

THE BRIDGER



The Vermont Covered Bridge Society Newsletter – Spring 2023

Melanie Schropp, Editor

Annual Spring Board of Directors Meeting for 2023

by Joe Nelson

The spring 2023 annual Board of Directors meeting was convened in accordance with VCBS Constitution and Bylaws Article 3, Part 2. The meeting was conducted via Zoom, email, fax, telephone, and surface mail.

On the agenda were standing committee budget requests and 15 proposals. Nine members of the eleven-member board participated, giving us a quorum. Participating were Melody Beth Brown, Events Committee Chair; William Caswell, Jr., Advisory Director; Jim Kenison, Historical Committee Chair; William McKone, Publicity Committee Chair; Steve Miyamoto, Vice President; Daniel Monger, Treasurer and Membership Committee Chair; Joseph Nelson, President and Communications Committee Chair; Melanie Schropp, Secretary; and John Weaver, Bridge Watch Coordinator.

VCBS Policy Proposals

Proposal 1 – Does the Board approve of the change made to the VCBS bylaws where a new member signing up in the 4th quarter is granted the following year? – Yes 7, Abstain 1

Proposal 2 – Should the VCBS bylaws be changed to specify officers' terms be changed from two years to four? – After discussion, this proposal was tabled.

Proposal 3 – Should the Events Committee continue to raise funds through sales? *This proposal was removed with the creation of a Fundraising Committee.*

Proposal 4 – Shall the funds received in the year 2022 by the VCBS in donations and sales be put into the Save-a-Bridge Fund? – Yes 8, No 0

Proposal 5 – Our Annual Spring Meeting is due to be held on June 10, 2023, but should we consider the Covid-19 pandemic? Shall we hold the meeting at a later date, or shall we hold the meeting on Zoom? – Yes, in-person meeting with Zoom availability 8, No 0

Proposal 6 – Shall the VCBS choose one Vermont bridge this year to receive fire retardant application? – Yes 8, No 0

Proposal 7 – Should our membership fees be increased? – Yes 2, No 6, NOTE: It was suggested that this issue be readdressed at the annual fall meeting.

Proposal 8 – Should the Society have a business credit card? – Yes 7, No 1, After discussion, it was decided that we will obtain a credit card (not debit card) with no annual fee, and our Treasurer will be the only user of the credit card.

Proposal 9 – What budget amount will support your committee's mission for 2023? – See budget chart.

Proposal 10 – Shall the VCBS submit a letter of intent for \$150,000 in grant funds before the deadline for the first cycle (March 10) from the Northern Border Regional Commission Forest Economy Program to establish a covered bridge hub at the Cambridge Community Center in Jeffersonville? – Yes 7, No 1

Proposal 11 – Should our newly established VCBS Archive be named for William Carroll? – Yes 8, No 0, Jim will work up some name suggestions for submission.

Proposal 12 – In reference to Proposal 3, more specifically, are we doing a 2024 calendar? Will there be a budget for it? And, how many shall we order if we do one? – Yes 6, No 2, Beth will research quantity discounts before a number is decided upon.

President: Joe Nelson, P.O. Box 267, Jericho, VT 05465, email: jcarlnelson@yahoo.com

Vice President: Steve Miyamoto, 8 Ridge Rd., Essex Junction, VT 05452, email: spmiyamoto@comcast.net

Secretary: Melanie Schropp, 9860 Gregg Rd., Fredericktown, OH 43019, email: mschropp@att.net

Treasurer: Dan Monger, 26 Lake St., Tunkhannock, PA 18657-7128, email: teelmonger@ptd.net

Proposal 13 – Should there be a written policy regarding the sale of items at VCBS events, at the on-line store and marketplace when 100% of the sales don't go directly in the VCBS account? – *After discussion, this proposal was tabled.*

Proposal 14 – Should we incentivize online/FB members to join VCBS with discounts on purchases and

membership dues or a members-only portal on our website? – *After discussion, this proposal was tabled.*

Proposal 15 – Shall the VCBS create a Fundraising Committee? – *Yes 5, No 1, Beth volunteered to serve as interim chair of this new committee.*

2023 Committee Budget Requests

Office	\$819.00
Board of Directors	\$1,000.00
Bridge Watch Committee	\$15.00
Communications Committee	\$1,387.00
Events Committee	\$1,010.00
Fundraising Committee	\$3,000.00
Historical Committee	\$1,200.00
Legislation Committee	\$0
Membership Committee	\$500.00
Publicity Committee	\$1,000.00
Total	\$9,931.00

Publicity Committee

- by Liam McKone, Chair

Join the Publicity Committee

Please contact Liam McKone, either by email at williammckone7@comcast.net or by phone at 802-335-2484 between 9:00 a.m. and 9:00 p.m. to volunteer your help in publicizing the VCBS. My goal is to ensure that we have committee members located across the state (or nearby), so that we can reach out to local media (e.g. FrontPorchForum, newspapers, event calendars) to support our events. I am developing guidelines to keep time commitments to a minimum, but some travel might be required to provide our materials to support events. A

package of materials, including signs, banners, displays, and brochures, will be developed and given to committee members for use at events in their areas. The northwest is covered by existing members, but I need volunteers to be responsible for other points to cover the rest of the state. Storage requirements should be just a large bin that can be provided to (and then retrieved from!) support activities without traveling any great distance.

