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SNOWCHANGE

The Lake Boats of Finland

Building on a centuries-old tradition

by Paul Molyneux

Tero Mustonen has a sharp eye for the small craft known simply as “lake boats” in Finland. He runs an organization, Snowchange, that, among other things, strives to protect commercial and recreational lake fisheries in which the traditional lapstrake rowing skiffs and their descendants still play a central role.

On one mosquito-thick evening, Mustonen rows a lake boat—in this case a modern fiberglass version—onto a remote lake to check a fish trap. “We don’t know what fish are in this lake,” he says, “so the trap is to help find out what’s here.” He lands one pike. When we return to shore, he points out a wooden version of this iconic Finnish skiff lying upside down across two logs. At about 15’ long and lapstrake-planked (or “clinker-built,” as they say here), it is typical. “It’s a good example of what can be done,” Mustonen says as he runs his hand along the edge of a plank, “but by no means a masterpiece.”

Lake boats have sharply curved stems and sweeping sheerlines. For centuries, such boats have been the workhorses of the lakes of Karelia, a culturally distinct region of eastern Finland. Even in its language, the area shares Uralic linguistic roots that are rare in Europe, surviving only in Finland, Estonia, and Hungary: “We are, in a linguistic way, the westernmost outpost of

Siberia,” Mustonen says. Culturally, Karelia spans the border between Finland and Russia, and, despite the area’s difficult history, lake boats are ubiquitous on both sides of the border.

It happens that a local boatbuilder, Arvo Ketolainen, has a moment to share with us at his shop in Kesälahti. “A half an hour,” Mustonen says as we drive into the yard of his *veneveistämö*, or boatshop. We have no doubt that we have found the right place when we see lumber stacked out front, along with a pair of lake boats, one of them right-side up and the other upside down.

Ketolainen greets us in the yard. The two boats, which he built, had come into the shop for repairs and were awaiting pickup by their owners. The oarlocks on the upright skiff are typical of lake boats: each is made from a single iron pin, or horn, welded to a plate that is bolted to the gunwale; the pin receives a small iron ring mounted at the pivot point of its oar, as we see on a pair of oars lying across the thwarts.

Inside, with Mustonen translating, Ketolainen starts to talk about his career. He came from a boatbuilding family that has long been widely respected in the region; his father built classic lake boats until his death in 1977. “He left behind a half-finished boat,”

Above—In this 1952 photograph, fishermen Simo, Urho, and Matti Ahkgrén of Padusta, Finland, haul a seine on Lake Näsijärvi. Aside from the use of modern adhesives and materials, Finnish lake boats have changed little over centuries.



PAUL MOLYNEAUX

Each lake boat, such as this one built Kesälahti, Finland, a village bracketed by Lakes Puruvesi and Pyhäjärvi, is built with subtle changes to the sheer and hull shape to accommodate the prevailing winds and wave patterns of the lake where it will be used.

November, and early May, when the season is open for a whitefish called vendace.

Because every boat is built to suit the wave patterns of the lake where it will be used, Ketolainen is free to adjust the hull shape as he proceeds. He starts with a keel timber and a stem laminated of six layers of green pine glued up over the jig, using a polyurethane glue. Pencil notes scribbled on the wall near the mold remind him of the time the glue-up started, so he'll know when it can be removed. He then builds the transom, making it narrow if the boat is intended for rowing or broad if the boat will be powered by an outboard motor, which is a relatively recent adaptation for lake boats.

The two partial molds that guide the garboards and broadstrakes are simple wooden arcs. Each is made of oak and measures a little over 2' long, with an amidships bolt by which it can be fastened to the keel. "I can move them forward or aft on the keel," he says. "It depends on the shape I want."

He uses $\frac{7}{16}$ " silver birch plywood for planking. "I used to use pine, but I can't get the quality I used to get," Ketolainen says. So now he uses plywood scarfed to length, using a pneumatic press to clamp the joints, which are glued with the same polyurethane adhesive used for the stem.

Few pencil marks are visible on his boats. He planks by eye, nailing the garboards to the keel and shaping the overlapping edges of all the successive planks, which are bedded with an adhesive similar to Sikaflex and fastened with copper rivets. He uses a power hammer to peen the rivets over the roves: "It makes them smoother," he says, which is desirable because fishermen use nets for lake fishing. As he says, "The seiners don't want anything the net can catch on."

Ketolainen says. "I thought it should be finished, so I picked up his tools and started working."

Ketolainen estimates that since then he has built a thousand boats. He may have learned his trade by watching his father fasten planks and steam-bend frames, but he perfected his skills through constant practice. "The basic design is my family's," he says. However, he has no drawings, no offsets, no plank patterns. Nothing but a lamination jig for the stem and a pair of partial molds to support the first two or three strakes on either side of the keel. "It's all in my head," he says. The shape, depth and surrounding topography of the Finnish lakes creates differing dominant wave patterns, such as those of the two lakes, Puruvesi and Pyhäjärvi, that bracket Kesälahti.

