



A Qajaq Reunion

*Paninnguaq Korneliussen
explains her grandfather's
key role in creating
the modern sea kayak*

Inside:

*Dinner Is Served: Seal Fat & Dried Fish
Building that Replica, Continued*

A Qajaq Love Affair

I Built It!

*Five Minute Stretch for Better Paddling
And Much More...*

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That's a Qajaq: With this issue you'll see a change in usage, reflecting our desire to show greater respect for the Inuit people of the far north. *Inuk* will be the singular term for Inuit people. *Qajaq* will be a traditional skin-on-frame, while *kayak* will refer to a commercially manufactured craft. Read more about this consideration in the editor's note, page 5.

Those Unexpected Things

Most memorable after 17 years: the friendships, the mischief

By Helen Wilson

It was April 23, 2006 when I first ventured out onto the ocean in a kayak, and for me, there was no looking back. Soon after, I discovered Greenland-style kayaking. The following year I was offered a position as a board advisor for Qajaq USA, and then I became a board member. I have been on the board of directors ever since. I've served as the editor of *The Masik*, the membership coordinator, the social media administrator more recently, as President.

Over the years, Qajaq USA has been a major part of my life. Qajaq USA events were a place to connect with fellow paddlers, learn new skills and reconnect with old friends while welcoming new ones. They were a place to get into intense conversations about everything from shouldered versus unshouldered paddles, to how to use a storm paddle, to how to properly tie a tuilik. I can't count the number of debates that I've gotten into about whether or not a Greenland paddle is as good in surf as a Western blade. (I believe it is.)

Qajaq USA events were also a place to connect with people from Greenland, which of course, is

the heart and soul of Greenland-style kayaking.

When asked to write this article, my intent was to highlight the kayaking; the paddle and qajaq building, the 35 competition rolls and the fantastic speakers at Qajaq USA events over the years.

While these things are great, they are the expected things. Perhaps the things that stand out to me the most from the past two decades are the unexpected — the friendships, the experiences and on occasion, the mischief.



Ginni Callahan (left) and Helen Wilson.

SSTIKS: I am often asked to perform rolling demonstrations at events. In most cases, an announcer would go through the list of 35 competition rolls, and I'd perform them.

Of the dozens of rolling demonstrations that I've performed over the years, the one that stands out to me most was at the South Sound Traditional Inuit Kayaking Symposium (SSTIKS). It was done in a tandem kayak with Brian Schulz, who had built the kayak that we'd be using. Brian and I had chatted ahead of time about what to do in the case of a failed roll. We agreed that no matter what, we would not exit the kayak and that we would recover on the right side of the kayak. We attempted each of the rolls in the demonstration, with mixed success, but

DEPARTING PRESIDENT'S NOTE

what made it fun was the commentary. Brian and I bickered back and forth about the rolls, which was not only entertaining for the spectators, but for us as well. Everyone there, both on the water and on land was having fun, which is what Qajaq USA and Qajaq USA events are about. For years after, that rolling demonstration was talked about.

Delmarva Paddlers Retreat:

Delmarva always brings entertainment and sometimes mischief. Its live auctions are world famous, at least amongst the Qajaq USA crowd. I don't think that any of us will forget the auctioning off of "nothing." Yes, you read that right, "nothing" was auctioned off, and for quite a bit of money, if my recollection is correct.

I'm not sure if it was that year or another, but a lively ball game broke out in one of the buildings one evening, and many of us (including the guest from Greenland) were up for most of the night, tossing a ball back and forth, while laughing and telling kayaking stories. Of course, Delmarva was also known for "Cabin 8," scotch tastings. And then there was that time that we lost the featured guest from Greenland during a midnight paddle across the Bay and didn't find him until the next day, but I'll save that story for another time...

Traditional Paddlers Gathering: Over in Minnesota the Traditional Paddlers Gathering takes place. This event stood out for its elaborate harpoon throwing obstacle course, set up by Jeff Bjorgo, Sipke DeBoer and friends. Many of the harpoons that this group uses are gorgeous, and



There was probably a reason: Gene Kraft at SSTIKS.

participants took the competition very seriously. Awards and prizes would be presented, and I enjoyed many wonderful evenings talking about Greenland-style paddling at an outdoor fire pit that sat in the center of the beautiful and somewhat rustic venue. It was at this event that I met Qajaq USA's new Board President, Tony Schmitz. At the

time he was one of the organizers and can tell you all about harpoon and fishing competitions, Minnesota-style.

