THUNDERBIRDS

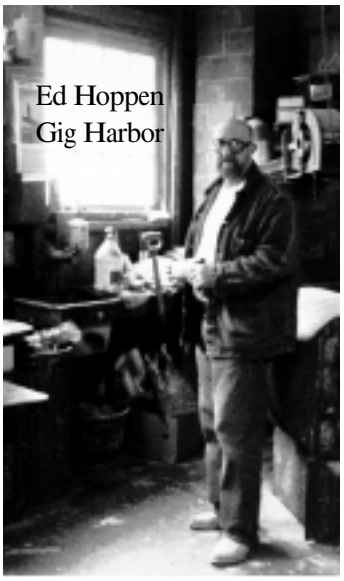
A version of this article appeared in Wooden Boat magazine #149 August 1999

1999 Internationals Victoria, B.C.

Convergence - that's what really created the Thunderbird. The convergence of marine plywood, postwar prosperity and the demand for affordable sailboats set the stage for key actors Ed Hoppen and Ben Seaborn. Tom Sias, a Tacoma sailor and employee of the Douglas Fir Plywood Association, first "produced" the Thunderbird "play" in 1957. At the request of the Plywood Association, Tom mailed out design requests for a plywood sailboat that ". . . must be both a racing and cruising boat . . . sleep four . . . (be) capable of being built by reasonable-skilled amateurs . . . be powered by an outboard auxiliary . . . and . . . outperform other sailboats in it's class." The return for the winning design would be a one time fee - no future royalties to be paid, no further commissions.

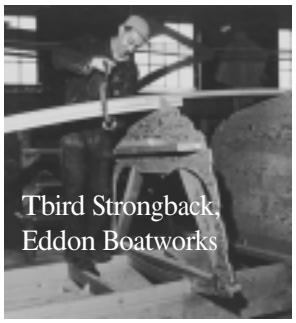
Reportedly, the Plywood Association letters were opened, laughed at and thrown away. While companies like the Washington State based Tollycraft had been producing plywood power boat hulls since the war's end, in 1957 there were few, if any, good racer/cruiser plywood sailboats. It was generally held that the curves of traditional sailboat hulls were simply impossible in plywood construction. Plus!, this particular commission paid no royalties. Forget it!

Which is what Ben Seaborn initially did. But either out of economic need or professional challenge, he began to muse over the possibilities. Working from his 26' Sierra design, he fooled around with cardboard pieces and twisted them into a possible shape. Knowing that Ed Hoppen was intrigued by the possibility of plywood sailboats, Ben took his little "origami" model down to Hoppen's Eddon Boat Works in Gig Harbor, Washington and asked; "Think you could build that out of plywood?" Hoppen took on the challenge.



Ed Hoppen
Gig Harbor

Working in and around other demands, Hoppen and shipwrights Phil Manley and Herb Schuey not only configured the new boat, they also devised a non-lofting method of home construction employing 1/2" plywood molds which metamorphized into permanent bulkheads. Over the molds came layers of longitudinal stringers and marine plywood sealed with fiberglass. In a then unusual move, they built the hull upside down (a procedure that prompted a visiting naval architect to sniff that they had accidently reversed the transom because ". . . that's what happens when you try to build upside down!")



Tbird Strongback,
Eddon Boatworks

The complexity of that first building process can't be underestimated. Not only were Hoppen and crew executing Seaborn's Sierra out of new materials, they were also developing a step-by-step process for amateur builders. They consulted with Robert Price, a Tacoma naval architect, regarding the interior layout and legend has it that Ed and Ben went

through some 13 rudder prototypes before settling on the final spade shape (since replaced by a deeper "high aspect" rudder for greater control when heeled).

Before the word existed, synergy created the Thunderbird, the whole being much greater than any of the contributions. The boat those men produced was stronger, faster and more sea kindly than anybody expected it to be. Today, Thunderbirds could probably be more lightly constructed by employing stitch-and-glue techniques. Hoppen and Seaborn apparently did not fully comprehend the great strength of the plywood monocoque they had produced, a boat "built like a tank!"