Membership Committee

- by Dan Monger, Chair

For those VCBS members who are receiving this newsletter with the mailing label marked in red, this indicates that your membership has lapsed. Membership fees are due in January. Annual members are in good standing if their dues have been paid by the previous fall quarter.

Letters describing membership benefits are in the process of being mailed. These will go out to 62 memberships, which are individual and family memberships in arrears greater than 1.25 years.

We now have 188 memberships, including:

- 6 Student
- 59 Individual Yearly
- 36 Family Yearly
- 49 Single Lifetime
- 32 Couple Lifetime
- 6 Business, Organization, or Municipality

Of our membership, 99 (52.7%) are residents of Vermont, 26 (13.8%) are residents of other New England states, 53 (28.2%) are residents of states outside of New England, 9 (4.8%) are residents of states west of the Mississippi, and 1 (.5%) is international (Canada).

Events Committee

- by Beth Brown, Chair

Since the “Greening of the Covered Bridges” in Rutland County on December 2, 2022, there has been only one other event: the removal of the yuletide decorations on Saturday, January 21, 2023. My husband and I were able to accomplish this task by ourselves thanks to Paul’s ingenuity in making a collapsible 13-foot pole with a forked end.

The greening of the bridges received some good publicity for VCBS in the Rutland Herald, the Brandon Reporter, and from two TV stations in December. There will be an article about it in the next issue of the newsletter of the National Society for the Preservation of Covered Bridges, along with photos. So, I’ll mark this as a successful event and a great community project. Plans for it to happen again in early December 2023 are already being made. Mark your calendar for Saturday, December 2, 2023, if you want to help. We may expand from Rutland County covered bridges to ones in Addison County and beyond.

Spring Membership Meeting

The spring membership meeting will be held on Saturday, June 10, 2023, from 10:00 a.m. to 2:00 p.m. at the Bridge-On-The-Green in West Arlington, Vermont. The Battenkill Grange Picnic Pavilion nearby will provide shelter, electricity, tables, and chairs, in case of inclement weather. The business meeting will be conducted from 10:30 a.m. to noon. I hope to have a journalist from *Vermont Magazine* give a short talk to the group after

lunch. She will be gathering information and conducting interviews for a full-length article about VCBS that will appear in the magazine sometime in 2023. Food, door prizes, and a silent auction will round out the fun. If you have covered bridge related items to contribute to the silent auction, please email me before May 15, 2023, at melby5584@aol.com. Do you recall reading about Marion Fleming’s art in the winter issue of *The Bridger*? One of her framed prints has already been donated for the silent auction.

There is no need to send money for lunch, but a head count would help me plan the amount of food needed. See you on June 10 in West Arlington. For those unable to attend in person, Zoom capability will be available, since VCBS now has a Zoom account of our own.

Vermont State Fair

I have already received the vendor application for the State Fair in Rutland. VCBS has been guaranteed the same space in the Vermont Building at the same rate as 2022. The fair starts on Tuesday, August 15, 2023, from 5:00 p.m. to 10:00 p.m., and runs from 11:00 a.m. to 10:00 p.m. on August 16, 17, 18, and 19. It is not too early to be thinking of when you can come to help out in the VCBS booth. A short stint at the booth will earn you a gate pass, so you can stay for the entire day and enjoy all the fair has to offer! It’s a great way to meet new people and share the mission and activities of VCBS. Let me know when *you*

can volunteer. Thanks to the members who have already signed up!

Father's Day Strawberry Festival

If you are in the area and can't wait to see the VCBS items for sale in 2023, we will be at the Father's Day Strawberry Festival on June 17, 2023. This is a 30+ year annual event sponsored by the Middletown Springs Historical Society. It will be set up in front of their building on the green in Middletown Springs, and they have graciously donated a vendor space to VCBS for the

afternoon. No, there are no longer any covered bridges in town, but an offer like this is not to be denied, at least in my book! Plus, there will be strawberry shortcake!

Jeffersonville Street Fair

We plan to return to Jeffersonville on Tuesday, July 4, 2023, with a VCBS booth. I am also working on an event to be held on Monday, July 3, from 2:00 to 4:00 p.m. More details will be published in the next issue of *The Bridger*, but think covered bridge, canvas, paint, and your creativity!

Fundraising Committee

- by Beth Brown, Acting Chair

For those of you with a long history of reading *The Bridger*, you may be wondering when the VCBS formed a Fundraising Committee. The answer is since the February 16, 2023, Board of Directors meeting.

