United States Department of the Interior
Heritage Conservation and Recreation Service

National Register of Historic Places Inventory—Nomination Form

For HCRS use only
received 12 SEP 1979
date entered MAR 21 1980

See instructions in *How to Complete National Register Forms*
Type all entries—complete applicable sections

1. Name

historic TILTON ISLAND PARK BRIDGE

and/or common TILTON ISLAND PARK BRIDGE

2. Location

street & number Tilton Island Park ___ not for publication

city, town Tilton ___ vicinity of congressional district First

state New Hampshire code 33 county Belknap code 001

3. Classification

Category	Ownership	Status	Present Use	
___ district	_X_ public	___ occupied	___ agriculture	___ museum
___ building(s)	___ private	___ unoccupied	___ commercial	_X_ park
_X_ structure	___ both	___ work in progress	___ educational	___ private residence
___ site	**Public Acquisition**	**Accessible**	___ entertainment	___ religious
___ object	___ in process	___ yes: restricted	___ government	___ scientific
	___ being considered	_X_ yes: unrestricted	___ industrial	___ transportation
		___ no	___ military	___ other:

4. Owner of Property

name Town of Tilton, New Hampshire

street & number 145 Main Street

city, town Tilton ___ vicinity of state New Hampshire 03276

5. Location of Legal Description

courthouse, registry of deeds, etc. Belknap County Registry of Deeds

street & number Belknap County Courthouse
64 Court Street

city, town Laconia state New Hampshire 03246

6. Representation in Existing Surveys

title None has this property been determined elegible? ___ yes ___ no

date ___ federal ___ state ___ county ___ local

depository for survey records

city, town state

7. Description

Condition		Check one	Check one
___ excellent	___ deteriorated	___ unaltered	_X_ original site
_X_ good	___ ruins	_X_ altered	___ moved date _____
___ fair	___ unexposed		

Describe the present and original (if known) physical appearance

Tilton Island Park Bridge is a cast- and wrought-iron footbridge which provides access to a small wooded island in the middle of the Winnipesaukee River. It was manufactured by A.D. Briggs & Company and was erected in August of 1881, probably by J.R. Smith of Springfield, Massachusetts, whose plate appears on the end posts. It is 83' long, 10' wide, and about 5½' high. The abutments and a central pier are constructed of a regular ashlar of large cut granite blocks. The bridge is slightly arched and is about 8½' above the surface of the water.

The bridge design was patented by Lucius Truesdell of Warren, Massachusetts, in 1858. Truesdell's truss is essentially a wrought iron lattice, similar to Town's patent, in which the diagonals were apparently conceived to act primarily as tension members. Integrated with the lattice truss is a secondary grid of horizontal and vertical members which are secured to patented clamps at the interesections of the lattice members. The horizontal members are composed chiefly of thin wrought iron bars, and thus act primarily as tension members. The vertical members are X-section cast iron "standards" which fit into sockets in the patented clamps at the junctures of the lattice truss. These cast iron members presumably act principally in compression and were described as rendering the double truss system "more rigid."

According to a description of the act of the truss in Engineering News and American Contract Journal (April 20, 1883, p. 195), "Truesdell's invention consists of ... horizontal ribs or chords combined with a series of diagonal and vertical braces, by means of which the strain and tension of the various parts under a rolling weight is in a measure neutralized by the tendency of these parts to distribute the weight more evenly over the whole structure."

While Truesdell's patent called for the three rows of horizontal members between the top and bottom chords to be identically composed of wrought iron bars, the topmost of the three rows in the Tilton Island Park Bridge is actually a series of paired cast iron bars; these may be variations on the original patent or later replacements. The remaining two rows of horizontal members are chains of wrought bars, while the bottom chord of the bridge is a double chain of such bars. The top chord of the bridge, which also serves as a guard rail, is a heavy, flattish casting; spaced along the top are plates bearing the names of the fabricator and patentee.

Like the Town lattice truss, the Truesdell truss could be extended to varying lengths to suit local needs. Truesdell's patent called for major cast iron posts at intervals along the truss. The Tilton bridge has seven of these major posts, each consisting of a pair of castings which are T-shaped in section and flare out at the bottoms. These posts divide the bridge trusses into six panels and are located at each abutment, at the central supporting pier, and at two intermediate locations on each side of the pier. The posts which rest on the abutments or the pier extend to the bottom chord; the intermediate posts extend only to the lowest row of horizontal reinforcing members, not to the bottom chord.

