

# The Bridger

**V.C.B.S. Inc.**  
Vermont Covered Bridge Society  
PO Box 97, Jeffersonville, VT 05464-0097  
A Non-Profit Organization

## The Vermont Covered Bridge Society Newsletter - Summer 2001

### POLAND BRIDGE 1ST PHASE COMPLETED, 2ND PHASE MEETING HELD

**Cambridge Junction, April 5, 2001** - With the first phase of the project to preserve the failing Poland Covered Bridge very nearly complete, VTrans Structures Project Manager David Hoyne called an on-site meeting to exchange ideas about plans for the second phase.

The project's first phase was designed to strengthen the over-stressed bridge and to raise it three feet higher over the abutments to avoid losing the bridge to expected spring high-water.

The work on the bridge is being done in two stages under separate contracts. The second stage will restore the bridge to carry light traffic.

The funds for the work on the bridge came from the \$10 million National Historic Bridge Program announced by Senator James Jeffords last August. The \$1 million provided for the Cambridge Junction Bridge was received by the Vermont Agency of Transportation in August to be immediately available to allow steps to be taken to ensure that the bridge survived the winter. An estimated \$200,000 was earmarked for the first phase of the project; to stabilize the structure against heavy snow load or additional ice damage.

The first phase was to be complete by March 30. The plans and specifications for the second stage must be complete by September 1. Then the project will be advertised and bid packages sent out to the contractors for a completion date of the following fall.

"As you know," said Hoyne, "We have received some money to repair the structure, and the agency also has put together a covered bridge committee, and many of the members are here today. The covered bridge committee is in the process of developing a plan for how to deal with various covered bridges, the various uses, the various treatment options. This is really one of the first few cases where we want to look at the structure and evaluate the repair strategy with the preservation plan we're trying to put in place.

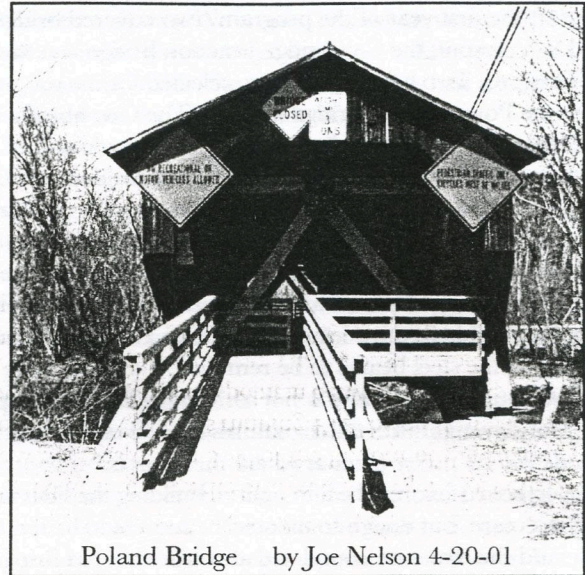
"What we are trying to balance here is preserving what we have and at the same time producing a product that really meets the needs. In other words, can we put the shape back in the bridge, can we line things back up, get the camber back, so that we have a project that will meet the needs of the town.

"The town has decided that they would like light-vehicle load. We are assuming that to be a three ton vehicle . . . the big issue is how do we move forward with the next [phase] of the project"

Hoyne opened the meeting to a free ranging discussion, the opinions and concerns of the attendees were expressed. The participants were: Ray Hayes, VTrans Resident Engineer; Matt Holden of Daniels Construction; Neil Daniels; Scott Newman, VTrans; Joe Nelson, VCBS; Ron Bechard, VCBS; John Weaver, Materials Engineer, VTrans, Eric Gilbertson, Historic Division for Preservation, Warren Tripp, Transportation; Mark Canavant, Federal Highways, Design and structures engineer; Susan Scribner, VTrans; and Bob McCullough, VTrans.

### POLAND BRIDGE STABILIZED

**Cambridge, Vt. April 20** - The pedestrian ramps are finished and the openings in the bridge siding are closed temporarily against the weather with plywood and plastic sheeting. This and with the bridge standing three feet higher over the abutments, the first phase of the two phase



Poland Bridge by Joe Nelson 4-20-01

project is complete. The ramps will serve the public until the structure restoration part of the project begins this coming fall. When the work on the bridge is completed, the roadway will be restored and light motor traffic will be permitted. Until then, new signs warn: No Recreational or Motor Vehicles Allowed, Pedestrian Traffic Only, and Bicycles Must Be Walked.

There has been some anxiety that the stabilization be complete before the spring thaw following Vermont's snowiest season in years. On April 23, at 5:45 a.m., the measuring station upstream at Johnson, gauged a flow of 7230 cubic feet/second at a stage of 12.51 feet. Flood stage is 7220 cfs at 12.5 feet.