First, the good news. The "pilot calendar project" suggested by President Joe Nelson and spearheaded by VP Steve Miyamoto and me in 2022 was a successful fundraiser for the VCBS. The proceeds from calendar sales exceeded \$3,700. There were many other items sold, as well. Thanks to everyone who bought a calendar (or two, or ten!) or a book or DVD or a ball cap or a postcard or a bumper sticker. It all adds up, and the money has been added to the Save-a-Bridge Fund to support the mission of the VCBS. In fact, in December 2022, \$1,000 from the Save-a-Bridge Fund was donated to the restoration project for the Sanborn Covered Bridge in Lyndonville. This is *your money in action*, and we want to continue.

Hence, the formation of the VCBS Fundraising Committee.

But, we need your help. Do you have an idea for a product we could sell to raise money? Would you like to join the Fundraising Committee? Do you have experience in marketing or fundraising? Please reach out to me at melby5584@aol.com.

For now, the Fundraising Committee is brainstorming ideas and gathering prices. A 2024 VCBS calendar is a strong possibility, as we have so many talented and generous photographers who are willing to donate their work to make another calendar featuring Vermont covered bridges.

VCBS can go to more places, sell more items, recruit new members, and educate the public about our iconic covered bridges. All we need is your ideas, time, and enthusiasm!

Bridge Watch

Sanborn Covered Bridge – The VCBS received this note from the town of Lyndon:

"Dear Vermont Covered Bridge Society, Thank you so much for your donation of \$1,000 toward the Sanborn Covered Bridge capital campaign. Your contribution helped the project secure an additional \$25,000 toward the reframing and re-trussing of the bridge.

"At the completion of the project, the Sanborn Covered Bridge will provide a public outdoor space in our community where neighbors and visitors can interact with a cherished historical landmark, explore Lyndon's public art scene, gain access to outdoor recreation trails,

and be welcomed to the town of Lyndon and greater Northeast Kingdom.

"We will keep everyone informed on the progress of this project. Please check in at www.lyndonvt.org/projects for continually updated information.

"Sincerely, Nicole Gratton, Planning Director, Town of Lyndon"

Cornwall-Salisbury Covered Bridge – Salisbury Select Board Chairman Paul Vaczy reports the Salisbury-Cornwall bridge replacement is "currently in the hands of VTRANS, in the preliminary design phase. It will be a wooden structure with the possibility of a metal frame and roof." He explained that "the concern about

vandalism is great as the location is fairly remote and the September 2016 fire that destroyed the wooden covered bridge has never been fully explained.”

River Road Covered Bridge – The River Road Covered Bridge in Troy was destroyed by fire in February 2021. The Town Clerk provided this update, “We are still waiting to hear if we are eligible to receive federal funds to rebuild the bridge.” Until that is known, there are no plans for a capital campaign or fundraising.

Rutland County Covered Bridges – Six covered bridges that carry traffic were visited on December 2, 2022: Sanderson, Brandon, Depot, Cooley, Gorman in Pittsford, Kingsley in East Clarendon, and Brown in North Shrewsbury. All six, plus Hammond and Twin in Pittsford, had wreaths, sprays, or swags of balsam hung on them for Christmas, with permission from the towns involved. None of the bridges have weight limits posted except Kingsley. All have clearance signs posted.

Sanderson had an excessive amount of dried leaves inside the bridge. I notified the town manager, who promised to send out the road crew.

There is damage to the portal siding boards on both ends of the Cooley Bridge. It could also stand to be swept out, as could the Brown Bridge. Local traffic is using Brown now, as the bridge on the paved, parallel road is temporarily closed. I contacted the Pittsford town manager about posting weight limit signs at Depot, Cooley, and Gorham, as well as fixing the portal siding on Cooley.

The response to the bridge decorations has been very positive. I received two offers to donate for 2023 and recruited one new member to VCBS.

In 2023, we will not decorate the Twin Bridge, since it is in deplorable condition. Both portals are boarded up, and Pittsford uses it as an equipment shed. The other seven bridges will be decorated, and Kingsley will be getting extensive work done to it in 2023. It looks like that work may start on April 23, 2023.

In Memorium

Warren Tripp, age 85, passed away on November 17, 2022, at the Woodridge Nursing Home in Berlin with his family at his bedside.

He was born on October 15, 1937, in Connecticut, the third son of Percy and Rena (Bunnell) Tripp. Warren worked for the Vermont Agency of Transportation in the Design Division from 1962 to 1963. He then transferred to the Structures Division in 1963, and in 1983, he became an Engineer in the Structures Division, where he worked until his retirement in 1999. Warren was a Registered Professional Civil Engineer, and as such was a member of the American Association of State Highway and Transportation Officials, where he served on the Bridges and Structures Subcommittee. He was also a member of AASHTO’s Technical Subcommittee on Structural Steel.