The new boat's performance exceeded all expectations, matching or surpassing Ben's Sierra design on all points of sail. When Seaborn conducted some of the early Thunderbird sea trials, he was amazed that the "handicap" of the hard chine was instead, an unexpected factor in Thunderbird stability. He wrote; "In view of our experience with this boat, I feel that the poor performance of most hard chine boats in the past must be due to factors other than this specific characteristic. I'm now fully convinced that she has proven the hard chine hull to be at least as good, and possibly superior, to the round bottom hull in competition. As the boat heels down on her sailing lines, more wetted surface emerges from the water than topsides descend into the water. At the same time, the long gently curving, other wise flat planes of the topsides, produce a greater area of lateral resistance. By accounting for this in the design, it is possible to reduce the wetted surface in the keel by an estimated 15 percent." In other writings, Seaborn attributed Thunderbird performance to the hydrofoil keel (which has a standard NACA airfoil cross section) with it's favorable ratio of lift over drag. The keel lift, plus the boat's light weight (3,650 lbs), made for exceptional performance. In hindsight, it appears that Ben was somewhat amazed with what he and Hoppen had created.


Thunderbird #1
Eddon Boatworks

Over a year in "development," Thunderbird #1 was launched 51 years ago in November of 1958. (Coming full circle, Thunderbird #1 is once again owned by Ed Hoppen's son Guy Hoppen.) From the beginning, the boat generated both fascination and ridicule ("looks like they forgot to take it out the box," and even builder Hoppen admitted that the boat ". . . was kinda funny looking.") But as the boat proved amazingly fast in Tacoma area races and several magazine articles lauded it's cruising capabilities, public interest grew.

In a world saturated with inexpensive older fiberglass sailboats spit out by the hundreds over the past 40 years, it is difficult to comprehend the substantial gap that once existed between would-be sailors and affordable small yachts. Lofting and building a plank-on-frame boat was simply too difficult for most wantabe sailors. Having a boat professionally built was beyond the means of most middle class people 50 years ago. Yet postwar prosperity made it increasingly possible to indulge in some recreational luxuries, and sailing around Puget Sound with your family seemed like a really neat thing to do. Into that gap between desire and reality came the Thunderbird. Buy the plans for $2.00 at your local lumber yard. Build it behind the house in under 2,000 hours. Stuff in the family, (sleeps four), fire up the outboard, and TAKE OFF!


Thunderbird #1
Launching


Thunderbird #1 Launching
w. Hoppen boys

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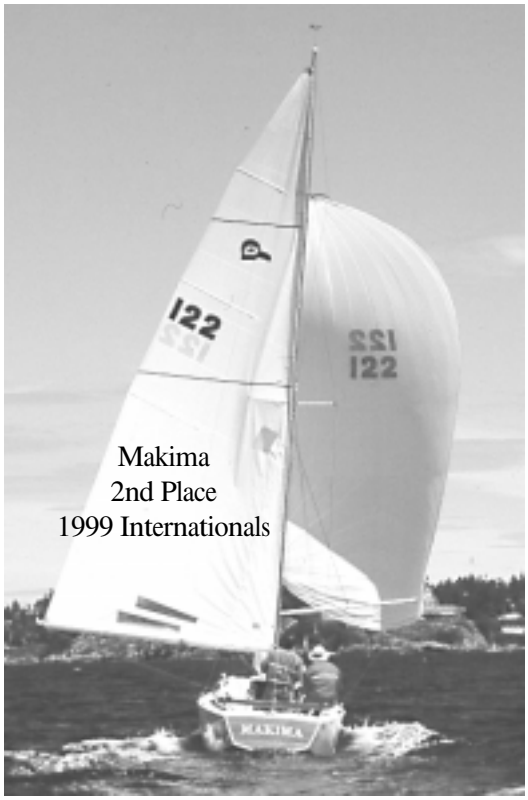
When an article appeared in Popular Boating, the interest in Thunderbirds spread world wide. Soon, Hoppen and his crew had to schedule special Saturday Thunderbird sessions in order to get their ordinary work accomplished. Eddon Boat Works seemed constantly full of kibitzers and gawkers wanting to know all about this Thunderbird boat and just how hard was it to build and how much was it going to cost and just how, exactly, did you glue up that scarfed keel, and . . .

Hoppen and his crew, with some help from Seaborn, developed the building plans and instructions during the construction of hulls number two and three. (Hull #2, *Pirouette*, became the Hoppen family boat) Once the plans were printed, a buzz of excitement spread throughout Puget Sound, not so much with established sailors, but among those who had long dreamt about sailing. Here, for the first time, was a boat able do everything, a safe keel boat that was affordable, a boat able to turn on it's own length (good for getting out of trouble) and a boat actually buildable by the home handyman.