Meanwhile, Zeke Zucker of the VCBS Lamoille Chapter was watching the river level at the bridge. Said Zeke: "Last evening at about 8:15 the water was within 5' 4" of the bottom of the center of the span. Today at noon (4/23) it was running 4' 10" below, but had probably been almost a foot higher at some point in between. I say this because we have used the railroad bridge, up near Tatro Construction as our reference for any high water events. Last evening the water there was just a few inches below the main girders and the mud line shows that the water came up 9" on the girders at some point. By noon the water was back down about where it had been. I suspect that we've seen the highest water and we appear to have made it through without incident. By the way, the work on the bridge looks excellent."□□□

### JOHNSON SELECTBOARD MEETS TO DECIDE ON BRIDGE FOLLOWING COLLAPSE (see following story)

**Johnson, VT, April 18** - The Select Board, Town officials, engineers from the Vermont Agency of Transportation, a member of Senator Jeffords' staff, and the Vermont Covered Bridge Society met at the Johnson Municipal Office to discuss the future of the Power House Covered Bridge.

The attendees were: Blaine Delisle, Selectboard and Road Commissioner; Neil Daniels, Daniels Construction, Ascutney; Willie Jewett, Road Foreman; J.B. McCarthy, VTrans Structures, Bill McKone, Vice President, VCBS; J. Jeffrey Munger of (next page)



**Johnson meets (page 1)** Senator Jeffords' office; Joe Nelson, President, VCBS; Gil Newbury, VTrans District 8 Administrator; Eric T. Osgood, Selectboard Chair; Dave Pelletier, Lamoille County; Brad Reed, Selectboard; John Weaver, VTrans Materials.

Munger told the meeting that Jeffords is working to get more money into his historic covered bridge program to help with the Power House Bridge.

Last year, the first year of the program, two covered bridges were earmarked in Vermont; the Cambridge Junction Bridge and the Union Bridge in Thetford. Two bridges had been selected for the program this year, before the Power House Bridge was lost: The Greenbanks Hollow Bridge in Danville, and the Sanderson Bridge in Brandon.

Several options for the Power House Bridge were discussed. Osgood summed them up in a written statement following the meeting: Do nothing; Install side rails on the remaining bridge deck and open it to traffic and leave it as is; Build a shell consisting of the walls and roof; Replace the remaining deck with an authentic replica without steel beams; Replace the shell consisting of the walls and roof with a structure that would allow the steel beams to be removed.

The first option apparently, is not an option. "We had a petition handed in Monday night with 800 signatures on it to replace the bridge, said Osgood. "So it's pretty obvious where the town is."

The Selectboard favored the fifth option; building the sides and roof like the old structure, but design so the steel beams could be removed at a later date and the structure completed as a true covered Bridge. This option has been an acceptable alternative for the VTrans Historic Preservation Division, said McCarthy.

The town feels the need to open the bridge quickly. This means opening the steel-beam supported wooden deck for traffic while the new bridge is being planned.

Osgood summarized the possible funding sources in his meeting report: "State grant; The present Covered Bridge Rehabilitation Program requiring a 5% Town match; Jeffords' securing an earmarked Federal grant with 100% funding but with possibly a construction date as late as 2003.

(For the latest status of the bridge see [www.vermont-towns.org/johnson](http://www.vermont-towns.org/johnson))

#### JOHNSON'S POWER HOUSE COVERED BRIDGE DOWN DUE TO SNOW-LOAD

**Thursday, March 8, 2001** - At 5:00 p.m. the Power House Covered Bridge collapsed under a roof-load of heavy wet snow. The top-structure crashed down onto the self-supporting bridge deck, the trusses thrown outward and into the Gihon River. Rescue crews rushed to clear the debris from the still-standing bridge deck, not knowing if anyone was trapped beneath it. Miraculously, no one was.

The Bridge Deck is supported by steel girders and is undamaged.. When railings are installed, said Johnson Selectboard Chairman Eric Osgood, traffic can resume using the span.

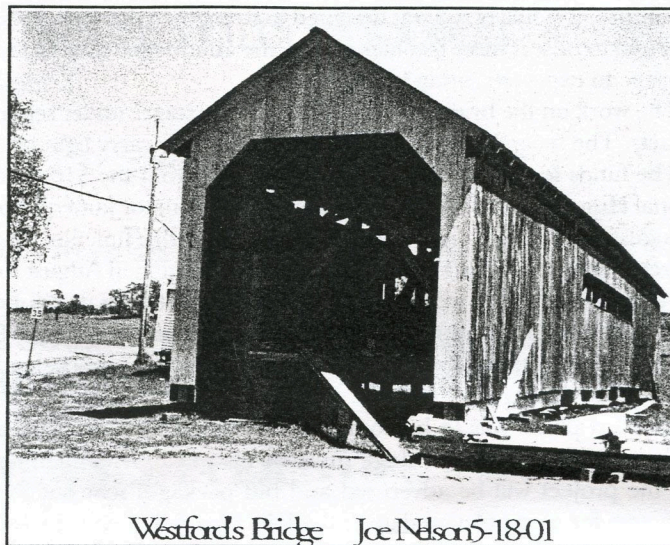
From the day of the collapse, the site has had a constant stream of visitors, many of them elderly, all of them saddened by the loss. Will the bridge be restored, many ask.

Historically, the bridge-owning towns hired a person each year whose job was to "snow the bridge," putting snow on the bridge floor so sleighs could get through. John Weaver, a Vermont Covered Bridge Society member and structural engineer for VTrans said that a person also was hired by the towns to see that the bridge roofs were kept clear of snow, but the practice died out when most bridges became roofed with metal roofs that tend to shed snow. The Power House Bridge used snow-retaining wooden shingles.

