TIMBER FRAMING

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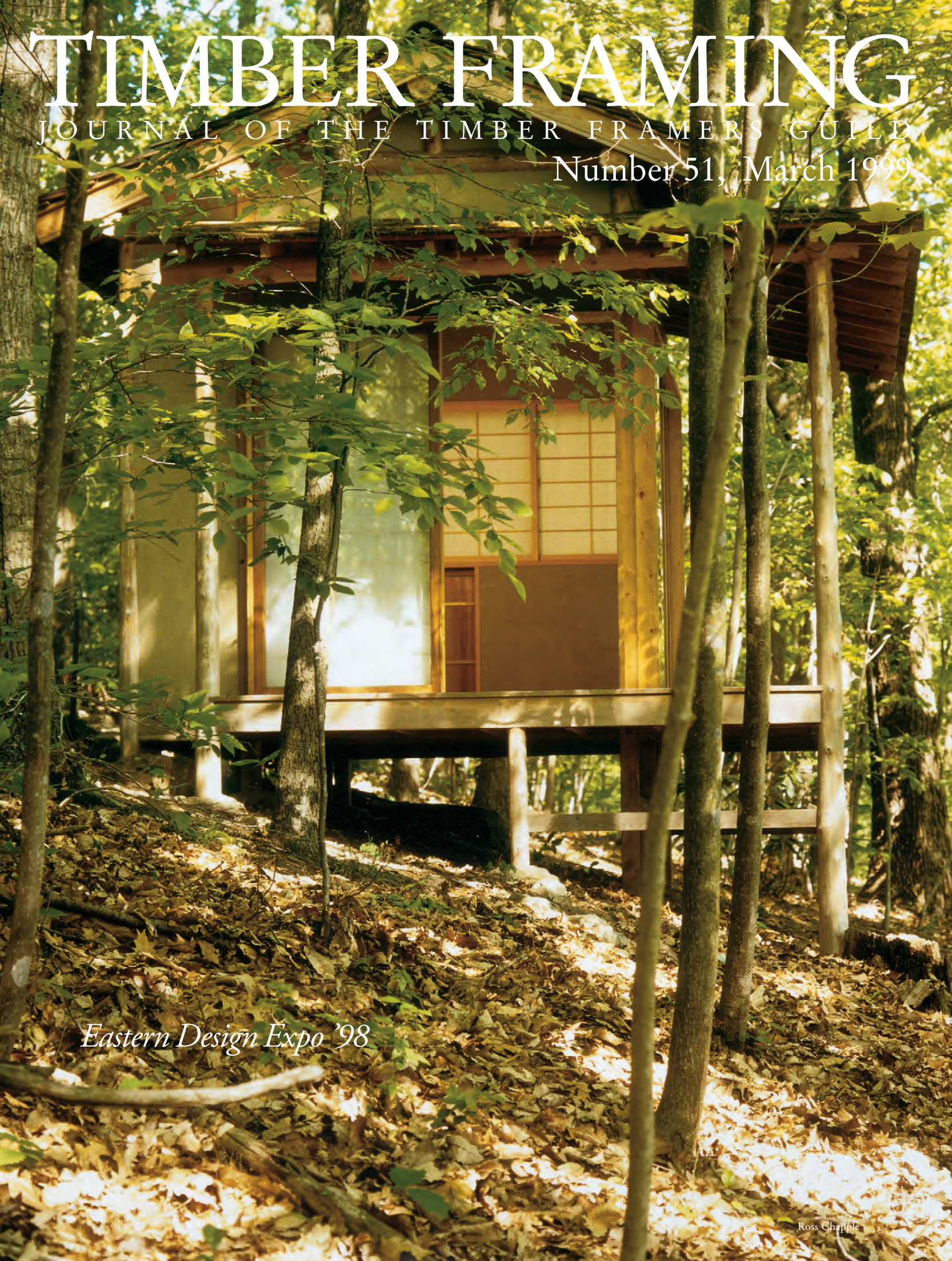

Eastern Design Expo '98

Ross Chapple

TIMBER FRAMING
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TOPICS

Council Update

PLEASE allow me to update you on the Timber Frame Business Council. In the last year, we've grown by 16 members to 72, with 41 regular timber frame company members, 14 supplier members and 17 associate members. These are numbers we'd still like to see grow, and we hope that with good communication to prospective members and further Council activities, they will. Merle Adams, Leo Ojala, Denny Hambruch, Jim LeRoy, Sandy Bennett (filling the Guild seat) and Frank Baker (past president) make up the board. Greg Thaxton (vice-president), Bob Best (treasurer), John Connolly (secretary) and I (president) serve as officers. Jeff Arvin has retired from the board. We send him special thanks for his efforts.

Jerry Rouleau of Etna, New Hampshire, has taken the helm as our executive director. Having outgrown our original association with Steven Winter Associates of Washington, D.C., which helped us launch, we made an appropriate change from SWA's organizational skills to Jerry's strengths as a long-serving consultant in the building systems field. (Guild members may remember his sparkling presentations at conferences and his demonstrated mastery of the art of selling.) By mutual agreement, Jerry's turn at the helm will be reviewed later this year, as normally his work is more industry consultant than administrator, but we feel well served nevertheless.

We helped support Dick Schmidt and Rob MacKay's joint research and testing at the University of Wyoming, and are very pleased with the results, now available from the Council in published form. Rob is now working in the timber framing field, and we believe that such engineering participation is another good step toward safety and quality in our industry.

Part of our mandate is to market timber framing. To that end we have put up a Web Page (www.tfbc.org), attended a variety of log and timber home shows and generally done the things that one would think might get out the timber framing word. We're thankful that as a new and small organization we aren't doing that alone, and acknowledge the continued success of the Guild, into which many of us have put some wonderful work and play time.

But now what? Just what are we supposed to be doing? And even more fundamentally, what is the Timber Frame Business Council? Too often, it seems that when one organization is born from another, as the Council was from the Guild, the two grow steadily apart. It needn't be, and I am committed to not letting it do so. Both have wonderful and important roles, and if organizations could have bosom buddies, we would be each other's.

Although the mission statement of the TFBC calls upon its members to further and improve the techniques, ethics and marketing of timber framing, it does not mean that the Council has sole claim to such objectives, and it is good to know that nearly everyone I've ever met who is involved in timber framing truly understands and agrees. We may want to debate details—and surely techniques, species, delivery and style are all excellent forever-topics—but the beauty is that we care, and the buildings put up by all of us are some of the best in town.

With time and growth comes change. It was in this light, and with the blessing (even suggestion) of the Guild board at the time, that the TFBC was born. By removing the activities from the Guild that made it appear to the government to be legally a 501c6 trade organization, the Guild could then obtain 501c3 educational status. With the excellent work by the Wormingtons on the Guild website (and let me not omit praise for the magic they have performed on the Council's), and all the great efforts put forth within the Guild, the last few years have been an enormous success—more members than ever, great projects on *three* continents, and now even executive direction. What a thrill to watch—how very proud we all can be!

The Business Council is here to do good for our trade and for our people. A strong market (not just in the good years) is needed to supply exciting and profitable work. To respond confidently and with even quality to a strong market, an industry needs strong companies. We see the Council trying to help here. No, we don't have all the answers and, yes, wonderful companies can exist outside of the BC. But we're another important resource in what can often be the confounding process of developing and operating a great company. And with enough members and enough support, we can add to the common well-being.

So, friends, where do we go now?