Those excited early builders quickly realized that besides pestering Hoppen, they could visit someone who was a week or so ahead of their own construction and learn what had gone right and wrong. Soon, regular meetings were held in Tacoma and Seattle where each builder reported where he was in the process, generating a "fountain of information" for those just behind.



Makima
2nd Place
1999 Internationals

Whereas most of the builders were interested in the cruising aspects of the boat, there were a few sailors among them who were interested in racing. The builder's meetings indicated that variations on the basic plan were sprouting up all over and if a one-design organization was going to happen, it was time to act. In July of 1959 Tom Wile (who was building what was to become #10 *Vivachee*), called a meeting to work out one-design rules. The resulting International Thunderbird Class Association quickly published a "Black Book" of boat dimensions and specifications. Not all of the home builders were pleased by the one-design limitations and many continued with their own visions. To this day there are "Thunderbirds" world wide with traditional transoms, tall cabins, different rigs, inboard engines, hard dodgers and most every other variation you can think of.

Hoppen himself later designed and built three 32'

"Plimsol" class boats based upon Thunderbird lines and construction methods. He also built a 42' variation, the *Diosa*. Not a stretched Thunderbird the Hoppen family is quick to point out, *Diosa* is based on similar concepts. *Diosa* has remained in the Hoppen family, now under the care of Ed's son Mark. Ed Hoppen raced *Diosa* in at least 2 Swiftsure races. In one Swiftsure the boat placed second in it's class, proving to be very fast. Unfortunately, the race committee disqualified the boat because, Thunderbird like, the auxiliary power utilized a tilt-up outdrive, a method deemed illegal for the Swiftsure. That ruling so soured Hoppen that he never raced *Diosa* again.

The first of the homebuilt Thunderbirds hit the water in 1961. Hoppen by that time had built several Thunderbirds. He built them so well that most are still sailing Northwest waters. In fact, several have been cruised, raced, pampered and loved by the same family since the day of purchase. Hoppen built a total of 16 complete Thunderbirds and sold nearly 100 "kits" consisting of plywood bulkheads, laminated stems and sawn floor joists. While Hoppen's "kits" speeded up construction, they were not vital for home construction as every Thunderbird part is addressed in the plans except the cast iron keel which was initially cast by the Atlas foundry in Tacoma, Washington. (While other foundries subsequently cast Thunderbird keels, Atlas remains the racer's keel of choice.)

By 1962 there were over 400 boats registered with the International organization. Thunderbird "hot spots" developed all over. Sidney, Australia, New Brunswick and Nova Scotia, Canada had fleet growth that nearly matched that of Puget Sound. Many Thunderbirds were built in British Columbia as well as Ontario, Canada. Perth, Australia was another Thunderbird hot bed as was San Francisco (which speaks about the boat's heavy weather qualities!), as well as Los Angeles, California. By the late 1960s some 30 fleets worldwide had been formed of which 17 remain active today. The boat's popularity probably peaked during the 1970s when as many as 72 boats gathered in Puget Sound for international championships and 30 plus boats crossed the Wednesday evening racing start line in Seattle. Even today, in a world of exciting "pocket rocket" sailboats, a world of low maintenance fiberglass vessels, the Thunderbird International Association sells 15-20 sets of plans per year - plans for a wood boat designed 40 years ago! Over the years, some 25,000 sets of plans have been distributed.

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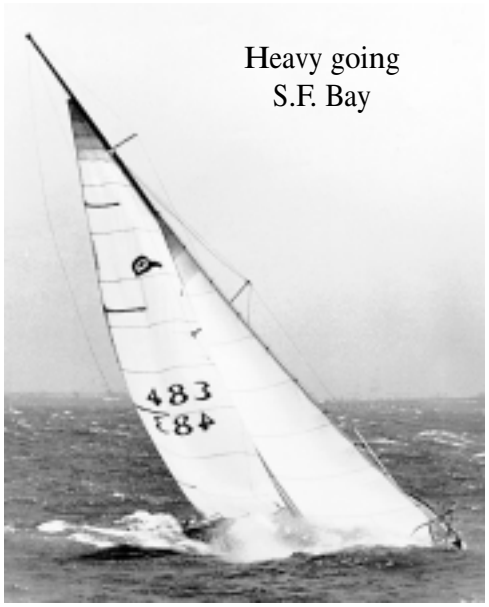
What accounts for this continued appeal? There are hundreds of other wooden boat designs now nearly forgotten. The Thunderbird appeal, simply put, comes from the boat's performance, the workable system of amateur construction, and frankly, the preservative protection of the fiberglass "skin".