Warren’s entire obituary can be read at: www.hookerwhitcomb.com/obituary/warren-tripp.

William F. Carroll, age 85, died on December 1, 2022, in the comfort of his home in East Longmeadow, Massachusetts, surrounded by his loving family.

Bill was employed for many years as an independent archivist, working along with historians for numerous municipal and town government agencies until his retirement.

An avid land conservationist and preservationist, he was president of the Vermont Covered Bridge Society and the Historical Commission. Contributions in Bill’s memory may be made to either The Vermont Covered Bridge Society, P.O. Box 267, Jericho, VT 05465; or The Berkshire Scenic Railway Museum, 92 Park St., Adams, MA 01220.

Bill’s entire obituary can be read at: www.legacy.com/us/obituaries/gazettenet/name/william-carroll-obituary?id=38320184.

Event

The National Society for the Preservation of Covered Bridges and the Theodore Burr Covered Bridge Society of Pennsylvania will be hosting a joint “safari” in northern Vermont from September 23-25, 2023. More details can be found on the Burr society’s website at <http://tbcbspa.com/safari.htm>. All are welcome to participate, whether you are a member or not.

Treasurer's Report – 1/1/22 through 12/31/22 – by Dan Monger, Treasurer

INCOME

Donations	\$4,485.95
Dues	1,180.00
Sales (books, caps, decals, misc.)	467.95
Sales (2023 calendars, 391/400)	6,006.28

TOTAL INCOME **\$12,140.18**

EXPENSES

<u>Board of Directors</u>	
Zoom subscription	\$89.94

Total Board of Directors **\$89.94**

<u>Office Administration</u>	
P.O. Box rental	84.00
Postage	80.50
Printing	119.90
Insurance	555.00

Total Office Administration **\$839.40**

<u>Communications Committee</u>	
Postage	\$391.14
Printing	474.27

Total Communications Committee **\$865.41**

<u>Publicity Committee</u>	
Domain registration	\$855.94

Total Publicity Committee **\$855.94**

<u>Membership Committee</u>	
Postage	\$78.97
Printing	115.12
Software	55.11
Condolences (wreath)	317.66
Purchases (misc.)	150.00
Purchases (Memberships – ball caps)	797.50

Total Membership Committee **\$1,514.36**

<u>Bridge Watch Committee</u>	\$0.00
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<u>Events Committee</u>	
Postage	\$53.07
Purchases (misc.)	160.31
Event venues	1,185.00

Total Events Committee **\$1,398.38**

<u>Historical Committee</u>	
Purchases (Business cards)	\$26.99

Total Historical Committee **\$26.99**

<u>Legislation Committee</u>	\$0.00
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<u>Save-a-Bridge Fund (to Sanborn Bridge)</u>	\$1,000.00
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TOTAL EXPENSES **\$6,590.42**

NET GAIN **\$5,549.76**

Union Bank checking account balance on 12/31/22 - \$21,127.47

NOTES: Cash account, no fees charged. VCBS is a 501(C)(3) non-profit organization.

Neglected, Decaying, and Hard to Find Vermont's Covered Bridges Deserve Better Treatment

- Story and photographs by Ed Barna

FORWARD – by Joe Nelson

While searching my files for an article for *The Bridger*, I found this article written by Vermont Covered Bridge Society founding member Ed Barna for the *Vermont Sunday Magazine*, October 15, 1995. Ed was researching Vermont's covered bridges for his book *Covered Bridges of Vermont*. What he found out there shocked him and started him on a career of advocating for the preservation of Vermont's historical treasures.

His article describes the condition of many of the bridges, suggests what we can do about that, and gives us a basic course on the subtle timber engineering to be found in the bridges, along with a history of some of the bridge builders. When the Vermont Covered Bridge Society was formed in 2000, the new organization found it had a seasoned warrior ready to fight for the preservation of covered bridges.

(NOTE – Ed wrote extensively about the career of Nicolas M. Powers. Startled historians have just recently found that the man's name was actually Nichols.)

When I tell people that I spent much of the past summer taking pictures for a book on Vermont's covered bridges, I'm often asked, "Did you meet any lonely farm wives?" The reference is, of course, to the runaway bestselling romance novel, *The Bridges of Madison County*, which begins with *National Geographic* photographer Robert Kincaid's quest for covered bridges and leads to a brief, but passionate affair with his guide. "No," I reply, "but I've met a lot of lonely covered bridges." My reply was both flippant and serious. As the summer wore on, I came to feel that Vermont treated these priceless, irreplaceable treasures poorly in comparison to other states, like New Hampshire and New York.