"Wave patterns on the North Karelian side of Puruvesi are born from the long body of water stretching 16km [about 10 miles] from north to south, with few islands," Mustonen says. "The waves are affected also by the deep lake. Pyhäjärvi is filled with islands and islets that break the wave formations, but on some open parts there can also be big waves. The dominant winds especially on Puruvesi in the autumn, when the main harvest happens, can bring strong northern storms." The boats are also designed so that they can carry large catches even in the hard conditions of late October,

Boatbuilder Arvo Ketolainen started building lake boats in 1977, when his boatbuilder father died and left a boat unfinished.

Ketolainen picked up his father's tools, finished the job, and has been building boats ever since.



TERO MUSTONEN

With suitable boatbuilding wood difficult to find these days, Ketolainen uses silver birch plywood for both the planking and frames of his boats. He scarfs his planks using a polyurethane glue, leaving the joints in a hydraulic press for several hours for the glue to set.

Once he has finished the planking, Ketolainen fine-tunes the top edges of the sheerstrakes and adds inwales. "That lets me control the shape," of the sheerstrakes, he says. He then installs the frames, with the ends beveled to fit a groove in the inwale—although sometimes he puts the frames in first. He used to use steam-bent frames of spruce or juniper, but today he also uses silver birch plywood for the purpose.

The origins of the lake boat go back at least 500 years, according to Mustonen. The shapes of the boats that Ketolainen builds have been adapted from the double-enders used for centuries, to boats with transoms that can accommodate outboard engines.

The first builders used riven planks—made by splitting a log into finer and finer pie-shaped flitches, which are then hewn and smoothed to thickness. The natural curvature of the wood grain was used to advantage, helping builders achieve hull forms that met the conditions of specific lakes, varying the shape of the bow for entry and lift, the fullness of the hull, and the sweep of the sheer, depending on the heights and periods of the dominant wave patterns—an understanding that has been passed down through generations.

The methods of boatbuilders like Ketolainen stand in contrast to the modern technology that



PAUL MOLYNEUX

mimics them. In modern hull design, naval architects use modeling software, and they analyze computational fluid dynamics and Navier-Stokes equations describing the pressure and velocity of fluids in motion so that they can predict how an imaginary vessel will perform in varied conditions. But as a musician friend of mine once said of his computerized clarinet, "It can play one million notes, but that's all." The lake boat builders developed their hull shapes by keen observation and through centuries of trial and error.

Ketolainen is intuitive. He builds boats out of his head, inspired by a variety of considerations, including the personality of the user. But to say this is a bit misleading. He builds out of his own head, yes, but also from the generations that have bequeathed him their experience and knowledge. His abilities and skills belong to a larger consciousness that spans centuries of accumulated learning and is embedded in a culture—a very different pedigree than sophisticated software.

"I'm not an artist," Ketolainen says. "But I feel like one. I feel like each boat is a thing of beauty." For him, each boat is like a child. "When I watch them take it away, I see it going down the road as if it is leaving home. And I wonder what kind of life it will have." If properly cared for, such a boat could last as long as 50 years.



PAUL MOLYNEUX

The epitome of simplicity, a wrought-iron tholepin of the type Ketolainen makes for his boats look as if it could have come from the Viking Age. Iron rings on the oars (visible upper right center) slip over the pin.



Ketolainen tells a story of one of his favorite boats, and how a culture that spans two countries stays connected. "I went to a wooden boat festival, and there were people there from Lake Ladoga, in Russia. We began to talk, and it seems they wanted a boat built. In the old days, the boatbuilder would go to the place where the boat would be used and do his work there, and that's what we decided to do. I went to Russia for

After shaping the stem, keel, and transom, the only molds that Kaitolainen uses during construction are two wooden bows that bolt temporarily to the keel to guide the installation of only the first few planks on each side. Kaitolainen says the rest of the boat comes out of his head.

two weeks, and we built the boat there in their community. It was, for me, a very moving experience to bring the Karelian culture together like that."

Before the Winter War of 1939–40, Finland held most of the land on the western shore of Lake Ladoga. The Finnish forces held off a Red Army invasion for 100 brutal days in the depths of winter. But the war continued until 1944, when Finland ceded its eastern province to the Soviets in return for peace. Ketolainen can build a boat in a week, but he stayed in Russia for two in order to enjoy the cultural camaraderie.

In his shop in Kesälahti, Ketolainen completes his current project. He adds a seat in the stern and a heavily built thwart amidships with storage compartments on either side. Those, along with a uniquely

Ketolainen, who uses unique techniques such as brass strapping at the transom (inset) and stem, says he will build boats until he dies, and he seems to impart something of himself into every craft. He thinks of his boats as his children or works of art. "When I watch them go down the road, I wonder what kind of life they will have," he says.



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shaped handle at the bow, are distinctive marks of his boats. Brass strapping is another: he uses straps to reinforce joints where the sheerstrakes meet the stem and the transom. "They make it safer in storms," he says.

For the finish specified for this particular boat, Ketolainen is waiting for a special Norwegian oil, which has to be applied in six coats. Usually, he seals the hull with a simple mix of linseed oil and pine tar.

