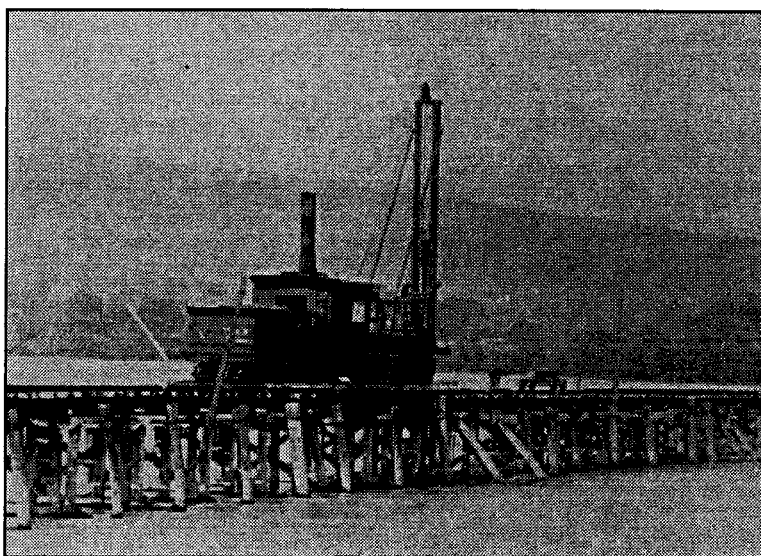


Ticonderoga's Floating Drawbridge; 1871-1920.



**Lake Champlain
Basin Program**

May 1995

Prepared by Peter Barranco, Jr.

for Lake Champlain Management Conference

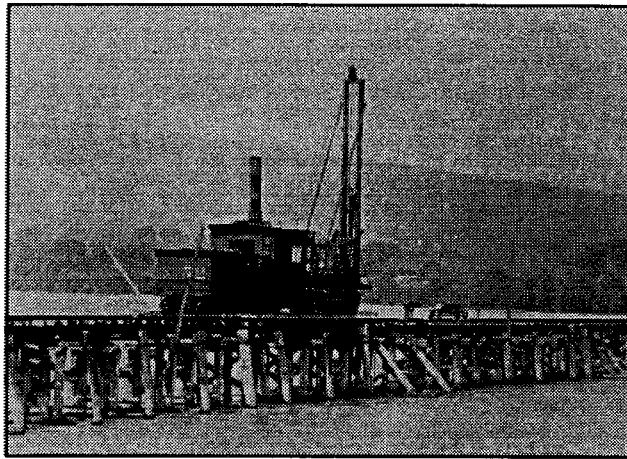
This demonstration report is the fourth in a series of reports prepared under the Lake Champlain Basin Program. Those in print are listed below.

Lake Champlain Basin Program Demonstration Reports

1. Case Study of the Town of Champlain, Yellow Wood Associates, October 1993.
2. (A) Demonstration of Local Economic/Other Community Impacts, Community Case Studies for Economic Plan Elements. The City of Vergennes, Vermont. Economic and Financial Consulting Associates, Inc. October 1993.
(B) Demonstration of Local Economic/Other Community Impacts. Community Case Studies for Economic Plan Elements. Appendix. The City of Vergennes, Vermont. Economic and Financial Consulting Associates, Inc. October 1993.
3. The Archeology of the Farm Project. Improving Cultural Resource Protection on Agricultural Lands: A Vermont Example. Jack Rossen. May 1994.
4. (A) The 1992 Fort Ticonderoga-Mount Independence Submerged Cultural Resource Survey. Executive Summary. Arthur Cohn. May 1995.
(B) The 1992 Mount Independence Phase One Underwater Archaeological Survey. Kevin Crisman. May 1995.
(C) The Great Bridge "From Ticonderoga to Independent Point". Arthur Cohn. May 1995
(D) Geophysical Reconnaissance in the Mount Independence Area: Larrabee's Point to Chipman Point. Patricia Manley, Roger Flood, Todd Hannahs. May 1995.
(E) Ticonderoga's Floating Drawbridge; 1871-1920. Peter Barranco, Jr. May, 1995.
(F) Bottom Morphology and Boundary Currents of Southern Lake Champlain. May 1995. Hollistir Hodson.

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Ticonderoga's Floating Drawbridge; 1871-1920.



Prepared by Peter Barranco, Jr.

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INTRODUCTION

In 1871, the Addison County Railroad crossed Lake Champlain from Larrabees Point, Shoreham, Vermont, to Willow Point, Ticonderoga, New York, on a wooden pile trestle and floating drawbridge. For fifty years this bridge linked the two states and played an important role in the mid-nineteenth century railroad expansion that united coastal New England with the Great Lakes.

This report recounts the story of this unusual drawbridge and its fifty years of service to rail transportation in the north country. It also describes the 1992 underwater survey that investigated this crossing and located the remains of two of the original drawboats that were used in this bridge.

TICONDEROGA'S FLOATING DRAWBRIDGE

1871-1920

I The Western Connection (1851): Bridging Lake Champlain

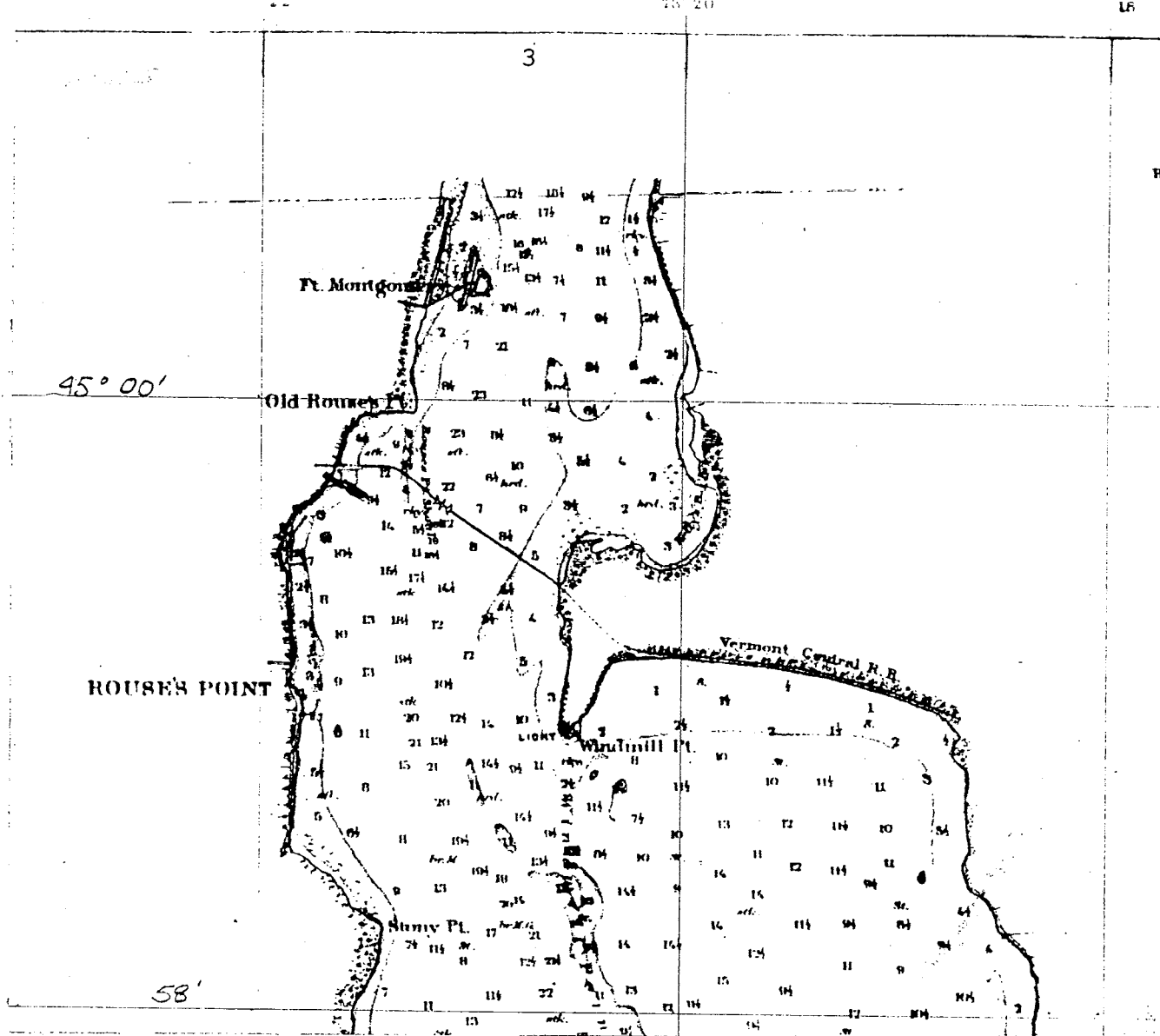
The final link in the highly sought railroad route between southern New England and the Great Lakes was completed on "Monday [September 1, 1851, when] for the first time in the history of the world, Lake Champlain was crossed by a train of cars." (1). The train passed over the recently completed mile long wooden trestle and drawbridge from Windmill Point, in Alburgh, Vermont, to Rouses Point, New York, at the outlet of the lake. A through route now existed from Boston to Ogdensburg, New York, on the St. Lawrence River, at the foot of navigation for the Great Lakes.

The construction of the bridge at Rouses Point connecting the Northern (later Ogdensburg & Lake Champlain) Railroad with the Vermont & Canada (later a part of the Vermont Central) Railroad was the culmination of over five years of heated opposition by navigation and some railroad interests, both in the United States and Canada. (2) The principal fears were that vessels could not freely pass and that the bridge would act as a dam and flood lands along the lake shore. (3)

The ease with which vessels could safely negotiate a drawbridge was convincingly demonstrated to Vermont Governor Paine and many members of Vermont's Legislature when they were taken for an excursion on the Steamer *Ethan Allen* in October, 1850, to the recently completed Vermont & Canada Railroad drawbridge across the mouth of Missisquoi Bay between Hog Island (in the town of Swanton) and East Alburgh, Vermont. It was observed that "The *Ethan Allen* passed and re-passed through the Draw easily and safely." (4) Since the Missisquoi Bay draw was only 70 feet wide, (5) the inference was that a much wider draw at the Rouses Point crossing would certainly not be a hindrance to navigation.

The Vermont legislature passed the Rouses Point bridge bill in November, 1850, by "granting the Vermont Central Railroad Co. the right to Bridge the lake at Rouses Point, after being so amended to give the Rutland and Burlington Railroads equal privileges in connecting with the Vt. and Canada Road, and authorizing the Rutland and Burlington to extend their Road to Swanton via St. Albans Bay." (6) However, it was not until July 1851, that the New York legislature gave its approval, and then only after requiring that a clear opening of 250 feet be provided for navigation, and the trestle be of the open pile construction so "as not materially to diminish the flow of water." (7) Lighting on the bridge at night, piling for vessels to tie up to free of charge and docking facilities were also provided for in the New York law.

Although the Missisquoi Bay bridge's narrow opening for vessels was fitted with a conventional lift type drawbridge, (8) the Rouses Point Bridge was equipped with a then unique floating drawbridge that could be swung open to let vessels pass. This "ingenious process" (9)



Lake chart of the Rouses Point area showing the Vermont Central trestle and center pivot drawbridge across Lake Champlain in 1879.



LAKE CHAMPLAIN

SHEET No.1

FROM ROUSE'S POINT TO CUMBERLAND HEAD

Scale 40000

1879

Aids to Navigation corrected to 1884

MAP A

and "novel and grand invention" was the brainchild of Henry R. Campbell (Chief Engineer of the Vermont & Canada Railroad), (10) and the Northern Railroad's counterpart, Col. Charles L. Schlatter. (11) It consisted of a 300 foot long (12) drawboat or barge fitted with a boiler and steam winch which operated "a system of chains...rigged through blocks that would allow the whole unit to be swung out at right angles in a couple of minutes".

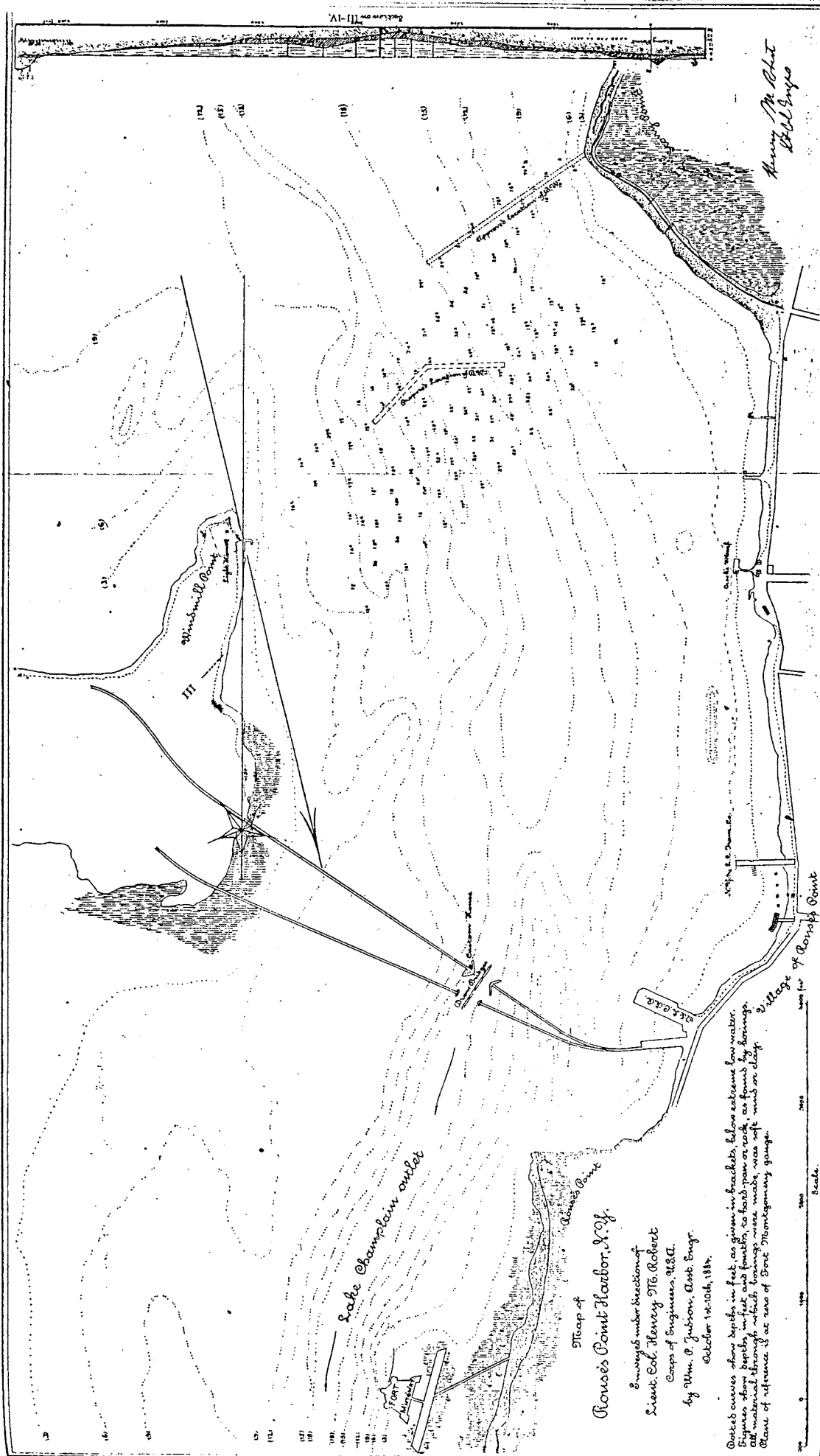
The barge with the track across it and three fifths of the trestle were built by the Vermont & Canada, the remainder by the Northern. The total structure cost \$60,000, of which \$20,000 went into the floating section and its equipment." (13)

The drawboat was launched in mid-July, 1851, (14) the trestle apparently having been completed in March of that year. (15) The disparity in width of the bridge opening (250 feet) and the length of the drawboat (300 feet) is explained as follows: "The boat being...fifty feet longer than the space between the ends of the piers - each end resting and being supported in the slips to be constructed within the piers - will remain firm in its place, and afford a permanent track." (16)

The Rouses Point floating drawbridge was apparently troublesome as it was only in service for seventeen years, being replaced by a center pivot swing bridge in April, 1868. (17) Although it cost more (\$30,000 vs \$20,000) and provided for a narrower opening (two 90 foot openings vs a single 250 foot opening) for navigation, (18) than the floating unit, it was apparently easier to operate. It also would not be subject to ice, lake level fluctuations, wind and other problems that would affect the floating draw. The Rouses Point-Windmill Point passage continued to be served by a center pivot drawbridge until the crossing was abandoned in the 1950's. (19)

In 1884, it was reported that "Rouses Point is to celebrate the 4th of July with a dynamite explosion, the blowing up of a large boat 300 x 50 feet, under the supervision of Capt. S. White, who attended the Hell Gate explosion." (20) The explosion apparently was not successful as a subsequent article says "Rouses Point is to have a celebration shortly, with the re-blowing up of a wreck in the harbor, which was a failure July 4." (21) Although the wreck is not shown, an 1884 survey by the Corps of Engineers provides a detailed plan of the harbor at that time. (Map B)

The wreck was not further identified, however, its size and location are certainly intriguing. Further research may shed more light on the event and satisfy the obvious speculation that the wreck (although it would have been abandoned for sixteen years), was the 1851 drawboat from the Rouses Point bridge. If so, it was a dramatic end for a craft that for seventeen years provided that early and vital link between east and west. It was not to be forgotten.



Survey of Rouses Point harbor showing two center pivot railroad drawbridges between Windmill Point and Rouses Point in 1884. The northerly bridge was never completed. (This survey by the U.S. Army, Corps of Engineers, was for the proposed Rouses Point breakwater.)

MAP B

II The Railroads Expand (1851-1871: Turmoil in the North Country

In the quarter century following completion of the Rouses Point bridge and opening of the Great Lakes region to eastern markets, the northeast was gripped with a steady and at times frantic expansion of the railroads to tap these new markets. This often resulted in bitter conflicts among rival railroads to seize control or short-circuit competing roads. This was the case in Vermont and northern New York where the chief protagonists were the Rutland & Burlington (later Rutland) and Vermont Central (later Central Vermont) Railroads.