Some of our programs will simply continue. We'll do more marketing at shows, because that is part of who we are and we feel it has proven successful. We'll keep supporting timber frame engineering research,

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because modern standards of safety and liability require it. We'll continue education efforts on the business end, including more boot camps as part of Guild conferences (all are invited), and we'll continue learning from the larger housing organizations in America. We'll probably manage to do something that gets somebody mad, and then we'll try to make it right, if appropriate, as we did recently in rewriting our "Clients Guide," which had raised a tempest by implying that good timber framers might not be found outside the Council membership. We'll stumble and we'll climb, and then we'll stumble. Sounds like various chapters in Guild history. *Sounds like my life.* But in all, we will be a positive force in our industry, and even more so if you take a part.

—Jonathan Orpin

Jonathan Orpin operates New Energy Works (timber framers) and Pioneer Millworks (recycled timber) in Shortsville, N.Y. He is a former Guild officer and a founding member of the Timber Frame Business Council.

LETTERS

Misprinting

GREETINGS from a faraway land. I received my coveted journal [No. 50] today.

Wow! Color!

Perhaps your quality control division was unaware that my copy (I am now tearfully holding it near my breast) has a problem.

Color pictures on pages 6, 7, 10, 11, 14 and 19 (that includes Al and his hole in the wall) are sadly out of true. The color overlays are seriously skewed, and it is like looking at a 3-D picture without the magic glasses.

I wait a long time for your lovely journals, and I keep them for a long time. I would prefer a flawless copy. Can you help?

Dennis Brooks
Siauliu Rajonas
Lithuania 5449
February 2, 1999

In case our Lithuanian edition was not the only one to suffer poor color registration, please let us know and we will replace your copy, too.

—Ed.

Hands and Machines

THE Topics columns by Mark Rich and Ben Brungraber dealing with mechanical frame manufacture have motivated me to put my thoughts in writing.

I am a blacksmith with an interest in timber construction. The concern for profitability does not weigh upon me as on a professional framer since I have only built structures for myself.

I see interesting similarities between the trends in the fields of timber framing and iron forging. I expect that many of the traditional hand trades that experienced a resurrection beginning in the 1970s are being similarly affected by their practitioners' simultaneous quests for increased productivity and reduced physical demand.

This summer's (1998) conference of the Artist-Blacksmith's Association of North America opened with a speech by Peter Ross, head blacksmith at Colonial Williamsburg. Though Peter Ross has devoted his career to rediscovering historical forge methods, his talk did not deal with the merits of traditional hand techniques. He expressed a serious concern for the future of the trade as a result of perceived current trends.

I agree with Peter Ross that, with the introduction of each attractive shortcut or productivity-boosting machine process, there is the loss of some of the qualities that encouraged the customer to choose a hand-forged product over a mass-produced counterpart. Eventually, the smith is no longer using power tools to speed up a hand process, but designing products for a machine process, and then it can no longer be said that there is a hand-forged product. We may do to our trade over 30 years what the industrial revolution could not quite do in 150.

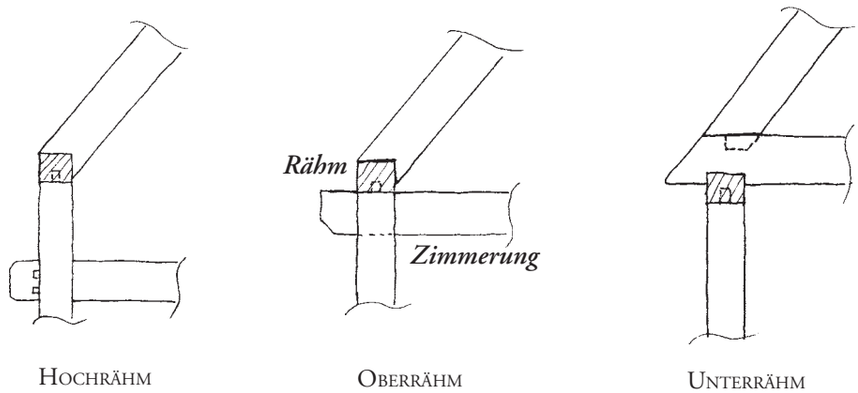
I am pleased to see that Ben Brungraber also joins hewn timbers without the Hundegger and combines handwork with that of the machine. How many others will, and for how long? I will have faith in the purists and the better-educated of the hobbyists, who are unaffected by the pressure of economics, to preserve the qualities I find most attractive in timber frames and wrought iron—those produced by a hand guided by the judgment of an eye.

Am I mistaken to fear that the Hundegger, and similar machines, will increase the demand for more nearly perfect material, putting more pressure on our dwindling forests? The techniques employed by past framers to allow the use of imperfect timber resulted in some of the characteristics I find pleasing in older frames.

Why do customers seem to be impressed by, and willing to pay for, bigger spaces and rare and perfect timbers, rather than smaller, more intimate spaces and a more human use of material with more natural character? Why are lofty ceilings and wasted space so much more popular than carved elements within reach? There seems to be more pride in consumption than in display of talent. Is it because the one is more easily recognized by the general public?

Tom Latané
Pepin, WI 54759-0062
November 27, 1998

CORRECTION



Hochrähm Oberrähm Unterrähm

In TIMBER FRAMING 49, the author's drawings above appeared in illustration of Jörn Wingender's article "German Frame Typology." Because of a misunderstanding, the labels were transposed under the central and righthand drawings. The labels above are correctly placed.

The *Zimmerung* is the tie or anchor beam. *Rähm* means "plate."

The names derive from the location not of the tie beam but of the plate. Thus we have above, left to right respectively, illustrations of a "high plate," an "overplate" and an "underplate." In the text of the article, the same logic should be applied to the terms *Oberrähmzimmerung* and *Unterrähmzimmerung,* which were likewise transposed. In each case, the name describes the position of the plate in relation to the tie beam.

The editor regrets the errors.

A further article on German timber framing appears in this issue.

Design Expositions: '98 Eastern

Peter Wechsler

Above, the stuccoed exterior in winter. The building is weatherstripped and insulated for occasional winter use. Below, the interior with its polished cherry tokonama post and a summer view through the traditional low doorway.

AT left and on the covers of this issue, views of the teahouse in Cabin John, Md., designed and built by Peter Wechsler of Daiku Woodworking in Boonsboro (welshwex@intrepid.net), and winner of the People's Choice award (nonresidential) at the Guild's 1998 Eastern Conference last July at Westfield, Mass. Facing page, top, raising and finished views of the waterfront studio in Hubbards, Nova Scotia, designed by David Garrett, built by Acorn Timber Frames of Hantsport (www.glinx.com) and described as a "Buddhist meditation studio with the spirit of Feng Shui," which nevertheless was entered in and won the award in the residential category. Below, Peter Wechsler's description of the Maryland project.

THE client does not practice the tea ceremony, but wanted a peaceful place to escape the stresses of daily life and enjoy nature. The site is a fairly steep, wooded slope behind her house, leading down to a creek, out of sight of any other houses. I wanted to capture the feeling of a traditional teahouse, which provides a kind of sacred space, free from ordinary concerns and in harmony with its natural surroundings. I also wanted to make something that would respond to the needs of the client and fit the site, using ordinary materials as much as possible.