According to a *History of the Town of Johnson, Vt. 1784 - 1907*, a

bridge was built over the Gihon River in 1870 to connect School Street with the road that became Route 100C. In those years the span was referred to as the School Street Bridge. In 1895 the incorporated village of Johnson constructed a water driven power house just above the bridge, and the span came to be known as the Power House Bridge.

The seventy-three-foot structure is a queenpost truss with massive timbers. The queenposts measure 12 by 10 inches, the diagonals 10 by 10 inches. The bridge was reconstructed in 1960, and again in 1993 because the bridge was developing a decided sag. The truss was renovated with much of the original timber replaced. Unfortunately, the bridge continued to sag, and was closed again in 1995 for further work, then again returned to service. □□□



Westford's Bridge Joe Nelson 5-18-01

#### WESTFORD'S COVERED BRIDGE NEARLY READY TO MOVE

**Westford, May 30** - With Renaud Brothers Construction on the job it looks very much like the old bridge is beginning its final lap on the journey back to its rightful place; over Browns River where it was built 165 years ago.

An entire upper chord has been replaced due to rot and powder post beetles. Also, several vertical posts, a tie beam, the portal sheathing and the roof have been renewed. The last obstacle to completion are the abutments, one of which needs to be rebuilt.

Asked for the completion schedule, Caroline Brown, Westford Historical Society president replied: "I don't have a date yet, I'll let you know ASAP. Now with all the wet weather....the abutments have to be done.....! My guess at this point it will be late June or July for the move.....the concrete has to set a bit!"

The journey began in February, 1987 when Westford residents called a special meeting to save the bridge and the Westford Historical Society was formed. Fourteen years ago! One can only wonder at the tenacity and dedication with which Caroline Brown and her team pursued their dream to restore this historic bridge. Congratulations!

#### TOWN OF DANVILLE GETS GRANT FOR GREENBANKS HOLLOW BRIDGE

The town of Danville has been slated to receive a \$300,000 grant to repair the Greenbanks Hollow Covered Bridge. The grant was approved by the U.S. Department of Transportation under the National Covered Bridge Preservation Act. The act, authored by Senator Jim Jeffords, provides 80 percent federal funding for historic bridge reconstruction and research.

The Danville bridge is one of two Vermont bridges selected for the preservation grants this year; the other is the Sanderson (**next page**)



**Town of Danville (page 2)** Bridge in Brandon. Last year it was Thetford's Union Village Bridge and Cambridge's Poland Bridge.

The trusses that once supported the old Greenbanks Covered Bridge are to be reconstructed allowing the removal of a pier and a pair of steel girders that have provided temporary bracing for the old span since they were installed back in the 1970s. Also, the deck system and the roof will be replaced.



Greenbanks Hollow Bridge 1997 Joe Nelson

The bridge was inspected in October of 1994 as part of a state-wide study of Town owned covered bridges sponsored by the Vermont Agency of Transportation. The inspectors recommended that the community close the bridge to traffic and construct an adjacent bypass, or replace the bridge and move it to a nearby preservation site. The cost to replace the bridge was estimated at the time to be \$315,000.

Steve White, Administrative Assistant for the Town of Danville has been tracking progress in the effort to get work started to preserve the Greenbanks Hollow Covered Bridge under the National Covered Bridge Preservation Act.

The engineering consulting firm Hoyle, Tanner Associates of Manchester, NH has been authorized by VTrans to study the bridge. "They've got them on line as consulting engineers," White said. "And we (The Town of Danville) are working right now with some easement issues. The Selectboard has given the OK to close traffic on the road during construction and to utilize the three rod right-of-way."

Project Manager Susan Scribner said that a meeting will be scheduled in two to three months, said White, when she has heard from Hoyle, Tanner and plans for the work can be completed. "They are looking for a 2002 construction season which is one summer away."

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#### MT. ABRAHAM UNION HIGH SCHOOL'S APPLIED ARCHITECTURE II CLASS STUDIES COVERED BRIDGES

**The Assignment-** Working in groups of three, build a 1:24 scale model of a covered bridge in our area. (Paul Stetson, Instructor)

**Kate Pellegrini** - The bridge project was very interesting and integrated building the bridge in the woodshop with finding mathematical formulae, drawing and constructing a "to-scale" model. The process began back in September with a "Vermont Covered Bridges" field trip.

Back in September, the class visited five Vermont covered bridges. Our job was to learn about each bridge by taking measurements of each covered bridge. We visited the Quinlan, Sequin, Charlotte, Shelburne Museum and the Lake Shore bridge. We found a lot of similarities and differences between the bridge's sizes, constructions, trusses, arches and

materials used. Each group of two or three people blindly picked a bridge. We picked the Shelburne Museum bridge.

When we returned to school, the project was continued by deriving a formula of 1':2". Every measured chord and beam was adjusted to scale and those were the measurements that we would use for the building of the bridge.

The Shelburne Museum bridge was a two lane bridge with a gate and a covered walkway. We created several drawings of the bridge. They included a portal view, views of the floor, ceiling truss, and side arches from the point of inside the bridge. We also had a side view, top and bottom view from standing outside of the bridge.