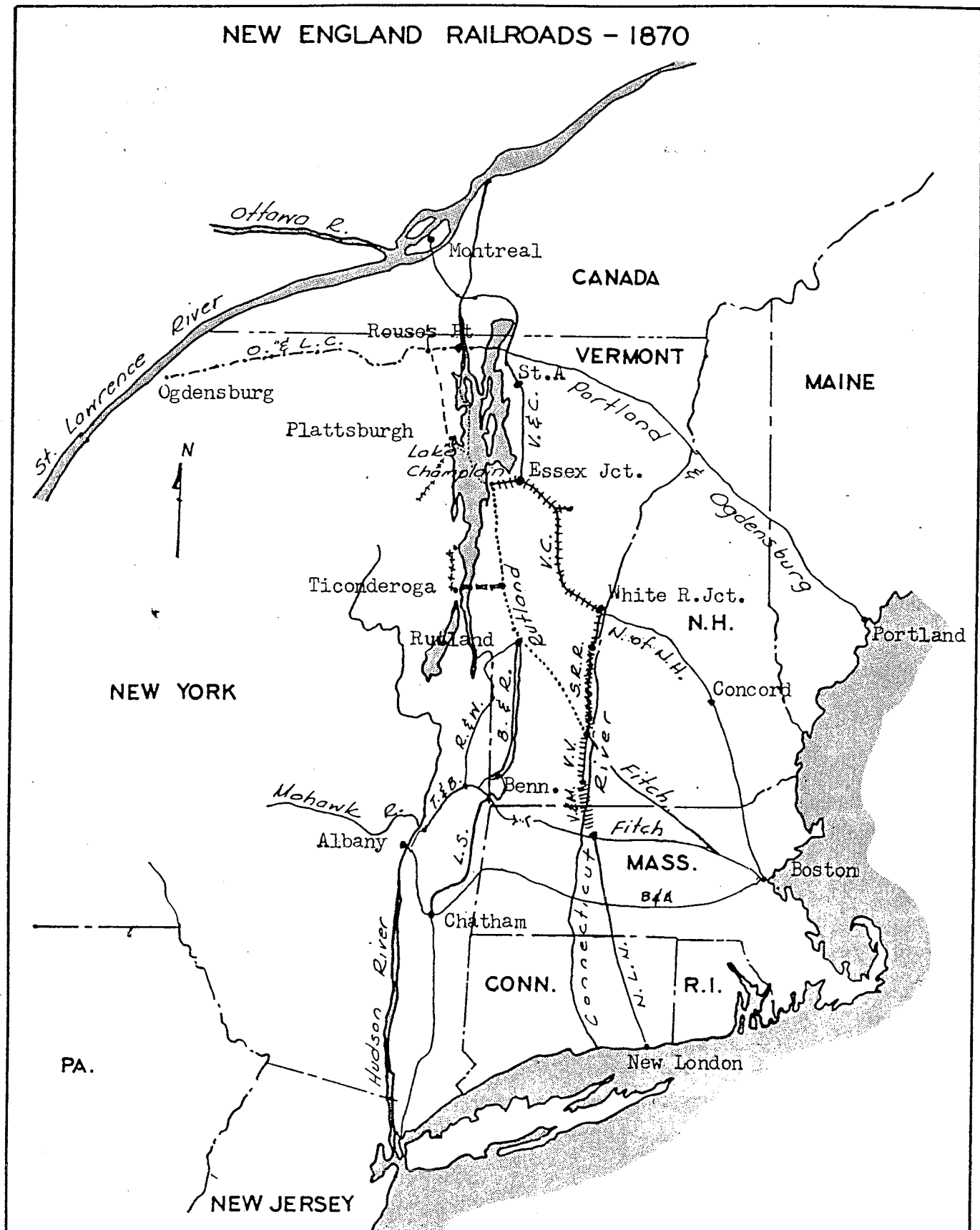
Beginning in 1867, following reorganization and rejuvenation of the old Rutland & Burlington into the Rutland Railroad, and the ascension of Vermont Governor John B. Page as president of the railroad in 1868, moves were made by the Rutland to acquire trackage and agreements to enable the road to benefit from the Boston and Great Lakes route. Unable to get agreements with the Vermont Central to gain access to the Ogdensburg & Lake Champlain via the Vermont & Canada and its drawbridge at Rouses Point, the Rutland planned to bypass the Central. (1)

Page's plan to outflank the Vermont Central began while he was on the board of directors but before he became president of the Rutland. In order to make his plan work, he first consolidated his access to eastern and southern New England. The Rutland already ran to Bellows Falls with its connection to Boston via the Cheshire Railroad. In 1865, Page acquired the Vermont Valley Railroad running south from Bellows Falls to Brattleboro and connecting with other Massachusetts and Connecticut roads, thus further strengthening the Rutland's Boston and southern New England connection. (2)

The Rutland then looked to the west and made an advantageous agreement with the Rensselaer & Saratoga Railroad with its connection to Albany and the roads extending west through the Mohawk valley into New York and Pennsylvania. This evoked bitter opposition from the Troy & Boston and the Western Vermont (later the Bennington & Rutland) Railroads which feared a diversion of their traffic. (3) However, this was only a ploy to mask Page's real interest, which lay to the northwest. (4)

In 1870, the Rutland's health had improved such that Page began a series of swift and brilliant moves to bypass the Central. In September, he leased a short segment of the Whitehall & Plattsburgh which ran from Ticonderoga to Port Henry and its iron mines. He had previously leased another segment of the same road from Plattsburgh to Ausable Forks. (5) In December, he leased a section of the Vermont & Massachusetts from Brattleboro south to Millers Falls, assuring control to Long Island Sound via the New London Northern line. (6) Additionally, in 1868, the Champlain Transportation Company, in which the Rutland had heavily invested, brought out the steamer *Oakes Ames* (later the *Champlain*) to transport railroad cars across the lake from Burlington to Plattsburgh, which seasonally siphoned off traffic from the Central. (7)

NEW ENGLAND RAILROADS - 1870



This map, from Jim Shaughnessy's The Rutland Road, depicts the network of New England and northern New York railroads and shows the strategic location of the Rouses Point and Ticonderoga crossings in connecting coastal New England with the Great Lakes via Ogdensburg on the St. Lawrence River.

In November, 1870, ground was broken for construction of the recently resurrected Addison County Railroad (8) that was to link the Rutland road at Leicester Junction with Larrabees Point in Shoreham and then by bridge across Lake Champlain to Ticonderoga, to connect with the Whitehall & Plattsburgh (later the Delaware & Hudson Canal Company) Railroad. (9) On December 7, 1870, the Addison was formally leased to the Rutland for 99 years. (10) This would give the Rutland the coveted Lake Champlain crossing that it was denied access to at the northern end of the Lake.

While all this was going on, Page also acquired a segment of the Plattsburgh & Montreal (formerly a part of the Whitehall & Plattsburgh) extending from Plattsburgh north to Mooers Junction which intercepted the Ogdensburg & Lake Champlain road to the west of Rouses Point. The Rutland now announced their intention to close the final gap between Port Henry and Ausable Forks, which would complete the bypass. (11)

These stunning moves by the Rutland left former Vermont Governor J. Gregory Smith of the Vermont Central with no choice but to negotiate with Governor John B. Page of the Rutland. (12) Following a short period of rather one sided negotiations, on December 31, 1870, the Rutland's board of directors accepted a rather princely offer to lease its road to the Central for a period of 20 years. "Smith's offer called for payment of a lump sum of \$376,000 for rental of the Rutland alone for the first year, with total payments over a twenty-year period aggregating \$7,144,000. In addition, Page had unloaded the *Oakes Ames* on the Central at a rental of \$10,000 a year." (13) Formal transfer of the Rutland and its affiliated roads took place on February 8, 1871. (14)

Once the Vermont Central had leased the Rutland, the Addison Branch would never carry the traffic that so threatened the Central that it was forced to gain control of the line at such an exorbitant price. However, the Addison's crossing of Lake Champlain between Larrabees Point and Ticonderoga was as important in the high stakes railroad wars as was the Rouses Point crossing twenty years earlier.



Scale (62500) 1 2 3 4 5 Miles
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 Contour interval 20 feet
 Datum is mean sea level
 TRUE NORTH
 MAGNETIC NORTH
 POLYCONIC PROJECTION
 Note: The elevation of Lake Champlain, according to latest determination, is 85 feet. The contours on this map are drawn to an earlier determination of 10 feet.
 Polyconic projection, H.M. Wilson, Geographer in charge.
 Control by U.S. Coast and Geodetic Survey and G. Young.
 Topography by C.C. Bassett.
 Surveyed in 1902.

TICONDEROGA, N.Y.: V.T.
 Edition of 1902, reprinted 1945.

Topographic map showing the route of the Addison Branch railroad connecting the Rutland Railroad at Leceister Junction, Vermont, with the Delaware & Hudson Railroad at Addison Junction, New York, in 1902.

MAP D

FOR SALE

III The Addison Branch Bridges Lake Champlain (1871): History Repeated

As we have seen, the Addison Branch, as the Addison County Railroad came to be called, played a pivotal role in forcing the Vermont Central to come to terms with the Rutland. Although the Addison was never to see the traffic it might have if it had not been taken over by the Vermont Central, it did become an important local railroad. For fifty years (1871-1920) it linked the economies of Ticonderoga with the towns of Shoreham, Orwell, Whiting and Leicester across the lake. It hung on for another forty years (1921-1961) providing a diminishing commerce among the Vermont towns.

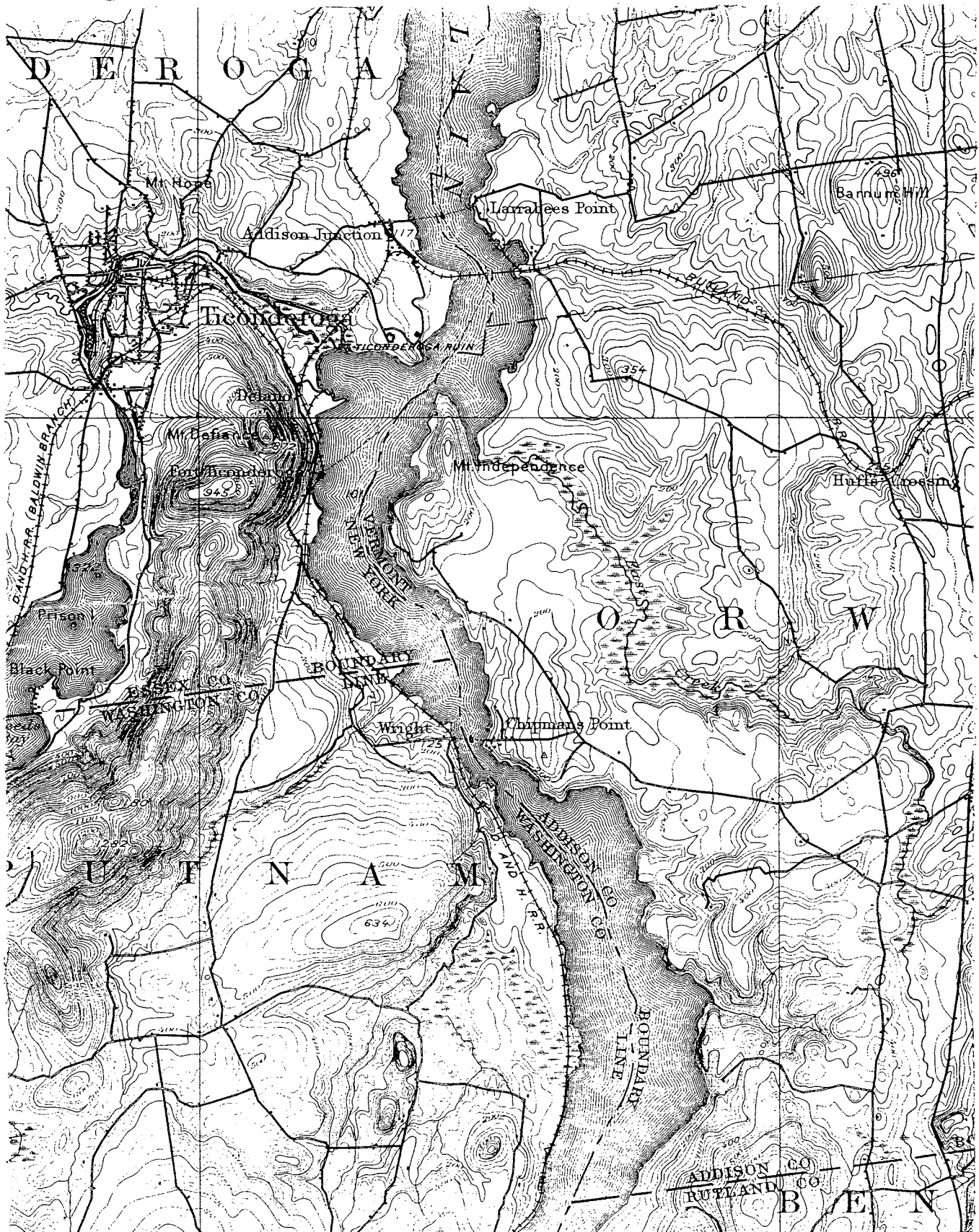
The Addison County Railroad was capitalized in February, 1869, and it listed among its first directors Governor John B. Page of Vermont. (1) In the fall of 1870, it was announced that construction would begin and the lake bridged, all of which was to be completed within one year. (2) As previously noted, construction began in November, and the Addison was then leased to the Rutland for 99 years on December 7, 1870.

For the second time, the lake was to be bridged, this time near its southern end, but it evoked the same fears and opposition that the Rouses Point structure had twenty years earlier. The navigation interests and the town of Whitehall were loudest in their opposition to the bridge. (3) Whitehall felt that the crossing would divert commerce from Whitehall and other New York markets and destroy navigation.

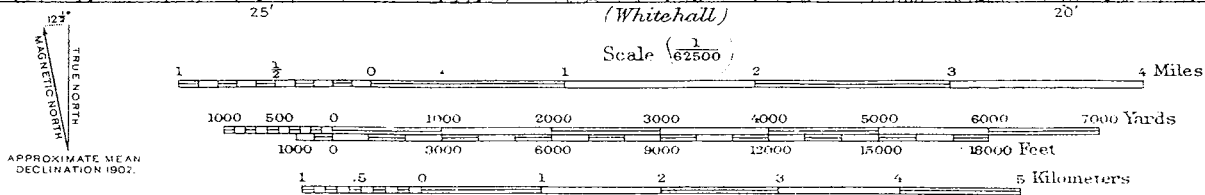
Protest meetings were held and a bill introduced in the New York legislature to repeal the act of 1869 "which authorized the Whitehall and Plattsburgh Railroad to...establish a Railroad Ferry at Ticonderoga." (6) Meanwhile, Port Henry and other Essex and Clinton County towns strongly supported the crossing. (7)

While all this commotion was going on, construction on the bridge was already underway by January, 1871. (8) As with the Rouses Point crossing, it was decided to use a floating bridge or "ferry" as it was sometimes called, to provide a passage for vessels. "The lake will be piled from its shores to the edges of the navigable channel; upon these piles a railroad track will be laid. In the gap and across the channel a huge float, operated by steam, is to be placed, which is to be three hundred feet long. This float will have a railroad track, and will swing like a gate on a hinge. (9)

While its foes worked to stop it in the legislature, work on the bridge went on. "The work on the railroad ferry is progressing rapidly. No serious damage has been done by anyone from Whitehall." (10) In early April, 1871, the New York legislature repealed its act of 1869 (11) authorizing a bridge, however, it was observed on April 27, that "notwithstanding the repeal of the law workmen are still engaged at the bridge." (12) On May 9, it was reported that "one of the piers on the Vermont side of the "proposed" bridge at Larrabees, has sunk twelve feet below the surface of the water." (13)



A larger scale topographic map of the Ticonderoga-Larrabees Point area showing the railroad trestle and floating drawbridge across Lake Champlain and the railroad trestle across the mouth of Beadles



Contour interval 20 feet
Datum is mean sea level

Surveyed by reconnaissance

On June 2, we hear "that no legal steps have yet to be taken to stop the work on the railroad ferry across Lake Champlain at Ticonderoga. The construction is in rapid progress and has nearly reached completion on the New York side." (14)

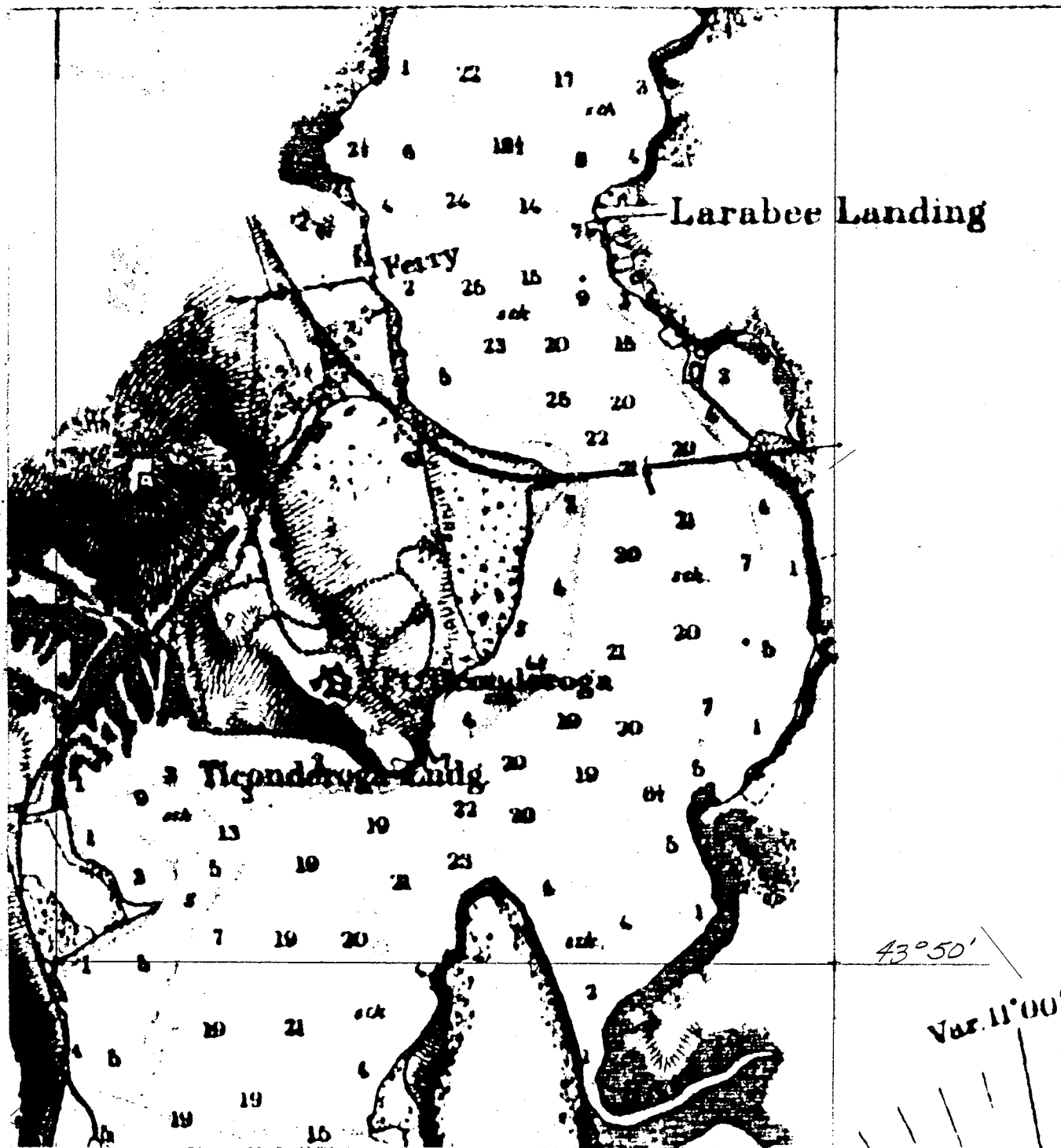
By August, navigation interests were somewhat mollified as we hear "it is expected that the injunction against the building of the Ticonderoga bridge will be dissolved, as it can be shown that the channel is less than 300 feet half the way to Whitehall." (15) On September 26, the floating drawbridge, which was building at Larrabees Point, was launched. (16) On September 30, right on schedule, the last rail was laid in the presence of Governor Page and other dignitaries and the first train passed across the floating drawbridge from Vermont to New York. (17) The bridging of the lake was a fait accompli and the injunction in the New York legislature was moot.

For the next fifty years, in spite of major accidents and other interruptions in service to the floating section, the bridge provided an important link between the Delaware & Hudson Railroad at Addison Junction (Ticonderoga), New York, and the Rutland Railroad at Leicester Junction, Vermont. Problems with the road bed, due to poor construction, plagued the road, particularly in the early years. (18) "When the Addison Railroad came under a lease to the Vermont Central along with the remainder of the Rutland Railroad, its status became completely changed. No longer could there be any hope of serving a major route - only as a 15.6 mile bridge connector between two other major north and south routes." (19)

Since there was usually not enough freight carried to make it pay its way, the Addison became dependent upon agricultural and dairy products (livestock, hay, wool, butter, cheese and bulk milk) and some cross lake and local passengers to sustain itself. Milk plants were established at Houghs Crossing, Orwell and Whiting. (20) A large ice house at Larrabees Point supplied all the ice needed for refrigeration of dairy products. (21)

In 1896, the Vermont Central, after reorganization, relinquished its lease of the Rutland, and the Addison once again became the sole responsibility of the latter. Lack of revenues led to lack of maintenance on the road bed and the bridge with resulting troubles. After the New York Central obtained controlling interest in the Rutland in 1902, there was some improvement in maintenance and business (still mostly agricultural, dairy and passengers). However, this was short lived as problems with the trestle and drawbridge and declining traffic led to the end of the crossing. (22)

In August, 1920, the Rutland sought approval from the Secretary of War to replace the 300 foot long floating bridge with a movable truss bridge with a 124 foot opening. (23) To make this proposal more attractive, the Rutland again entertained the possibility of incorporating a "driveway" over the bridge to allow for the passage of teams and vehicles. This driveway was almost secured in 1902 when one of the drawboats was replaced. However, the town of Shoreham was unwilling to assume, without assistance, the cost of the approaches on the Vermont side. (24)



Lake chart of the Ticonderoga-Larabees Point area showing the railroad trestle and floating drawbridge (opened to the south) across Lake Champlain and the railroad trestle across the mouth of Readles Cove in 1880.

Statute Miles

LAKE CHAMPLAIN

SHEET No. 4

FROM COLE'S BAY TO WHITEHALL



Scale 60000

1880

MAP F

At a public hearing in Burlington on September 1, representatives of the War Department heard testimony by proponents that the driveway would open up markets and stimulate traffic between the two states, eliminate the seasonal connection provided by the ferry, and would be of military benefit if ever needed to move troops across the lake. However, it was strongly opposed by the towing and transportation companies who argued that 124 feet would not allow for the safe passage of vessels. (25)

On October 28, 1920, it was announced that daily train service between Ticonderoga and Leicester Junction would be cut from two to one train each way. (26) Then on January 6, 1921, we hear that "the Rutland Railroad company was putting in a turntable on the Addison Branch at Larrabees Point. This is made necessary on account of the closing of the bridge for repairs. Larrabees Point being meanwhile the end of the line for the train crew." (27) This was apparently the last time trains crossed the floating drawbridge.