The substructure is somewhat unusual in that the floor planking is nailed to crossbeams which rest directly on the lowest horizontal rib, not on stringers. There is lateral bracing below which consists of tie-rods running diagonally between the bottoms of the posts and central iron rings. The bridge is almost entirely original: only the wooden crossbeams and planking seem to have been replaced. Structurally, the bridge appears to be in sound condition.

balustrade, that on the first story having turned balusters of an inverted columnar profile, and those on the second having balusters of a double vasiform shape. The ceilings of the porch on each floor are flush boarded, and the boards are painted with an angular interlaced ornamentation suggestive of Spanish sources.

The rear wing of the house is three stories high and has simple window casings and a denticulated and modillioned cornice. The wing has a one-story porch at its intersection with the main house and, above the porch, a modern wooden fire escape. At the rear (north) of this wing is a two-story shed-roofed extension which contains a garage on the first floor and intersects an attached wooden stable.

The stable, two stories high with a hipped roof and a cupola, has been converted to an arts studio. It retains its brick pavement on the first floor, its wall sheathing of original matched and beaded "ceiling board", and its second-floor fireplace.

The main house is entered through a broad central hallway which extends the full depth of the building. This entry is finished in mahogany, and its door casings take the form of panelled pilasters bearing Greek Ionic capitlas and supporting a panelled frieze and a moulded cornice. The wide stairway rises on the right-hand side of the hallway. Its heavy balustrade has two turned balusters per tread, each composed of a vasiform base and a tapered, fluted shaft. The newel post is octagonal and tapered, each face consisting of a flat contral panel surrounded by a beaded ogee moulding. The wall panelling of the staircase consists of flat, edge-matched mahogany panels.

To the right of the entrance hall are two similar rooms, connected by wide sliding doors. Originally music and dining rooms, these two chambers retain heavily-moulded door and window casings decorated with gold leaf on the convex mouldings. The front window casing and the door casings adjoining the conservatory are capped with pelments in the Renaissance Revival style. The ceilings in both rooms are divided into panels by plaster mouldings which are highlighted by gold leaf and crimson paint. The ceiling panels are painted in shades of green and decorated with arabesques and naturalistic scenes depicting birds, flowers, and butterflies. Both rooms are carpeted in early (perhaps original) Brussels-type carpeting with an overall foliate design and a border. The front room retains a white marble mantelpiece with grey veining. Its arched opening is filled with a cast iron register and topped by a console-shaped keystone with acanthus decoration. The spandrels are incised to suggest panels. The mantelpiece in the northern room has been removed.

The conservatory, entered through doors leading from each of the two eastern rooms in the main house, has detailing similar to that of these two rooms. Its original wall and ceiling paint has been covered with modern colors. The room is notable for its elaborate plaster ceiling rosette in a Renaissance Revival design and for an elaborate gas chandelier (now electrified) with glass branches and prisms.

-see Continuation Sheet #2

8. Significance

Period	Areas of Significance—Check and justify below			
___ prehistoric	___ archeology-prehistoric	___ community planning	___ landscape architecture	___ religion
___ 1400–1499	___ archeology-historic	___ conservation	___ law	___ science
___ 1500–1599	___ agriculture	___ economics	___ literature	___ sculpture
___ 1600–1699	___ architecture	___ education	___ military	___ social/ humanitarian
___ 1700–1799	___ art	X engineering	___ music	
X 1800–1899	___ commerce	___ exploration/settlement	___ philosophy	___ theater
___ 1900–	___ communications	___ industry	___ politics/government	X transportation
		___ invention		___ other (specify)

Specific dates 1858 - patented
1881 - erected

Builder/Architect Lucius E. Truesdell - patentee
Albert D. Briggs - fabricator

Statement of Significance (in one paragraph)

The Tilton Island Park footbridge is an important historic resource because of its material--cast iron, because its design is representative of early bridge engineering, and because of its significance in local history. Bridges with cast-iron members are extremely rare today, not only because of the ravages of time but also because cast iron was a transitional material between wooden timbers and all wrought-iron and steel bridges. If used properly, cast iron gave a significant improvement over wood in the strength-to-weight ratio. Its vulnerability under tension, however, caused bridgebuilders to turn to wrought iron and later steel when these materials became more available, since they can be used for both tension and compression. As one of the few remaining bridges using cast iron, this footbridge illustrates one step in the advance of materials technology which, along with more scientific engineering, made possible the evolution of modern bridgebuilding.