Teahouses are small, generally with a floor space of 9 ft. x 9 ft. or smaller, depending on the number of straw mats or *tatami.* They are rustic in appearance, and nothing about them is supposed to call attention to itself, but at the same time they are built with extraordinarily high standards of workmanship and attention to detail. One of the first Westerners to see a teahouse, a 16th-century Portuguese missionary, said it "seemed to have been built by the hands of angels rather than by those of men." While the basic features of tea ceremony architecture were established by Sen no Rikyu, the founder of the tea ceremony, teahouses are all very different in layout and appearance, and the aim is a feeling of freshness and spontaneity, reflecting aesthetic philosophy associated with the tea ceremony, which emphasizes the rough over the smooth, the irregular over the symmetrical and the natural over the artificial. The teahouse is usually set in a garden intended to evoke the remote mountain hermitage of a Chinese landscape. Guests approach by a stone pathway, which causes them to slow down and concentrate on their surroundings. After washing at a stone water basin, they crawl through a small wooden door, symbolically shedding all social distinctions. The inside is dimly lit and bare except for the *tokonoma,* a raised alcove with an irregularly shaped post (see back cover), usually containing a hanging scroll.

A teahouse generally has round posts and beams fitted to each other, with the posts sitting on rocks, so that the whole building seems to be growing out of the ground. I peeled Eastern white cedar logs, kerfed them to control checking and assembled the frame using traditional joinery. I tried to use local and recycled materials as much as possible. The roof tiles were about 60 years old and covered with lichens. I cut the cherry post for the *tokonoma* in my yard and then spent considerable time polishing it. Much of the other wood is saved from various jobs. The walls are a sandwich of ½-in. OSB and styrofoam insulation, grooved into the posts and covered with vinyl stucco. The high ceiling and the verandah with glass doors on two sides are not really traditional in a teahouse, but I wanted to make the interior seem larger, and to open it up to the outside. In traditional Japanese architecture, the *engawa* or verandah acts as a transitional space or bridge between inside and out. You can sit inside with all the doors open and listen to the rain or the sound of the creek below. I have seen raccoon, deer and fox, and watched the full moon rise above the hills on the other side of the creek.

—PETER WECHSLER

Acorn Timber Frames

And '97 Western

Timberworks

At left and above left, interior views of the Campbell residence in the Kohala mountains of Hawai'i, designed and built of recycled Douglas fir, with ohia, eucalyptus and koa details, by John Sullivan of Timberworks in Kapaau (cocosolo@ilhawaii.net), and winner of the People's Choice award (residential) at the Guild's October 1997 Western Conference at Mt. Hood, Oregon. Above, views of an extensive ohia bridge and walkway in Hulalai designed by Hill-Glazier and also built by Mr. Sullivan, which garnered the nonresidential award.

The Voyages of Oatman: Suffolk and Essex

Photos Paul Oatman

I BOARDED a watership sailing from the Hook of Holland to Harwich, England. My plan was to travel across central England northwest into Wales, then float over to Dublin. My means of travel included foot, thumb, train, bus, bicycle and car.

I settled on Bury St. Edmunds, at the junction of the rivers Lark and Linnet, as a lodging place, for itself and its proximity to the timber frames of Lavenham, Coggeshall and Cressing Temple. After booking a B&B at the tourist center (rooms are about $27 to $30 a night), I purchased a pocket-sized copy of Richard Harris's *Discovering Timber Frames* and a coffee-table-sized road atlas of Great Britain. When consulting the latter, I found it amusing that the symbol for a historic house was a pair of binoculars. Were they thinking of historic birdhouses?

East Anglia developed a unique building style based on local materials. F.R. Banks, in his *English Villages* (London, 1963), says: "Stone in the accepted sense is nonexistent. Because of this, recourse was made to flint from nearby and underlying chalk and the flintwork has become the distinctive feature of East Anglian building." Flint is mainly silica, usually harder than quartz. Used alone, it typically produces a wall surface like the one in Bury shown above. On many East Anglian churches, freestone or brick is spaced to leave room for a flint design, usually knapped so that the surface is flush, as in the short length of brick wall below.

Bury St. Edmunds is mostly flint, brick and stone with a small number of timber frames. Many are plastered over. An ornamental form of plastering called pargetting was a specialty of East Anglia. A guild of pargetters was formed in 1501 in London, and the craft reached its zenith as on Sparrowe's House, Ipswich, above.

The Abbey of St. Edmunds, according to Niklaus Pevsner one of the four or five most powerful and wealthy Benedictine monasteries in medieval England, dates from the 11th century. Here the Magna Carta barons met in 1214. Not much is left of the original abbey, but one can spend a couple of hours walking the ruins. St. Mary's Church, built about 1480, has a finely carved hammer-beam roof. A timber framer might also wish to visit the Moyses' Hall (ca. 1180), the oldest Norman domestic building in Bury, and now a museum with a fine collection of carpentry tools. The last word about Bury would be The Nutshell, reputedly the smallest pub in England. The bar is about 5 ft. long. I ordered a pint and could not help asking the old fellow next to me how old he really was. "Ninety-nine," said he, long of tooth. So here I was in the smallest pub in England having a pint with perhaps its oldest man!

I rented a car for a couple of days to visit Lavenham, about 11 miles south, and then Cressing Temple and Coggeshall, both another 30 miles south. Lavenham was an important center of the wool and cloth trade from the 14th to the 16th century. It became a tourist attraction in the late 19th century and has many fine examples of East Anglian framing: close studding and curved tension or foot braces, mostly concealed from the outside (below left). Some frames are covered and perhaps were never exposed (below right). Lavenham also boasts a notable Guildhall, the Hall of Corpus Christi, possibly dating from the Guild's founding in 1529.

Photos Paul Oatman

Above, the Wheat Barn, with a felling date for the timbers put in the range 1259-1280. The Wheat Barn follows the Barley Barn, below, by about 50 years, according to Cecil Hewett. One piece of evidence is the presence of secret notched-lap joints in the later barn (one is shown with tenon removed in the small photo at right), rather than the plain notched-lap joints in the earlier building. Both barns were built by the Knights Templar.

Below, the Coggeshall Grange Barn, which Hewett cited for its use of individual stone footings under the posts and framing fully independent of its site.

FROM Lavenham, I drove south toward Cressing. It was late October, the weather like a fine New England fall day. It seemed odd when I arrived at nine in the morning to find myself the only visitor to the famous barns. Maybe it was because it was closed for the winter, but the signs didn't get in my way—I was on a mission! I walked through the gate and knocked on the caretaker's door and silver-tongued my way into the barns. I was welcomed by the archeologist, who had been working there for seven years, during which time he had located the outline of the manor house. It's interesting to note that the barns were always in use, their saving grace.

I was, as the English say, bowled over as soon as I entered the Wheat Barn. The late Cecil Hewett owns this place; his drawings and descriptions abound. The National Trust even got some dummies to dress up in period clothes and hang out in the tie beams (below). Built about 1260, according to Hewett, the Wheat Barn embodies a number of technical changes: here he found precursors of the jowled post as well as examples of splayed, tabled and keyed scarfs.

The Barley Barn is slightly older than the Wheat Barn and comprises five bays, each about 500 sq.ft., with aisles on either side. This barn displays one of the first examples of groundsills secured to the aisle walls. Nearby is the Coggeshall Grange Barn (dated before 1140), which has been reconstructed since Cecil Hewett pronounced it "in a dangerous state of ruin." The Trust was serious here: "Closed for the Season." There was a big iron gate and only a cat to talk to.

Above, the secret notch is at the lower right of the empty mortise, to be covered by the brace. Apparently, medieval carpenters believed in tension braces. Below, what is this National Trust employee up to?

Paycocke's House, generally cited as an example of conspicuous consumption by the English merchant class at the end of the 15th century. Within, nearly every surface is decorated. The doorway to the left, which corresponds to a modern garage door, leads through the house to the garden behind. The bressummer is the continuous, fully carved beam at the edge of the jetty dividing upper and lower stories.