On July 17, 1922, the Rutland Railroad Company and the Addison Railroad Company filed a joint application with the Interstate Commerce Commission (ICC) for permission to abandon the lake crossing. (28) On October 13, a public hearing was held before the Vermont Public Service Commission on the Rutland's application. (Another hearing would have to be held before the New York Public Service Commission.) The railroad testified that the drawbridge and trestle were in such poor condition that it would cost \$130,000 to rehabilitate them. (29) Opposition to closing the crossing from the affected towns served by the bridge was strong, and meetings were held in November and December, 1922, and January, 1923, on both sides of the lake to block the closing. (30)

On February 1, 1923, at the request of the Public Service Commissions of both states, the ICC agreed to delay its decision until the state legislatures had an opportunity to consider it. (31) On May 24, 1923, the ICC issued its ruling in favor of the Rutland allowing it to abandon the crossing. (32) So ended a half century of rail service across southern Lake Champlain. The economics of the situation could no longer be ignored.

Continued efforts to provide a vehicular bridge across the south lake continued for the next six years, finally resulting in the construction of the Chimney Point-Crown Point bridge in 1929. However, until the Crown Point site was decided upon, a number of other sites were studied, among them Chipman Point, Vermont to Wright, New York, and Larrabees Point to Ticonderoga. There were a number of proposals to utilize the existing pile trestle of the Addison Branch at the latter site to construct a highway bridge. (33) It was probably because of the hope of such a use for the old bridge that the pilings were apparently not removed until 1928 or 1929, although no trains had crossed it since the end of 1920.

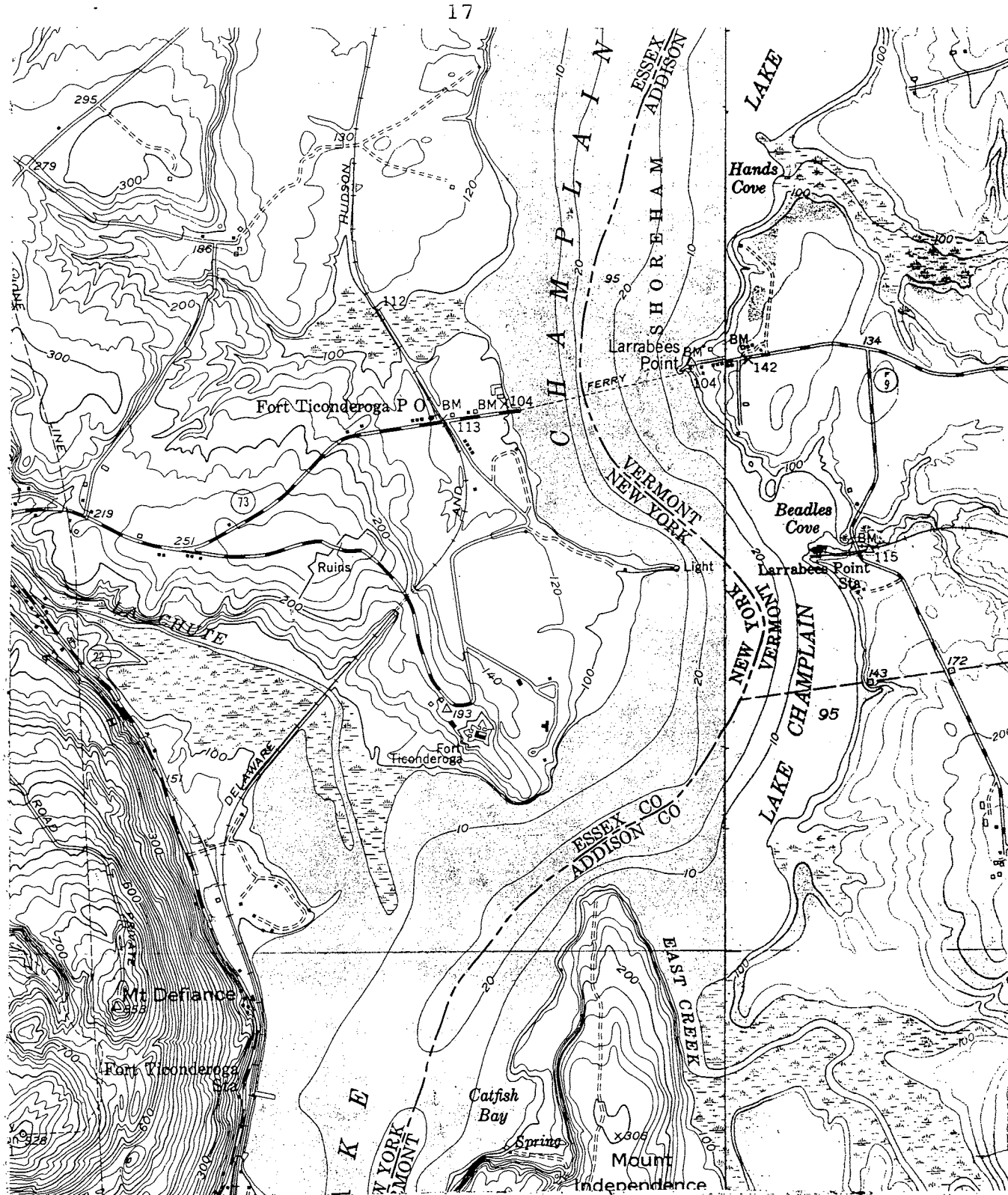
In the years following the end of traffic across the lake in 1920, the remaining portion of the road between Larrabees Point and Leicester Junction declined in large part due to dwindling business caused by truck transportation and mechanical refrigeration for milk



Air photo of the Larrabee Point-Ticonderoga area taken September 2, 1942, during a time of low lake level (93.94 feet NGVD on this date). The road bed for the former Addison Branch Railroad between Willow Point and Addison Junction is clearly visible. The Branch is dead ended on the Vermont side at the south point of Beadles Cove at the end of the former Burleigh trestle across the mouth of the cove. The line of piling marking the trestle across the cove is visible in the photo under these low water conditions. (Air photo number DCC-9-60)

shipments. (34) By 1951 it was decided to abandon the line, and the track was removed as far east as Whiting that year and the remaining track (except a 1,350 foot stub at Leicester Junction) was removed in 1961. Thus ended ninety years of often troubled but valuable railroad service between Ticonderoga and the four Vermont towns. (35)

The Addison's first fifty years of service (1871-1920) provided the link between Vermont and New York via the floating drawbridge. We shall now look more closely at this unusual bridge as it is an interesting hybrid of lake and rail transportation.



Topographic map of the Ticonderoga-Larrabees Point area in 1949 and 1950. The Addison Branch is shown dead ended at Larrabees Point Station on the south side of Beadles Cove. The large structure shown is a plywood factory constructed in the 1940's

TICONDEROGA, N.Y.-VT.

SW/4 TICONDEROGA 15' QUADRANGLE

43073-G4-TF-024

1950

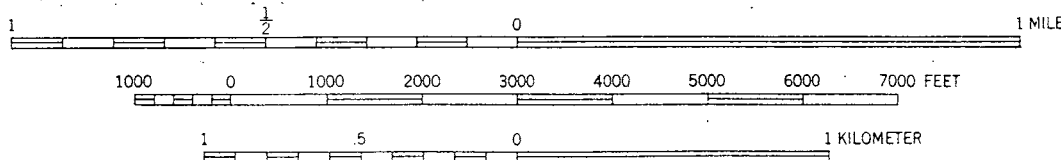
ORWELL, VT.-N. Y.

SE/4 TICONDEROGA 15' QUADRANGLE

N4345-W7315/7.5

1949

SCALE 1:24000



CONTOUR INTERVAL 20 FEET

DATUM IS MEAN SEA LEVEL

MAP G

IV Ticonderoga's Floating Drawbridge (1871-1920): A Closer Look at the Drawboats

The Addison Branch crossed the narrow southern part of Lake Champlain from the south side of Beadles Cove, at Larrabees Point, Shoreham, Vermont, on an 1830 foot long (including a 300 foot pontoon drawboat) open pile trestle to Willow Point on the Ticonderoga, New York, side. A detailed plan of the layout of the bridge is shown on the Rutland Railroad Company's right of way and track maps (valuation sheets) for the Addison Branch. (Map I)

Ticonderoga's floating drawbridge was undoubtedly modeled on Henry Campbell's 1851 floating structure at Rouses Point. Although we have only a scant description of the Rouses Point bridge, we know its drawboat was also 300 feet long and used a system of chains and blocks operated by a steam winch to swing it open to allow vessels to pass.

The principal difference in the operation and layout of the two drawbridges appears to be that while the Rouses Point draw had a clear opening of 250 feet and its 300 foot long drawboat fit into recesses in the trestle work on each side of the opening, the Ticonderoga draw had a 300 foot wide opening that was closed by the 300 foot long drawboat. However, the actual clear opening at the Ticonderoga bridge was actually only about 270 feet because when the drawboat was swung open perpendicular to the trestle, 30 feet of the opening was blocked by the width of the boat itself. The size of the opening for vessels was, therefore, not that different. Apart from the differences in the draw openings, the two drawboats were probably similar. However, the Rouses Point floating draw was replaced by a center pivot swing bridge after only seventeen years (1851-1868) of service, whereas a floating unit was used for the entire fifty years (1871-1920) the crossing was operable at Ticonderoga.

At Ticonderoga there were actually three different drawboats used in the bridge. The first boat (1871) succumbed to old age and was replaced by a new boat in 1888. This boat lasted until 1902 when it burned and was in turn replaced by the third and last drawboat which remained in service through the end of 1920. What we know of the history of these boats is presented on the following pages.

The First Drawboat (1871-1888)

As we have seen, construction on the pile trestle bridge was underway in January 1871, in spite of the efforts to stop its completion. "The contract for building the bridge has been awarded to the firm of Hawkins, Herthel & Burrell of Springfield, Mass. The Manufacturer and Builder says it is to be a pile bridge one-third of a mile long, with timber cribs, filled with stone, and sunk at 100 feet [sic] intervals; it is to be provided with a swing-boat 300 feet long, in the channel, for a draw, and it is to cost \$80,000" (1) The timber cribs, except one, were apparently not built.

Construction of the drawboat began in late spring 1871 on the shore of Larrabees Point. The exact location is uncertain, possibly just north of the north point of Beadles Cove. The drawboat is

described as follows:

"The boat is three hundred feet long, thirty wide and twelve high, contains two hundred and fifty thousand feet of lumber, weighs about three hundred tons and is expected to draw, without an injunction two feet of water. There has been on an average fifty men at work on it since the first of June, under the superintendence of George White, who has done everything possible to make the launch a success. To build the trestle on each side of the lake to the channel that the boat is to fill, required eight hundred piles eighty feet long. The boat is to be hung on hinges, like a door, by one corner [the southeast corner] to a pier, to be operated by a twelve horse engine inside, with two drums, one for each chain. To open the draw all that is necessary, is to start the engine, the [then] gear in the shore [lake] drum taking in that chain and un gearing the pier drum, letting out that chain with slack enough to lie on the bottom of the lake in order to let boats pass over it; to shut the draw, vice versa. The plans and modus operandi, are original and made by our [Rutland's] townsman L. E. Roys." (2) Mr. Roys, the master builder for the Rutland Railroad, also superintended construction of the railroad drawbridge (a swing bridge but not a floating unit) across the mouth of the barge canal at Burlington in 1868. (3)

On August 18, it is reported that "-Work on the railroad ferry is progressing rapidly. - It is estimated that the drawbridge now in progress of construction at Larrabee's Point will support a weight of 4,500,000 pounds. It is three hundred feet long, thirty feet wide, and thirteen [sic] high." (4) By the third week in September the drawboat was ready to launch. "The immense floating bridge now being built at Larabee's [sic] Point, will be launched tomorrow [September 23, 1871]" (5) This was not to be, as it is reported on September 27, 1871 that "the launching of the scow, for the drawbridge [at] Larabee's [sic] Point, on Saturday was a failure." (6)

More details of the event soon became known. The Rutland Herald reported: "It was intended, and the attempt made, to launch a steam ferry bridge Saturday afternoon, but on account of an unforeseen accident it was not successful. It was to be launched sideways, fourteen timbers for ways had been laid, on an incline, into the lake, shoes were placed under the bottom of the boat to run on them. At three o'clock orders were given to take out the stays, and at the first strike with the battering poles the north end started, but the united efforts of all were unable to move the south end except about four feet, after the north end had moved twenty-five feet, thus throwing the shoes off the ways and letting the end of the vessel down upon the ways. The reason of the hitch in the south end not moving, afterwards appeared. Some one, whose duty it was neglected to remove one of the 'jack screws' which held the boat off of the ways, but no great damage was done and by tonight there is no doubt but what it will be afloat. There were gathered together from the adjoining towns on this and the other side of the lake, some six or eight hundred persons to witness the launch who had to go home disappointed in not witnessing the launch, of the largest boat ever floated on Lake Champlain." (7)

This mishap postponed the launch until repairs could be made. The Burlington Free Press reported some additional human drama at the second effort to launch the boat "On Tuesday the 26th all preparations were ready for another attempt to launch, but the rain prevented a large crowd.

The railroad officials were there and had taken brief shelter from the rain in the United States Hotel near by, waiting for the hour fixed; and while they were speculating on the probability of better success this time, and possibly 'toasting' to that effect, the balky structure, whose bearings were probably lubricated by the falling rain, started on its own hook without waiting for the word 'go', breaking the fastenings designed to prevent its rapid decline, nor waiting for the imperial judges to witness it. It plunged into the lake thus, again wilfully disappointing those who had intended to see the show. One of the workmen was standing about midway of the bridge, on the water side, when it started its downward career, thus placing him in great peril; he at first tried to run around one end, but finding his time too short and his territorial limits rapidly lessening, he plunged into the lake, and dexterously dove to the bottom, when the bridge passed over him, and he came up on the other side of it, a wiser yet a thoroughly frightened man. It was afterwards ascertained that the depth of the water where the man was lying was less than four feet, while the draught of the float is two feet when lying still, and the man's escape from being crushed beneath the ponderous structure was almost miraculous." (8)

The drawboat, apparently with a mind of its own, was finally afloat and would shortly be secured in the draw opening. On Saturday, September 30, the first train crossed the drawbridge from Vermont to New York. (9) On December 6, the road was opened to the public when an excursion train made the crossing, and this was followed on December 11 by commencement of regular service. (10)

As the navigation season was nearly over, the drawbridge would soon remain in the closed position until navigation resumed the following spring. Commencement of the 1872 navigation season at Ticonderoga was chronicled by the Middlebury Register. "The drawbridge of the Addison Railroad, at Larrabees Point, swung around to allow the passage of boats for the first time this season, last Wednesday evening [April 24]. It is unusually late for the opening of the lake." (11)

A few months later, the drawbridge recorded the first of a number of incidents, of varying seriousness, that resulted in an interruption of service across the lake. "An accident that came very near being a serious one occurred on Wednesday afternoon [June 26], at the drawbridge at Ticonderoga. As the mixed train going east was passing over the apron at the east end of the draw, the truss rod gave way, and the pilot of the engine struck the ties and threw the engine and one car from the track and very nearly into the lake." (12)

Due to the four mile long fetch to the north, strong northerly winds occasionally caused a problem for the bridge. The first incident occurred in 1873 when "Owing to the high winds yesterday [October 7], the drawbridge at Ticonderoga could not be closed, and

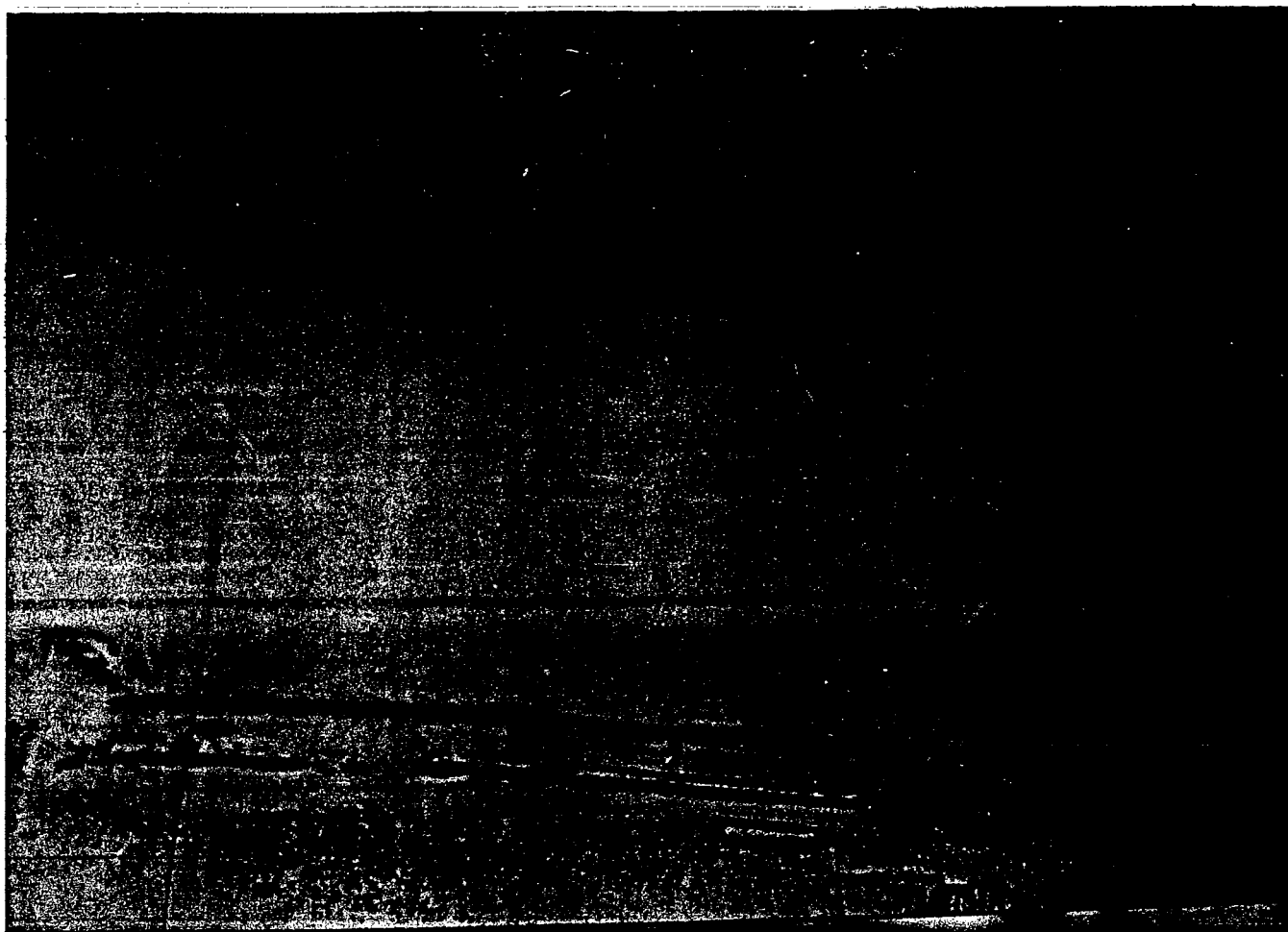


Photo of side scan sonar image of the remains of the 1871 drawboat located near the Vermont shore on the north side of the former trestle across Lake Champlain between Larrabees Point and Ticonderoga. The sonar image was recorded by R/V NEPTUNE on May 25, 1992.

the mail train from Port Henry was delayed about six hours, reaching Leicester Junction about 4 o'clock p.m., the mails failing to connect both north and south. As this is the first instance of the kind, the storm must have been a severe one on the lake." (13)

The second time wind became a problem was in 1885 when "the train east over the Orwell road could not cross the bridge at Ti. last Friday [October 23] on account of the [snow] storm, the wind blowing so that the engine was not able to close the draw. This is the second time this has happened in the 14 years that the bridge has been built." (14)

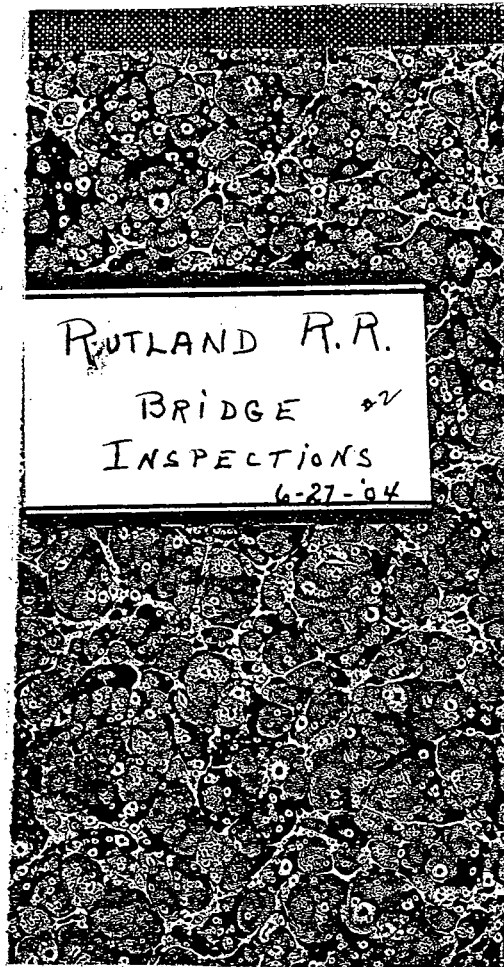
The narrowing of the navigation channel caused by the draw also resulted in a few problems. "On Thursday night last [November 14, 1873] a tow in passing through the draw at Ticonderoga struck the bridge with such force as to carry away some of the timbers, and render it impossible to close the 'draw' for the passage of trains." (15) The bridge was reopened the following day. "- The drawbridge at Ticonderoga was repaired and trains crossed again as usual on Friday afternoon. The injury was caused by a very heavy tow of four boats abreast, swinging against the west side of the opening." (16)

Another incident that did not result in damage to the bridge but was caused by the narrowness of the channel and probably resulted in some obstruction to navigation was the sinking of the Essex built (1863) canal schooner *B. NOBLE* (official no. 2452) In June 1882. "On Thursday morning [June 15] of last week, as the schooner B. North [*B. NOBLE*] of Vergennes, was passing a tow at the Ticonderoga drawbridge, it ran into a canal boat, crushing in the schooner's bow. It immediately sank in about 30 [23] feet of water. The schooner was loaded [with slate for S.R. Hathorn of Vergennes]." (17) The schooner was raised and returned to service. "Mr. John Daniels' schooner B. Noble, which collided with a tow at the drawbridge, was raised on Wednesday [July 12] and towed to Whitehall." (18)

In spite of these occasional problems, the first drawboat provided reliable service across the lake until old age and harsh conditions finally took their toll and she was replaced by a new boat in 1888. The wreck of a drawboat, believed to be the 1871 boat because of the relatively intact condition of the remains (probably only the bottom and part of the sides), her dimensions and the location near the trestle on the Vermont side, was located with side scan sonar during the Mount Independence-Fort Ticonderoga underwater survey in May 1992. (Fig.2) The boat was probably pulled over to this out-of-the way spot and scuttled after being stripped. No documentation has yet been found on this event or what, if any, part of the boat may have been salvaged or possibly used in its replacement.