The Shelburne Museum Bridge had a kingpost with a burr arch. To secure materials, we used a variety of methods including glue, nails, and dowels. My group members were Darin and Lindsay. We started off by building the floor of the bridge. Then we constructed the roof trusses. Next, we worked on finding the height and angles of the roof's slope.

We used many techniques to build the bridges and the bridge was constructed in multiple kingpost with a burr arch. It's finally done and it was a great project.

**Lindsay Spaulding** - When we started the construction of our bridge, we first made the floor level. We followed the same patterns that other groups used because we couldn't get underneath the bridge to view the structure. Next, we made the ceiling section. I started on the floor boards, nailing each strip of wood to the floor structure. Kate worked on the roof trusses, while Darin began the four main trusses. We all switched back and forth and worked on different jobs.

More recently, Darin and I completed the trusses with the vertical kingposts and the corresponding diagonals. Next Darin nailed the trusses into place on the floor boards, while I finished the shingles on the roof. I worked on the weather boarding on the sides and Darin has been working on the foot path. The foot path seems to be its own little bridge in itself.

The construction of our bridge was difficult but when it was completed it didn't seem that long. With two other students working with me, all the pieces fit together making a beautiful structure.

This project was one that I'll never forget. To spend an entire semester building a covered bridge was truly amazing. The finished project is something I'll keep for a lifetime. There's more to covered bridges than just wood.

**Heidi Neil** - The covered bridge project was good. I liked actually working on the bridges, although they took a lot of time.

I liked learning about the bridges; some of the stuff that we learned about was really interesting. I also liked going and looking at the bridges. I thought it was a good idea for us to take measurements of all the bridges. I thought that it was a good project. I really enjoyed it.

**A Word From Instructor Paul Stetson** - The Applied Architecture courses at Mt. Abraham use a "hands-on" approach to study the field of Architecture. In Applied Architecture I, students complete units on: Geometric Shapes in Buildings, a study of famous architects including Frank Lloyd Wright and Louis Sullivan, designing a Dream House, designing a Mouse House, Structures, Roller Coasters, interior design, and Tree Houses. Students felt there was a need for a second level of the course so they approached me to develop one.

The Vermont Standards that these courses assesses include: 1.15 Speaking; 2.2 and 2.3 Problem Solving; 6.4 Historical Connections; 7.7aaa Geometric and Measurement concepts; and 7.19 Designing Solutions.

This is the first year the Applied Architecture II class is being offered. I have always had an interest in the design and history of covered bridges and felt this would be a good topic to explore. (page 4)



**Mt. Abraham (page 3)** I also wanted to combine drawing and design work with the actual building of scale models.

The Covered Bridge unit began with a discussion of the essential questions: Why were bridges covered? What is the Vermont folklore about covered bridges? How are covered bridges built? How many covered bridges are left in Vermont?

We next discussed the vocabulary related to covered bridges. This included names of building members and tools used. We also studied the different truss systems used in the bridges. Many thanks to Joe Nelson and Ed Barna for the information they included in their books on covered bridges.

In early September we took an all day field trip to the five covered bridges in the Shelburne, Charlotte, Ferrisburgh area. Students were divided into groups of three and were given tape measures and paper. They proceeded to sketch and measure each building member in the five bridges we visited. On the way back to school we had a drawing to see which group would build which bridge.

The next few class periods (80 minute blocks), students worked on a set of drawings for their bridge. Using a scale of 1:24, they drew the floor system from underneath the bridge, the truss used to support the bridge drawn from inside the bridge, the exterior side of the bridge, the portal opening, and the ceiling framework drawn looking up while standing on the bridge.

Once the drawings were complete, we moved the class to the woodshop and began the construction of the bridges. Students were taught the safety rules of the shop and how to operate the machines. They wanted to make the models as authentic as possible so they pinned many of the pieces together using small dowels.

The students deserve a lot of credit for working through problems in construction. Through this unit, they learned the history and construction techniques of building covered bridges. Many students commented on how hard it must have been to build these bridges at full scale. They also learned to work together as a team to create some very impressive models.

(This article was edited to fit the space in the newsletter. For the complete story with photos, see [www.vermontbridges.com/abraham.htm](http://www.vermontbridges.com/abraham.htm) - Editor)

## DELAWARE MAN DEDICATED TO COUNTY'S COVERED BRIDGES

By Patricia Breakey; Oneonta Daily Star - Delhi News Bureau\*

**Delhi, NY** - *Delaware County's deputy commissioner of public works admits he's obsessed with covered bridges.*

Phillip C. Pierce engineered the restoration of the Hamden Covered Bridge, which is in the final stages, and he has begun work on Fitch's Bridge in Delhi.

Fitch's Bridge, which spans the West Branch of the Delaware River, above Delhi, off state Route 10, closed Wednesday [Jan. 17] and will remain closed until the restoration is complete. Pierce said if the county's bridge crew could work on the project full time, the project could be completed in about four months, but because of other bridge projects, the bridge probably won't be completed until late summer or early fall.

Pierce left the private sector to go to work for Delaware County in October 1999. He said he was enticed by a promise that he could work on the restoration of the county's covered bridges.

"For the last seven or eight years I have been obsessed with covered bridge work," Pierce said. "Or maybe its actually more of a passion."