The use of cast iron for compression members began in the 1850's. This particular truss was patented by Lucius Truesdell in 1858; an earlier patent in 1856 shows a similar truss but it may have been intended for a wooden bridge. While at least one other example of his design has been recorded,[1] it was not an influential design. Indeed, by the 1870's, Truesdell himself had turned his efforts to improvements on more conventional trusses. It is the very peculiarity of the Truesdell truss, however, that makes it so typical of the early period. At this time, there were few professional engineers, and scientific knowledge of statics was not widely disseminated. Truss patents proliferated, and many, like Truesdell's, had such a profusion of (supposedly) strengthening parts that it is difficult to understand how stresses are transmitted, if indeed it is even possible to calculate the stresses.

By the time this example was erected, it was very out-of-date, but perhaps because it was intended as a footbridge, this was overlooked. The footbridge was built by Albert D. Briggs, a Springfield, Massachusetts, bridgebuilder. Bridge fabricators of the 19th century often specialized in one design, and Briggs may have used the Truesdell truss in many of the small bridges he is said to have built in New England. Briggs himself held several patents on minor facets of bridgebuilding.

The local significance of this structure is that it was given to the city by Charles E. Tilton. Tilton made a fortune in the Northwest and Latin America and returned to his home town to exercise his philanthropic imagination. He bought the island in the river, built a Viennese-replica summerhouse on it in 1865, and donated it to the city along with several other parks. This bridge was one of three iron bridges he gave or helped finance as replacements for wooden bridges. He is perhaps best known for the statuary, including a triumphal arch, which dominates the landscape, and for suggesting a name for the town when it was incorporated.

The Historic American Engineering Record has an inventory card for a similar bridge in the Thompsonville Section of Enfield, Connecticut. This bridge has since been demolished. It also was erected by Albert Briggs.

9. Major Bibliographical References

Brock, F.B. "An Illustrated Historical Description of All Expired Patents on Truss Bridges." Engineering News, April 28, 1883, 193-197.

Centennial, Tilton, New Hampshire, 1860-1969. Plymouth, NH, 1969.

(See Continuation Sheet #1)

10. Geographical Data

Acreage of nominated property less than one

Quadrangle name Penacook, NH UTM NOT VERIFIED Quadrangle scale 15'

UMT References

	Zone	Easting	Northing
A	19	290650	4812975
B			
C			
D			
E			
F			
G			
H			

Verbal boundary description and justification

The nominated structure includes the bridge, the central pier, and the two abutments. The southern abutment and half the bridge, as well as the park itself, are in the Town of Northfield, Merrimack County.

List all states and counties for properties overlapping state or county boundaries

state	code	county	code
state	code	county	code

11. Form Prepared By

name/title Bruce Clouette

organization | date September 6, 1978

street & number 103 Mansfield Hollow Road | telephone (203) 423-8903

city or town Mansfield Center | state Connecticut

12. State Historic Preservation Officer Certification

The evaluated significance of this property within the state is:

___ national ___ state X local

As the designated State Historic Preservation Officer for the National Historic Preservation Act of 1966 (Public Law 89-665), I hereby nominate this property for inclusion in the National Register and certify that it has been evaluated according to the criteria and procedures set forth by the Heritage Conservation and Recreation Service.

State Historic Preservation Officer signature George Gilson

Commissioner, Dept. Resources & Economic Development

title NH State Historic Preservation Officer date 7/6/79

For HCRS use only

I hereby certify that this property is included in the National Register

Carol D Shull date 3-21-80

Keeper of the National Register

Attest: Bruce Sue Boyd date 3/12/80

~~Chief of Registration~~

GPO 938 835

STATE	
New Hampshire	
COUNTY	
Merrimack	
FOR NPS USE ONLY	
ENTRY NUMBER	DATE

8. SIGNIFICANCE, continued

[4]Ibid.

[5]Floyd L. Avery, "Report of Covered Bridges in New Hampshire" (Concord, New Hampshire: New Hampshire Department of Public Works and Highways, 1965). (xeroxed), p. 6.

[6]Richard Sanders Allen, Covered Bridges of the Northeast (Brattleboro: The Stephen Greene Press, 1957), pp. 40-41.

[7]Summary of the Town Clerk's Records, op. cit.