The Second Drawboat (1888-1902)

This drawboat was also built at Larrabees Point. The location of the ways is unknown but is likely where the first boat was built - probably north of Burleigh's dock, and probably near or at the site where six canal boats were built by Burleigh Bros. in the winter of



BRIDGE REPORT

OF Rutland

by Railroad

To Vermont Railroad Commissioners.

Filed in the Clerk's Office June 27th 1904

Clerk

Rutland

Bridge No. 1 Division Addison Branch

Location Crossing Lake Champlain

Local Name —

Total Length 350' No. Spans —

Length of each span —

Clear — Total —

Through or Deck Deck Width in clear —

Height in clear above rails —

Type of Bridge Pile Trestle

Material Wood When built —

When and how strengthened or repaired —

For what load designed —

Maximum load actually used —

Maximum stress per square inch —

Tension — Compression —

How often Inspected Every 3 Months & oftener if Necessary

By whom Chief Eng'r Bridge Inspector Roadmaster & Section Foreman

Repairs and changes since last report Draw boat burned

Feb 7th

Repairs and changes which will be made during the year —

New boat now being built

Remarks boat built and in place fall 1902. Minor repairs made in winter

REPAIRS AND CHANGES.

In year 190 —

In year 190 —

INSPECTION BY THE BOARD.

Rutland Railroad Company bridge inspection report for the Addison Branch trestle and drawbridge for the period 1902-1904. The burning of the drawboat on February 7, 1902, and its replacement with a new boat in the fall of that year is recorded. (Rutland R.R. Bridge Inspections, #2, 6-27-04)

1879-1880. (19) James R. Bullard of Larrabees Point, the owner and operator of the Larrabees Point-Ticonderoga ferry, believes the Burleigh shipyard was located near the black marble quarry on the little point on the north side of Beadles Cove adjacent to the dock site. (20)

A new steam sawmill had been built by the Burleighs at Larrabees Point in 1882 to replace a mill that burned the previous year (21), so lumber was readily available for boat construction. The drawboat could not have been built in Beadles Cove as a continuous pile trestle (without a draw) was constructed across the mouth of the cove in 1874. (22) This trestle connected the Addison Branch at the south point of the cove (where the drawbridge crossed the lake to Ticonderoga) with the H.G.Burleigh & Bro. dock and coal yard on the north side of the cove.

The second drawboat appears to have been of the same construction as the first and it too was built under the direction of bridgmaster L.E. Roys of the Rutland. A description of the construction and launching of this boat was provided by the Burlington Free Press in November 1888.

"The Central Vermont railroad has just completed at Ticonderoga, on the Addison Branch, a new drawbridge. Its construction was begun on August 10, under the direction of Bridgmaster Roys, and it was launched last Wednesday afternoon [November 8]. Mr. Roys says it was one of the most successful pieces of work of the kind with which he had anything to do, and no mishaps occurred during the course of its construction. The draw, as it is termed, is 300 feet long, 30 feet wide, with sides 12 feet high, and resembles somewhat in appearance a huge canal boat. It contains 250,000 feet of lumber and 12 tons of iron rods, screws and bolts, while the total weight is 400 tons. All sizes of timber were used in its construction, the material being principally Southern pine. The bottom of the draw is yellow pine from Florida, well caulked, making it thoroughly waterproof.

The draw was built on the shore at Larrabee's Point, and 25 men have been employed in the work. Heavy timbers were laid in a slanting position from the draw out into the lake where the water was deep. These were well greased, and when all was ready a pistol was fired, the fastenings were loosened and the mammoth draw slid down as neatly as could be desired into the lake. It was very successfully done. When navigation closes the draw will be towed to 'Ti', where it will replace the old draw, which has been in use for the past 20 years.

The launching of the huge frame was witnessed by General Manager J. W. Hobart, General Superintendent J. M. Foss, Superintendent Burdett of the Rutland division, Roadmaster Horner and several hundred people who live in the vicinity." (23)

The 1888 draw boat probably had a fairly uneventful career and provided reliable service as there is practically no reference to it until 1902. We do hear in April, 1893, that "Jule Martin has moved to Addison Junction and has charge of the Central Vermont bridge, having taken the position resigned by Oliver Ormsbee, who has gone to Hoosick Falls." (24) In 1897, it was reported that repairs were made. "The draw-bridge on the Addison branch of the Rutland railroad will undergo

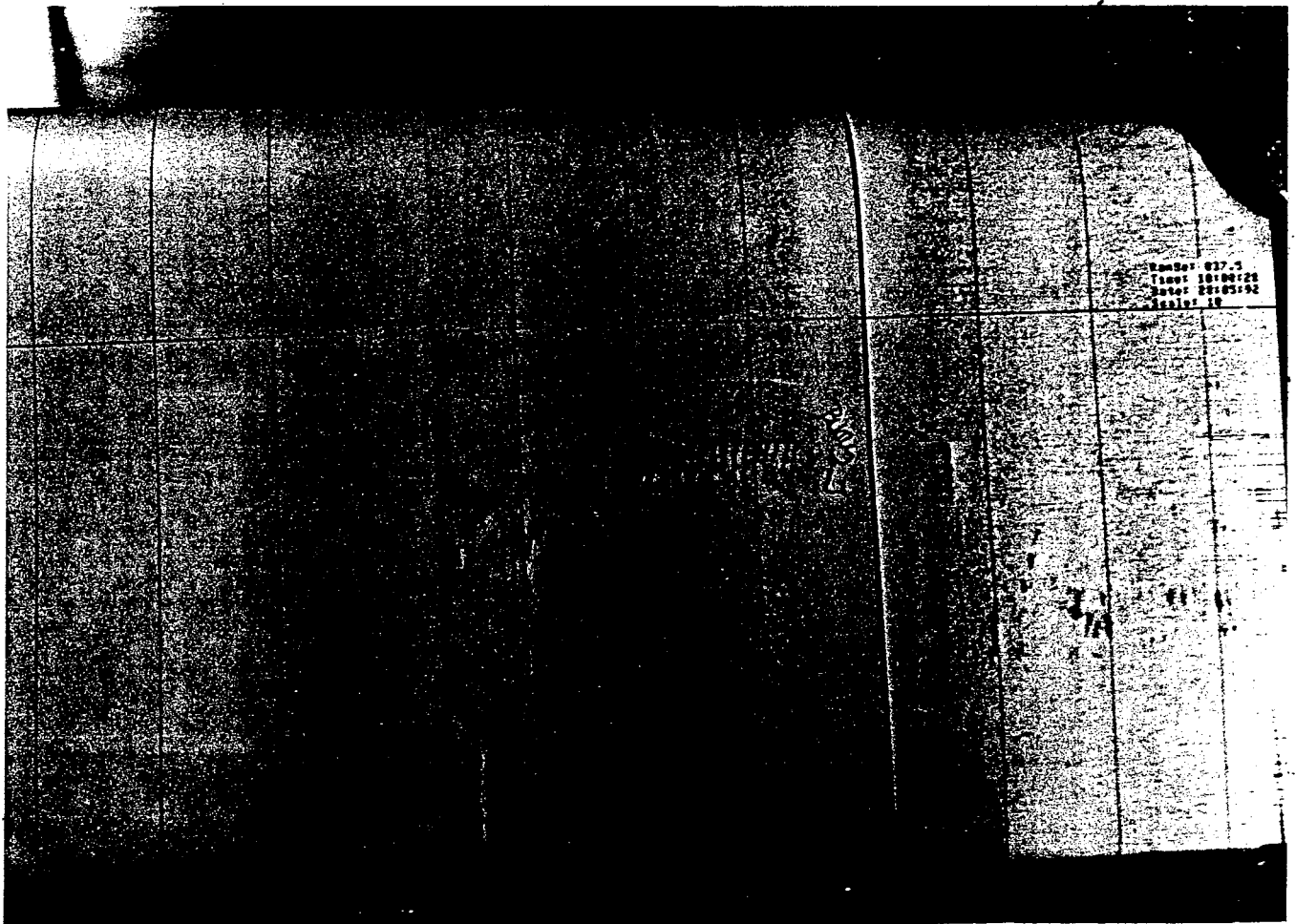


Photo of side scan sonar image of part of the remains of the 1888 drawboat located on the notheast side of the draw of the former railroad trestle across Lake Champlain between Larrabees Point and Ticonderoga. The wreckage lying on top of the hull at an angle is visible. The wreck is in two major pieces - the easterly and larger piece is shown here, the smaller piece to the southwest is off the sonar record. The sonar image was recorded by R/V NEPTUNE on May 28, 1992.

repairs. A lot of rails have been drawn there and work on the bridge will begin shortly." (25)

On February 7, 1902, the drawboat caught fire, "burned to the water's edge" (26) and sank, ending train service across the lake until July when a new boat was installed. The following accounts of the loss of the drawboat are provided by the Rutland Herald of February 8, and the Ticonderoga Sentinel of February 13.

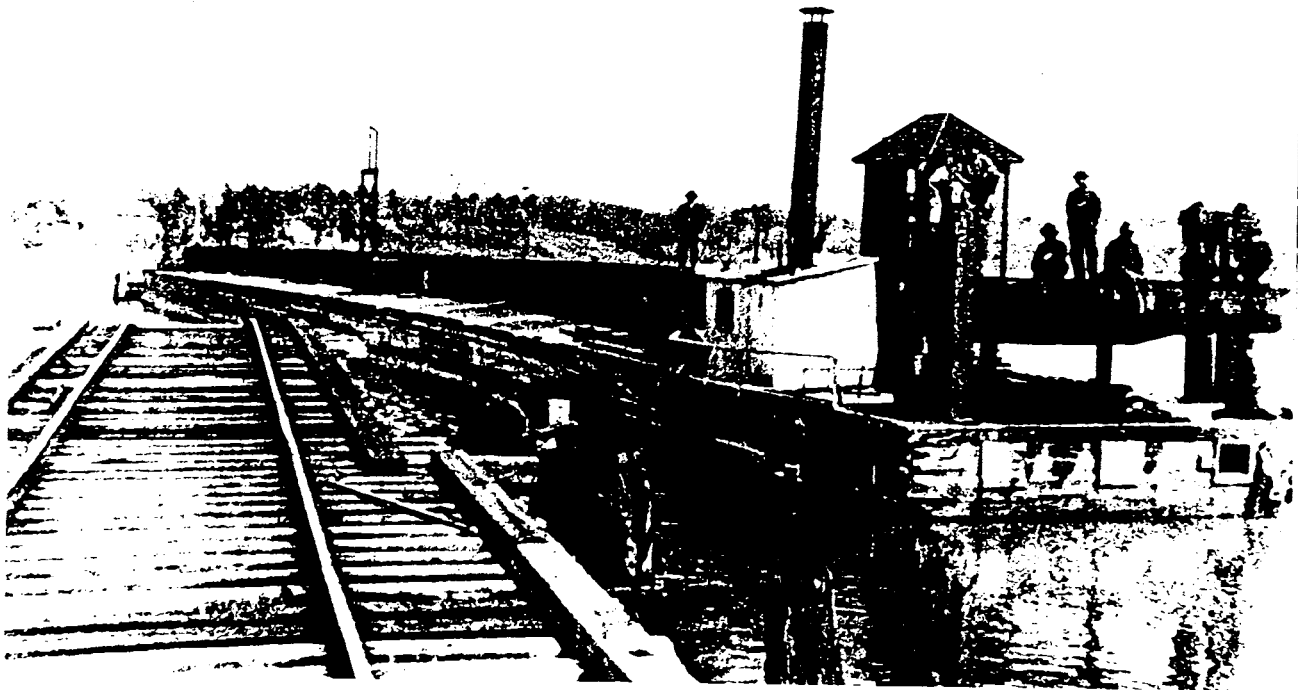
From the Herald: "A pontoon drawbridge several hundred feet long, between Larrabee's Point and Ticonderoga, N.Y., was totally destroyed by fire yesterday [February 7] and sunk in the lake. At the request of the railroad officials the local fire engine was sent to the scene and did good work in saving the wooden trestle at the end of the bridge.

The fire is supposed to have started from a stove inside of the pontoon, and was beyond control when discovered by the bridge tender, who was badly burned about the face and hands in attempting to extinguish it.

A call for the engine was sent to this city [Rutland] about 10 20 o'clock yesterday morning. The engine was immediately loaded on to a flat car and left this city about 11 o'clock in charge of Chief G.W. Dunton, who was accompanied by Capt. C. E. McDermott, Engineer G. W. Morse and Call Men B. H. Stickney, Rodney E. Shaw and T. L. Bennett.

The trestle work extends over a mile this side of the bridge, and the engine had to be unloaded at the end of the trestle and drawn over the ice to the scene of the fire. Two streams were turned on to the blaze about 1 o'clock and were kept up all of the afternoon. The bridge sunk about 5 o'clock and the streams were taken off as soon as the fire on the trestle work was extinguished. Early in the afternoon Fireman B. H. Stickney slipped and fell into the lake nearly to his shoulders. He was pulled out by Chief Dunton. The men returned to this city about midnight. The loss will amount to several thousand dollars." (27)

From the Sentinel: "About 6 o'clock Friday morning [February 7] the Rutland railroad drawbridge on the Addison branch, which crosses Lake Champlain at Addison Junction, was discovered to be afire. The drawbridge is about 300 feet long and is simply a long boat upon which the rails are laid, being turned as occasion demands by an engine. To prevent freezing, the boat is kept warm by stoves, one in each end. It is the duty of the night watchman, Alex. McCauley, to break the ice around the boat every morning, which duty he performs about 5 o'clock. While returning from breaking the ice Friday morning he discovered a fire around the stove in one end of the boat. He entered the boat through a window and endeavored to quench the flames, one arm and side of his face being quite badly burned in the attempt, and in consequence of which he has been confined to the house for several days. His efforts, however, were unavailing, the fire having secured too much headway to be controlled. In response to a telegram a steam fire engine was sent over from Rutland, reaching Addison about noon. The draw bridge was past saving by that time, but by means of the engine the fire was prevented from reaching the trestle leading up to the draw. By night the drawbridge was entirely consumed. The loss is estimated at \$20,000." (28) (Fig.3)



Undated photo of what is probably the section gang aboard the 1902 drawboat which is shown partially swung open. Boiler house and stack, control house for donkey engine and winch, and apron for adjusting track height are clearly visible. Chain is visible just to right of the open port leading down into the lake. View looking east towards Vermont. Large building at left center is the ice house.

Planning for replacement of the drawbridge began at once, and two alternatives were submitted by the Rutland's engineer - one called for an iron bridge and the other for a wooden one. (29) Petitions by the citizens of Ticonderoga to extend the road from Addison Junction to Ticonderoga village and to provide a driveway for teams over the new drawbridge were presented to W. Seward Webb, the new president of the Rutland, shortly after the bridge burned (30) and as late as May. (31) Although the Rutland Railroad was agreeable to planking the new drawbridge (and trestle) to accommodate wagons passing each other going in opposite directions, it was contingent upon Ticonderoga and Shoreham securing the necessary rights-of-way and building approaches. (32) This, as we have previously seen, Shoreham was unable to do on its own. In March, it was announced that a new floating drawbridge would be built but this time it was to be constructed in Burlington. (33)

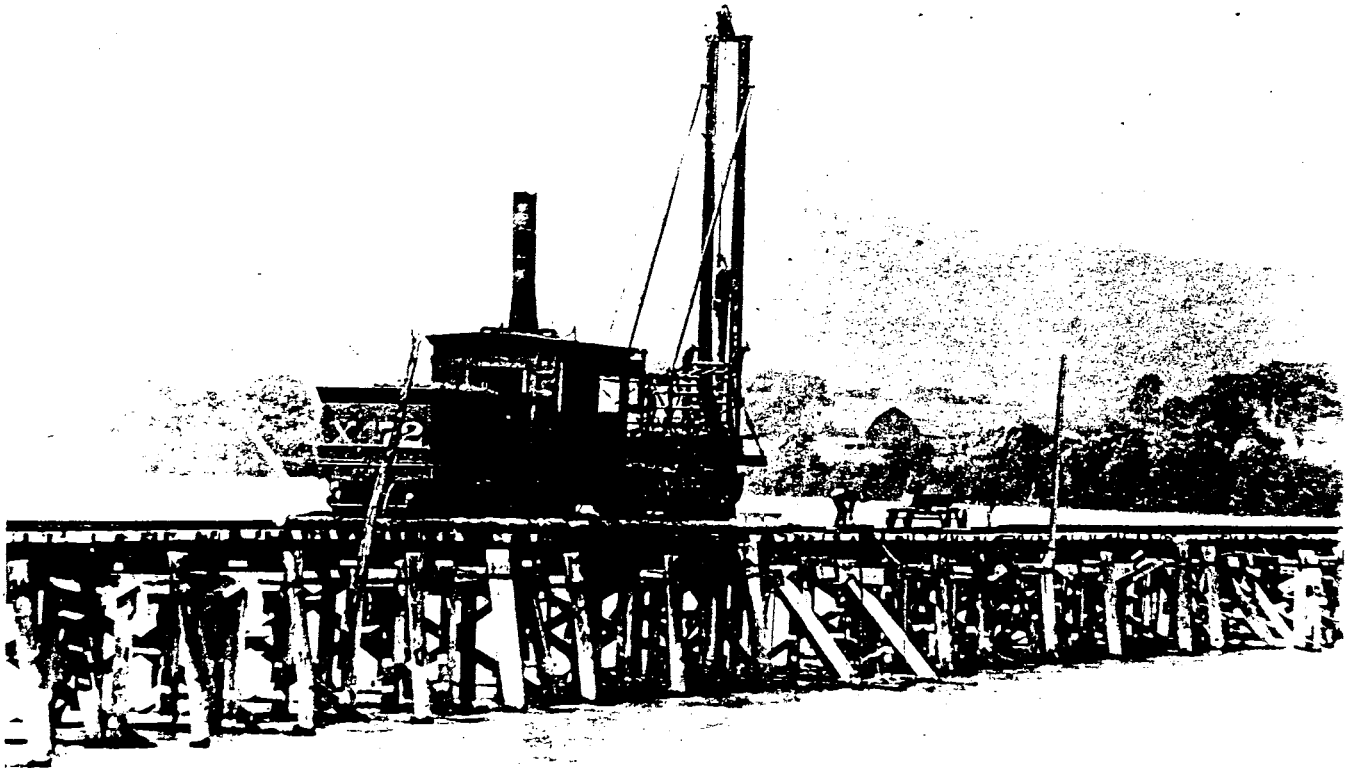
The work of removing the wreck of the burned drawboat was carried out in April as reported by the Ticonderoga Sentinel in a Larrabees Point news item. "A gang of men are at work pulling out the old drawbridge this week." (34) Further details of the operation have not come to light. The wreck of this drawboat, its hull in two pieces, was located on the east side of the former draw opening during the Mount Independence-Fort Ticonderoga underwater survey in May, 1992. The 1902 salvage operations were only partially successful in removing the wreck from the draw as the larger piece is lying along the northeast side of the trestle partially protruding into the draw opening and the other piece lies in the opening. (Figs. 15 and 17) Since the fire had burned the boat to the water's edge, the wreck apparently was not an obstruction to navigation.