He says he will build boats until he dies, but Mustonen is not going to gamble. He can see Ketolainen has something special, and he orders one on the spot. There is not even a handshake. In Finland, it's enough to say it: that is the contract. "He said he could do it, if I am not in hurry, sometime this year," Mustonen says. "I have four of these boats. Mostly they are built by members of his family, his uncles." Mustonen keeps his boats on different lakes and one on a river.

On the lakes of Finland, such boats can be seen hauled up here and there wherever one travels. Today, about 95 percent of the wooden lake boats are used recreationally, and many have been built with wide transoms to accept 4- to 10-hp outboard motors. "Since the 1990s, there's been a split among the commercial fishermen, and many of them have switched to fiberglass," Mustonen says. "The wooden boats require some maintenance. They have to be tarred and swelled every year."

Mustonen focuses on maintaining traditions, so he eschews motors for his boats. "I prefer to row out, as many people do. There is a cultural, household fishery for burbot, for example, and the people who participate in that mostly row out to check their gill nets." He says that families divide their catches within their communities. He also points out that many communities have contests built around the boats, including awards for rowing, trolling, and boatbuilding.

For Mustonen, the lake boats, the lake fisheries, and the Karelian culture are all intertwined, with each helping to secure the future of the other. "Finland, Norway, and Sweden are working with UNESCO to register this wooden boat style as part of our intangible cultural heritage," he says. The lake boats share similarities—riveted lapstrake construction, for example—with historic Nordic boatbuilding, and in 2019 an international team led by Norway nominated lapstrake boatbuilding for UNESCO's Representative List of the Intangible Cultural Heritage of Humanity.

"At the same time, we are working to have our vendace fishery recognized," Mustonen says. A select group of about two dozen fishermen collect vendace from traps in summer, but in winter they practice a unique method of ice seining: After cutting a long hole in the lake ice, they use remote-controlled propellers to take a 450'-long by 45'-deep seine in a circle under the ice, and once they retrieve both ends of the seine they haul it back by hand and bring the catch home by snowmobile. According to Mustonen, the lake fisheries were first documented in the 1300s,



Change came slowly in postwar Finland. Even in the 1960s, these Näsijärvi seiners returned home under oars, with the aft crew using a paddle to steer; their double-ended lake boats have no way to mount outboard motors. These are among the lapstrake, or clinker-built, Nordic boats nominated for UNESCO's Representative List of the Intangible Cultural Heritage of Humanity.

and they are probably much older than that. "This fishery has been practiced continually for centuries, passed from one generation to the next," he says. The wooden boats that Ketolainen and others build have been a vital part of that tradition.

Mustonen points out that in more recent times, trawlers have been permitted on some lakes elsewhere in Finland, to the detriment of fisheries and communities alike. "A few people make money," he says. "But the fisheries go down. We believe if we can get our fishery onto the UNESCO list, we can protect these lakes."

So far, Mustonen and others in the region, with the help of organizations such as Snowchange, have managed to win approval for a special certification for the vendace they sell, stating that it comes from Lake Puruvesi and is harvested by fishermen using the old ways. But they have a long way to go to have the fisheries recognized by UNESCO. "It takes a lot of time and money," Mustonen says.

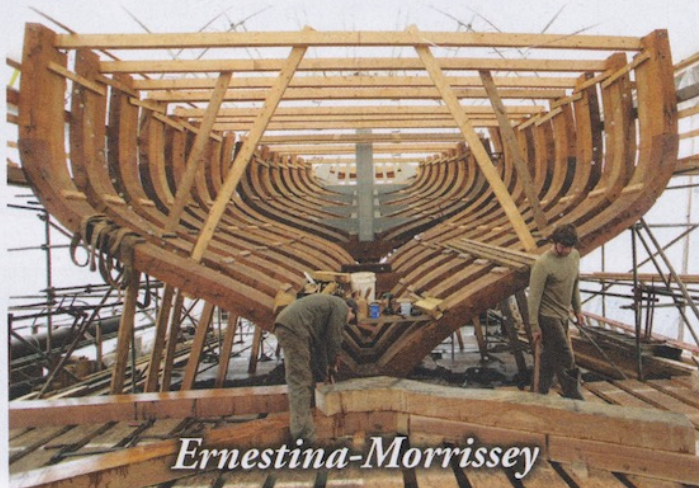
The fishing tradition seems likely to continue, since young people have been working alongside aging fishermen, but Ketolainen and other boat-builders in the area have trouble finding apprentices. I ask Mustonen why he ordered a boat from this particular builder, considering that he already has four. "I will always need another boat," he says. "No one is taking up the trade, and these guys aren't getting any younger."

As a commercial fisherman, Paul Molyneux always favored wooden boats, from skippering his first dory in Alaska to working the deck of the swordfish boat IRENE ALTON on Georges Bank. Molyneux has written about fisheries issues for The New York Times and as a Guggenheim Fellow. He is the author of two books, The Doryman's Reflection and Swimming in Circles, and he is the boats-and-gear editor at National Fisherman magazine.

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