Paul Oatman

A SHORT distance away in Coggeshall stands Paycocke's House, also closed for the season, but as I was taking photos of the exterior, the people who live in the house pulled up in a car. I gave them the mission-from-God rap—and I was in the door. Paycocke's House (before 1505) is a fine example of early Tudor carpentry. H. Avery Tipping in *English Houses* (London, 1924) observes, "The front is 55 ft. long and the entire length of the bressummer that supports the overhanging second story is carved with a waved stem, out of which spring leaves and flowers, interspersed with sculptured fancies. Just as impressive is the arched entryway [*above*] with its double linenfold panels. Here the bressummer is most fanciful. A dragon to the east, a king and queen holding hands to the west, and a woman's breast arise from an open flower." Cecil Hewett considered Paycocke's possibly the best example of a Perpendicular Style house front and important because of its departure from the three-part plan of the medieval house.

About 14 miles southeast of Bury St. Edmunds lies Needham Market. I had been told this was the place to find old woodworking tools. High Street, the main drag, is one of the old Roman roads and today is bordered with truly antique antique shops. Two shops sold tools exclusively, Tony Morland's and Roy Arnold's. Tony was out of town hawking his wares, but Roy was in and talkative, and he directed me to the local parish church, St. John the Baptist. From the outside, it was rather nondescript, a small building composed of irregular flints intermixed with bricks. It was built between 1458 and 1500 as a "chapel of ease" for pilgrims to Bury St. Edmunds.

But inside this lump of coal is a diamond of a hammer-beam roof. A barrel-vaulted ceiling had covered this masterpiece until 1880 when it was restored. The angels were added to the hammer-beams in 1892; they look to be wood but are made of stone. The jury's still out on these. —Paul Oatman

Paul Oatman is a carpenter in Pioneer, California. This article is fourth in a series previously touching Chartres, Hessen and The Netherlands.

St. John the Baptist church in Needham Market. Niklaus Pevsner in* Buildings of England *(London, 1961) compared the roof to "a whole church with nave and aisles and clerestory seemingly in the air," with the upper two-thirds of the story posts cross-connected by a timber-built clerestory with windows. Among hammer-beam roofs, St. John's "would seem to be the only open type of roof which exerts no outward thrust on the walls."

New Perspectives

Goldberg's Highland Journal

FOR three weeks last fall, some 35 Guild carpenters joined 15 Europeans to build a brace of siege engines, or trébuchets, at Castle Urquhart, near Drumnadrochit at the south end of Loch Ness, Scotland. The project grew out of an earlier trébuchet construction project, a collaboration between the Guild and Virginia Military Institute at Lexington (see TF 44), which Michael Barnes, a producer of the the Nova *television series "Secrets of Lost Empires," attended and which inspired his idea of commissioning trébuchets to be built somewhere nearer their original venues of use, somewhat under his control and the steady gaze of his crew's cameras. Both machines were built and fired (see TF 50). The machine designed by professor Wayne Neel of VMI used a throwing arm fitted with an integral counterweight and is below called the "fixed-counterweight" or simply the "fixed" machine. The other device, more or less a French design under the supervision of siege engine specialist Renaud Beffeyte, used a hinged basket for its counterweight and is referred to as the "hinged" machine. The following memoir is excerpted from Mike Goldberg's journal of the period.*

Janice Wormington

Mike Goldberg with (here reluctant) daughter Micah, who sports the official Guild fleece vest.

October 16, Woodstock, Georgia. Pete Bull and Bob Manoogian met us at our house. We took my truck to the airport. Had four hours to wait at the airport. Bob had a problem because someone had decided to give his proper name to the airline for his ticket. You would think Robert was okay, but, no, Bob is his given name. Had lunch, and on the plane we went. The Mullens, Dave Crocco, and Dave Gaker were all waiting for us in Philadelphia. We got on the plane minus four of our party. They were coming from a connecting USAir flight. In fact, they were at our gate and three of the four made it but the clerk shut the gate down on Ellen Gibson. Laura Brown was bitching from the inside and Ellen was bitching from the outside. Laura almost got arrested. The airline people were feeding them a line about not being able to open the door once it had been closed. Then they opened the door to arrest Laura and, lo and behold! there stood Ellen. So what's the problem?

October 17, Glasgow. We were told to have the bus packed by 8, eat breakfast and leave by 8:30. No bus, we ate, no bus, we waited, no bus, waited some more. Information does not flow too freely here (either). But we all work on the information provided to us. When the bus got here, we packed it. Packing the bottom of one of these buses is a trip. There are no large voids anywhere, just a bunch of little cubbyholes mixed amongst the electricals and fuel lines. Gotta be real careful how hard you pack stuff in. We had to use Frank's '72 VW bus to carry the rest of the stuff from Glasgow to the Abbey at Fort Augustus. There we unloaded the bus, ate lunch, toured the village and then found a quaint little pub. When everybody came back from the site at Loch Ness for dinner, man, did it sound bleak. Wood is 25 ft. offshore on a barge run aground with an 11,000-lb. oak tree on it. I'm feeling a bit Ohio'd tonight.

October 18, Castle Urquhart. Rode with Frank this morning 'cause we had to get *petrol* for the saws. God, he drives that bus like a wild man. We sang some songs and that kind of lifted me spirits up a wee mite. Unloaded tools and set up army tents to work under, but they quickly became the tool sheds. The others unloaded the barge with an amphibious Manitou lift in the lake bed. Thank God for rock shorelines. The tree came off without a hitch. Even got some timbers laid out and started cutting wheels. Very Monty Python! Great day. Wayne Neel showed us his model for the fixed-weight treb. Wayne is one sick puppy. We did this at the pub. Only drank one beer. Kinda tired.

October 19 and 20. Wake up still tired. I guess I had a better time than I thought. The English guys from Carpenter Oak & Woodland showed up yesterday. They'll be helping us from now on.

It was below freezing this morning and the site was quite windy. If you stopped working for ten minutes, you'd catch a chill. I cut out wheel parts. We got some fire barrels. It took a while to get the fires going, but they were quite handy for lunch. There was not enough food for lunch today, and there were also some very cold and mad people. Apparently we didn't eat every sandwich yesterday so they held back today. But we had more people today.

By the end of the day, we had an on-site lunch wagon to provide us with hot coffee and lunches. Good idea, Martin and Frank! All in all, things went well, and we worked till 6:30. I'm so tired I'm going to bed right now at 9. There is supposed to be a meeting tonight for the presentation of the other treb, but I think I'll go to sleep instead. My daughter Micah went to town with Cindy Mullen and Cora Levin and my credit cards to get some warm clothing.

October 21. Another great breakfast. Eggs, sausage, ham, potato cakes, beans and fried (no fat) tomatoes. The weathermen are calling for gale force winds and a whiteout. Not a chance. The sky is blue. 'Twas a beautiful day to be on the site early in the morning, but we had to have this production meeting for the movie people. I

got my chain saw sharpened. We didn't get to the site till around 10:30 or so. We finished the wheels—minus pegging—installed on the axles. By the end of the day, we had the base of the fixed-counterweight machine assembled on its track. An independent contractor with a little cook-trailer served lunch. Curried veggies or curry chicken or curry curry. Yes, he was Indian. Not bad. It was hot and way better than the finger sandwiches we had been eating.

We have yet to fire up any electric tools. Okay, they did use a Skilsaw to rip some plywood. The chain saw is definitely our tool of choice. Another great day of work. We felt so good, Peter and I stopped at the store to buy a few bottles of wine for dinner and a bottle of scotch. We had meat pie, sort of like curried beef, for dinner. And mushroom pancakes for the vegetarians. Micah liked the pancakes. We played ping pong and lost.