The Third Drawboat (1902-c.1923)

The third and last drawboat was built in Burlington in the spring of 1902 to replace the one burned that February. The exact building site is uncertain. Announcement of the impending construction appeared in late March. "The work of building a drawbridge to replace the one destroyed by fire on the Addison branch of the Rutland railroad will be commenced very shortly in this city. The work of construction will be carried [out] on the lake shore a short distance below the J.R. Booth lumber yard and will demand the services of a large number of workmen for some time.

L.A. Vernon of Rutland, a bridge foreman, has sent 15 carloads of lumber to this city to be used in the work. The new bridge will be 300 feet long, 26 feet wide and 14 feet high and in its construction 246,000 feet of lumber, 43,000 pounds of iron and 6,000 pounds of oakum will be used." (35)

The J.R. Booth Lumber Company yard was located in the northern part of Burlington along the lake shore south of Battery Park, between Battery Street and the railroad tracks. The actual building site could have been along the lake shore just north of the city water works. Rail access to this location was close by and it would have been an easy matter to extend a spur down to the lake shore to service



Rutland Railroad pile driver X472 at work on the Larrabees Point-Ticonderoga trestle c.1905. This view is from the Vermont side looking towards Mt. Defiance and the New York shore.

the boat construction.

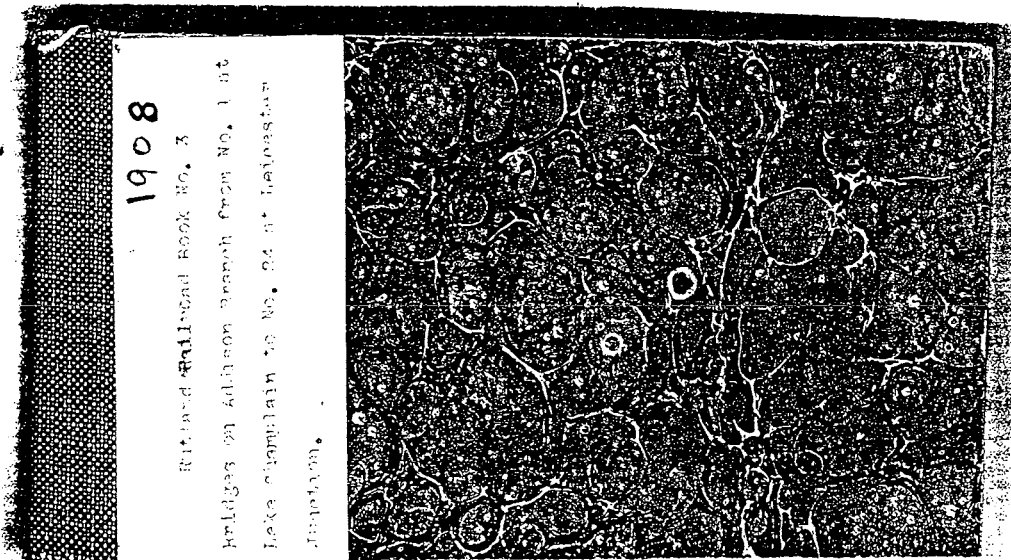
By mid June, construction of the drawboat was complete and it was ready to be launched. "The pontoon drawboat which has been under process of construction on the lake shore near the Standard Oil Co.'s tanks for about three months past is practically completed and will be launched either to-morrow [June 18] or Thursday [June 19]. This boat was built by the Rutland railroad to replace the one burned a few months ago between Ticonderoga and Larrabee's Point on the Addison division of the railroad." (36) Based on this article the boat was built near the Standard Oil Company's tanks which were located on the lake shore opposite the Vermont Central railroad tunnel and a little north of the J.R.Booth lumber yards at this time. (37) Articles that appeared in the Burlington Free Press a week later indicated that the boat was built "on the north shore". (38)

A description of the new drawboat is as follows: "The boat is 300 feet long 26 feet wide and 14 feet high. In its construction about 300,000 feet of lumber, 60,000 [sic] pounds of oakum and 52,000 pounds of iron such as bolts and washers were used. It has been built under the supervision of L.H [sic] Vernon of Rutland, who is bridge and building inspector and supervisor of bridges, buildings and construction and A. Richard of Ogdensburg, N.Y., who has charge of the repair of boats of the Rutland Transit company.

The boat in question is a double deck pontoon, the highest deck being 14 feet wide. It has many advantages over the one it is to replace at Ticonderoga and Supervisor Vernon is directly responsible for a number of the improvements. The boat will be connected with the trestles on the lake, much as the old one was but instead of having one apron on each end it will have two. The old aprons were each 50 feet long but each of those on the new bridge are 40 feet long and this will be found to be of great value in securing an easy and regular passage of the trains from the trestles to the pontoon. The first apron at each end extends from the trestle to some piles and the second from the piles to the boat. By means of blocks these aprons can be adjusted from time to time so that the variation in the grade is regular and the passage of trains will consequently be smooth. This is necessary as the height of the water varies with the seasons...

The boat has been thoroughly constructed to avoid the possibility of its leaking but an engine was placed in it yesterday, together with the other necessary apparatus, to pump the water from it in case it should be found defective." (39)

What is interesting about the description of the new drawboat in the newspaper articles is that it was 4 feet narrower (26 vs 30 feet) and 2 feet "higher" (14 feet vs 12 feet) than its two predecessors. It is not clear whether the "height" is the depth of the float itself or if it includes the raised track platform or deck. The reason for this design change is unknown. It is possible the narrower and deeper hull could have affected its stability. The new system of aprons would have been an improvement over the single apron at each end. At the time the drawboat was completed, it was still expected that both the boat and trestle would be planked as a driveway for teams. (40)



BRIDGE REPORT

—OF—

RAILROAD

To Vermont Railroad Commissioners

Filed in the Clerk's Office, 190

Clerk.

Rutland
 Bridge No. **X 453** Division **Addison Branch**
 Location **Crossing Lake Champlain**
 Local Name _____
 Total Length **2525'** No. Spans _____
 Length of each Span _____
 Clear _____ Total _____
 Through or Deck **Deck** Width in clear _____
 Height in clear above rails _____
 Type of Bridge **Pile trestle**
and Trestle draw
 Material **wood** When built _____
 When and how strengthened or repaired _____
 For what load designed _____
 Maximum load actually used _____
 Repairs and changes since last report _____
 Remarks **Stringer on fashion of bridge**
1905
 REPAIRS AND CHANGES.
 In year 190 _____
 In year 190 _____
 INSPECTION BY THE BOARD.

Rutland Railroad Company bridge inspection report for the Addison Branch trestle and drawbridge for the period 1905-1908 showing repairs made to the bridge in 1905. (Rutland Railroad Book No. 3 Bridges on Addison Branch from No. 1 at Lake Champlain to No. 24 at Leicester Junction)

Preparations were made for launching the drawboat and towing it to Ticonderoga. "The launching of this drawboat will be an interesting spectacle. It is blocked up and two skidways are being placed under it one above the other. These skidways incline gradually into the lake, which is within a few feet of the north end of the boat. There will be wedges between these skidways which will be thoroughly greased with tallow. After the blocking has been removed men who will be at each end of these wedges will remove them simultaneously, at a given signal, and the huge structure will slide into the water. ... In a few days after the launching it will be towed to Ticonderoga." (41)

An attempt was made on June 23 to launch the drawboat but it was a failure. "An unsuccessful attempt was made yesterday to launch the pontoon boat which has been built on the north shore. The Maquam and an engine were used but the bridge was not in readiness, additional work on the ways being necessary." (42) A second attempt was successful and the drawboat was launched on June 24 but not without a struggle. "The tug *Defender* of Whitehall, together with three locomotives succeeded in launching the pontoon drawbridge yesterday. The *Defender* will soon tow the bridge to Whitehall [Ticonderoga]" (43)

Additional information on building and launching the boat was provided a few days later. "The draw boat for the Addison branch of the Rutland railroad was designed by C. J. Parker, chief engineer of the Rutland road and was built by Alfred Richard, an Ogdensburg, N.Y., ship builder. The boat was built to be launched sideways but the water lowered from four to five feet and it became necessary to launch it end ways. There was not grade enough, which made it necessary to employ steam power." (44)

The tug *Defender* towed the drawboat to Ticonderoga on June 25 and it was expected that it would soon be in place. "The pontoon bridge, which was constructed on the north shore, was towed yesterday to Ticonderoga, where it will be put into commission for use on the Addison division of the Rutland road." (45) Its arrival was noted at Ticonderoga. "The boat for the new drawbridge at Addison Junction arrived last night, being towed from Burlington by the *Defender*. The work of putting it in place will begin immediately and it is expected that trains will run over the bridge in a week or ten days." (46)

Sometime after 1905 (the year she was built), the tug *Protector* was southbound up the lake with a string of 16 canal boats in tow when she began signalling for the drawbridge to open when she was off Watch Point, about two and a half miles north of the bridge. In spite of repeated signals, the bridge did not open as the tug got ever closer. The bridge tender was asleep. Captain Sweeney of the *Protector* slowed down as much as he could without losing control of his tow and "nudged" the draw open and proceeded on his way. The drawboat leaked after that and another (auxiliary) pump was installed. (47)

About 1914, as the steamer *Vermont III* was headed up the lake, she stopped at the Larrabees Point dock and then proceeded towards the drawbridge. Due to a strong south wind, the bridge tender, William Sweet, was unable to open the draw - the chain slipping on the sprockets of the steam winch. Captain Fisher brought the *Vermont* up

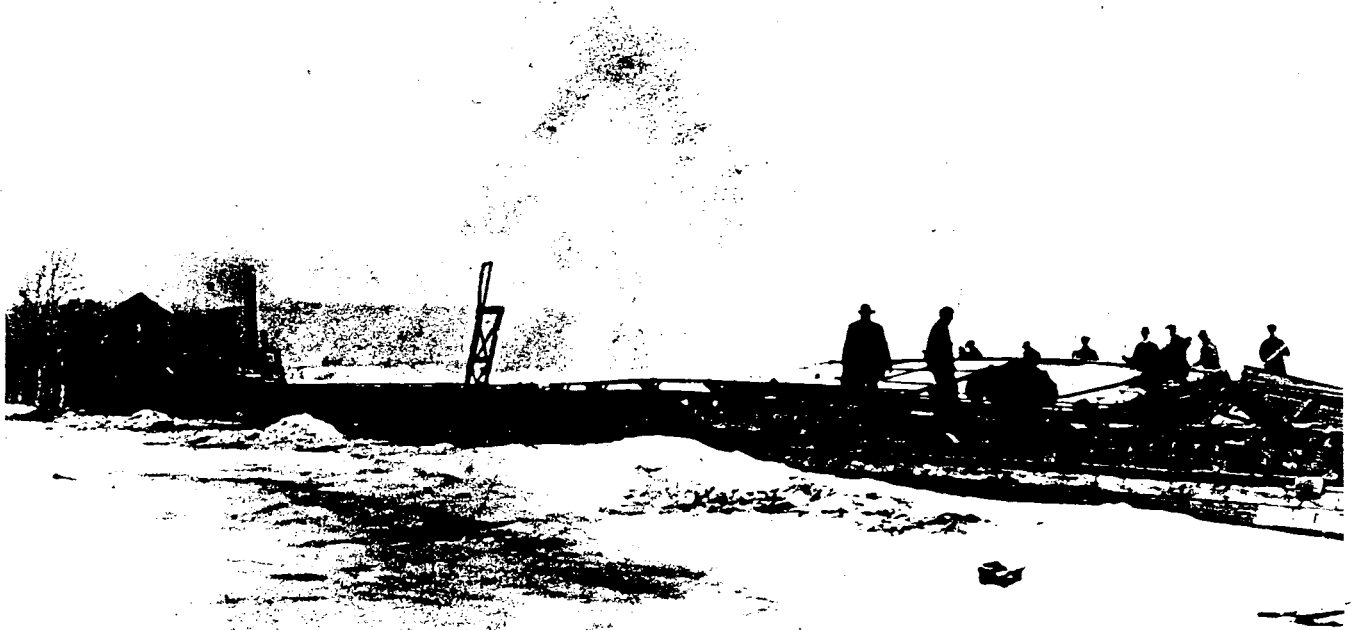


Photo of March 20, 1918, accident to floating drawbridge showing drawboat submerged to deck level and two box cars partially submerged. View is from the south side of the draw looking northwesterly towards the New York shore.

gently against the drawboat and using the steamer's engine pushed open the draw, leaving a four inch indentation in the drawboat's timbers from her stem post. (48)

William Sweet, the bridge tender at the time of the *Vermont's* encounter with the drawboat, had held this position since at least 1907 as noted in an April 1908 Larrabees Point item in the Burlington Free Press. "William Sweet is again in charge of the drawbridge." (49)

In 1917, it was reported that an inspection found the drawboat to be unsafe (50), however, trains continued to use the bridge. In January, 1918, we hear that "there was no train service Friday [January 4] on the Addison branch owing to [unspecified] trouble with the drawbridge on Lake Champlain." (51) Two months later, the most serious accident happened to the drawbridge since the previous drawboat burned in 1902.

The Vergennes paper carried the following article about the partial sinking of the drawboat and of two box cars that went into the lake.

"Traffic over the Addison branch of the Rutland railroad, running from Leicester Junction to Ticonderoga, has been tied up for a week, caused by the sinking of the drawbridge over Lake Champlain.

The drawbridge sank last week Wednesday night [March 20] as the evening [westbound] train was going over, letting two freight cars into the lake. The engineer, noticing the boat was tipping, uncoupled the engine and barely got off when the boat went over. The deck of the drawbridge is now on a level with the lake ice but the draw does not rest on the bottom of the lake.

The cause of the trouble is supposed to be a leak that let water into the float. There were two cars, one loaded with paper and the other with wood, on the bridge at the time and both were overturned by the tilting of the float as the incoming water rushed from one side to the other.

The coach remains on the Vermont side and the stations along the branch are getting their customary mail and passenger service." (52)

Other reports indicate that one of the cars was loaded with marble and went all the way through the ice, another car, a Canadian National [Canadian Government Railways, from the photo] loaded with pulp wood went partially through and one stayed up. (53) Another description of the accident indicated that water inside the drawboat had frozen [which probably started a leak] and it lost buoyancy when the westbound train loaded with pulp went over. The engine had just gone off the drawboat onto the trestle when the load pushed the east end of the boat down, increased the grade and the cars uncoupled and fell onto the ice. The engine was not damaged. (54) Work began immediately to raise the drawboat and restore service.

"The Rutland Railroad Co. has had a force of forty or fifty men at work during the past week on the Fort Ticonderoga drawbridge, which sunk Wednesday night of last week. The men have not as yet raised the float to the surface and, therefore, it is not known whether it will have to be replaced by a new one. It will be a month or more before

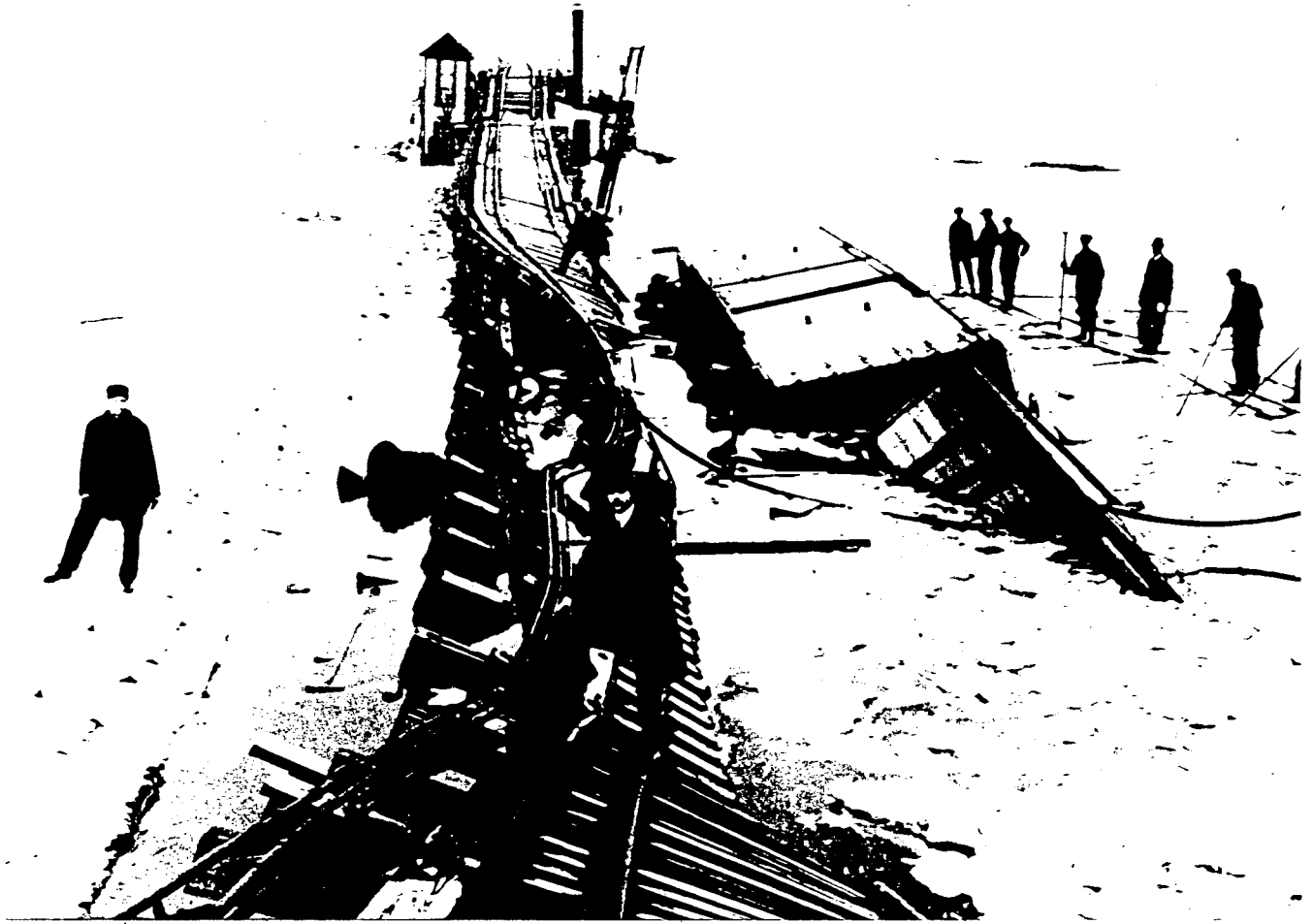


Photo of March 20, 1918, accident to floating drawbridge. View is looking due west towards the New York shore.

the railroad can resume traffic over the bridge." (55)

During the winter of 1919-1920, the snow was apparently so deep that two large freight engines were used to push a plow on the Addison. When the plow came to the drawbridge, the bridge foreman made it drop one engine before proceeding across the draw. Still, the engine and plow reportedly lowered the drawboat 2½ feet and the plow blade peeled off wood timbers as it went up. (56)

On July 28, 1920, it was reported that "an engine broke through, nearly going into the lake." (57) By the end of 1920, as we have seen, mounting maintenance problems with the drawbridge led to the closing of the crossing.

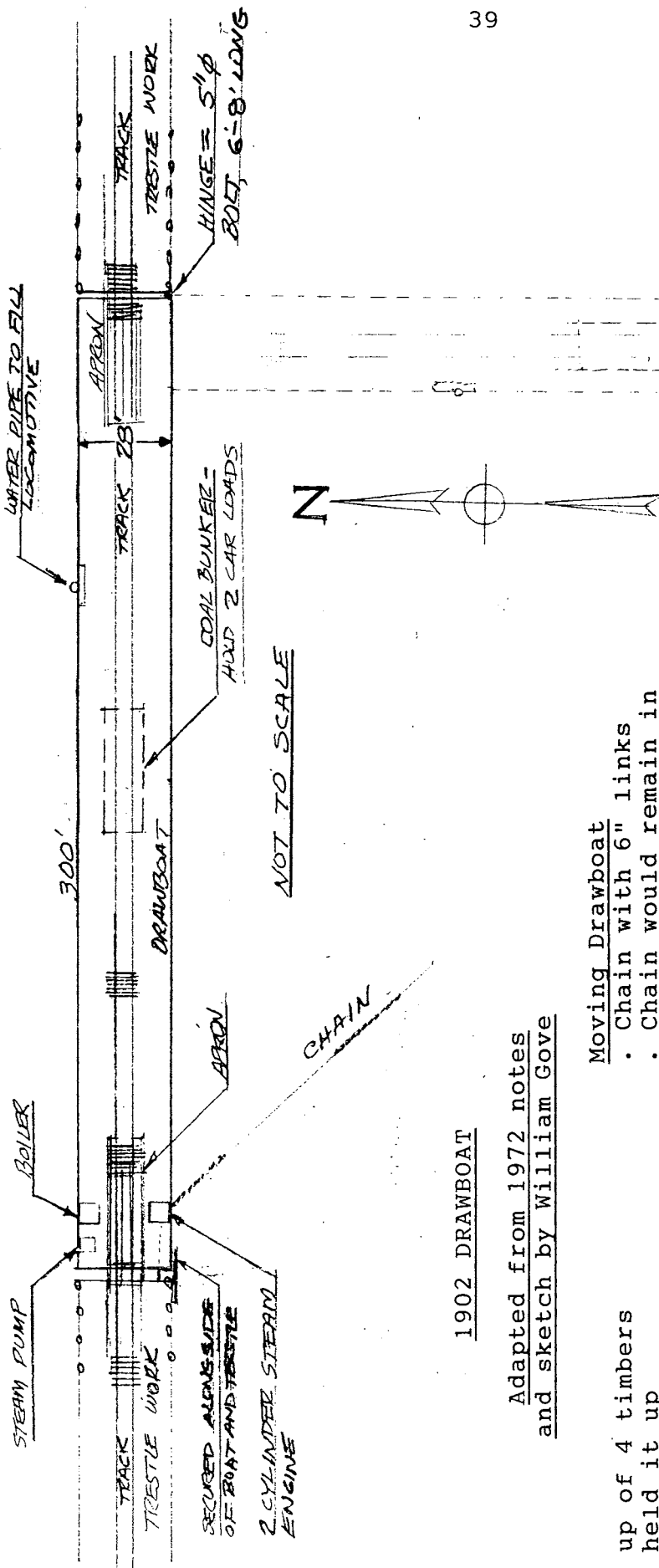
The drawboat was probably removed from the opening at the end of 1920 when train service was discontinued but was kept in reserve until a new drawbridge could be built or the crossing formally abandoned. What happened to the drawboat during its final years and its ultimate fate are uncertain.