There seem to be serious shortfalls in conserving the bridges, in educating the public as to why they matter, in promoting them as tourist attractions, and in planning for their future. Nor was I alone in this opinion. Covered bridge restoration experts, historic preservation officials, relatives of former bridge builders, and people living near bridges all seconded the conclusion that, at a time when so-called heritage tourism seems to be burgeoning, Vermont is overlooking major assets. At the same time, it seemed as if some sort of awakening might be in progress. The book I was working on, for one of Vermont's publishers, turned out to be only one of several such efforts to produce, for the first time, a useful guidebook.

The Agency of Transportation had been conducting a major study of the state's covered bridges and was taking greater account of preservationists' recommendations. And everywhere I went, those who lived near the bridges reported steady traffic of photographers, artists, and other sightseers. While I'm still frustrated by what I see as

less than adequate care for covered bridges, I find it hard to blame anyone. I, myself, am a classic example of a native Vermonter who never appreciated them while growing up and has only slowly come to understand their true significance.

It's been a memorable summer, with treks through the almost visionary landscape of far northern Vermont, unexpected natural wonders like the day yellow swallowtail butterflies congregated near every bridge, idyllic scenes at bridge-side swimming holes, and hours spent in a dreamlike state. But of all the joys, the greatest has been reaching across the centuries to a greater respect for what the early Vermonters and their Yankee contemporaries accomplished with wood. I have come to believe that not only is it worth the cost of maintaining historic covered bridges, but that it is also practical and economical to build more of them, especially now that global warming and ozone depletion have shown us the need for a more sustainable way of life.

By the Light of the Burning Bridge

Growing up in and around Brandon, I took the area's dozen or so covered bridges for granted, like so much of the state's beauty. Living in New Hampshire after college, a kind of turning point came through a close friendship with Richard J. Ducey, who had worked at various times as an antique dealer, furniture refinisher, barn mover, and house builder. A collector of antique hand tools, he brought to life something my history books hadn't covered: what I now think of as America's Great Age of Wood. Shipwrights, wainwrights, wheelwrights, millwrights, coopers, cabinet makers, carpenters – these men understood the fine details of selecting, sawing, and joining wood that modern factory production has largely

bypassed. Ducey collected and kept in use hundreds of handmade planes, each with a special purpose and each necessary to reproduce antique woodworking. Particularly, the old timers understood timber framing, or post-and-beam construction, as it's also called. To put together clipper ships, steepled churches, and New England's classic barns, they eschewed nails, favoring braced and pegged all-wooden joints. Ducey told me stories of the fantastic strength this type of integrated, unitary construction brings to buildings. In one case, he said a wrecking ball was brought in to demolish a colonial-era house – and bounced off, forcing the crew to do their dirty work by hand. But, my real appreciation of timber-framed bridges began, regrettably, with the saga of the burning of Dean's Bridge in Brandon in 1986. Some of the disaffected youths who were hanging around the town (this from a reliable police source) decided a good prank would be to pour gasoline on the 133-foot structure and set it ablaze.

The town then had to decide what should replace the historic bridge. A strong faction advocated for a new covered bridge. A bridge builder from Ashland, New Hampshire, named Milton Graton, was ready and willing to erect one for less than \$100,00 and insisted it could carry an adequate traffic load. Graton had already shown it could be done by building a covered bridge in Woodstock in 1969. Not only had he used historic methods of construction, he had also insisted on using oxen to tow the completed bridge into place. But, state and federal funds wouldn't apply to such a venture, so the town's share of the cost would be less with a concrete and steel bridge. Truckers and farmers favored a stronger bridge, and others didn't want to waste money on something that could be torched again. It took a verbal conflagration at town meeting to decide what to do. In the end, a million-dollar concrete and steel bridge spanned Otter Creek, and today, I'm ashamed to say I voted for it.

In a parallel career, I began teaching courses for Elderhostel, a nationwide program that combines mini-courses and vacation stays for senior citizens. Two years ago, Jerome Wyant, a dean at the College of St. Joseph, had the idea of an Elderhostel course on covered bridges, and he asked if I would teach it. I jumped at the chance and plunged into the research literature.

The Covered Bridge State

Almost from the start, it was a schizophrenic experience. On one hand, there was plenty of material on covered bridges in general, largely due to the research and

writings of Richard Sanders Allen, Herbert Wheaton Congdon, Eric Sloane, and the American Society of Civil Engineers, all nearly a half century ago. There was lore about their roles as "kissing bridges" (somewhat like walking under mistletoe), wishing bridges, childhood playhouses, and even sites for town events such as church suppers and political rallies. But, finding up-to-date information about Vermont's bridges proved unexpectedly difficult. One of my first actions was to call the Division of Travel and Tourism to get a list of the state's covered bridges; they didn't have one. Try the Division of Historic Preservation, they suggested. The DHP list turned out to be an outdated promotional handout, listing many bridges that no longer existed and missing several that had been added. The official state highway map had covered bridge symbols on it, but these faint blue marks often bore no relation to the actual location of the bridges. Worse yet, many bridges weren't indicated, especially if they had been closed to traffic. Had it not been for a couple of commercial road atlases, I would never have been able to find the bridges. But even there, problems abounded. Covered bridge symbols on the wrong side of the road, cryptic directions, absent bridges, town names mixed up with village names, and no-name roads all lead to wild goose chases.