On Thunderbird performance: designer Bob Perry once wrote that, "The Thunderbird has no bad habits." Fast in light air (and very much the dragon killer when they first raced against Dragons, Six Meters and Evergreens) Thunderbirds continue to give competing PHRF skippers fits. The boats are so fast and Thunderbird sailors are so good, that the PHRF handicap has progressively decreased (gotten tougher) over the years, a rare occurrence for an aging design. Except for long downwind runs in moderate seas when competing masthead spinnaker boats really take off, a well sailed Thunderbird will almost always contend in it's handicap division.

When the wind picks up, when the waves build, Thunderbirds hold their own. As the wind pushes over 20 knots, a skipper has the option of changing to the 100% jib, or "blade," in place of the genoa. So rigged, a Thunderbird remains manageable when masthead sloops are on their ears. Thunderbirds successfully fly their relatively small spinnakers in heavy going, a feature that has enabled overall wins in windy long distance Puget Sound races. In at least two infamous heavy weather round-Vashon Island races, not only did Thunderbirds survive while others were broaching and busting, they won divisions and even first overall due largely to their ability to fly their spinnakers and beat upwind ". . . when 60-70 m.p.h. winds struck the fleet in the middle of the night. With much of the fleet left in tatters, the 'Bird screamed along with all sails up to set a course record for the race. The reason for all this bravado . . . the halyard was jammed and the crew couldn't get the sails down! So the legend goes." In 1995, current Thunderbird world champion Mark Harang, aboard his wood Thunderbird #447 *Rev*, not only survived 30 plus knot winds, he finished first in his class and corrected out first overall and was the third boat to finish (against boats up to 50' in length!).



Heavy going S.F. Bay

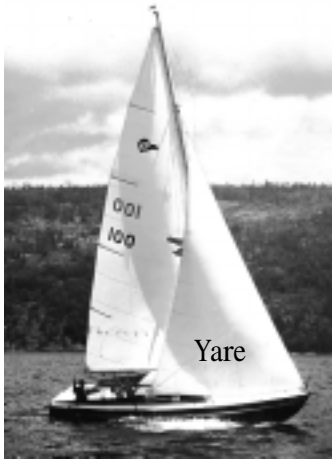
Former World Champion REV

Thunderbirds do not hold a sustained plane, but they do surf off waves, reaching 12 plus knots as they ". . . squat down, stabilize, and go!" In light to moderate winds, Thunderbirds match or beat many longer waterline boats. Currently racing under a tough PHRF handicap of 201, Thunderbirds are a constant challenge to all non-planing boats up to 35' in length. Mark Harang and the vintage *Rev* have ranked at the top of the regional sailing magazine 48° North Top Boats list for the past 5 years, a ranking that pits his old (well, it is tuned to perfection!) wood boat against the likes of Olson 30s, J-35s, Santa Cruz 50s, Tripp 33s and the like.

And Thunderbirds are known to be fast under power, able to sustain as much as 6 knots with a 10 horsepower outboard, a factor very important during the light air Puget Sound cruising season. (Many serious racers utilize a 10-15 hp outboard to get to regattas, and use a light weight 5-6 horsepower outboard while racing. When not in use, outboard auxiliaries tilt up out of the water and a watertight plug seals the motor well.