Captain Merritt E. Carpenter of Burlington, Vermont, a retired ferry captain for the Lake Champlain Transportation Company, vividly remembers when, as a young child, he was taken for his first trip on the steamer *Vermont (III)* to Montcalm Landing, Ticonderoga, in 1922 or 1923, and seeing the drawboat, out of service, tied up alongside the trestle on the New York side with its track, boiler house, stack, and donkey engine house all in place. (58) It thus appears that the railroad did keep the drawboat in reserve but tied up alongside the trestle until 1923 when the ICC allowed the railroad to abandon the crossing.

Cushman Baker, of Forestdale, Vermont, was a Navy veteran, shipyard worker, fireman on the Rutland and Addison Branch Railroads, and part time operator on the Chipman Point-Wright and Larrabees Point-Fort Ticonderoga ferries between 1967-1984. He recalled that the late George Trombley, originally of Shoreham but later of Ticonderoga, who as a young man had "fired the boiler" on the drawboat, told him that he had "pulled the plug" on the last drawboat when they sank it on the south side of Willow Point on the New York shore after the boat was no longer needed. (This was probably in 1923, but the date is conjectural.) Trombley also told Cushman Baker that the drawboat was subsequently raised and taken somewhere else to be used. (59a)

Captain Martin Fisher's long career as a master of Lake Champlain, Lake George, Hudson River and Long Island Sound steam and motor vessels, includes being the captain of the Lake Champlain steamer *Ticonderoga* in her final year (1953) of service. Captain Fisher had heard that the drawboat was taken to Wright, New York, to be used at the Chipman Point-Wright ferry crossing. (59b) Jim Bullard had been told that a sunken and debris filled barge lies under the roadway of the ferry landing on the New York side of the Larrabees Point-Ticonderoga ferry crossing. (59c)

Someone, possibly Albert Bourdeau, also formerly of Shoreham but



NOT TO SCALE

1902 DRAWBOAT

Adapted from 1972 notes
and sketch by William Gove

Apron

- Made up of 4 timbers
- Legs held it up
- Had shoes on end which fit into depression on fixed end of trestle landing pier
- Rails fit into flanges
- Sometimes had to take bar and jack over into place
- At end of landing pier could vary height of track as much as 6' depending on lake height, block up
- Also can taper up rails on barge
- Hydraulic jack used to free apron, apron would lock up in the air and stay on boat
- Steam pump [also] used to put water in hydraulic jack

Moving Drawboat

- Chain with 6" links
- Chain would remain in place and to open, boat walked along chain by means of powered sprocket and 2 idler sprockets [on the steam winch]
- Pivoted at [southeast] corner on 5" diameter bolt, 6-8' long, so boat could go up or down on it

Other Notes

- Had to keep ice cut for 2' along each side to allow boat to move freely

PILES (?)
USED TO
ANCHOR CHAIN

APB
3-7-93

FIG. 10

later Ticonderoga, a bridge foreman on the drawbridge, told William Gove, railroad historian and author, of Randolph, Vermont, that the drawboat had been sunk on the Vermont side near the trestle but was raised within a few years and taken somewhere down the lake to be used as a dock. (60) The date, location and other circumstances of the sinking and subsequent salvage of the drawboat are unknown. However, since the 1992 underwater survey only located the remains of two drawboats near the crossing, it supports the story that the 1902 boat was removed from the area, and the two drawboats found were the remains of the 1871 and 1888 boats.

An interesting description of the 1902 drawboat was given to Bill Gove by someone who obviously had a detailed knowledge of it, probably George Trombley or Albert Bourdeau, from which he made an annotated sketch. (61) (Fig.10) The width (beam) is given as 28 feet whereas the newspaper accounts list it as 26 feet as previously reported. (Scaling this dimension from the existing photographs indicates it was in the 26-28 foot range but certainly less than 30 feet.) In any event, it was narrower than its predecessors, and this narrower beam may have been a factor when the box cars went off the draw in 1918, although with the boat full of water it may not have made much difference.

Other details provided were the location of the steam pump, the water fill pipe for the locomotives (located in a slightly different place than shown on the Rutland Railroad valuation sheet) and coal bunkers holding two carloads were provided amidships to supply the boiler for the steam donkey engine and steam pump and the two stoves. It was noted that a hydraulic jack was provided to raise and lower the aprons. The length of the drawbridge shown on the railroad valuation sheet is 313.8 feet but this probably included the space for the aprons that appear to extend beyond the ends of the boat and is consistent with the hull length of 300 feet given in the sketch and provided in all other accounts. (62)

Another possible difference between the 1902 boat and the earlier ones was the manner in which the boat was swung open and closed. In the description of the 1871 boat, and presumably in the 1888 one, the steam winch is reported as having two drums, one for each chain - one leading to the end of the trestle on the west end of the opening and the other to an anchorage (possibly a pile cluster or dolphin) in the lake south of the bridge. The boat was moved by taking up on one chain and slacking off on the other. In the 1902 boat, there was a single chain - one end secured to the trestle and the other out in the lake that ran through a winch that was fitted with a drive drum with sprockets and two idler (guide) drums. There would be enough slack in the chain so that the part not under tension would always lie on the lake bottom as the winch walked itself along the chain to open or close the draw. (63) It was a simple yet effective mechanism and the only problem appeared to be when the wind was exceptionally strong, the chain would slip on the sprockets and the draw could not be opened or closed as reported on a few occasions.

Based on the photo (Fig.5) the chain to the trestle appears to run through a hawse pipe in the west end of the boat near its

SCHEDULE SHOWING PROPERTY CHANGES SUBSEQUENT TO VALUATION DATE 1917-

A.F.E. NUMBER	COMP. REPORT NO.	YEAR INSTALLED	YEAR RETIRED	CHAINING STA.		DESCRIPTION OF PROPERTY	DATE MAP REVISED
				FROM	TO		
693	4	1921		End Track "A"		60' Turntable	12-27-28
748	46	1921		58+05	58+65	Temporary Engine House	12-27-28
773	8	1922		On Track "A"		Purchase of Ice House	12-27-28
850	66	1922	1922	End Track "A"		70' Turntable	12-27-28
-	19	1917		70+60	74+60	Portable Snow Fence	12-27-28
863	73	1922		End of Track "B"		30' Extension to Track "B"	12-27-28
1-B	25-B		1923	45+00 end 52+80	57+25	Retiring all facilities	12-27-28
1675	83	1929		60+57	67+02	295' Extension to Track "B"	5-6-31
1685	66	1929	1929	100+84.6	101+04.2	Retirement of 1916 Trestle - Installing Pipe	5-23-33
			1935	67+20	76+163	Tool House Moved to Leicester Jct.	4-8-35
2020	44		1934	58+05		Retirement of Engine House	10-25-35
2071	29		1935	57+78		Retirement of Watchman's House	9-9-36
2092	29		1936	60+00		Retirement of Ice House	8-17-37
2571	28		1946	62+17		Retirement of 130' Track "A" Move Turntable	3-15-49

RIGHT-OF-WAY AND TRACK MAP

ADDISON RAILROAD
OPERATED BY THE
RUTLAND RAILROAD COMPANY
AS LESSEE

ADDISON BRANCH

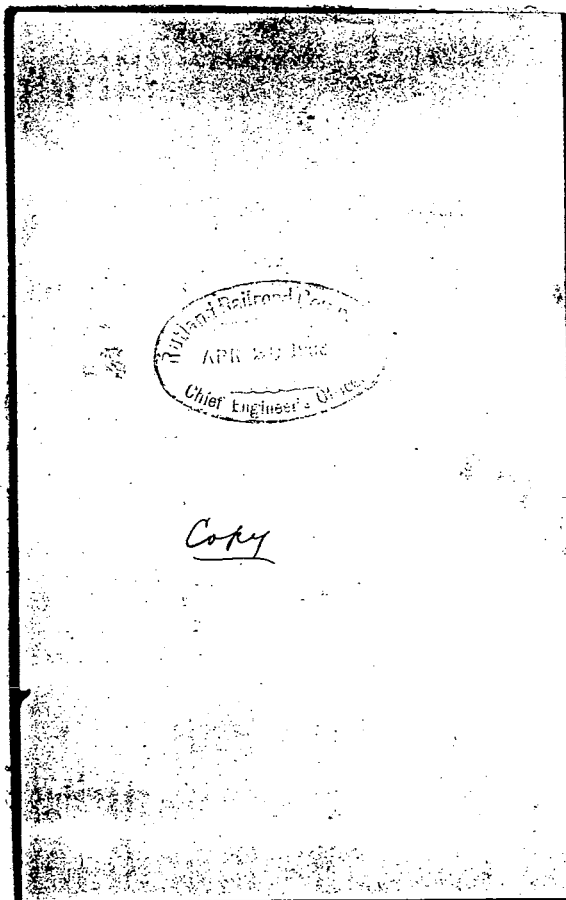
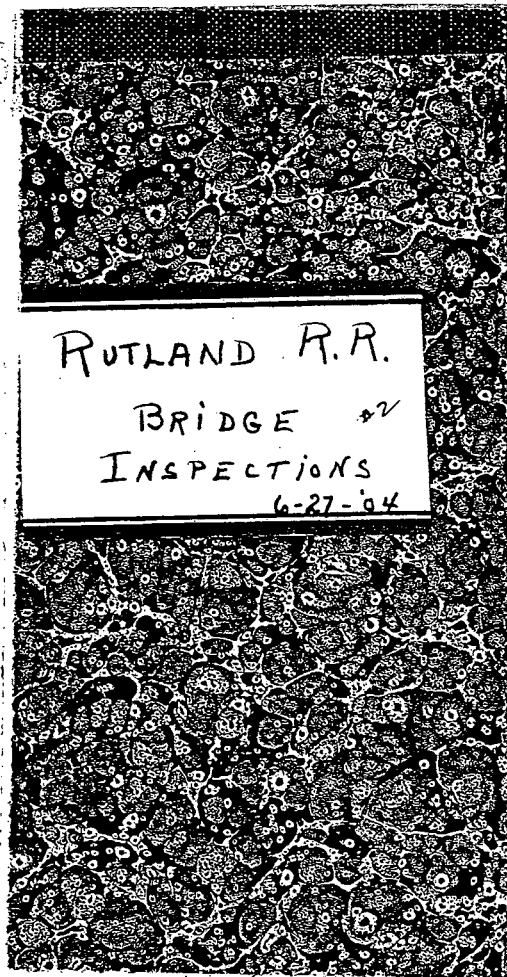
FROM STATION 52+80 TO STATION 105+60
SCALE 1 IN. = 100 FT. JUNE 30, 1917.

OFFICE OF VALUATION ENGINEER
RUTLAND, VT.



southwest corner. The chain would then lead to the winch, probably going over the tops of the idler drums and under the drive drum, and then out the south side of the boat to an anchorage in the lake. On Bill Gove's sketch, the lake end goes to what appears to be three piles, so a pile cluster or a dolphin might have been used.

During the day shift, two men were aboard the drawboat, at night only one. (64) The day shift probably consisted of the bridge foreman and a fireman, and at night, a fireman or watchman. Two of the bridge foremen were William Sweet and Albert Bourdeau. (65) George Trombley had served as a fireman on the boat at one time. In the winter, although the draw was not opened, it was necessary to cut the ice daily for a width of two feet all around the boat so that it would move freely. (66)



Rutland

Bridge No. 2 Division Addison Branch

Location Larabee Point to Burleigh Deck

Local Name Burleigh Trestle

Total Length 600 No. Spans —

Length of each span —

Clear — Total —

Through or Deck Deck Width in clear —

Height in clear above rails —

Type of Bridge Pile Trestle

Material Wood When built —

When and how strengthened or repaired —

For what load designed —

Maximum load actually used —

Maximum stress per square inch —

Tension — Compression —

How often inspected Every 3 Months & oftener if Necessary

By whom Chief Engr. Bridge Inspector Rutland & Section Foreman

Repairs and changes since last report —

Repairs and changes which will be made during the year —

Remarks New trestle built
Out in 1904

REPAIRS AND CHANGES

In year 190 —

In year 190 —

INSPECTION BY THE BOARD

Rutland Railroad Company bridge inspection report for Burleigh's trestle for the period 1902-1904 showing repairs made in 1904. (Rutland R.R. Bridge Inspections, No. 2, 6-27-04)

V The Larrabees Point-Willow Point and Beadles Cove Trestles: Some Additional Remarks

The Larrabees Point-Willow Point Trestle

Although the drawboat had probably been sunk since about 1923, the wood pile trestle at this crossing apparently lasted until 1928 (1) or 1929 (2) (Fig.19), when the site for the vehicular bridge was assured and the bridge was actually under construction between Crown Point and Chimney Point.

Cushman Baker recalled that the piling had been removed by cutting them off with dynamite by lowering a steel collar filled with the explosive down over the piles and detonating it at the lake bottom. The piling were then taken out and stacked behind the old ice house on the south point of Beadles Cove near the turntable until sold to a sawmill. Cushman Baker's father, Julius W. Baker, a farmer from East Shoreham, had the contract to draw the piling to the sawmill. This was done during the winter with horse drawn sleds. (3) The sawmill may have been in Ticonderoga. (4) The trestle was entirely removed to eliminate an obstruction to navigation.

The timber cribs that were originally to be located at 100 foot intervals across the lake were, except for probably one, apparently not constructed. One 30' x 30' crib was located along the south side of the trestle on the Vermont side during the 1992 underwater survey. This may have been the "pier" that was reported to have sunk twelve feet below the water on the Vermont side during construction of the trestle in May 1871.

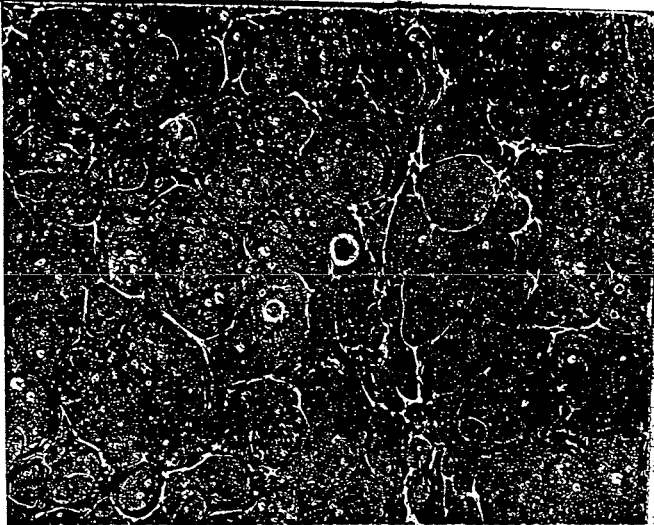
The Beadles Cove (Burleigh's) Trestle

The wood pile trestle across Beadles Cove which was built in 1874 and served the H.G.Burleigh & Brother dock and coal yard on the north point of Beadles Cove was expected to, and did, improve the coal business at that place. "The coal trade of H.G.Burleigh & Bro. had opened better this season than ever before and with the prospect of holding good. Thus far they have sold 45,000 tons, 30,000 of it going to Montreal dealers, and the balance lake trade. Their new trestle work branch rail road, across the mouth East of Creek [sic] is nearly completed and will soon be in condition for running cars, when the work of shipping coal to Vermont dealers will begin." (5)

In 1877, Burleigh's business suffered a serious but temporary set back due to a large explosion and fire that destroyed a storehouse and part of the wharf at Larrabees Point. "The store house of The Messrs. Burleigh Brothers on Larrabee's Point, in which was stored about 125 barrels of powder, 2,000 bushels of oats and other kinds of grain, A large amount of pork, a locomotive, &c, was discovered to be on fire at 2 o'clock yesterday afternoon [September 27]. The flames had obtained so much headway that it could not be checked. At about 3 o'clock the powder exploded, sweeping the buildings and its contents in every direction. A large quantity of coal in and around the building caught fire and is still burning. A portion of the wharf is consumed. We are unable as we go to press to given [sic] full

1908

Retained Rutland Book No. 3
Bridges on Addison Branch from No. 1 at
Lake Champlain to No. 24 at Leicester
Junction.



BRIDGE REPORT

—OF—

RAILROAD

To Vermont Railroad Commissioners

Filed in the Clerk's Office,

190

Clerk.

Rutland

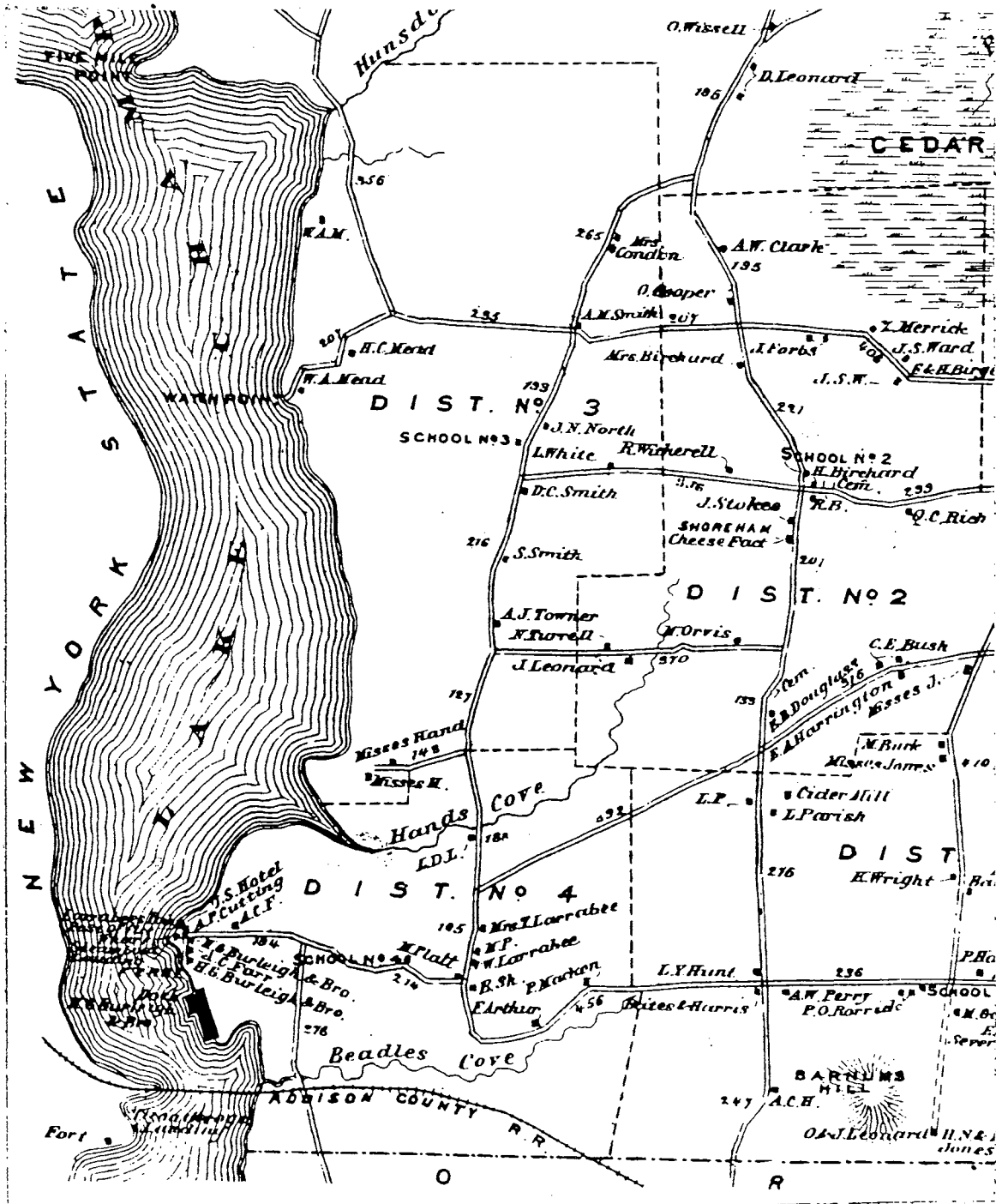
Bridge No. *2432* Division *Addison Branch*
 Location *Larabee Pt. to Burleigh's Box*
 Local Name *Burleigh Trestle*
 Total Length *700* No. Spans *1*
 Length of each Span *700*
 Clear *700* Total *700*
 Through or Deck *Deck* Width in clear *700*
 Height in clear above rails *700*
 Type of Bridge *Pile Trestle*
 Material *Timber* When built *1904*
 When and how strengthened or repaired *When built*
 For what load designed *When built*
 Maximum load actually used *When built*
 Repairs and changes since last report *When built*
 Remarks *1904*
 REPAIRS AND CHARGES.
 In year 190 *1904*
 Year 190 *1904*
 INSPECTION BY THE BOARD.

