied, "but probably not for many years to come," for in 1788 America was still in the infancy stage of transportation development and Washington's canal companies were doing well by merely clearing obstructions from the James and Potomac rivers.

Unfortunately for us, Jefferson's report is primarily a translation of a seven-page mileage chart and historical summary, made up for him by Mr. Peale, a canal office in Toulouse; there are few personal comments about the canal and its engineering, so we can only dream that he had a separate engineering notebook which has not been rediscovered. But in compensation there is a golden Jeffersonian nugget in Jefferson's notes, reproduced by Boyd on p. 449 of Volume 11: a sketch of a sluice gate, perhaps Jefferson's own invention, which he proposed to the authorities of the Canal du Midi. "The small gates of the locks of this canal have six square pieces [français levé] of surface. They tied the machinery of the jack for opening them. They were more easily opened, but very subject to be damaged, however strongly made. They were therefore turned to the original wooden screw, which is excessively slow and laborious. I calculate that 5 minutes are lost at every passage by this screw, which on the whole number of booons is one eighth of the time necessary to navigate the canal; and of course, if a method of lifting the gate at one stroke could be found, it would reduce the passage from 8 to 7 days, and the freight equally. I suggested to Monier. Pin and others a quadrantal gate turning on a pivot, and lifted by a lever like a pump handle, aided by a windlass and cord. If necessary, he will try it and inform me of the success." (Boyd, 11:449). Evidently nothing came of Jefferson's suggestion because some of the sluice gates are still operated by a tedious and time-consuming screw, although now of metal. One wonders if the design is practical. Did he see it in use in Italy, which he had just visited? A somewhat similar mechanism is now used successfully on the Leeds & Liverpool Canal in England, but there the lever lifts up a sliding gate.

Another nugget was discovered in the microfilm Library of Congress papers of Thomas Jefferson, on the back of a letter sent to him dated April 24, 1786. Evidently Jefferson used the blank side to show someone how a lock works, just as we do today, by showing boats at different water levels. A little figure shows the sketch of a two-lock staircase, a common sight on the Canal du Midi. Does this reflect a special interest in staircase locks, and did it influence American canal technology? There are also other rough plans of staircase locks amongst his architectural drawings, and we know he had a hand in the construction of the three-lock staircase which the Rivanna Navigation Company built in his mill canal at Monticello, in the 1810's. In his papers is a list of materials for this staircase, and measurements which he made in 1817. Did he have anything to do with, for example, the large number of two-lock staircases in South Carolina?

What was Jefferson's influence on the Canal Era in America? Did he introduce or invent any canal technology, or affect the progress of canal development? Jefferson himself, when taking stock of his early accomplishments, headed the list with his pioneering work in the 1760's to improve the Rivanna River for navigation -- his Declaration of Independence was only second on the list! One of his inventions was a dry dock lock designed to keep ships in good condition between wars, ready for instant use -- an idea from his visit to Venice. He kept a model (where is it now?) in the Presidential mansion to show to congressmen but the idea was never taken up. (see Thomas Jefferson, Scientist, by H. Schuman). Also while President, it was his Secretary of the Treasury, Alexander Gallatin, who prepared the famous 1808 REPORT ON PUBLIC ROADS AND CANALS which outlined plans for a national transportation network; David McCulloch, in THE PATH BETWEEN THE SEAS, speculate that while Alexander von Humboldt was

(Concluded on Page Seven)
Hotel Boats on English Canals
by Grace Elliott

Hotel boats on the English Canals and Rivers have really not had the coverage in American Canals that they deserve. There are many of us wishing a boating holiday but unwilling or unable to make the multipurpose packages of the shopping logistics of a hire boat. A holiday for us is a canal trip with all the enjoyment and none of the headaches and responsibilities of emergencies. The lock-keeping is an optional basis.

For travel on the narrow canals there is nothing like a pair of hotel boats. These are usually working boats equipped with all the conveniences of a hotel and with the advantage of a changing weekly route. There are several hotel boats currently operating. The pair is necessary - the motor and the butty.

A different kind of hotel boat does operate on the Trent, a boat that we have sampled these holidays and have found them also very satisfactory.