Of course, there are lots of stories and lots of events. I haven't even mentioned the serenity of Michigan Training Camp, which

was worth going to just for Michael Gray's amazing cooking. Other events that I haven't been to, but undoubtedly have stories of their own, include Traditional Qajaqers of the South (TRAQS), Qajaq Camp and the Hudson River Greenland Festival.

What it really comes down to is this: Qajaq USA is a wonderful organization. Over the years I've learned a lot, made some great friends and had many memorable adventures. I've been part of the organization's "leadership" since 2007, and it's time for me to pass on the norsaq. I have no doubt that Tony Schmitz will bring renewed enthusiasm, new leadership and a variety of skills. If you're a member, thanks for being one. If you aren't, please consider joining. While I'm moving away from my board position, I know that there are lots of adventures yet to have, lots of great conversations, lots of scotch tastings, lots more rolling demonstrations, lots more auctions, lots more friends to be made and most of all lots more that we don't even know about yet. See you on the water. — *Helen Wilson*

Matters of Respect

RECREATION VS. SURVIVAL: Among the fascinating pleasures of attending this year's Delmarva Paddlers Retreat was the appearance of a guest from Nuuk, Paninnguaq Korneliussen. You can read a more thorough account of her family's role in the history of modern Eurocentric paddling on page 19.

The short version: her grandfather, Emanuel Korneliussen, built qajaqs for the visiting Scottish anthropology student Ken Taylor, and another for the Texas historian John Heath in 1959. After Taylor's qajaq returned with him to Scotland, this vessel got a plywood work-up that eventually became the model for the Valley Anas Acuta.

In the niche world of traditional qajaqing, Taylor and Heath are relatively well known. Korneliussen? Not so much. His role led to anything but fame and wealth, as Paninnguaq describes in this issue.

This is another opportunity to reflect on our relationship here with the Inuit people who developed this technology, and their ancestors who try to navigate the difference between our recreational use of their tools compared to their own profound understanding of its immense place in their culture. It's a distinction that Paninnguaq describes eloquently inside.

THAT'S A QAJAQ, BUDDY Paninnguaq also made a plea for language usage that

respects the native people of Greenland.

In her view, the term *Greenlander* is part of the language of colonization. More appropriately we would use Inuit to describe a group of native people; Inuk in the singular. Alternatives are Kalaait (plural) and Kalaaeq (singular). In the pages of *The Masik*, a traditional skin-on-frame vessel will be identified as a qajaq, or qaannat in the plural. A commercially-made version will be called a kayak or qajaqriaq, that is to say, something like a qajaq.



My intention within *The Masik* is to use the terms that are most

respectful, and that honor our relationship with the people of Greenland. Perhaps needless to say, this comes with some complications. There is a strong argument to use the term Kalaait Nunaat in place of Greenland. As a practical matter, that change seemed to add more confusion and contradictions than clarity, so for now we'll stick with Greenland.

My suspicion is that this will lead to some head scratching at first. I hope you'll bear with the transition, and with similar changes that may appear in issues ahead. Like so many attempts at a deeper relationship, this is a process and not a simple achievable end.

As always, I'm eager to hear your thoughts, and can be contacted via email at president@qajaqusa.org.

— Tony Schmitz

RECOMMENDATIONS



There Goes the Ice, Here Comes Mining: Climate-change induced ice loss in Greenland has increased five-fold since the 1990s, and hit a new record this year. Among the consequences of the melting landscape is the exposure of the country's rich mineral resources.

Included in areas of exploration: Greenland's Nuussuaq region, where KoBold Metals announced a joint venture with Greenland-centered mining company Bluejay Mining. The operation will primarily focus on mining nickel, copper, platinum and cobalt. The venture is backed by some of the world's richest people, including Bill Gates, Jeff Bezos and Michael Bloomberg.

Mining poses obvious environmental challenges of its own. However, as pointed out in this article, "Why the world finds itself in a Greenland 'gold rush'", published in *Energy Monitor*, the politics are tricky. Greenland is a self-governing country and has rights to self-determination, but is also part of the Kingdom of Denmark, which provides about \$500 million in subsidies per year. Revenue from mining

could provide a route to financial independence.

[Read more from Energy Monitor here.](#)

Yes to Tourists, But Not to Too Many:

Here's a conundrum. Tourism could help build Greenland's economy, but how many tourists are too many tourists?