Rutland Railroad Company bridge inspection report for Burleigh's
 trestle for the period 1905-1908 showing repairs made in 1904.
 (Rutland Railroad Book No. 3 Bridges on the Addison Branch from
 No. 1 at Lake Champlain to No. 24 at Leicester Junction - 1908)

particulars, we will do so in our next issue. The loss is estimated between \$20,000 and \$25,000." (6)

As we have seen, six canal boats were built by the Burleighs in the winter of 1879-1880 at Larrabees Point as well as a new sawmill. In 1882, the coal trade was still strong as it is reported "the Burleigh Brothers are receiving and shipping large quantities of coal at their yard at Larrabees Point." (7) In May, 1883, a problem with the trestle is reported. "One day last week [May 13-19], while the train from Leicester Junction to Larrabees Point was crossing the trestle at Burleigh Bro's. coal yard the tender of the engine went through." (8) In 1904 the 800 foot long trestle was repaired by the Rutland Railroad (new ties and rails) and it was still in service in 1908. (9)

How long the trestle was used has not come to light, however, it was probably abandoned long before the end of 1920 when the Ticonderoga drawbridge was closed and a 60 foot turntable was put in at the end of the line on the south side of Beadles Cove. (10) Unlike the main lake crossing there was no drawbridge on Burleigh's trestle - only a continuous pile trestle, since the cove was not considered navigable for lake commerce. Because of this, the trestle was not removed when it ceased to be used although the rails were undoubtedly taken up. The piling remain to this day - their tops normally just below the surface and awash at low lake stages.



Enlarged section of 1871 map of the town of Shoreham from Beer's Atlas showing the railroad trestle across Lake Champlain and the location of H. G. Burleigh & Brothers dock on the north side of Beadles Cove at Larrabees Point. Note that the railroad trestle across the mouth of Beadles Cove was not built until 1874.

VI The Mount Independence-Fort Ticonderoga Underwater Survey (1992):
Remains of the 1871 and 1888 Drawboats Located

In 1992, the Lake Champlain Maritime Museum at Basin Harbor, Vermont, was awarded a grant from the Lake Champlain Basin Program to document and inventory underwater cultural resources in the Mount Independence-Fort Ticonderoga area between the Larrabees Point-Fort Ticonderoga ferry crossing and the former Chipman Point-Wright ferry crossing. (Map K) The project was carried out by the Maritime Museum in close cooperation with Middlebury College, the Institute of Nautical Archaeology at Texas A & M University, the Fort Ticonderoga Museum and the Vermont Division for Historic Preservation.

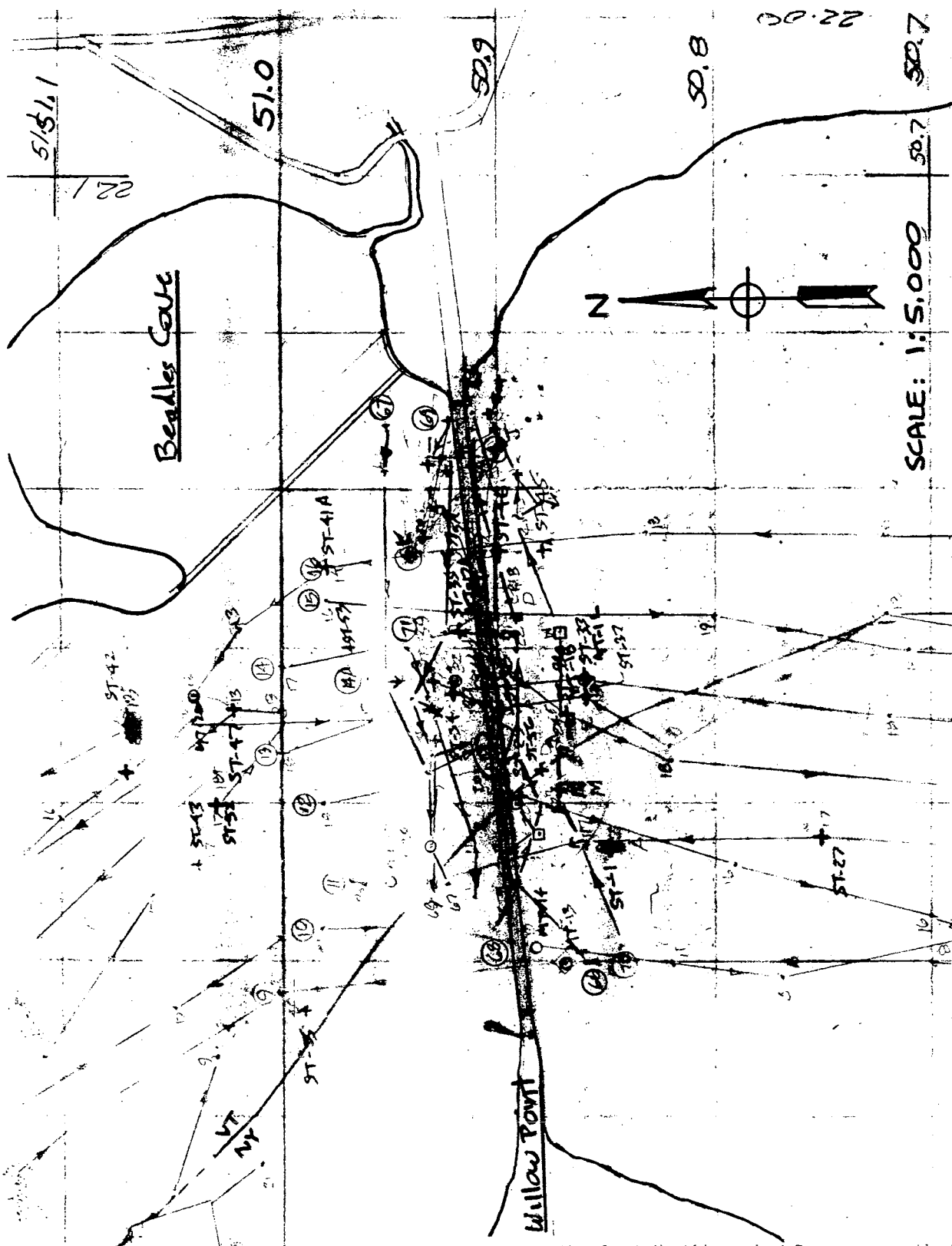
The project was motivated, in part, by concern over a recent incident of the removal of Revolutionary War era artifacts by a diver and the further deterioration of the remains of the caissons of the "Great Bridge" that linked Mount Independence with Fort Ticonderoga in 1777. The bridge caissons had been previously located by the Champlain Maritime Society (CMS) during the course of an underwater survey in 1983 that was funded by a grant from the Vermont Division for Historic Preservation. (1) Because of these concerns, the project was also intended to develop a plan for the management, protection and preservation of submerged cultural resources in the area.

The underwater investigation was divided into two phases. Phase I was to locate, identify and plot underwater cultural resources in the project area while simultaneously producing important geological and bathometric data. This phase was to be carried out by using remote sensing equipment - side scan sonars and fathometers - to map the lake bottom by locating cultural, geological and bathometric features, and a proton procession magnetometer to locate concentrations of underwater ferrous metals. Navigational control was to be maintained by using Loran C and GPS (Global Positioning System). Phase II was a detailed underwater archaeological survey of the "Great Bridge" and contiguous areas.

The Phase I objective was to survey the project area as thoroughly as possible to locate and verify all 18th, 19th, and 20th century cultural resources that could be found, with particular emphasis on the area of the "Great Bridge", the former Addison Branch Railroad crossing, the King's Shipyard area at Fort Ticonderoga and several canal boat wrecks located during the 1983 CMS survey.

Project survey vessels were Middlebury College's R/V *Baldwin*, Fred Fayette's R/V *Neptune*, and Art Cohn's inflatable (an Avon) that was used as a tender, dive boat and for shallow water magnetometer surveys. The base of operations was Teachout's wharf next to the Larrabees Point ferry dock.

The Phase I survey team consisted of Arthur Cohn (Lake Champlain Maritime Museum - project director), Dr. Patricia Manley (Middlebury College - principal investigator), Fred Fayette (boat operator), Todd Hannahs (magnetometer operator), Chris Goodrich (Middlebury College computer specialist), Middlebury College students Kelly Kryc, Holly Hodson and Mike Sayre, divers Ron Plouffe and Jonathan Eddy, and Peter



Underwater survey of the Addison Branch Railroad crossing between Ticonderoga and Larrabees Point showing uncorrected vessel tracks, soundings and sonar targets for lines 9-16 (May 26, 1992 - R/V BALDWIN) and lines 66-71 (May 26-27, 1992 - R/V NEPTUNE). North-south runs appear fainter due to mylar overlay of east-west runs. Data later was reduced (corrected) and replotted at a larger scale to develop final survey chart.

Barranco (navigator). Generous support was provided as follows: Mahlon Teachout of Teachout's Lake House and Wharf provided dock space for the *Baldwin* and *Neptune*, and Jim Bullard of the Larrabees Point Ferry provided a guest camp for use by team members staying at Larrabees Point.

The narrow (1600-3600 feet wide), shallow (27 feet maximum, 50% less than 15 feet) and serpentine configuration of the lake in the project area made it difficult to lay out search patterns. Since effective coverage depended upon running straight, parallel lines spaced such that the sonar search path would overlap the previous one - like mowing a lawn - the project area was broken up into 13 zones. Start and end points (latitude and longitude) were calculated for each line and these values were entered into the navigation computer (Micro Mariner) on the *Baldwin* or *Loran* on the *Neptune* and the vessels stayed on the courses while towing the sonar transducer and magnetometer.

Most line spacing was 50 meters with a sonar search width of 37.5 meters (each side) giving an overlap of 25 meters if the vessels stayed on the desired course. Other wider spacings were used where a larger area was to be covered. Time, position (latitude and longitude) from either *Loran* or GPS, depth, speed (usually 2.5-3.0 knots) and vessel heading were logged every minute or whenever a sonar or magnetometer target, course change or landmark were observed.

The railroad crossing was located in Zones C and H (Fig.19). The survey of Zone C was carried out by *Baldwin* on May 20 and encompassed lines 9-16 which were generally north-south runs. At 5:46 PM while southbound on line 12 what appeared to be a canal boat wreck to port was observed on the sonar. This wreck later turned out to be the detached piece of the 1888 drawboat that was lying in the former draw opening. At 6:09 PM on the following northbound run (line 13) a "double wreck" appeared on the sonar in 25 feet of water. This later turned out to be the other larger part of the 1888 drawboat. At 6:19 PM while northbound on line 14, a large square target in 24 feet was located along the line of the former trestle. It was not until long after the survey was completed and after many hours of examining sonar records and navigation data that it was concluded that the "double wreck" and the "canal boat" wreck were actually part of one wreck - the 1888 drawboat. The location of the crib proved to be the key to the puzzle.

On May 25, Zone H was surveyed by *Neptune*. At 4:42 PM while southbound on line 51, wreckage was now observed on the sonar on both sides of the *Neptune* at a point a little north of the boat ramp near the Vermont end of the former trestle. At 5:16 PM, while making the approach for line 53 (also southbound) a large target showing two parallel lines and a square end was observed in the same area as the wreckage at 4:42. After completing the remainder of Zone H, the *Neptune* went back to further investigate the previous large target. Between 7:25 and 7:35, several good images were obtained and we were fairly certain that one of the railroad drawboats had been located. Which one was not known at the time, however, the existence and dimensions of the drawboats was known from newspaper articles the writer had come across years before while doing other research, so we

knew what we had located.

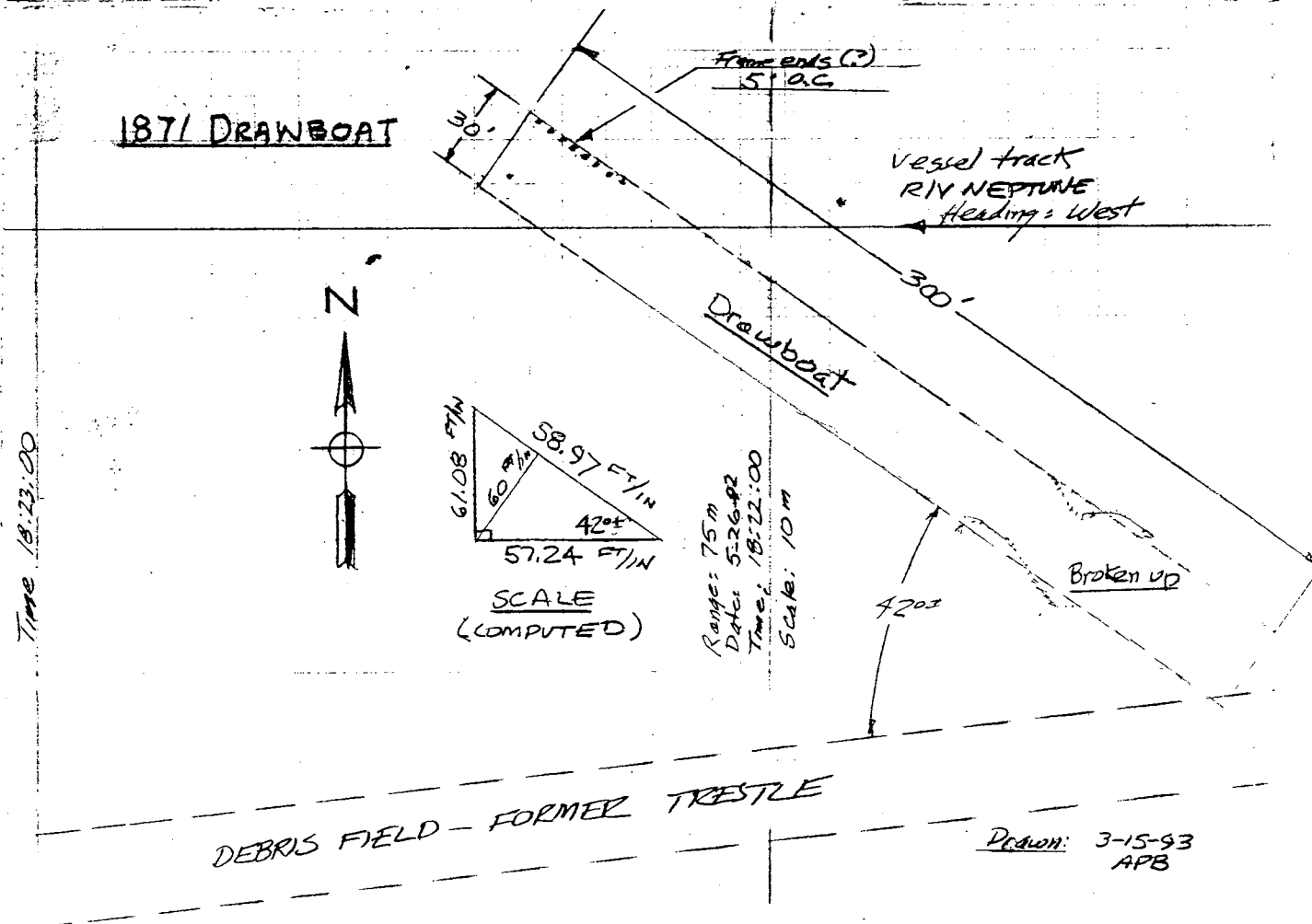
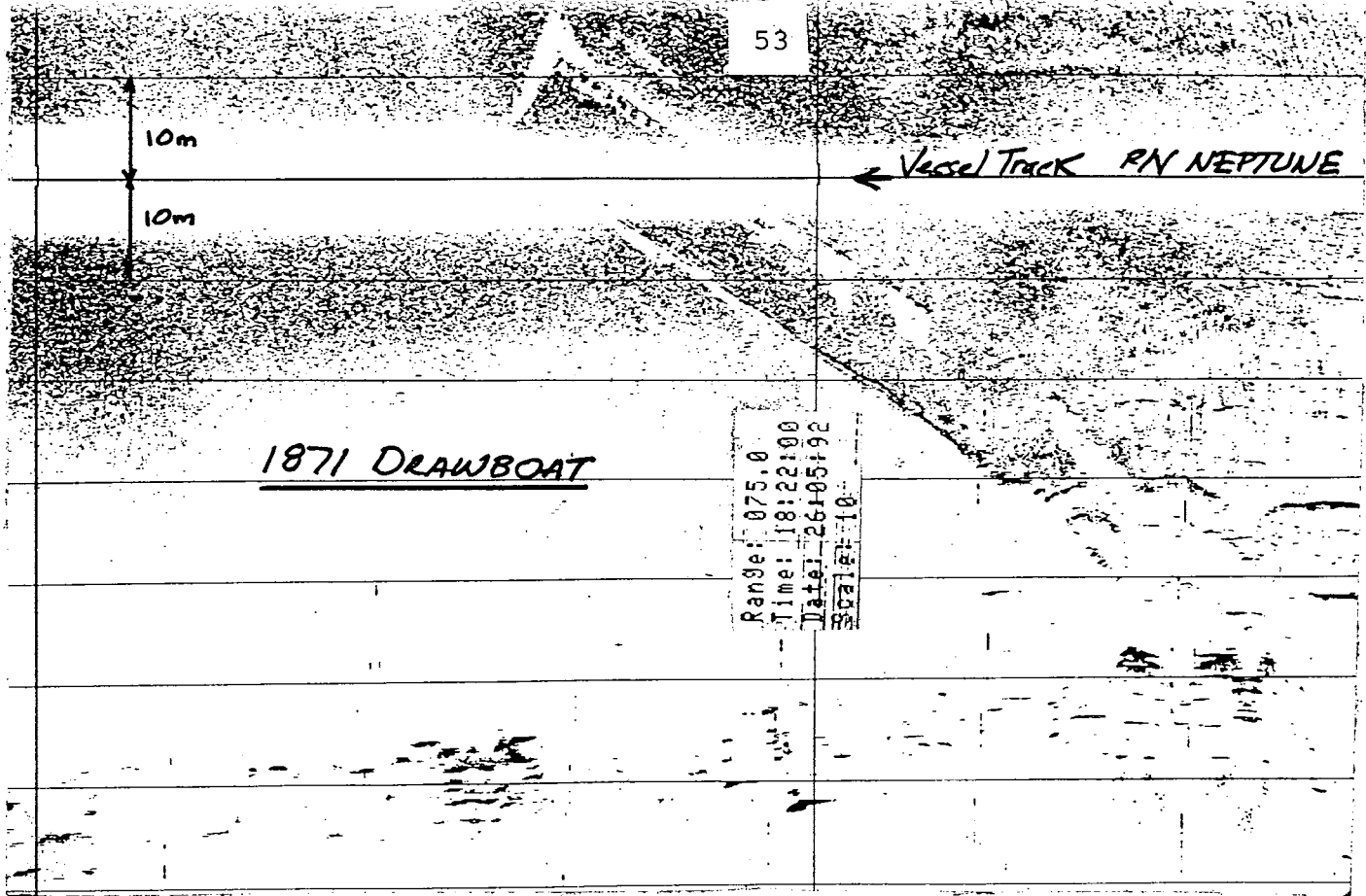
On May 26, the wrecks located on the previous days were buoyed. These were the "double wreck" and the "canal boat" wreck near it, the crib and the drawboat near the boat ramp. East-west lines 66-69 were run by *Neptune* parallel to and north and south of the railroad crossing between 6:15 and 6:40 PM to better define targets by intersecting the north-south lines.