At that meeting in the morning, Hew Kennedy talked to us about laminating the arm of the fixed machine. They put Renaud Beffeyte up front to talk about the hinged-counterweight machine and didn't tell him that was what he was there for. He was quite uncomfortable and not prepared. Poor fellow—nice man—beautiful French accent. The projectiles appeared today at the end of the day: 250-lb. sandstone balls—pretty cool looking.

October 22. We were all expecting the worst of weather today. It turned out one of the most beautiful days of rain—the sun shone all day. Filming went great. We got started on the hinged-counterweight machine base and parbuckled the fixed-counterweight machine throwing arm out of the water today. What an absolutely beautiful stick of Doug fir! The hinged-machine arm of oak is now hewn on two sides. It has a wicked S-shape which we decided to follow since it will be in line with the rotation. Lunch was lasagna, baked potato and salad, buttered hamburg or hot dog roll and a candy bar. I discovered the bus driver is not being fed lunch. Not acceptable.

Tonight we were blessed to have the film crew eat dinner with us. These film people do their jobs much like I do mine—piecemeal. And for dessert, Al Thomas gave us our own personal presentation of Treb VMI style. It was untitled but it was perfect. He could give even your most beloved poet a run for the money. Oh, hell, there's that word again. I mustn't think of it, not here, not now. I know my friend Uncle Milty would cringe if he heard me say that. Sorry, H. Ross. Dinner was every part of every animal they have here in Scotland. Just add a little mint sauce.

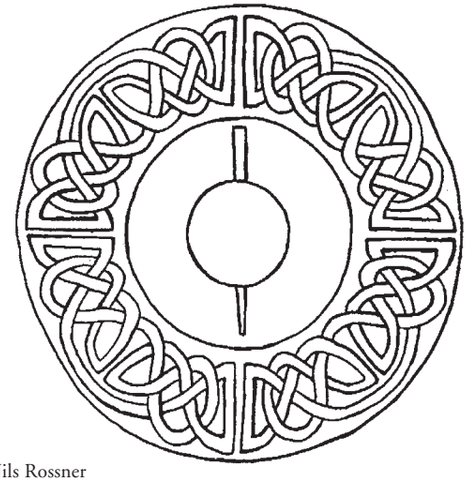
October 23. Slept late, breakfast was late, we were to leave at 9:00 for Stirling Castle. Most everybody went. A few stayed behind to go cruck frame hunting. Heard they saw two nice crucks—one intact, the other half dilapidated. They said somebody was hired years ago to fix it, took the roof off and then was never seen again. Tough! Meanwhile, the rest of us braved six hours of bus ride to see Stirling Castle. We spent an hour and a half touring the castle. 'Twas very nice of them to let us into the Great Hall under construction. Four million pounds of timber and the most awesome double-raftered hammer-beam roof system you'd ever want to see. Very fine work done by our brothers and colleagues at Carpenter Oak & Woodland.

Micah, Cora and I had lunch with Brian and Janice Wormington at the Castle bistro. Shepherd's pie and a beer—perfect. We spent too much time talking and didn't have enough time to see the town. We made it back to the Abbey in time for dinner: salmon, carrots, peas, rice and, lord, let's not forget those potatoes. A few of us made it to the Lock Inn in time for a beer and a few songs. But before we did, we chatted awhile in Michail's room. Talked a lot about employee status vs. sole proprietor UK style and USA brand. We also concluded that Michael Barnes is the Jerry Springer of documentary. You know, present a confrontational air about the project and see what happens or doesn't happen. What is really funny is that we are not giving him that. He is getting everything but! 'Twould be nice to add a little Monty Python flair.

October 24. Woke up to a reasonable day of weather, cold but not too wet. Good ol' eggs, beans, ham, sausage and, of course, potatoes for breakfast. It was quite cold at the site today. Rain was weak but persistent. We still got a lot done. Two wheels are installed and finished except for the carved Gaelic sidewalls. The hinged-machine arm is shaping up nicely. It has quite the elegant S-shape. Marcus Brandt now has the lathe going and shaped two axle parts today. Lunch was served up at the parking lot today. Hot beef stew with dumplings, peas and of course potatoes. If they ever run out of money in this country, they'll always be able to rely on potatoes. This was a different caterer, definitely Scottish.

Today we were asked to build a siege tower. Strange how they have the budget to build more, yet can't pay for all the people who work, like kids and spouses. I need to sit on the board and help stand up for everybody, not just my own interests. Al has a plan that might just remedy any worries. It sounds good. I just hope it's not too cold that day.

Sunday, October 25. Looking forward to breakfast; I'll bet they have some potatoes. Nils Rossner gave me this Gaelic buckle drawing for the wheels. Perfect. We should have those done today.



Nils Rossner

I just walked down to an empty, dark and locked cafeteria . We were supposed to have a time change last night and breakfast was moved to 6:30. Sounds like I'm really looking forward to breakfast. Hey, the food here at the Abbey has been outstanding. They do not work from a huge budget, yet they are able to feed us fresh foods. Very unlike some huge billion-dollar corporations we have done projects for who feed us institutional food. Don't get me started.

Jean Whelan (Jim Kricker's wife) has taken over the wheel drawing *and* carving. Time to move on. The hinged-machine base is now assembled, and the bed timbers are in place for the fixed machine, thanks to Dave Gaker and Matt Hincman. They were grubbing around in the muck like 12th-century serfs grubbing potatoes. Have I said anything about the muck on site? Well, take the most fertile soil you know, like glacier soil with really plush green grass, on about a 15 percent incline, add rain every day, and then till it up with a big-wheeled, articulated, four-wheel-drive Manitou, and you will have the biggest mud hole on the west coast of Loch Ness. We call it the Nessie Slip'n'Slide.

Things look great and the pile of timbers is dwindling very quickly. They've mortised halfway into the hinged-machine oak arm and will be finishing that up tomorrow. Since the oak arm was a bit borderline, they highlighted the hinge location by leaving its natural wane and then lamb's-tongued the octagon fore and aft. Beautiful. Not only are we giving them two machines, they are really going to be works of art.

Martin now has Micah running the coffee tent. Andy Smith is splicing up the slings with the help of youngsters Cora Levin, Susannah Kricker, Andrew Mullen, Chance and Cole Cooper and the Cooper girls cheering them on.

Rick Brown

Marie Brown, left, and Cora Levin at work on the woven slings.

October 26. Blacksmith Wil Wilkins joined us late last night. Saw him at breakfast. He will be good fresh energy. He brought a hand-forged scribe made from old garage door springs. With Wil here, the forging will begin.

Meanwhile, last night, Sydney, the demo guy, and Hew Kennedy began their witches' brew on the hill. They are turning aluminum into unobtainium. I don't know what they're cooking, but it sure did interest the film crew. They also filmed Marcus on the lathe and the slinging of a ball to check for length, shape, etc. The head blocks of the fixed-weight machine are done by now. We roughed them by lunch, and Peter and Derwyn finished them.

The last of the wheels is round and the children are doing a great job carving them. The fixed-machine arm is now an octagon, and the hinged-machine arm now has two square axle mortises. The side frames of the fixed machine are assembled and braced and ready for bolting—BOLTING! Hey, it's histerical, we're told.

So the Gakemeister is grubbing in the muck, still setting the bedding for the fixed machine, and I've got my video cam. Excellent. I'm trying to capture this Monty Python moment, so I ask Dave to reset a timber he's already placed. Of course, he obliges me and I get the footage. As I'm walking away for my next shot, THWACK, right in the back of the head, a nice greasy mudball that just rolls down my neck. Perfect shot. Well, you know one kindness deserves another. I just wanted to let him know it was okay. I deserved that, so let's hug and make up. Yup. Body slam and rolling in the muck we go. Where's the camera crew when you need 'em? I guess it excited Dave so much he went skinny dipping.