Pierce has 30 years of experience with bridge engineering, but in the early 1990s, the company he was working for, McFarland-Johnson Inc. in Binghamton, was hired by the Vermont Agency of Transportation to do a comprehensive study of all of Vermont's 75 covered bridges. Pierce

conducted the study, wrote up the reports – and found himself hooked on covered bridges.

Pierce and Wayne Reynolds, Delaware County DPW commissioner, both worked for McFarland-Johnson 10 years ago and have been friends since. When Delaware County needed a bridge expert, Reynolds knew who to call.

Fitch's Bridge is a Town Lattice truss bridge. The design was patented in 1820 by builder/architect Ithiel Town. The design consists of a horizontal top and bottom chord connected by a web of closely spaced, alternating diagonal timbers. The design, with its inherent strength coupled with its ease of construction, made the Town lattice truss design a popular design for highway and early railroad bridges until the post Civil War era.

Pierce said that former Delaware County Historian John Raitt supplied him with the history of Fitch's Bridge, which was built in 1870 by James Frazier and Jasper Warren at a cost of \$1,970. The single-span bridge of 100 feet originally spanned the river in the village at Bridge Street and was moved to its present location in 1885.

The bridge was listed on the Historic Register on April 29, 1999, through the efforts of Trish Kane.

The work on Fitch's Bridge will begin with a unique study to determine how the structure behaves. Reynolds said the nondestructive testing involves attaching diagnostic equipment to the low chord of the bridge, which will produce a mathematical model to make sure the plans are accurate. "Electrical devices will monitor the bridge as a known weight travels across it," Reynolds said.

Pierce said the testing is the first of its type to be done. After the testing is complete, a temporary structure will be assembled inside the bridge to support it during the restoration process. A few changes will be made in the bridge to bring it back to its original state.

"The bridge must have been longer when it was at the original site," Pierce said. "The truss was modified to make it fit, which splayed the lattice closer together at the ends. The new trusses will be 8 feet longer, which will mean recasting part of the abutment so the lattice will be parallel. The buttresses, which I call elephant ears, aren't original and won't be replaced."

The top chord of the bridge will be preserved, but the two bottom chords and the flooring are all junk, according to Pierce. When the bridge is complete it will still have 80 percent of its original material.

The chords will be Southern pine and the rest of the new wood will be Douglas fir. Pierce said he thinks the bridge was originally constructed of local hemlock. The roof will be wood shingles.

Pierce has been selected by the Federal Highway Administration to be the principle investigator for a new research project and will prepare an all-encompassing covered-bridge manual to be published by the federal government. He said he plans to use knowledge garnered from his work on the restoration of two of Delaware County's three historic covered bridges in the manual.

For more information about Pierce's covered bridge projects, visit his website at [www.philsbridges.com](http://www.philsbridges.com) on the Internet.

There is also extensive information about projects Pierce was involved with in Vermont and about the renovation of the Hamden Covered Bridge at [www.vermontbridges.com](http://www.vermontbridges.com).

The New York Covered Bridge Society's website has photos of the Delaware County bridges before they were restored at [www.nycoveredbridges.org](http://www.nycoveredbridges.org).

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## VCBS 2ND ALL MEMBER MEETING AND LAMOILLE COUNTY TOUR

The Lamoille County chapter of VCBS is offering an opportunity on July 14 and 15 to tour the area and visit 13 historic covered bridges, the most of any county in Vermont. Visits to additional bridges in the Montgomery area can also be organized if there is interest in expanding the tour.

The event will be based in Jeffersonville, home of VCBS (well, our post office box, anyway) and will include an opportunity to walk to two excellent bridges, the Canyon/Grist Mill and the Cambridge Junction/Poland. The latter received some much needed repairs during the winter, coming just in time before being threatened by ice-out, and is an interesting case study in terms of preservation policy.

We hope that many of you will be able to join us. Additional information and a registration form are included as a separate sheet with this newsletter. See you there!

### Jeffersonville area lodging information:

#### In the village:

Jefferson House B&B (802) 644-2030  
Smugglers' Notch Inn (800) 845-3101

#### Near by:

Cottage at Junction Hill (802) 644-5544  
Deer Run Motor Inn (800) 354-2728  
Green Valley B&B (802) 635-7702  
Highlander Motel (800) 367-6471  
Mannsvie Inn (888) 937-6266  
Smugglers' Notch Resort (800) 451-8752  
Sterling Ridge Inn and Log Cabins (800) 347-8266

Camping for tents and small RVs/trailers is available at: Brewster River Campground (802) 644-2126 (no pets allowed) □□□

### COVERED BRIDGE TOUR PLANNED IN MONTGOMERY

On August 4th, the Jay Peak Area Association is planning a covered bridge tour in the Town of Montgomery, Vermont to be held rain or shine! "We want to make this event as interesting and successful as possible, a true "covered bridge event." said Jim McKimm, marketing chairman for the Association. "We hope you will join us for this first of what we hope to be an annual event."