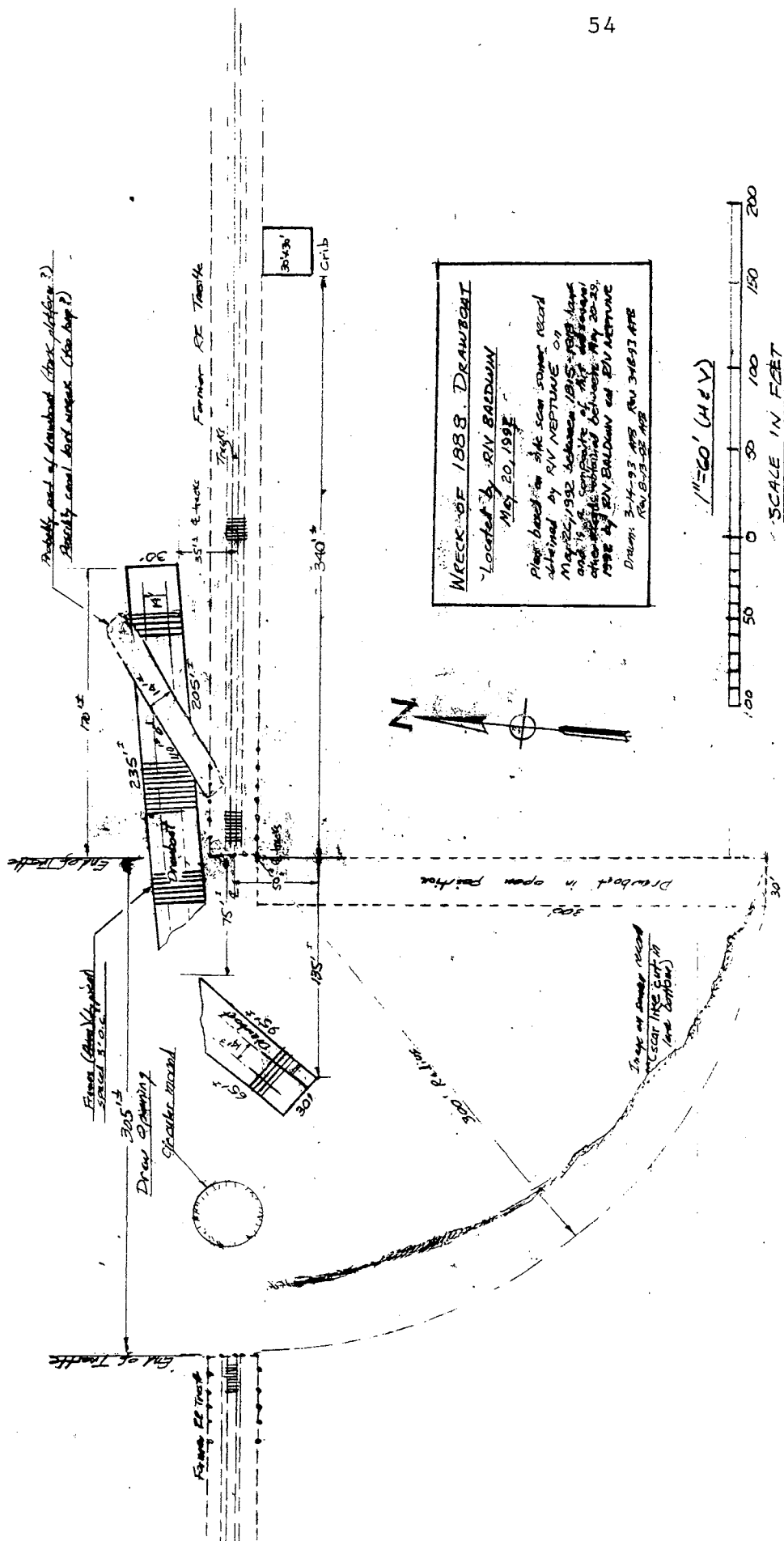
On the morning of May 27, *Neptune* ran two more east-west lines (70-71) and then spent the remainder of the morning resetting buoys on the drawboat off the boat ramp and on the crib, obtaining more sonar images of these targets. Later that morning, Art Cohn and Jonathan Eddy in the *Avon* carried out a dive verification on the crib and drawboat. At 12:40, the dive team reported that the crib was a massive structure about 25 or 30 feet square made up of 10 x 10 inch square timbers. At 1:27, the drawboat off the boat ramp was verified and reported to be in poor condition. That afternoon Art Cohn dove on the "double wreck" and the "canal boat" near it. Due to the 'zero' visibility it was difficult to tell what had been located except that the "double wreck" was one wreck or wreckage lying on the top of another. It appeared that we were dealing with another drawboat as well, based on the sonar record and the dive observations.

Because of the congested nature of the targets in the area, the size of the drawboats, and the confusing navigation data, it was difficult to tell how many wrecks we were dealing with and their exact locations. There was another canal boat wreck reported located by side scan sonar during the 1983 CMS survey southeast of Willow Point. During the 1992 survey we looked for this wreck and on two occasions thought it had been relocated. However, a close examination of the sonar record for one of the contacts indicated it was not a wreck. The other 1992 contact and the 1983 one could have been the detached part of the 1888 drawboat or a canal boat as originally identified. Two canal boat wrecks lying side by side off the north point of Beadles Cove which were located in 1983 were relocated in 1992 (Fig.15)

The confusing collection of wrecks, bridges, debris and other targets at the railroad crossing did not become clear until much time was spent going over the sonar records, position data and soundings. The location of the crib was finally established and this location and the layout of the bridge from the valuation sheets enabled the two parts of the 1888 drawboat to be plotted. The position of the 1871 drawboat near the boat ramp was equally confusing, however, the location shown on Figure 15 is felt to be the best fit of the existing data.

Two interesting features that appear on several of the sonar records showing the draw opening and the 1888 drawboat are a mound about 40 feet in diameter on the bottom near the west end of the draw and a scarlike feature extending in an arc from the west side of the draw to a location due south of the east end of the draw. What this mound consists of is unknown. It is possible it is made up of ashes from the firebox for the steam boiler, however, its location, i.e.





directly under the bottom of the drawboat, would seem to make this unlikely since the ashes probably would have been dumped over the side of the boat.

The scarlike feature is even more intriguing. It appears to be a narrow cut in the lake bottom as if made by dragging something across the bottom or pulling up on something buried in the bottom like a cable or chain. It is located on the bottom about where the chain from the drawboat would lay as the boat was swung open and closed. However, if it was this, it seems most unlikely that such a feature would remain open and visible more than seventy years after the last drawboat ceased operation. Perhaps, someday, this puzzle and that of the mound will be solved.

There were a number of magnetometer 'hits' in the project area, however, there were none that would seem to indicate large iron or steel objects such as a railroad car or locomotive. Rumors that there was a locomotive on the lake bottom in the area appear to have been dispelled. Undoubtedly the contacts that were recorded were smaller objects such as rails, tools or other railroad related 'iron'.

The results of the underwater survey of the Addison Branch Railroad crossing were more than could have been expected. To find one of the drawboats would have made it all worthwhile, to have located two, was a real bonus. Perhaps, someday the 1902 drawboat will be located and we will be able to directly compare the three craft.

VII Conclusions: Some Final Thoughts

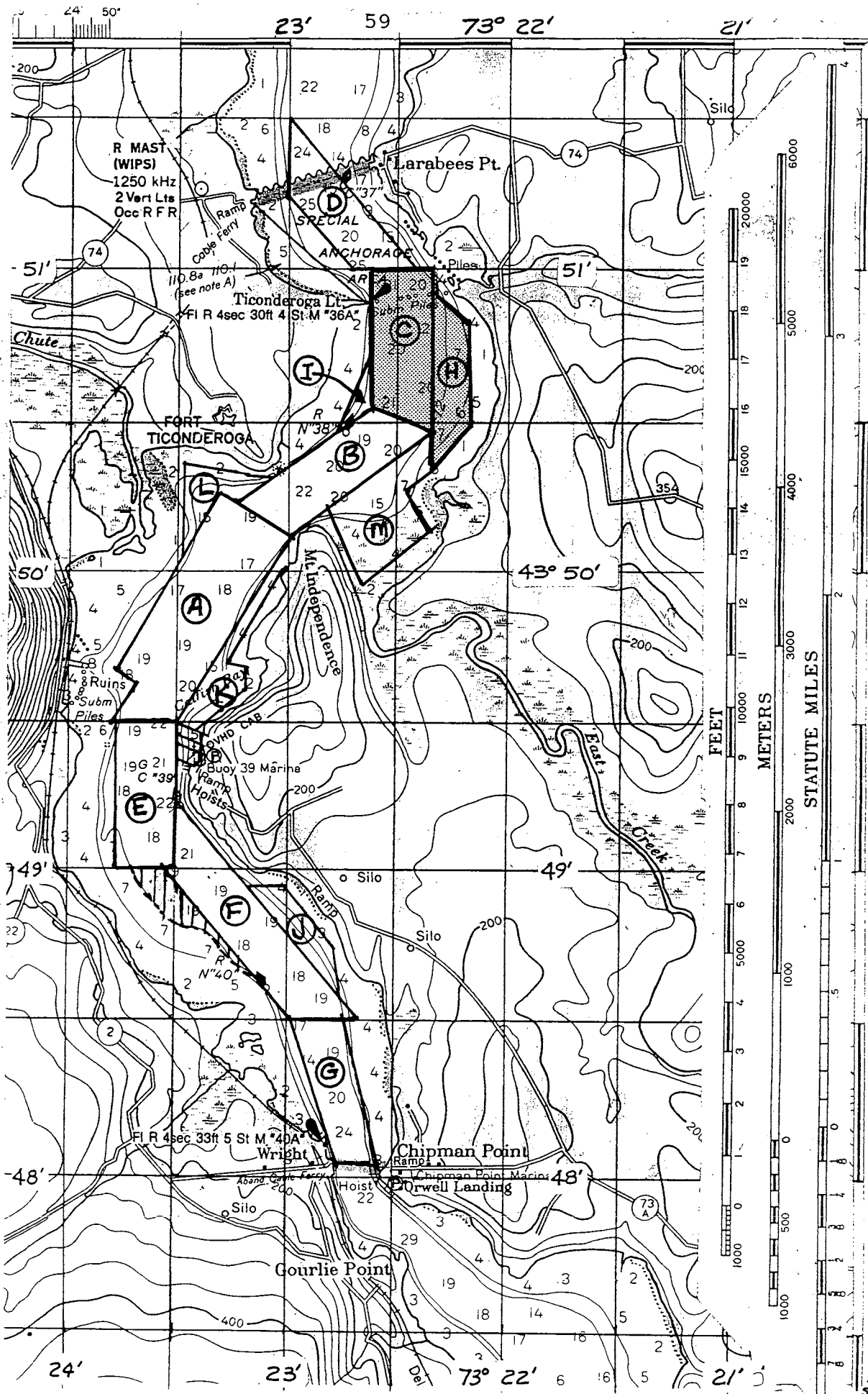
The main objective of the first phase of the survey was to locate, identify, and plot cultural resources within the project area. All project elements, including the survey of the Addison Branch Railroad trestle and floating drawbridge site, met this objective. In the case of the survey of the railroad crossing, results exceeded project expectations by actually locating and identifying the remains of two of the drawboats that were used at the bridge.

The underwater finds at the drawbridge site provide a preliminary glimpse of the physical remains of the drawboats. It will be up to future archaeological studies to document construction details of these interesting craft and to further investigate and map the project area. An investigation of the mound and scar like feature at the draw opening would be particularly interesting.

As with any research project, there is always a beginning but never an end. This certainty is true with this project. It is hoped that the start made here will result in others extending our knowledge of this largely forgotten but important part of the transportation history of the Champlain Valley. The author will also continue to 'keep the book open' and would be pleased to hear of any more pieces of the puzzle that may be found.



Undated photo of the Addison Branch Railroad trestle and drawbridge. Looking southwesterly from Larrabees Point. From what little can be seen of the drawboat in the original photo, the size and location of the control house and the location of the boiler stack appear to be different from the 1902 drawboat. It may show the 1888 drawboat.



Mount Independence-Fort Ticonderoga Underwater Survey,
May 1992 - Zones C and H - containing the Addison
Branch Railroad crossing

END NOTES

Newspaper Abbreviations

BDFP	Burlington Daily Free Press
BFP	Burlington Free Press
BFPT	Burlington Free Press and Times
ECR	Essex County Republican
MR	Middlebury Register
PR	Plattsburgh Republican
RDH	Rutland Daily Herald
SAM	St. Albans Messenger
SAWM	St. Albans Weekly Messenger
SAMT	St. Albans Messenger and Transcript
TS	Ticonderoga Sentinel
TST	Ticonderoga Sentinel and Ticonderogian
VV	Vergennes Vermonter
VEV	Vergennes Enterprise and Vermonter

I. The Western Connection, 1851: Bridging Lake Champlain

1. VV 9/17/1981
2. VV 4/16/1851
3. SAM 11/7/1850
4. VV 10/30/1850, BFP 10/28/1850 Evening Edition
5. SAM 11/17/1850
6. VV 11/20/1850
7. BFPT 7/7/1851
8. Untitled and undated map (1859 handwritten) showing the Vermont and Canada Railroad drawbridge and trestle crossing Missisquoi Bay from West Swanton (Hog Island) to East Alburg. (Vermont Historical Society); and, History of the Town of Alburgh, Vermont, Allen L. Stratton, 1986, p.352.
9. VV 3/26/1851
10. VV 9/17/1851
11. The Rutland Road, Jim Shaughnessy, p.58
12. BFPT 7/16/1851
13. The Rutland Road, Jim Shaughnessy, p.58
14. BFPT 7/16/1851
15. VV 3/26/1851
16. VV 7/9/1851
17. BDFP 4/3/1868
18. Ibid
19. Central Vermont Ry.Co. and Rutland Ry.Co. Right-of-Way and Track Maps, Office of Valuation Engineer, St. Albans: VT., June 30, 1917 (as subsequently updated). The Windmill Point and Rouses Point sections are shown on Sheets V8F/1, V10/1 and V8E/S-14A. (Vermont Dept. of Forests, Parks and Recreation).
20. SAWM 6/27/1884
21. TST 8/15/1884

II. The Railroads Expand, 1851-1871: Turmoil in the North Country

1. The Rutland Road, Jim Shaughnessy, p.25
2. Ibid., p.25
3. Ibid., p.25
4. Ibid., p.26
5. The Addison Road, Frank L. Webster, p.4
6. Shaughnessy, p.26
7. Ibid., p.29, 34
8. Webster, p.5; MR 11/8/1870
9. Shaughnessy, p.26
10. Webster, p.5
11. Shaughnessy, p.29, 35
12. Ibid., p.35
13. Ibid., p.35
14. RDH 2/8/1871

III. The Addison Branch Bridges Lake Champlain, 1871: History Repeated

1. The Addison Road, Frank L. Webster, p.4.
2. Ibid., p.5: The Rutland Road, Shaughnessy, p.26.
3. RDH 1/17/1871
4. Ibid.
5. RDH 1/16/1871; MR 1/17/1871
6. RDH 1/31/1871
7. RDH 1/23/1871, 1/24/1871, 1/26/1871, 1/28/1871, 1/31/1871
8. RDH 1/16/1871
9. RDH 2/22/1871
10. MR 2/28/1871
11. RDH 4/5/1871
12. RDH 4/27/1871
13. MR 5/9/1871
14. SAMT 6/2/1871
15. MR 8/8/1871
16. BFPT 9/27/1871
17. RDH 10/2/1871
18. Vermont Life, Autumn 1973, The Troublesome Addison Branch, William Gove, p.21; MR 8/8/1871
19. Gove, p.21
20. Ibid., p.21 Webster, p.18
21. Gove, pp. 21-22; Webster, p.18
22. Gove, pp. 21-22; Webster, pp. 18-19
23. VEV 8/26/1920; MR 9/3/1920
24. Ibid
25. VEV 9/2/1920; TS 8/19/1920, 8/26/1920, 9/16/1920
26. VEV 10/28/1920; MR 10/29/1920
27. VEV 7/6/1921
28. TS 7/27/1922, 8/3/1922
29. VEV 10/12/1922, 10/19/1922
30. VEV 11/30/1922, 12/7/1922, 1/25/1923
31. VEV 2/1/1923
32. VEV 5/24/1923
33. VEV 12/13/1923, 1/8/1925, 3/19/1925
34. Webster, pp. 22-23; Gove, pp 22-23

35. Gove, p. 23

IV. Ticonderoga's Floating Drawbridge, 1871-1920: A Closer Look at the Drawboats

1. RDH 2/21/1871
2. VV 9/29/1871; RDH 9/27/1871; MR 10/3/1871. The original description was published by the Rutland Daily Herald and was copied with minor changes by the Vergennes and Middlebury papers.
3. RDH 11/4/1868; BFP 12/15/1868
4. RDH 8/19/1871; BFPT 8/22/1871 Morning Edition; MR 8/22/1871, edited version
5. BFPT 9/22/1871 Evening Edition
6. BFPT 9/27/1871 Morning Edition
7. RDH 9/27/1871
8. BFPT 10/3/1871
9. RDH 10/2/1871; MR 10/3/1871
10. MR 12/12/1871
11. MR 4/30/1872
12. RDH 6/28/1872; MR 7/2/1872. Wording slightly different than in Rutland Daily Herald
13. RDH 10/8/1873
14. MR 11/5/1920 ("35 Years Ago")
15. RDH 11/15/1873
16. RDH 11/17/1873
17. ECR 6/22/1882; VV 6/23/1882
18. VV 7/14/1882
19. PR 12/20/1879
20. Information provided by Jim Bullard, 2/21/1993
21. TS 6/9/1882
22. MR 8/25/1874; TS 9/19/1874
23. BFPT 11/12/1888
24. TS 4/27/1893
25. BFPT 3/27/1897
26. VV 2/13/1902; MR 2/14/1902
27. RDH 2/8/1902
28. TS 2/13/1902
29. Ibid.
30. TS 2/27/1902
31. TS 5/29/1902
32. Ibid.
33. BFPT 3/25/1902
34. TS 4/10/1902
35. BFPT 3/25/1902; other reference, TS 5/1/1902
36. BFPT 6/17/1902
37. Map of the City of Burlington and Village of Winooski, L.P. White & Co., 1894 (Special Collections, Bailey Howe Library, University of Vermont).
38. BFPT 6/24/1902, 6/26/1902
39. BFPT 6/17/1902; other reference, VEV 6/26/1902
40. Ibid.
41. Ibid.
42. BFPT 6/24/1902
43. BFPT 6/25/1902
44. BFPT 6/27/1902

45. BFPT 6/26/1902; other reference, VEV 6/26/1902.
46. TS 6/26/1902
47. Vermont Life, Autumn 1973, The Troublesome Addison Branch, William Gove, p.22. Bill Gove kindly shared his 1972 research notes for this article with the writer. The above incident was related to Bill Gove by someone familiar with the drawbridge, probably George Trombley or Albert Bourdeau, both of whom had at one time worked on the drawboat, the former as a fireman, and the latter as a bridge foreman. Both men were living in Ticonderoga in 1972 and were interviewed. Unfortunately, the notes do not identify who provided this or other information, and it is not possible at this late date to recall who provided what information. However, these notes did record recollections of people who had first hand knowledge of the drawbridge and as such do provide an important historical record.
48. Ibid.
49. BFPT 4/17/1908
50. Gove, p.22; Webster, p.19
51. RDH 1/5/1918
52. VEV 3/28/1918; other reference, TS 3/21/1918
53. Gove, 1972 notes; Webster, p.19, car with marble sank but two box cars did not.
54. Gove, 1972 notes
55. TS 3/28/1918; similar article, VEV 4/4/1918
56. Gove, 1972 notes
57. Webster, p.19
58. Information provided by Capt. Merritt Carpenter on 1/20/1993 and 2/6/1993
- 59a Information provided by Cushman Baker on 8/8/1992 and 2/26/1993
- 59b Information provided by Capt. Martin Fisher, 8/16/1994
- 59c Information provided by James Bullard, 2/14/1993
60. Gove, 1972 notes
61. Ibid
62. Rutland Railroad, Valuation Sheet V5/1
63. Gove, 1972 notes
64. Ibid.
65. Ibid
66. Ibid

V The Larrabees Point - Willow Point and Beadles Cove (Burleigh's) Trestles: Some Additional Remarks

1. Gove, 1972 notes
2. Rutland Railroad, Valuation Sheet V5/2
3. Information provided by Cushman Baker, 8/8/1992 and 2/26/1993
4. Gove, 1972 notes
5. TS 10/3/1874
6. TS 9/28/1877; other reference, SAWM 10/5/1877
7. TS 8/25/1882
8. TS 5/25/1883
9. Rutland Railroad, Addison Branch, Bridge Inspection Reports, 1904 and 1908
10. Schedule Showing Property Changes Subsequent to Valuation Date 1917, Rutland Railroad, Valuation Sheet V5/2

- VI The Mount Independence-Fort Ticonderoga Underwater Survey, 1992.
Remains of the 1871 and 1888 Drawboats Located
1. A Report on the Nautical Archaeology of Lake Champlain - Results
of the 1983 Field Season of the Champlain Maritime Society,
 R.Montgomery Fischer, editor, June 1985, pp. 41-45

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Shaughnessy, Jim. **The Rutland Road**. Berkeley, California: Howell-North Books, 1964

Webster, Frank L. **The Addison Road**. Blum, Texas: Privately printed, 1985

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Vermont and New York newspapers consulted for this report are listed at the beginning of the End Notes.