Thunderbirds have completed some remarkable passages, most often with a cut down mast. A Japanese sailor crossed the Pacific from East to West while another rather innocent Northwest sailor sailed from Puget Sound to Hawaii. British Columbia's Vancouver Island has been circumnavigated many times by standard rig Thunderbirds, no small undertaking as the voyage entails open ocean, dense fog, strong tidal flows and notoriously foul weather. Roger Pattens, a Seattle Thunderbirder has solo cruised his ***U.S. Pattens*** to S.E. Alaska many times. Roger built the boat in 1962 and has modified her over the years to suit his style. The boat now has an ingenious hard dodger that affords protected inside steering, employs a radar, and most radical of all, utilizes a 10hp Yanmar inboard engine (with an outboard backup). Roger's tales of


U.S. Pattens

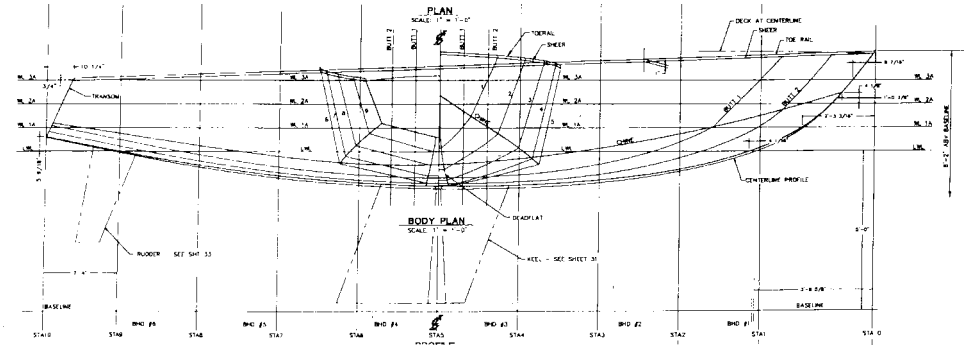

Yare

crossing the infamous Dixon Inlet make for exciting reading.

More common are summer cruises taken by Thunderbirders through Northwest inland waters. Able to sleep four (six with two in the cockpit), the Thunderbird serves well as a "camper/cruiser." Many of the homebuilt 'Birds were finished with clever folding tables, nifty wood stoves, exquisite storage drawers, ice boxes and other builder notions turned into functional realities. Many families have spent weeks wandering the San Juans, the Canadian Gulf Islands as well as the "laid back" South Puget Sound where the author and his wife came upon *Yare*, Thunderbird #100 this past summer. Vic and Jonnie Smith had *Yare* built by Ed Hoppen in 1966. They raced the boat for many years, cruised extensively with their children, and now, in retirement, they still voyage off, just the two of them on their sturdy little wooden boat that lacks all of the cruising amenities now sold as "standard" aboard most sailing craft. Fred Tobey also caught the Thunderbird fever back in the early sixties and began building #235 *Mamook*. He worked on the boat when time allowed over 27 years, not launching her until 1989. Since then, Fred and Alberta Tobey have cruised *Mamook* to Alaska twice and Fred uses the boat several times a week to conduct Coast Guard Auxiliary patrols of Seattle's Lake Union and Lake Washington.

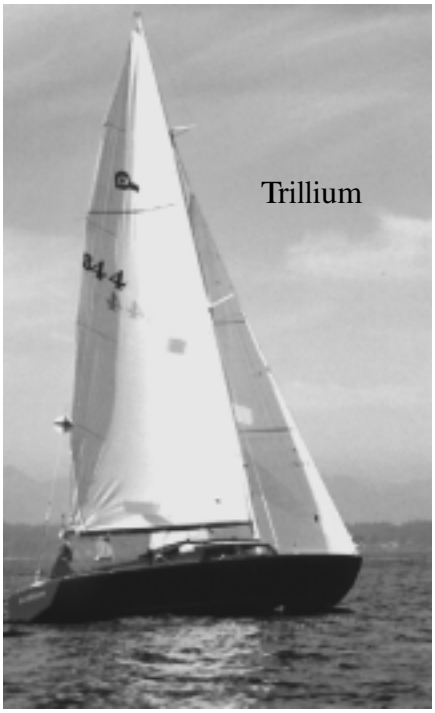
And those are just a few stories from one Thunderbird region. That Thunderbirds have succeed in such diverse sailing conditions as windy Australia and San Francisco Bay, as well as in the light air of Puget Sound, says everything about the overall sound design.