On Saturday, August 4th, take a narrated tour of Montgomery's 7 covered bridges by mini-bus. Only \$6.50 per person. Children under 12, \$3.50. Tours begin at 10 a.m., 12:30, and 2:30 p.m. Also featured:

- An exhibit of Vermont Covered Bridge models by artist Dorrell Harrison of Bennington, handcrafted from barn-board.
- A special booth with covered bridge and membership information sponsored by the Vermont Covered Bridge Society;
- Before or after your tour, join us in the recreation field where Area Restaurants will tempt you with samples from their menus from 11 a.m. - 3 p.m. \$2 admission for adults, children Free. Tasting Tickets \$ 0.75;
- Chinese Auction sponsored by Area Businesses;
- Live Entertainment by "Bettie and the Boyz" and others;
- Covered Bridge Exhibits;
- Exhibit by Missisquoi Valley Historical Society.

All events taking place at the Montgomery Recreation Field - Rte 118 just outside of Montgomery Center. Advance reservations for Bus tours are suggested and can be made by calling 802-988-2259. Watch [www.jaypeakvermont.com/summerfest.html](http://www.jaypeakvermont.com/summerfest.html) for more information in weeks to come.

(VCBS Members who want to participate in this event, please contact VCBS Secretary Ruth Nelson at P.O. Box 267, Jericho, VT 05465 or at [jcnelson@together.net](mailto:jcnelson@together.net)) □□□

## VCBS INVITED TO VERMONT HISTORICAL SOCIETY'S EXPO 2001

The Vermont Covered Bridge Society has been assigned a booth at the Vermont Historical Society sponsored Expo 2001 to be held at the Tunbridge Fairgrounds June 23 and 24.

The VCBS will occupy an eight-foot booth in the Floral Building to be staffed from 10 a.m. to 5 p.m. Saturday and Sunday. The society will use this opportunity to publicize its work in preserving our covered bridges with brochures, newsletters, and discussion to recruit support and new members.

The exhibits planned will be a continuous slide show of covered bridges from the collections of Ed Barna and Joe Nelson and the sale of the limited edition prints of covered bridges from the work of artists Eric Tobin and John Weaver.

Also to be offered are treenails from Montgomery's Fuller Bridge, covered bridge photo prints, signed copies of *Spanning Time: Vermont's Covered Bridges* by Joe Nelson, and *Vermont's Covered Bridges*, by Ed Barna.

The VCBS exhibition is being assembled by members Ed Barna, Irene Odell, Joe Nelson, and John Weaver with the support of Ruth Nelson and Bill McKone. VCBS members who attend Expo 2001 are cordially invited to join the group by relieving our sitters. Members who would like to have their covered bridge artifacts displayed should contact Joe Nelson at 802.899.2093 or at [jcnelson@together.net](mailto:jcnelson@together.net).

The VCBS was invited to exhibit at the Expo through the persistence and salesmanship of Irene Odell, president of the Salisbury Historical Society. She is in charge of Salisbury's Ann Story exhibit and will be helping with the VCBS booth as well. We owe her a vote of thanks.

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### JOIN US! - HAMDEN COVERED BRIDGE DEDICATION JULY 28

by Trish Kane

The tents are ordered, the speakers have responded, the band is warming up and sunshine has been requested, all in preparation for the dedication of the restored Hamden Covered Bridge! The Town of Hamden is busy making plans for this special occasion, on Saturday, July 28, 2001. Although there is still much to do, here are some highlights of the day:

The ceremony will begin at 11:00 a.m. and will be held on the bridge, which will be closed to traffic that day. Special guest speakers will be Congressman Sherwood Boehlert and Senator John Bonacic. Representatives from various covered bridge societies will also give brief remarks. The New York State Covered Bridge Society, Theodore Burr Covered Bridge Society, Vermont Covered Bridge Society, The Bridge-Covered, and National Society for the Preservation of Covered Bridges will all participate.

Covered bridge enthusiasts will have the opportunity to learn more about the Hamden Covered Bridge from the Hamden Community and Historical Association and to purchase covered bridge items and memorabilia from the many organizations and crafters in attendance. And of course, for those who get hungry, food vendors will be plentiful and a delicious chicken BBQ will be sponsored by the Hamden Community and Historical Association. Plenty of parking will be available on the east side of the bridge via the Town of DeLancey. Watch for parking signs to assist you.

We hope you will join the Town of Hamden and covered bridge enthusiasts on July 28 for this exciting historic event. □□□



## THIS MAY BE YOUR LAST NEWSLETTER.

We're Sorry! So Sorry it has come to this!

Please look at your mailing label. If you find two little zeros that look like this: (00), your membership expired December 31, 2000 and with our diminishing funds, we can no longer carry you on our mailing list. Please don't leave us. There is still much work to be done protecting our covered bridges. Send your renewal now. There's a handy form right here in this issue. □□□

### VOLUNTEERS NEEDED!

**Newsletter Editor:** Requirements; Computer with e-mail address.

**Duties:** Collect stories, edit, and compose the quarterly issues of The Bridger.

**Staff writer:** Requirements: Computer with e-mail address.

**Duties:** Write feature articles, assist Editor in collection of stories and rewrite as needed.

**Correspondents:** Duties: Collect covered bridge stories from their home areas or travels and send them to the editor.

**Crafts Committee:** To design covered bridge greeting cards, Christmas cards, post cards and stationary, then oversee the manufacture and distribution of the products for the purpose of funding covered bridge preservation.