Knowledgeable local informants were just as hard to find, especially in remote areas of the Northeast Kingdom. A surprising number of residents had no idea how many bridges were in their town, let alone where they were. At least my frustration was mitigated somewhat by the evident need for the book I was preparing.

The official disorganization seemed odd because Vermont is clearly the nation's leading covered bridge state. There isn't an up-to-date bridge census that I know of, but back in 1954, Allen counted 390 in Pennsylvania, 349 in Ohio, 174 in Indiana, 149 in Oregon, and 121 in Vermont. Dividing the number of bridges into the number of square miles in each state, Vermont's 79 square miles beat out Pennsylvania's 116 for first place. Even if no other state had lost a single bridge in 41 years, Vermont would still be number one. Iowa? With 56,275 square miles, it had 13 bridges in 1954, or 4,328 square miles per bridge. As I told my Elderhostelers, if you're looking for lonely farmwives, go to Iowa; if you're looking for covered bridges, come to Vermont.

But, Vermont itself has yet to realize what it has. How often have you seen an ad proclaiming us the covered bridge heartland of America? This pattern of neglect wouldn't have been so irritating had I not taken a look at

some covered bridges in New Hampshire while preparing to lead a tour last summer. There, I found state highway signs pointing the way to the bridges and well-designed and maintained parking places for visitors. Each bridge was numbered for reference to maps or to a lavishly illustrated state highway department guidebook, and each site had an interpretive sign. The contrast with Vermont could not have been more complete.

Heartwood

Covered bridges are some of our best monuments to the old forests of New England, the virgin timberlands whose tallest spires were once blazed with a special mark reserving them as masts for the King’s Navy. Wood of the size and quality those forests produced is simply impossible to find today. The late Milton Graton – whose son, Arnold, and nephew, Stanley, now carry on his bridge building work, wrote a book that helped explain the difference. Trees that grow in the middle of a dense, naturally evolving forest have very few side branches (the light is above them, not to the side), so there are few knots or imperfections in the resulting timbers. They grow very slowly, putting on small annual rings, so the wood is extremely dense. Allowed to survive for centuries, such trees become so thick that timbers can be cut entirely from heartwood, rather than including the softer outer sapwood. One reason some covered bridge timbers show the mark of hand hewing is that the trees were too large to be taken to a sawmill and had to be shaped into square timbers with an adze where they fell. The USS Constitution was called “Old Ironsides” because its builders chose such old-growth oak trees for its outer planks (this from Eric Sloane) that cannon balls literally bounced off. That’s the sort of wood in the bottom chords, as they are called, that carry most of the weight in covered bridges, though it is spruce, hemlock, or pine, rather than oak. David Lathrop, the Agency of Transportation’s engineering section supervisor, said that one reason the state bridge designers sometimes specify glue-laminated timbers during covered bridge repairs – to the consternation of purists – is that the same type of wood isn’t available anymore.

Much of my education came through Jan Lewandoski of Stannard, who has built three covered bridges, including one in Vermont at Kents Corner, and has repaired many of Vermont’s classic bridges. He said that engineering schools have put the designs of century-old covered bridges through computer programs, only to learn that, theoretically, the bridges should have collapsed of their own weight. But the strength values used in the software programs are based on regrowth woodland, not virgin

forests.

It is possible to replace each part of a covered bridge one by one as problems appear – a sharp contrast with metal bridges, which are more subject to catastrophic failure. Indeed, this is one advantage cited by those who advocate building more of them. But, that sort of interchangeability shouldn’t become an excuse for neglect. The original timbers are national treasures, and I believe the state should take a greater role in assuring that the roofs of covered bridges don’t leak and deteriorate them.

In Truss We Trust

Important as straight, dense, and knot-free beams were to the early bridge builders, the designs were of even greater significance. Another reason Vermont’s covered bridges matter is because they symbolize one of history’s leaps forward – the unparalleled revolution in wooden bridge building techniques that took place in the first half of the 19th century. As steel began to replace wood later in the 19th century, the bridge designers drew on the work of wood bridge designers. Ironically, those metal bridges are now more at risk than the covered bridges, according to the Division for Historic Preservation.

There had been covered bridges in Europe, where timber framing helped build the great cathedrals. An Italian architect named Palladia had sketched out four ideas for wooden bridge trusses as early as the 16th century, but for lack of trees, and because most of the rivers were already crossed with Roman-style stone arch bridges, Palladia’s ideas remained uninfluential – until they arrived in 18th century America. With the Revolutionary War won, there was a need to bridge many rivers and open up the new county, and the presence of immense forests suggested a way.