Today, excellent CAD derived plans are available from the International Thunderbird Class Association complete with building instruction along with lists of parts suppliers. All-fiberglass Thunderbirds (weighing and measuring the same as wood boats as well as having the exact same "moment of inertia") have been class legal since #1001 was built in 1971. Plans for building in glass as well as wood are available from the International Association. Four different cabin-cockpit plan variations of the original design are currently available, including the considerably more spacious "cruising cabin" layout. Some owners have saved old rotten birds from the chainsaw by purchasing molded fiberglass deck-cabin parts from Booth Enterprises in Victoria B.C. and fitting them to their still sound plywood hulls, creating a hybrid wood/glass boat that requires little cosmetic maintenance.



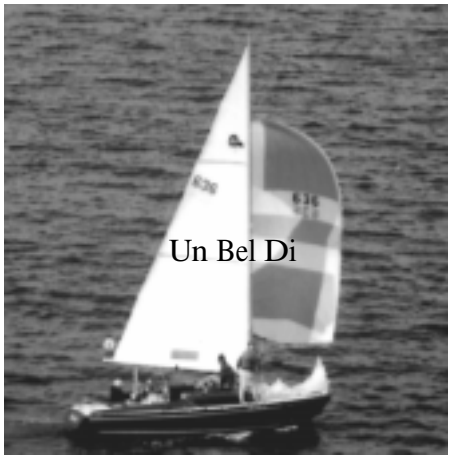
It is estimated that a new wood Thunderbird can be home built for between $10-12,000, depending on intended use. Older Thunderbirds are some of the best bargains on the sailboat market. Check out the Thunderbird classified ads on the Thunderbird International web site listed below. It is presently possible to pick up a sound cruising 'Bird for as little as $4-5,000 or a tricked out racing model for between $7-10,000. The author races against #844 ***Trillium***, a four-way partnership boat purchased for $1,000. After many hours of work, but not much money, ***Trillium*** is always a race contender even though she lacks many of the "go-fast" niceties aboard the top racing Thunderbirds.

Worldwide, cruising and "messing around" have always been the most common Thunderbird activity. And while only a small percentage of Thunderbird sailors actively race, competition has been an



Trillium

important part of keeping the class alive. In the 1998 regional championship regatta at Nanaimo, B.C., the Thunderbird fleet put 32 boats on the start line, by far the largest one-design fleet among the 132 participating yachts. That level of competition has drawn excellent racers into regional fleets and generated wide respect for Thunderbirder's boat handling and tactical skills. International championships are held every two years, alternating between Puget Sound and international locations (which includes British Columbia even though it is just north of Puget Sound!) Past Internationals have been held in Sydney and Geezong, Australia; Toronto, Ontario; as well as San Francisco and Los Angeles, California. To overcome the expense of shipping boats worldwide, the class employs "loaner" boats to out-of-region racers making the cost of transcontinental competition more reasonable.



Un Bel Di

My respect for ***Un Bel Di*** #636, my classic wood Thunderbird, has only grown during six years of racing and cruising. Built by the Mabutchi Kensetsu yard in Yokosuka in 1965, ***Un Bel Di*** was one of 24 Thunderbirds imported by Seattlite Ken Neilsen. The Mabutchi Kensetsu yard was one of the only professional builders besides Hoppen to "mass" produce wood Thunderbirds. ***Un Bel Di*** is something of an enigma for the plastic boat skippers I race with as well as a continual threat to the classics (including several Seaborn designs) I compete against in the regional Wooden Yacht Racing Association. The boat always attracts attention while cruising. It's a rare marina where someone doesn't wander over with the comment: "That's a good looking T'bird. I use to have boat #.... They're great boats. Don't know why I ever sold mine!" And I think, "I don't know why either!"

To learn more about Thunderbirds you can request free information from the International Thunderbird Class Association at PO Box 1033, Mercer Island, WA 98040-1033. On the world wide web, the International can be found at http://www.thunderbirdsailing.org.

Current Thunderbird Fleets are: #1-Tacoma, WA, #2-Seattle, WA, #4-Victoria, BC, Canada, #5-Moss Bay, Mass., #6-San Francisco, CA, #7-Los Angeles, CA, #8-San Diego, CA, #9-Vancouver, BC, #10-Toronto, Ont., Canada, #11-Sydney, NSW, Australia, #13-Everett, WA, #15-Victoria, Australia, #24-Nanaimo, BC, #25-Shediac Bay, New Brunswick, Can., #26-Whitby, Ontario, Can., #27-Perth, WA, Australia, #30-Anacortes, WA. Contact the International for listings of regional contact persons.

Moments you'd rather forget!