He and a few others left early to come back to the Abbey. Kids, too. We all had a little mini-school to do homework. I tried to wash a load of clothes, but it took about eight hours. Everybody else sent theirs out to Inverness. After dinner, Vern Foley of Purdue did a presentation on trébuchets, but some of us were involved in a deep political conversation in the dining hall. Wil W. called a serious metal meeting.

October 27. First thing this morning, we got Rick and Laura Brown all set up for the pouring of the lead. Setup took all day for quite a few folks. They have to prepare an uphill melting pot with a lower pouring mold next to it. Above it all, they have to have some way to lift and pour the crucible with hot lead, and to lift the finished half-ton counterweights out of their molds. Dave Dauerty, Matt, Andy, Wyly, Ellen, Rick and Laura Brown built a derrick.

The arm for the fixed-weight machine is complete, along with the bedding, and we rolled that big old Fred Flintstone cart into place. The wheels creak and groan just like the journals during the firing of the Lexington treb.

The Army came and got one of their tents and we now have a nicer coffee tent. How's that? Who keeps eating all the Danishes? The hinged arm is now complete except for the banding. I'm sitting with my daughter in the coffee room at the Abbey trying to allow her to do her homework.

Lunch was fantastic today: chicken fricassee and curry veggies over rice. Cold day, hot lunch, good combination. Today was the rainiest and coldest day yet. "The mire left much to be desired," says Matt. In the evening after fish pie with scalloped potatoes and potatoes for dinner (no, I didn't write that wrong—there were potatoes in the pie and potatoes on the side), Michail and Nils gave a talk on the German journeymen system, complete with traditional songs, followed by one serious jam session. All the musical instruments came out: fiddle, bazouki, mandolin, banjo, triangle, sticks, coconut shells, eggs (you shake 'em).

October 28. We arrived at Castle Workhard a wee on the slow soggy side. I didn't wake up till 6:30, breakfast time. We can't miss

Peter Bull

Mucking about: Goldberg prone, Gaker supine.

Peter Bull

"We now have a laboratory set up for Sidney to start mixing his components. He's got his little sign up that says Laboratorium and he's got his little fire going and he's grinding and mixing. One strange bird he is."

our potatoes. It was pretty wet all day. Rick and Laura made a few dough rings of lead. Everyone working in the area wears masks. They've moved to the outskirts of our little village to keep the toxic smoke away from the rest of us.

Renaud Beffeyte had us install stiffeners to the hinged-counterweight machine arm around the axles. The frame for the fixed-counterweight machine is up and ready to raise the arm in place. We'll do that tomorrow. The basket and all parts of the hinged are ready. We'll do that tomorrow as well.

Sidney set off one of his Greek bombs, lotta smoke, lotta fire. He and Hew are like a couple of kids. Hew got a stick and started poking at the bomb.

Corbels were installed in the hinged-machine arm king posts. The corbels will add bearing to the axle. It seems both of our throwing arms are borderline in their integrity; they may break when we fire! So we're doing everything possible to prevent that.

Capstans for the hinged machine are ready for the lathe. We still haven't worked out quite how to position and install them. Just build them and the idea will come.

End of the day, we got started on a quick-build siege tower for Sidney to blow up before he leaves tomorrow. There is still a good bit of work to do and at this point we shouldn't be fooling around with stuff like that, but that's show biz.

The village people of Castle Workhard are broken into three clans: the Lodges clan, the Abbey clan, and the B&B clan, which is largely made up of COWboys (Carpenter Oak and Woodland). The stonemasons have really gotten into the project and are now part of our clans, which one I can't tell. Maybe they'll form a new clan: the Lock Inn clan.

October 29. This morning we'll knock out the siege tower. Everyone seems a little more chipper. Even the folks who closed the pub last night. I was totally occupied on the hill with the siege tower: Renaud's son Bertrand and the film crew were doing their siege tower assault, while Sidney tried to blow it up and burn it out. The wood was way too green and the tower built too well (I only used one nail per board).

So this day is recorded as what I'm told happened in the village. They moved the throwing arms into position. The big one and the little one were moved by rolling and pivoting. It took everybody, but nobody lifted much at all and nobody got hurt. We will raise them tomorrow. In the morning, I understand Sidney chucked a failed experiment into the trash can (plastic bag) only to have it ignite.

They raised a gin pole inside the fixed machine to assist raising the 30-ft. shear legs. The shear legs are in and ready to pick the throwing arm. I've heard talk of raising the sides of the hinged machine simultaneously. With guy lines and a gin pole in the middle, it should work quite well. All but one or three counterweights are poured. We all worked till very late and very dark. Can't wait to get back to find the tools we left out. The kids made a couple of mini-trebs using pegs for arms. We have successfully withstood rain every day. The rain has been more successful than we.

October 30. Tomorrow is Halloween. We all wear our tie-dyed kilts on Saturday. Today was gorgeous with only one rain spell. The pace has slowed considerably due to all the rigging needed for all the various raisings. We raised the sides of the hinged machine. The muck is slowing movement and there is a crew laying fresh hay paths, like all the time. Peter and Donna, Dan and several others were pounding the capstan parts. Parts-a-plenty. I failed to mention earlier the guys were shaping capstan heads, readying them for the lathe. Today they finished turning the heads and are now prefitting the frame parts. I think the plan is to use only one pair of capstans for both machines. All in all, today was a lot of pulling of ropes.

We've started a big fire to burn all the scrap (after getting approval, of course). Tonight's dinner included pepperoni pizza, baked potato for the vegetarians and baked trout for the regular entree. Michail and Paul (a COWboy) gave a talk (very impromptu and laid back) in the piano room, whilst Henry, Paul and John played mandolin, guitar and bazouki with Susannah Kricker on violin.

Halloween. The mud has dried my hands to the point of bleeding. I forgot to dry my boot liners last night. As we filed silently on the bus, we thought of all the things yet undone. Actually, about 15 of us left early to ready the site for everybody else. We'd hoped this would give us a jump on the day's tasks with a new level of energy and enthusiasm. And as we're driving, it occurs to us—*it's not raining*. Surely it will be raining later. But it never came.

We hustled to get the capstans finished so we could use them to raise the arms into place. But where do we put them? Ed Levin pondered this one all morning. See, the site was pitched such that we were throwing uphill to the wall with the water behind us. Where the slope fell away is where we were supposed to use the capstans; but this would make our angle of pull very awkward, and the handles would hit the ground if we canted them.

As everybody filed to the site, we had already slipped into our normal pace. The fire I started last night had burned completely and I didn't think there were coals. I went ahead and swept the chunks of wood into the middle to clean up a bit. It wasn't a few hours later the smoke was rising. And as the sun rose higher, so did our spirits. As we assembled on the haul line to pick the first arm, Dave Crocco read his timber framer's prayer, which began something like this: "Hey, Bossman, when we need to pull a rope you help us grip tighter, when we must move the beam you make the

Marie Brown

Eighty hands and leverage raising a side frame for the fixed-counterweight machine. Note the ammunition at the edge of the scene, fire barrel at the center.

wood lighter. . . .” This brought the first tear that wet my face this trip. And as we lifted, in complete silence, I thought, “We made it!” We had found the magic, the swing that drives groups to accomplish incredible tasks. We had made wonderful friends as we wallowed around the site. Everybody has that grin. I can’t wipe it off my face. I don’t want to.