**Candidates please contact Secretary Ruth Nelson, 2 Sugar Hill Road, Underhill, VT 05489, or [cnelson@together.net](mailto:cnelson@together.net)**

### C.B. POSTCARDS FOR SALE

I have a 94 page post card price list; chrome and black and white, includes 11 long gone in PA. .... The price for the list \$9.99

C.B. gift list .....55 cents plus postage and handling. Make check or money order payable to: Robert L. Damery, 2000Burma Rd., New Smyrna Beach FL 32168-8302. No stamps please, no approval

**Advertising rates in The Bridger:** \$7.00 per column inch; \$15.00 per quarter page; \$25.00 per half page; \$45.00 per full page  
**Advertisers contact Joe Nelson, 2 Sugar Hill Rd., Underhill, VT 05489 or [jcnelson@together.net](mailto:jcnelson@together.net)**  
**Newsletter deadlines:** Fall Issue - Aug. 31; Winter Issue - Nov. 30  
 Spring Issue - February 28

## Letters

Dear Fellow CB Enthusiasts,

We have lost one of our dedicated long-time CB supporters. You may want to include this information in the next newsletter. If anyone wants to write to George's widow, address Jeri Enos at 6188 Chinaberry Dr., Columbus OH 43213-3322.

Although I have inquired, I have not heard what, if any, memorial preference may have been expressed. If you wish to mention anything, I am sure George would be honored by any donation to the Ohio Historic Bridge Association. Until a new Treasurer is found, I would send any donations c/o Miriam Wood at 3155 Whitehead Rd., Columbus OH 43204-1855. James R. Crouse

### In Memoriam

*We are deeply saddened to announce the death of George R. Enos, 72, longtime treasurer of the OHBA, who passed away April 5, 2001 after a long battle with cancer. George was elected treasurer of the OHBA in 1975 and performed his duties willingly and well until the end of his life. A little over two weeks before his death he was present at the March meeting and read his treasurer's report. His last act for the*

*OHBA, just days before his death, was to get the membership cards in order and help prepare the mailing list for this issue of BBB. George was a fine man and all of you who attend our meetings and picnics will remember him. Our deepest sympathy to his widow, Jeri, and their family.*

(Mr. Crouse is a member of the OHBA and of the VCBS - Editor)

## Bridge Talk

### Extending the Life of Bridges

by Jan Lewandoski

By the 1870's wooden bridges were meeting with severe competition from iron and steel trusses and suspension designs. By the early 20th century reinforced concrete appeared as a rival as well. Nonetheless the construction of wooden truss bridges persisted, on a diminishing scale, into the middle of the 20th century. Many continued to be built by local bridge builders in rural towns as part of a continuing craft tradition, "unengineered" in the modern sense of the term, and based on sketches or a model rather than a complete set of plans. Others, such as the 108 ft. Howe truss on the Rutland Railway at Shoreham Center, Vermont, built in 1897, or the 100 ft. double lattice built in 1908 on the St. Johnsbury and Lake Champlain Railway in Wolcott, Vermont were designed by professional bridge engineers in distant offices. Quebec and New Brunswick in Canada, and Oregon in the U.S. all carried out provincial and state funded covered wooden bridge building programs for public highways that lasted into the 1940's and 1950's.

**Repair And Strengthening of Wood Truss Bridges** - Wooden bridges were frequently repaired or strengthened during the 19th and early 20th century. This was necessitated by rot or damage from floods and ice, heavier vehicles using the bridge, or the fact that the bridge as built was simply not as stiff or strong as it was intended to be. The most common methods used were: adding more timber to a truss, adding wooden arches to a truss, and shortening the span by means of additional piers.

Adding more timber to a truss generally increased its thickness, since it is very difficult to add height to a wooden truss. The Henry Bridge, a Town Lattice in Bennington, Vermont (c. 1840) had its lattice doubled within a decade of its construction to accommodate the wagons of iron ore that began crossing it. The Cornish-Windsor Bridge (1866) between Vermont and New Hampshire had 40 ft. spruce timbers bolted to its top chords over the central pier and at mid-span on the bottom chords, both high tension areas, in an attempt to arrest the alarming sag caused by its ambitious 234' spans. This work was carried out sometime before 1912. With lattice trusses it is possible to "sister" lattice, i.e. slip another lattice between the chords immediately alongside an existing lattice that is either damaged or located in a high stress area in need of strengthening. This was done at both the Paper Mill Bridge (1889) in Bennington and the West Dummerston Bridge (1872). both in Vermont.

The retrofitting of laminated arches to wooden trusses was a common method of strengthening bridges. The Pulp Mill Bridge (c. 1853) in Middlebury, Vermont was constructed as a double barreled Burr arch spanning 195 feet. Due to a misinterpretation by the Pulpmill's builder of Burr's post to chord connection, the bridge began to distort and sag soon after construction. Around 1860 10 layers of 2" x 6" plank were laminated into an arch that sat on top of the original arch (composed of naturally curved 4" x 12" timbers in series) and attached to the truss.