It was in Vermont, in Bellows Falls, in 1785 that Colonel Enoch Hale built a 365-foot, two-span (shore to island to shore) wooden bridge that opened many people’s eyes, as well as opening up Vermont to trade with the Boston market. Although it wasn’t covered – an 1804 Timothy Palmer bridge in Philadelphia began that trend – Hale’s bridge is acknowledged to be the one that started the surge of design work by showing wood was capable of spanning large rivers.

Here, it is necessary to talk a bit about bridge engineering. In a covered bridge, the sides do the work, not the floor, and certainly not the roof, which is only there to keep the rest of the wood dry, so it won’t rot. Each side of a true covered bridge is a truss – a unified combination of architectural members. The truss spreads

the stress from the bridge's weight, in effect shifting the load to where the ends of a truss rest on streamside abutments.

It would be possible to make one huge timber out of many boards for each side, but that would weigh too much. (Modern "stringer" bridges do something similar by using huge steel I-beams as the bottom stringers and get away with it because steel is so strong in proportion to its weight.) But, a wooden truss acts like a gigantic plank standing on its side, creating an integrated structure that weighs much less than a solid, laminated board would because of all the empty spaces in the design.

The arrangement of the timbers is the key, because a good design takes advantage of wood's great strength when force is not applied across the grain. The most remarkable examples of this come from engineering schools and Odyssey of the Mind competitions, in which contestants create covered bridge like structures out of less than a pound of balsa wood. These airy, seemingly flimsy balsa wood tunnels withstand almost miraculous weights before they are crushed during the judging.

Once I understood something about their design, covered bridges seemed more resourceful than rudimentary, more ingenious than improvised. The concept was particularly important during the 1800's – an expansionist time when all sorts of schemes were hatched for roads, canals, and later, railroads. Anyone who could devise and patent a quicker, easier, cheaper way of building a stronger wooden bridge stood to reap the immense royalties from the invention.

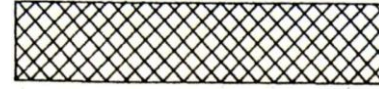
First there was self-taught architect and house builder Timothy Palmer, born in Massachusetts, who in 1797 took out a patent on an arched truss he used to span major rivers like the Potomac, Schuylkill, and Delaware. But, his Palladio-style designs had one great deficiency – the traveler had to go up and down, up and down, to cross a river.

Theodore Burr, who learned timber framing from his Connecticut millwright father, took the next step, adapting a Palladio design into a combination of arches and multiple kingpost trusses. In 1817, he patented the Burr truss, which had a level roadway, a design that was a prototype for thousands of bridges, including the first Vermont covered bridge (now gone) in 1824 at Highgate Falls.



Burr Arch, diagram by Ed Barna

But, the real leap forward, one that had no precedent in Europe, came in 1820, when Ithiel Town, a Connecticut architect and builder, patented his "Town lattice mode," with the double lattice patented in 1835. Using crisscrossed diagonal planks rather than massive timbers, it was easier to build and phenomenally strong.



Town Lattice, diagram by Ed Barna

Eric Gilbertson, head of the Division for Historic Preservation, said he knows of only one instance in which a Town lattice truss failed in Vermont, as opposed to the floorboards giving out. A trucker tried to run it with an illegal load, heard the timbers cracking, got out, and ran. Had he kept driving, the bridge would have survived, Gilbertson said. But as it was, "the bridge literally exploded. There were pieces scattered from hell to breakfast," due to the even distribution of stresses.

Most of Vermont's bridges are Town lattices – a name that sometimes misleads people into thinking they were called that because towns built them. It was said that the Town lattice could be "built by the mile and cut off by the yard," a statement that almost literally came true in this century when a developer bought a disused bridge in Cambridge, Vermont, and moved half to South Pomfret and half to Weathers field to become housing project entrances.

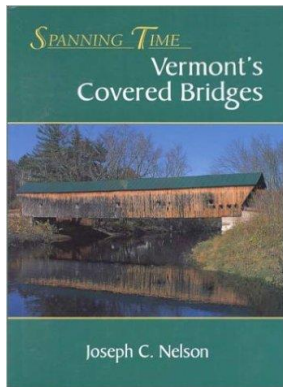
In 1830, Town found a major competitor in New Hampshire-born Army Engineer Colonel Stephen Long, who patented a truss with boxed X's. But after 1840, both men were succeeded by William Howe of Spencer, Mass., who solved the weakness in covered bridges – the tendency of vertical stress to overcome the wooden joints – by substituting vertical iron rods (giant nuts and bolts, in effect) for the vertical timbers in a design similar to Long's.

Both Howe and Town trusses were built into the 20th century, with Howe's design especially important to railroads, because it could be pre-manufactured and shipped in kit form. Proponents of building new covered bridges point to the way these structures carried locomotives, which weighed 60 tons or more.