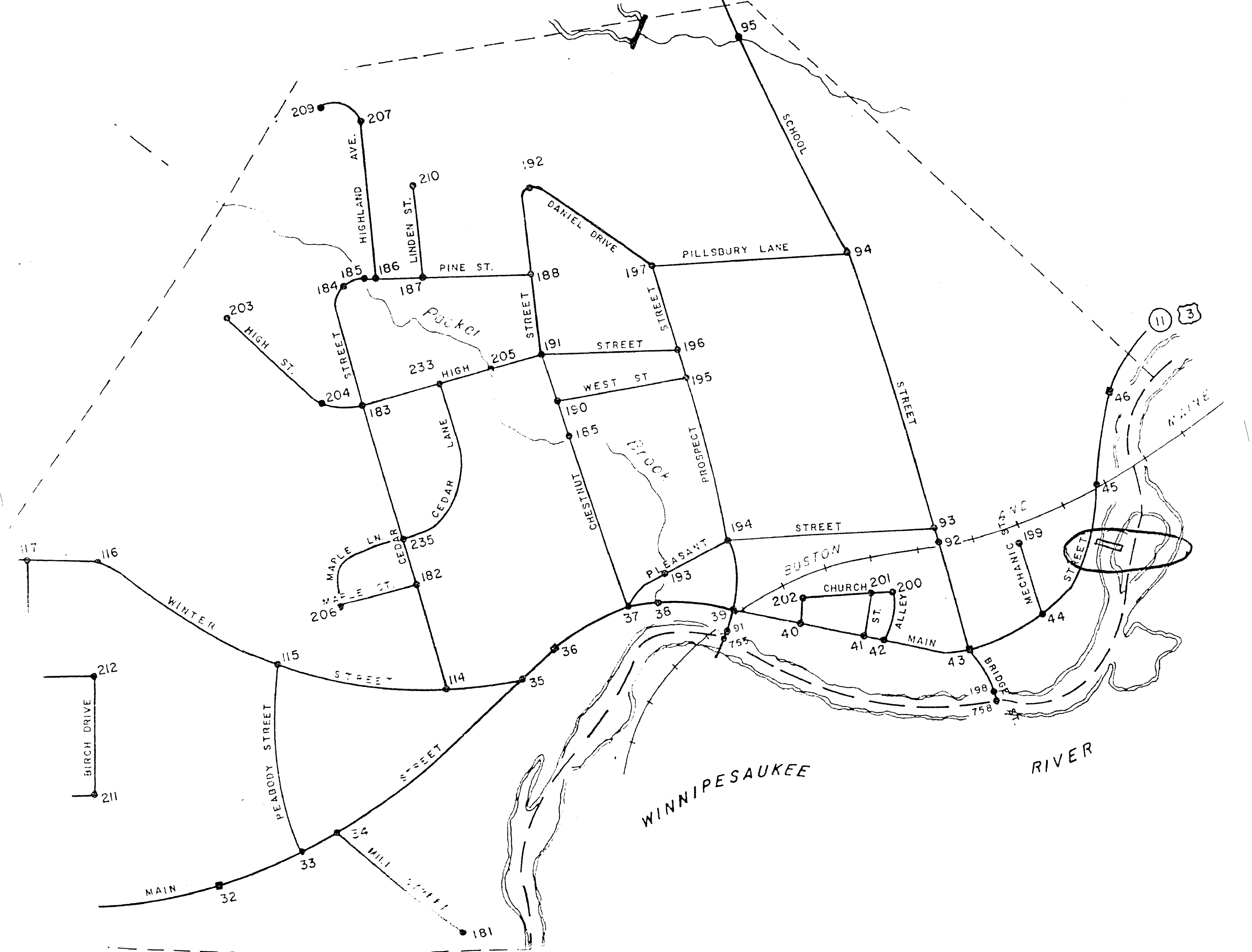
UNITED STATES DEPARTMENT OF THE INTERIOR
HERITAGE CONSERVATION AND RECREATION SERVICE

NATIONAL REGISTER OF HISTORIC PLACES INVENTORY -- NOMINATION FORM

MAJOR BIBLIOGRAPHICAL REFERENCES (Continued)

Hurd, O. Hamilton (ed.) History of Merrimack and Belknap Counties, New Hampshire. Philadelphia: J.W. Lewis & Co., 1884.

"Tilton, NH, Belknap County, 1884." Bird's-eye view. Brockton, Massachusetts, 1884.



SCHOOL
STREET
PILLSBURY LANE
DANIEL DRIVE
HIGHLAND AVE.
LINDEN ST.
PINE ST.
STREET
HIGH ST.
HIGH
WEST ST
PROSPECT
CHESTNUT
PLEASANT
STREET
CEDAR LANE
CEDAR
MAPLE LN.
MAPLE ST.
WINTER
STREET
PEABODY STREET
MAIN
STREET
BIRCH DRIVE
BOSTON
CHURCH
ST.
ALLEY
MAIN
MECHANIC ST.
AVE
BRIDGE ST.
MAINE
WINNIPESAUKEE
RIVER
11
3

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