We set the fixed-machine arm today, moved the shear leg, finished the capstans. We decided, Ed did, let’s just set them opposite, in line of the throw uphill. Lots of visitors came. We kept the fire going and almost burned all the hewing chunks. We worked till way past dark. The moon was getting very full and there was a planet right next to it. The night was clear, the day’s weather was perfect. The loch was still as can be. As we left the site, total exhaustion was the only thing that kept us from turning around and starting the next day now.

Micah has been helping keep us supplied with water, coffee and fruit. Okay, so a few Danishes, too. I think she’s seen what I’d hoped she would. I feel good, or great rather. That tear is still on my cheek and I can’t wait for tomorrow.

Sunday, November 1. It’s November. The lead has been placed on the fixed arm. Today they will wedge the counterweights in tight and we should fire this machine. For the other, the basket is ready for assembly as soon as the hinged arm is raised. The shear legs are in position.

The tools have begun to be packed. I’ve got to find time to blow out the chain saws. The site is an absolute mess. We spent several hours burning and picking up trash. All side rails and wheel chocks are in place for the cocking of the fixed machine.

Michail and Nils read us a nice long poem whilst perched atop the machine prior to cocking. After sorting through the lengths and pulls and triggers and slings, it wasn’t till 4 or 5 p.m. when we shot. We were able to get two rocks off. The first was one of the heavy shots. First tug at the trigger with a single rope soon got assistance from a block and tackle. When it released, the arm seemed to labor hard and slow. The carriage nudged slightly forward as the lead counterweight dropped from half-past one to three o’clock (seen from the right)—at this time the sling and ball were traveling back at a pretty good pace—and then, as the business end of the arm came over, the whole machine lurched backward on its wheels about 6 ft. The sling released at about twelve-fifteen, sending the slug away without too much loft. It made a fair arc, but fell short of the wall about 40 yds., in a direct line home. The second shot seemed lighter. I think Wayne, Grigg and Andy shortened the length of the sling also. I noticed our takeoff line was just right of the centerline, which put the ball just inches to the right of the wall, but in a perfect striking arc. The light was bad so we wrapped up for the night. The COWboys stayed to help us all day, though they should have left this morning. We had haggis stuffed in chicken legs. Not bad! I really had to pack but I went to the pub instead.

November 2. Still haven’t packed. It’s pretty cold this morning. We put the basket sides together. Donny, the forklift operator, desiring to move to America and use his licensing as a heavy equipment operator to get a job (and he can run them all), came today and hung the basket sides with the Manitou. I don’t know if I mentioned we cocked the fixed machine yesterday with 40 people. Today we used the forklift.

We lobbed four rocks today. The first hit the roof of the target, sending splinters flying but no rock wall. The second hit right at the base of the wall. It showed damage 5 ft. through to the other side. The third hit about 20 ft. from the wall and bounced to rest right alongside the last one. The fourth was a bull’s-eye hit. Right square in the middle of the wall. The ball bounced back but only after doing considerable damage, sending rock chips flying out the back. Vern Foley had a radar gun and clocked one of the balls at 126 mph.

We left at 4:30 while a few stayed late to fill the hinged machine basket with sand. They should fire tomorrow. Now I have to pack my hand tools and clothes. Hurried through the gift shop and dinner, only making the bus in seconds flat. Went upstairs and had a smoke, somebody spoke and I went into a dream. About half of our group stayed a few days longer to work a day or so and travel some. I wish I had taken the time to travel around a bit.

November 3, on the road. Somewhere along the route, we got a call that they had fired the hinged machine. The ball went straight up about 60 ft. and then came down and buried itself in the mud about 25 ft. from the machine itself. We made the airport okay. They’ve delayed our flight a few hours while they replace a part. You guys go right ahead and replace all the parts you need!

So now I guess it’s time for reflection. You know, given the cold rainy mud, I would do it again. Given the raw, bloody hands—I would do it again. Given the group of people, I would most definitely do it all over again. These are my friends, some old, some new—they are the greatest people on the face of the earth. With all we endured and bitched about, I believe we would all do it again. The *Nova* crew had taken on way more than they expected. Welcome to the club, brothers. They did it, though, with grace and dignity. They were all just as demanding and accommodating as we were, and we all worked together brilliantly. Our work is done, theirs is just beginning. We send you all our patience, creativity and love. We are dreamers, we have ideas and we make them happen. As the poet said, “We flew over the castle wall on the wings of the black raven. . . .” —Mike Goldberg

Mike Goldberg (goosehome@aol.com) runs Wild Goose Projects in Woodstock, Georgia.

German Frame Typology II

IT seems that everybody feels comfortable walking down a street lined by historic timber frame buildings—or at least enjoys looking at pictures of them. Some people are made to feel safe and secure, while for others the experience is merely romantic, but to a select crowd, the weathered timbers and joinery make a feast for the eye.

In the Germany of the postwar period up to the 1970s, it wasn't always like that, and timber frame buildings were bulldozed by the thousands. You may well ask why. A number of these buildings didn't have running water, the lighting (natural and artificial) was poor, an outhouse was the only facility, the ceilings were low, the floors creaky and sloping, the windows, doors and walls were drafty, and so on. Once the concrete-block houses with "panorama" windows and central heating hit the market, there was no reason for a lot of people to stay in such timber frame buildings. Subdivisions popped up, leaving old city centers abandoned. Rural farmers received government grants to build new farm buildings outside of the villages they had shaped for centuries.

It was one of those cases where everybody took the built environment for granted. The benefits and value of the architecture were only appreciated after much of it disappeared. Despite their obvious functional drawbacks, the historic structures always had virtues to offer. Pattern, scale and proportion were some of them. By today's standards of construction, material was used rather generously to create a network of timbers breaking up multistory façades into individual segments (mainly square, rectangular or triangular). Each segment is considered a *Fach* (compartment) and thus a complete system is called *Fachwerk* (1).

But long predating the *Fachwerk* with its various infills, there was solid wall construction, very well described by Hermann Phleps in *Der Blockbau* (published in English as *The Craft of Log Building*, Lee Valley Tools, 1982). Round, split or hewn logs were simply stacked up horizontally or dug in vertically. For the first method, longer lengths were required to span from corner to corner. Building vertically allowed the use of shorter material.

Surviving timber frame buildings still show from which style they evolved. Southern Germany, for example, is the home of tall, straight evergreens. As a result, the *Fach* in the south has a dominant horizontal look, with its plank infill deriving from the log construction (2). Openings with bands of windows, framed by protruding girts, emphasize this appearance.

The technology of glass determined the size and shape of the individual pane, which in turn influenced the construction of the window. The muntins, the "timbers of the window," create a network of *Fächer* for the panes. And that's where the comfortable feeling comes from in walking down that street we mentioned at the beginning. The size of a façade is brought down in scale, step by step, to a module that is about the size of a human head.

However, the dominant style among the surviving German timber frame buildings is the Franconian *Stockwerksbau* (see TF 49), or platform framing. This configuration seems to be superior to most of the earlier designs. The façade is structured in layers, each one an individual floor. This allows for different arrangements for each floor, if required. For example, it is quite common that ceiling height decrease with each additional floor. Some floors needed different types of openings according to their usage as living or storage space, stables or workrooms.

Nevertheless, for structural and visual purposes, exterior wall posts and exposed joist heads would usually be lined up (3). Each individual wall truss (sill, plate, posts, girts and braces) would sit over the ceiling joists of the truss below, with gravity and lap dovetail joist ends (or similar interlocking joinery) to keep things in place. (By the way, for anybody who is trying to understand a timber framing book written in German, *Pfoste, Stiel, Wandstiel, Ständer, Bundständer, Stuhlsäule* all mean "post," but each has its own situations.)