Two years ago we cruised for a week with the Trent Valley Cruising Hotel. This is a boat built to order for wide locks. Most cruises are from Burton-on-Trent, or to London from the Trent or back to Burton. Early in the summer it is a pleasure cruise to Boston for tuptime. These cruises cover the Fosse Dyke Navigation (originally Roman but with various names), the Trent, Whitemoor, and the wide lock end of the Trent and Marysey Canal. The Trent River is the wide lock portion of the Grand Union Canal.

The boat was called Lincoln to Burton. With low water we left Lincoln in the afternoon and cruised several hours. It was necessary to lock at Totley Lock at high tide on the next day because the lock operated only at high water. We moored for meals and it was always possible to have a good meal at the locks. The view was extremely interesting - Newark, Swarkestone and Shardlow stand out in my memory. Food is delicious, mooring points well chosen, locks and companionship the thing.

Last year we reserved two cruises on the Thomas of Cirencester. In our case it was Oxford to Reading, and Windsor. This was with River Barge Holidays Ltd. It was a delightful time. We moored for meals but only cruised half the day. The other half day we toured by mini-bus the villages and interesting scenes nearby. One of the crew acted as tour guide. It was a nice change of pace as it combined the best of both worlds.

While it is possible to take just one cruise in either direction, the 24-hour plus time between cruises is ample time to explore the area and the narrow barge and to cover the Kennet and Avon canal. We walked the flight at Devizes and were impressed by the restoration being done. We also stopped at Avebury even though the bus service was not 'on steam'.

On the boat the accommodations are more than adequate. Cabins are more spacious than on narrow boats. All cabins have heat and cold running water. On the boats there is an open bar with a bar bill presented at the end of the cruise to who do indulge.

In both cases we were reluctant for our cruise to end. We had had a good trip. We had seen interesting places and had met interesting people. We would like to go back and do it again.

And if you would like to take advantage of a hotel boat the addresses for these cruises are: Trent Valley Cruising Hotel, 41 Hornbrook, Burton-on-Trent, Staffordshire, England; and River Barge Holidays Ltd., 122a Castle Street, Reading, Berkshire, England. The narrow boat hotel that would recommend is Inland Cruising Co., Ltd., Brauron, Marine, Davenoy, Normandy.

(A grate Elliott, ACS, 300 Ohioville Rd., New Paltz, N.Y. 12561 is active in the Delaware and Hudson Canal Historical Society.)

Alexandria Canal Archeology

Vivienne Mitchell of the Alexandria Archeological Commission at work on the excavation of the wall of the Tidewater Canal.

The Alexandria Canal, which was in operation between 1843 and 1886, connected Alexandria, Virginia with the Chesapeake and Ohio Canal at Georgetown, D.C. When completed in 1843, the canal was approximately seven miles long. It crossed the Potomac on an aqueduct bridge over 1,600 feet long from Georgetown, D.C., and Rosslyn, Virginia, then ran on level land to Alexandria, crossing Four Mile Run on a smaller aqueduct bridge, and reaching the Potomac River in Alexandria by means of four locks.

Recognizing the importance of this canal to the history of Potomac River navigation, the Alexandria Archeological Commission has submitted the necessary information to the Virginia Landmarks Commission to request nomination of the canal for National Register of Historic Places.

In the fall of 1978, Alexandria City archaeologists cut trenches through the rubble across the area of the Alexandria and Lee Clock Factory, a site used by the government in the planning of the Stonewall Jackson tower. The name of the site now known as the Stonewall Jackson Tower is the former name of the Alexandria Canal.

A backhoe trench was placed in the supposed area of the tidewater canal. The backhoe uncovered the north wall at about 85 feet below the surface. Hand excavations extended the trench to the south, and the south wall was also found. The walls of the holding basin were found about two meters below the surface.

The basin and lock walls were found to be made of cut granite stone and the lock mechanism itself was of wood. The basin walls consisted of a lining of large cut granite blocks which were dry laid with stone rubble of varying sizes behind it. The lock walls were made of large granite blocks set in mortar, smooth dressed on the lock's interior and rough on the exterior.