There were other gifted builders who never patented trusses. Among these was the man often thought to be the greatest of them all – Nicholas Montgomery Powers.

EDITOR'S NOTE: Read about Powers and the remainder of this article in the next issue of *The Bridger*.

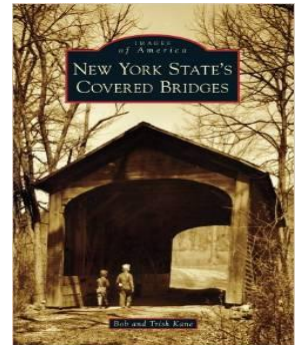
For Sale



Spanning Time: Vermont's Covered Bridges, by Joseph C. Nelson, features 102 color photographs of Vermont's covered bridges in fifteen chapters, each a guided tour. The tours are complete with maps, commentary on the uniqueness of each bridge, and historic highlights about the towns and villages in which the bridges stand.

An appendix provides: A Summary of Vermont's Covered Bridges; A Covered Bridge Glossary; A Bridge Truss section, explaining how trusses work; Thumbnail biographies of the people who designed and built the bridges; A Covered Bridge Reading List for bridge and history buffs; and A detailed Index. *Spanning Time: Vermont's Covered Bridges*: 7" x 10", 288 pages. Published by New England Press of Shelburne, VT. For reviews of the book, go to www.vermontbridges.com/bookreviews.htm. *Spanning Time* is available directly from the author for \$20.00, plus \$3.00 shipping. Send your check or money order to: VCBS, P.O. Box 267, Jericho, VT 05489.

New York State's Covered Bridges - When one typically thinks of covered bridges, New York is not the first state to come to mind, but New York once had over 300 covered bridges. Floods, fires and progress have claimed all but 32. Readers will enjoy seeing NY's current bridges, including the oldest existing covered bridge in the U.S., the Hyde Hall Covered Bridge, located in Glimmerglass State Park, and the world's longest single-span covered bridge in the world, the Blenheim Covered Bridge, washed away by Tropical Storm Irene in 2011. This book also highlights the Theodore Burr Covered Bridge Resource Center in Oxford, NY, the first ever center of its kind specifically designed for covered bridge researchers. For a copy of the tour, contact Bob and Trish Kane, 167 Williams Rd., Sherburne, NY 13460, 607-674-9656, bobtrish68@twc.com.

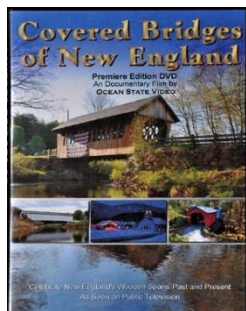
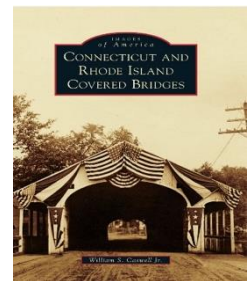


Visions of Vermont art gallery, Jeffersonville, Vermont at: <https://www.visionsofvermont.com/>, 802.644.8183

A special sale for the benefit of the Vermont Covered Bridge Society featuring the works of Eric Tobin. All proceeds of the unframed prints go to the VCBS. Sale of the framed prints will be shared 50/50. They are all Giclée on acid free paper. The glass is non-glare artist's glass.

- 10"x12" unframed, \$125
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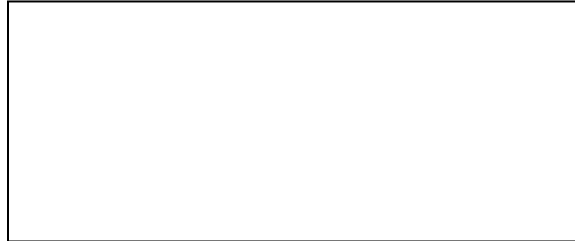
Connecticut and Rhode Island Covered Bridges – Price reduced! During their heyday in the mid- to late 1800s, more than 150 covered bridges dotted the landscape of Connecticut and Rhode Island. Since that time, floods, fires, and progress have claimed all but two of the historic structures. With over 200 images, this book provides insight into the covered bridge history of an area that has not been well documented in the past. To order your signed copy, send \$20.00 to Bill Caswell, 535 Second NH Turnpike, Hillsboro, NH 03244.



Covered Bridges of New England – DVD, During the 19th and early 20 centuries, New England was home to nearly 1,000 covered bridges. Today there are fewer than 200 in the six-state region. This one-hour documentary visits more than 75 bridges and interviews with several of the people dedicated to the preservation of these precious examples of our country's earliest infrastructure. Produced by Ocean State Video of Rhode Island for Public Television. Profits will go to the Vermont Covered Bridge Society's Save-a-Bridge Program. For your copy, send \$10.00 plus \$1.88 shipping to: Vermont Covered Bridge Society, c/o Joe Nelson, P.O. Box 267, Jericho, VT 05465-0267.



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