Joinery in compression is probably the secret of the longevity of German *Fachwerk* with exposed timbers. In case of a failing joint, the "structural" infill of, for example, wattle and daub, takes over. Failure is common and usually caused by deteriorating timbers, these days often a result of the application of nonbreathable paints and interior insulation, leading to condensation in the timber.

Pegs played a secondary role in the structural integrity of the frame. They were more of an assembly tool than structural members in the joinery. Exposure to the weather of their end-grain causes quick deterioration and suggests that pegs were not intended to carry permanent loads.

Exposed end-grain of a different frame member was the reason for an addition to the building code of 1537. At that time, a lot of frames had their wall posts sitting nearly on the ground, each with a stone as a foundation. As a result, the posts were not very long lasting. The new code required every builder to install a continuous sill a foot above grade to protect the vulnerable ends of the posts.

Wall timbers used to be joined by a mix of mortise and tenon and lap joints according to the region and period of construction. The mortise and tenon was commonly used to join a post to the sill or plate, while both types of joinery were used for braces and girts. In some regions, for example, girts and braces were lapped at a crossing; in others the brace was uncut and the severed girt was joined to it by mortise and tenon.

The lap joints of the braces in the southern Allemanic style are its only playful details. The joints are relatively long (following the width of the post) and cut in wavy patterns interlocking with the posts. Only the thickness of a plank, the brace itself is short and placed on the outside of the recessed plank infill.

With the spread of the Franconian style, this feature was replaced by longer, thicker braces and combinations of braces creating patterns (4). All members were by now connected with mortise and tenon. It was no surprise that a time limit was introduced for the cutting of this most common joint in a frame: seven minutes using nothing but a mallet and chisel! These days, one way of intimidating new apprentices is to face them with those seven minutes—and still only a chisel and mallet.

In northern Germany, where the Saxonian style prevails, bracing is not that much of an issue. Narrowly spaced posts and up to three rows of girts in a wall with a sturdy infill make braces appear to be more of a bonus than a structural necessity. As a result, the Saxonian style uses traditionally short triangular braces in pairs at either or both ends of the posts. Often they display detailed carvings apparently blending the different timbers into one (5 and 6).

From the late 17th century onward, the demand for elaborate timber frame buildings was in decline. To show off, you would build with stone. Existing exposed frames were plastered, and new framing was constructed more simply. The industrial age was around the corner, and engineering entered the world of timber framing. The creative, independent mind of the framer consequently became less in demand.

Surprisingly, it is now computer-controlled machinery which, in the opinion of some German woodworkers, is expected to bring back all that good old joinery. In comparison to the discussion in North America, in Germany it seems that the question whether or not to embrace the beast isn't that heated. —Jörn Wingender

Jörn Wingender (handwerk@istar.ca) operates Zimmerei Wingender in Harrop, British Columbia. This article is the second in a series.

(1)18th-century Hessian Fachwerk church in Louisendorf.

(2) Allemanic combination of log and frame construction (open air museum at Neuhaus ob Eck, Baden Würtemberg).

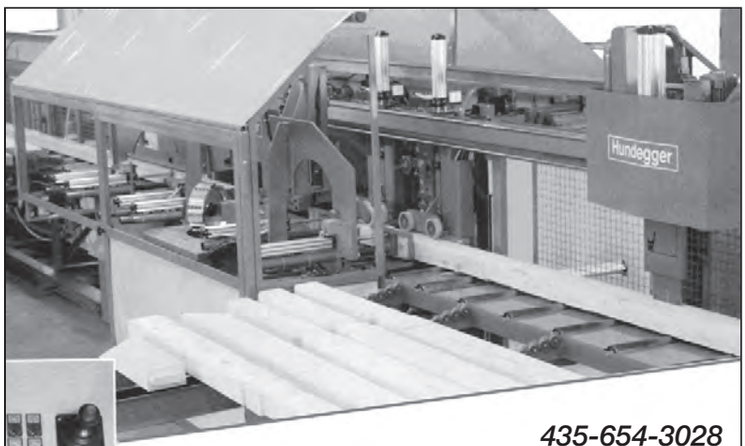
Photos
Jörn Wingender

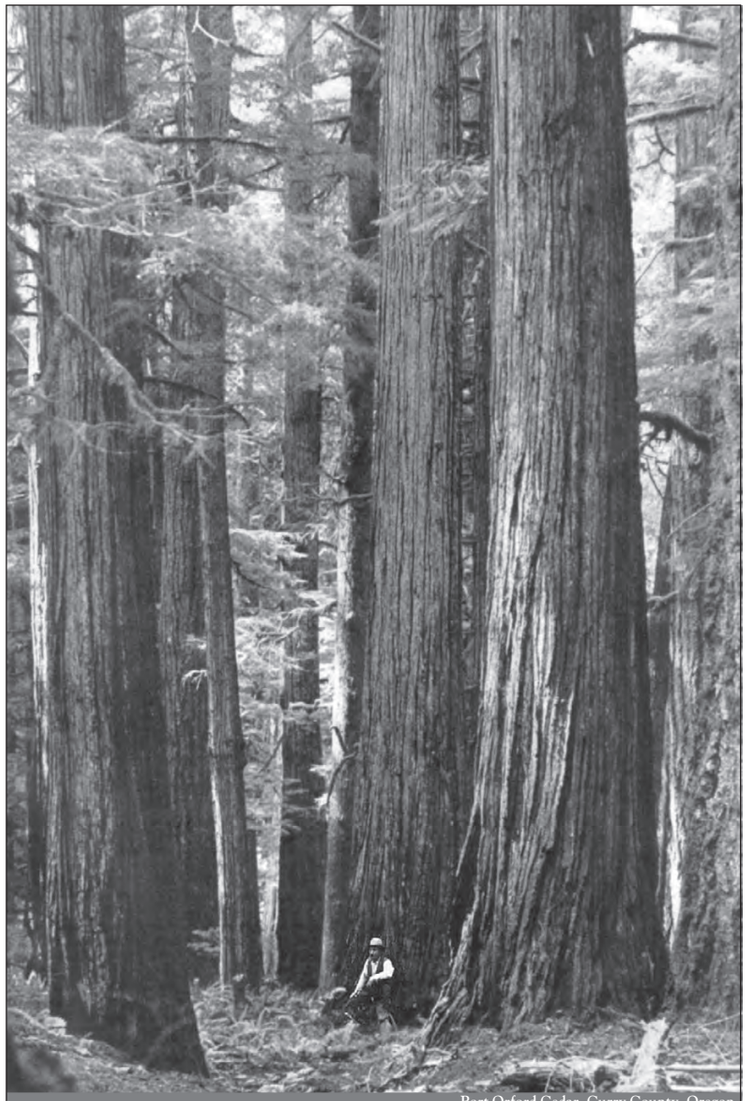
(5) Dutch barn displaying carved infill and short bracing (open air museum at Detmold, NordrheinWestfalen).

(3) Stockwerksbau framing with Auslucht (gable-end addition) in Hameln, Niedersachsen, home of the pied piper.

(4) Elaborate baroque bracing with typical Franconian Erker or corner turret (Frankenberg, Hessen).

(6) Completely carved frame in Lübeck, Niedersachsen, a port on the Baltic sea and the birthplace of Thomas Mann.





A Japanese Teahouse in Maryland

Ross Chapple

The careful world of tokonama and tatami. See page 4.

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