The work of the archaeological excavation was done under the direction of Patricia Cussey, Alexandria's City Archaeologist, and staff members, Terry Klein and Paul Davidson. They were aided by Herman Becker, Canal Archeologist, as well as volunteers from volunteering organizations. (This item was submitted by Vivienne Mitchell (ACS), 625 Pomeroy Walk, Alexandria, VA 22314.)

A Footnote to "Champlain to Chesapeake" by Alexander C. Brown

I should like to add my own endorsement of ACS Director Bill McKelvey's recently published book, "Champlain to Chesapeake: A Canal Era Pictoral Guide," which appeared in the National Geographic Society Bulletin (No. 29) by Eben H. Scheib. However, I beg Bill McKelvey's indulgence to be permitted to point out a minor error.

In the name "Champlain to Chesapeake," a double name giving its respective terminals would be equally descriptive no matter which name was used first. However, undoubtedly there would be cartographic errors. For example, we should see in print something like the Ritan and Delaware Canal (Penn the thought!). Take that, Artillery. Captain Edward Thomas Schell, a shipwrecker with a noble disability for reversing the name of the time honored Albermarlite and Chesapeake. You believe, Colonel William Byrd II,quire of Westover, Virginia, who recognized the potential usefulness of connecting Chesapeake Bay and Albemarle Sound as early as 1729, and the enterprising Virginia colonial assembly of 1772 actually passed an act for the opening of a canal from the head of the sound to the head of the North [Landing] River. The two projected alternate routes leading respectively from Great Bridge and Princess Anne were not as far apart as the plans attest. Steam dredges had to be invented, however, before excavating through a prismatic swamp forest at sea level could be considered out and, meanwhile, the rival Dismal Swamp Canal connecting the same major bodies of water could not proceed with ease. Providing the required labor, the limitations of the Dismal Swamp's narrow, lock, canal became all too obvious as traffic increased, so the way was found for the most of us to connect Albemarle and Chesapeake Canal at sea level, opened January 9, 1939, with its remarkable reversible head lock, then second only in size to the Sault Ste. Marie. It still provides, dating from 1932, the only large reversible head lock in the United States. (Alexander C. Brown, ACS, 232 James River Drive, Newport News, VA 23601.)

Alec Brown's book, Juniper Waterway: A History of the Albermarle and Chesapeake Canal, has recently been published by the University of Virginia Press under the joint sponsorship of the Mariners Museum of Newport News and the Norfolk County Historical Society of Chesapeake, Virginia. (continued on page 10)
visiting Jefferson, they must have talked about future canals across the isthmus of Panama.рага a logical canal of the Panamanian). Jefferson's library is also known to have had at least eight books on canals— one of which I own—proposing a wooden flume linking New York and Philadelphia. It must have been fact rather than his experience with canals which prompted him to say to the author, 'It is not in my power to give the Flore of its national importance.' Someday scholars will investigate Jefferson's role in the American canal era, and will perhaps discover that we have been affected in some small way by Jefferson's voyage along the Canal du Midi two hundred years ago.

My own trip along the canal and into the mountains was on a bicycle rented in Toulouse (Locauto, 53, Rue Matablou, 31000 Toulouse) sleeping in hotels and on the canal bank, and returning from Sète via France's thriving railway system. The canals, ranging throughout the country, are often combined with early nineteenth-century aqueducts and post and beam bridges. The original route of the Toulouse canal was through the northern part of the Pyrenees, but today it follows the main railway line through the mountains. The canal is a popular route for cyclists, and there are many side trails and short cuts to take.

In Toulouse, be sure to follow the canal from the station down to the canal locks, then through the park to the canal locks at the railway bridge. This is a great place to walk or bicycle along the canal. The canal runs through the city and is a great place to relax and enjoy the scenery.

The Canal Museum at Toulouse is a great place to learn more about the history of the canal and its importance to the city. It is located on the east side of the city and is easily accessible by public transportation. The museum is open every day from 10:00 am to 6:00 pm, and admission is free. The museum has a large collection of photographs, models, and documents that provide insight into the history of the canal. It is a great place to learn about the canal and its impact on the city.