The addition of piers to shorten a span is a relatively simple upgrading solution for lattice trusses, in which all diagonals can function in either tension or compression. For most other truss types, (**next page**)



**Bridge Talk (page 6)** however, the division into several spans requires that half of the main bracing be reversed. The aforementioned Pulpmill Bridge in Middlebury, Vermont, after being retrofitted with arches, was divided into three spans by two new piers. This involved reversing the direction of half the braces and bolting wooden shoulders to the rear of the posts to accept the new brace orientation. The 144 ft. Howe Truss at Jay, New York was subdivided early in this century by 3 piers. This subdivision produced such short spans that it was not thought necessary to reverse any of the bracing, leaving the single former counter braces to do the work previously carried out by pairs of main braces in half the panels.

Long trusses are equipped with large hardwood wedges where the vertical posts meet the top and bottom chords, designed, according to the inventor, for "trussing" or re-cambering the bridge. Howe trusses have vertical steel rods in place of posts and are described in Wm. Bell's *Art and Science of Carpentry* (1859) as permitting of re-cambering at a later date. (3) However, this author has come upon no account of these operations actually being carried out on a sagged bridge.

A final historic method of strengthening a failing bridge is to decrease its dead load by removing roof and siding, as was done on the Winooski River railroad bridge in Montpelier, Vermont in the late 19th century. To do so however, is a last desperate act, since the uncovered span is unlikely to last more than 20 years, while covered wooden bridges can persist almost indefinitely.

*Next time: Contemporary Repair and Strengthening Of Wood Truss Bridges. This article was taken from a paper given by Jan Lewandoski at the proceedings of the Fifth National Conference on Structural Faults and Repair, held June 29, 1993 at the University of Edinburgh, Scotland.*

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Please sign me up as a member of the VCBS:  
(Business or Society please provide name of contact person)

Name \_\_\_\_\_

Street \_\_\_\_\_

City \_\_\_\_\_

State/Zip \_\_\_\_\_

My telephone \_\_\_\_\_

My e-mail \_\_\_\_\_

Check type of membership:

(Memberships valid to end of current calendar year)

☐ I am renewing my membership

☐ I am a new member

<input type="checkbox"/> Individual	\$10	<input type="checkbox"/> Junior	\$5
<input type="checkbox"/> Family	\$15	<input type="checkbox"/> Life	\$100
<input type="checkbox"/> Associate	\$8	<input type="checkbox"/> Business	\$25

Check type of donation:

<input type="checkbox"/> Palladio	\$2	<input type="checkbox"/> Palmer	\$5
<input type="checkbox"/> Hale	\$10	<input type="checkbox"/> Powers	\$50
<input type="checkbox"/> Town	\$75	<input type="checkbox"/> Tasker	\$100
<input type="checkbox"/> Paddleford	\$200	<input type="checkbox"/> Whipple	\$250

(Dues and Donations will be used to promote preservation of Vermont's covered bridges.)

I volunteer to participate in the following preservation program(s):

☐ Bridge-watch Area Chairperson  
☐ Adopt-a-bridge      ☐ Newsletter staff  
☐ Bridge-a-spondent      ☐ Events Committee  
☐ Crafts Committee      ☐ Legislation Watch

Make all checks for dues and donations payable to the Vermont Covered Bridge Society. Mail to:

The V.C.B.S., Inc.  
 Attn: Treasurer  
 P.O. Box 97  
 Jeffersonville, VT 05464-0097





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**LAMOILLE COUNTY COVERED BRIDGE TOUR**  
**JULY 14 AND 15, 2001**

Come visit the 13 historic covered bridges in Lamoille County, Vermont — the most of any county in the state that has the most bridges of the New England states!

Most events will be held Saturday, July 14, but the organized tours will continue Sunday, July 15, so that we can “cover” all the bridges in the area.

Tentative schedule (final schedule will be sent to those registered):

**Saturday, July 14 -**

10 AM - Meet at the Cambridge Historical Society (CHS) building in Jeffersonville. In the heart of the village, on School Street, four houses off Main Street. Watch for signs.

Coffee will be available while we organize car pooling.

11 AM - Organized groups depart for tours selected — several options for tours.

Lunch options: bring bag lunch, purchase lunch to take on tour, stop for lunch at diner

2 PM - Gather back at CHS to form groups for additional touring

5 PM - Return to CHS for slide shows, exhibits

7 PM - Dinner with speaker and social mingling

10 PM - CHS closed for evening

**Sunday, July 15 -**

10 AM - Walking tours from CHS to Canyon and Cambridge Junction Bridges with local community, Smugs guests invited

Lunch as above

1 PM - Additional optional tours (Wolcott RR bridge, Montgomery bridges)



**REGISTRATION FORM**

Name(s) \_\_\_\_\_

Street Address \_\_\_\_\_

Town, State, Zip \_\_\_\_\_

Phone: \_\_\_\_\_ Email: \_\_\_\_\_

Cost per person for VCBS members:

Saturday tour: \$5, with dinner \$15    Sat/Sun tours: \$12, with dinner \$17

Non-members of VCBS add \$2 to each amount    For children, deduct \$2 from amount

Please make check payable to: VCBS and mail with the registration form to Bill McKone, 110 Campground Drive, Jeffersonville, VT 05464. Call (802) 644-2126 or email: [wmckone@sover.net](mailto:wmckone@sover.net) for more information, including list of local lodging available.