Iceland, in the eyes of some observers, is overrun by visitors. In comparison, Greenland, with 55,000 visitors in the first three quarters of 2022, is relatively abandoned. Government officials recently touted the addition of a new Airbus jet that lands at the Kangerlussuaq airport, the only strip in the country long enough to larger planes. But this aircraft is part of a plan to jumpstart the tourist industry with new terminals in Nuuk and Ilulissat. If plans work out, big planes could bring tourists to these towns by 2024. Direct four-hour flights from New York would allow visitors to forego the now necessary connection in Copenhagen to continue on to Greenland.

RECOMMENDATIONS

Get a view of what tourism in Greenland looks like now in this *New York Times* piece, "[Greenland Wants You to Visit. But Not All at Once](#)".

Daily Life in Greenland: Looking for a glimpse into daily life in Greenland? Check out the YouTube.com videos, Q's Greenland, an exuberant presentation of daily life by Qupanuk Olsen, a Nuuk-based mining engineer and mother of four children.

The short videos hit dozens of topics, including how to say sorry in Inuit, locals' description of a typical state of mind, dog sledding, moving to Greenland, getting a job, and much more.

Olsen's video collection was inspired by her trips to countries around the world, she told APTN, a Canadian service devoted to providing news from the perspective of indigenous people. "I've studied in the U.S., I've studied in Australia, I've done mountaineering in South America and Africa... Every

time I go to new places I just realize that people have no idea about anything about Greenland."

With a half million followers, she's getting out the news. [Check her videos out here](#). Read the complete APTN story — '[We want our voice to be heard': Content creator Qupanuk Olsen on being Inuit in Greenland](#)' — about Olsen.

The Face of Colonialism: Proof that colonialism has a similar look around the world: Here is an accusation from Inuit women that the Danish government inserted intrauterine birth control devices in them without their consent. The procedure, they say, was part of an effort to control Greenland's indigenous population. "None of them had given consent or were even asked or told anything," said Mads Pramming, a lawyer representing the group of 67 women, many of whom were minors at the time, who had the devices inserted," according to the *New York*



RECOMMENDATIONS

Times. About 4,500 procedures were performed by Danish doctors between 1966 and 1970. [Read the complete story in the *Times* here.](#)

Class in Session, Inuit Teach Cold: With increasing superpower contention over who will control the far north, the Canadian military is turning to Inuit people for instructions on how to survive a brutal environment.

"Canada's mission to secure the Arctic," the *New York Times* observes, "means relying more heavily on the Inuit, the only people who have lived in this austere part of the world for thousands of years, keeping watch over the country's vast, isolated stretches in the far north."

The *Times* observes both ends of the Canadian government's relationship with the Inuit. On one hand, "a long and ugly history of abusing the Inuit, including misleading families into moving to the High Arctic to cement its hold on the territory during the Cold War and refusing to let them leave." And on the other: "Canada is also focusing on the most intractable element of post-colonial relationships — people's way of thinking — by emphasizing learning from the Indigenous. On Arctic patrols, that brings practical benefits."

See the complete *Times* story, [Caribou Meat and Moon Signs: Inuit Lessons for Soldiers in the Arctic](#), here.



Chilling: [Canadian soldier during Arctic training.](#)

That Old Ivory Tower: Academia is hard at work churning out new papers on the life experience of the people of the far north. Get a dose via this research, courtesy of Academia.edu:

[Introduction: What Are Arctic Cinemas?" In Films on Ice: Cinemas of the Arctic.](#)

[Norse Greenland Settlement: Reflections on Climate Change, Trade, and the Contrasting Fates of Human Settlements in the North Atlantic Islands](#)

[The Origin of the Thule culture](#)

[Did Indigenous Arctic Mariners use sail before the European contact?](#)

[Thule Subsistence](#)

[First people in Greenland: Human Colonization of the Arctic: The Interaction Between Early Migration and the Paleoenvironment](#)

I BUILT IT!

Qajaq Ahoy

Qajaq USA members report on their additions to the traditional fleet

JERROLD BORENSTEIN: I built this in a group with Brian Schultz at Delmarva. It was the second SOF I built. The fact that we were able to complete a qajaq in a week, start to finish, surprised me. The first one I built with a friend took quite a bit longer because I was a novice. Lots of of time was wasted. This one is a replica of the FRAM. It came out as I hoped it would and fits me like a glove. The only negative is that laying back is a bit uncomfortable as I am up against the rear of coaming, which limits my ability to arch back on the deck. That hampers rolling. Nothing but a basic layback is easy for me. I don't want to have to do any repair or reskinning so I'm very careful with it. I dont use it in conditions over two feet as it is a bit tender. That said it's like a work of art to me. There's nothing like building a SOF.