Newspaper references to the canal are almost as old as the canal itself. The canals were instrumental in the growth of the French Republic, and the canals were a symbol of the nation's progress. The canals were also important in the development of the French economy, and the canals were a source of revenue for the government. The canals were also important in the development of French culture, and the canals were a popular place for artists and writers to go to be inspired.

The Lachine Canal

The Lachine Canal was originally constructed during the late 18th and 19th centuries. It was used primarily for commercial shipping and played a substantial role in the growth of Eastern Canada. In 1993, the Lachine Canal became a National Historic Site. The importance of the canal diminished during the 1940s when the area served became the largest industrial centre in Canada. Ironically, the canal's demise followed shortly afterwards. In 1999, the St. Lawrence Seaway opened and the Lachine Canal was closed and became literally abandoned.

After 15 years of virtual inactivity, the canal began to attract attention from a variety of agencies, citizen groups and committees. Subsequent investigations concluded that the canal's value to the nation was worth of preservation and the area exhibited potential for the development of recreational facilities. Ultimately, on the recommendation of a Federal Interdepartmental Committee, the Lachine Canal became part of Parks Canada's system of Heritage Canals.

Within the Lachine's urban industrial setting, Parks Canada, in concert with other public and private organizations, is undertaking to conserve and develop the historic waterway. Restoration projects will focus on existing canal resources, specifically locks, retaining walls and historic bridges. Public access will be improved by constructing walkways to connect neighboring residential communities and to the regional bikeway network. Other proposed developments include picnic and leisure areas, essentially to serve the 350,000 people residing within one mile of the canal, and recreation centres for welcoming and orienting visitors to the area.

(Provided by Parks Canada)
Welland Canal Vital "Link" in St. Lawrence Seaway

(Concluded from Page One)

wider and deepened to match the Beauharnois Canal and, by the middle of the nineteenth century, the principal natural obstacles to transportation on the St. Lawrence had all been surmounted by man-made waterways.

Efforts to bypass the falls at Niagara had gone on concurrently with the work on the St. Lawrence, and the first Welland Canal, begun by William Hamilton Merritt in 1824, was opened in 1829. The canal, 274 miles (44 km) in length, contained forty wooden locks measuring 110 feet (33.5 m) in length, 22 feet (6.7 m) in width and 8 feet (2.4 m) in depth. The original depth was increased to 9 feet (2.7 m) by 1850, with the construction of the second Welland Canal and the number of locks reduced to twenty-seven, each built of cut stone and with a length of 150 feet (45.7 m) and a width of 26½ feet (8.1 m). In 1855, when the State of Michigan completed a canal around the Sable Falls at Sault Ste. Marie, a navigable waterway with a minimum depth of 9 feet (2.7 m) was available from the Atlantic Ocean to Lake Superior.

The report of the Royal Commission on Canals in 1871 recommended a deeper draft system with locks for all locks on the St. Lawrence and Welland sections and directed the Federal Government to embark once again on a canal building program. The new locks opened in 1883 on the Lachine Canal were 200 feet (60.9 m) in length and 45 feet (13.7 m) in width and these dimensions became the standard for the waterway as a whole.

The third Welland Canal was begun in 1873 and finished in 1897. It consisted of twenty-six stone locks of the same size as those built on the Lachine Canal at about the same time and it had a depth of 14 feet (4.3 m). When the river section was completed in 1964, a second St. Lawrence-Canal Link system had been put into operation, providing a channel with a minimum depth of 14 feet (4.3 m) from Montreal to the Lakeshore. The new locks were 220 feet (67.1 m) in length and 50 feet (15.2 m) wide.

The opening of the fourth Welland Canal produced a waterway which was unbalanced in the same that ships built to take full advantage of the new canal dimensions were cut off from the Atlantic by the smaller canals in the St. Lawrence section.

Public interest in the construction of a deep waterway on the St. Lawrence was evident in both Canada and the United States before the turn of the century. Canada took the initiative in December 1915, when the Canadian Government passed an act to establish The St. Lawrence Seaway Authority for constructing, maintaining and operating, either wholly in Canada or in conjunction with the United States, a deep draft waterway between the Port of Montreal and Lake Erie.