Mark Savage: Here is my replica build of an Aluet iqyax, made from a survey of a collection in the Lowie Museum, University of California, Berkeley. Having previously built SOF qajaqs, this build went quite well. The only major issue I had was that it was built in a second story apartment, which made getting this 16+ foot iqyax out of the apartment interesting! I put some extra effort into the smaller details, including bone inserts in the deck members that rub against each other when the iqvax flexes, as well as making the keel in three sections that were lashed together over a stepped "S" shaped scarf. The only thing I would do differently is make the cockpit slightly longer, making getting in and out a little easier. This seemed to work fine in my dry mockups, but the final result could have used an extra inch or so in length.



One more, next page.

Built a qajaq? Want to show it off? [Send pictures/text here.](#)

I BUILT IT

Mark Heatfield: I am currently working on a replica of the qajaq Emanuel Korneliussen built for Ken Taylor in 1959. This is my first build, and I have been exceedingly fortunate to have Fred Randall as an on-call building mentor. I have definitely benefited from Fred's articles as found in earlier *Masiks*, plus inspiration from Dan Segal and information from Harvey Golden and his book, *Kayaks of Greenland*.

The qajaq is mortised, lashed and pegged, no nails other than in the cockpit rim. The frame is complete minus the bow and stern stem caps, which I will install at Delmarva. My qajaq is to be skinned as a demo at the event by Peter Strand. This will be followed by sealing with Corey's goop, after which the qajaq will be complete. Then I will find out how it paddles and rolls. (*Ed. note: The qajaq was finished at Delmarva and paddled by Emanuel Korneliussen's granddaughter, Panninguaq. See page 19 for details.*)

I have made many mistakes, and learned a lot. A lot. Building has been in fits and starts for a few reasons. One being that I'm not retired. Another being the difficulty of sourcing WRC gunwales and the subsequent need to scarf 16-foot gunwale pieces. Then there was the 40 percent failure rate on the first day of bending oak ribs. Somehow, the qajaq is ~5 inches longer than the survey by Duncan Winning's plans...



Ten Top Tips on Stitch & Glue Building

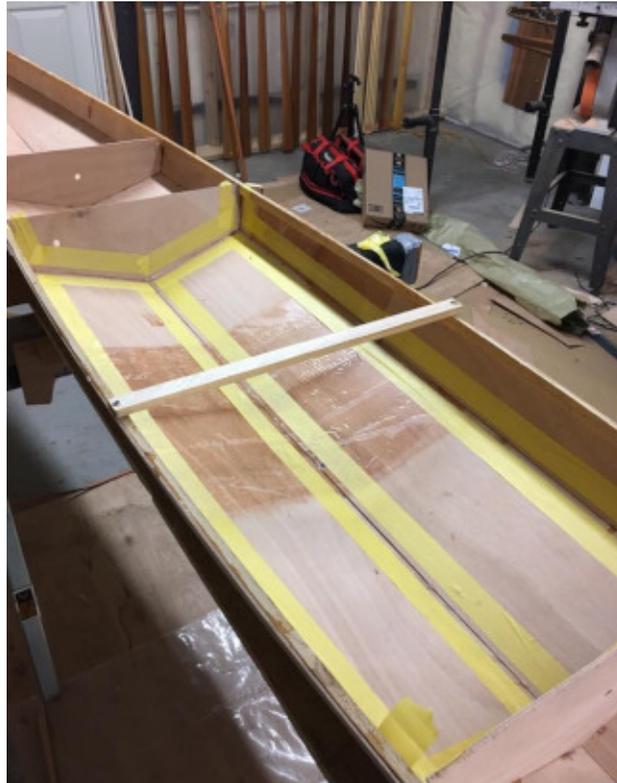
Save money, time, trouble (and hours of sanding)

By Christopher Crowhurst

Christopher Crowhurst has built many kayaks. As co-founder of CNC Kayaks along with his father Nick, they have given away over 7000 copies of kayak plans for the Shrike and Vember, inspired by the qajaqs of west Greenland. More than 500 examples of these designs have been built in over 75 countries. In addition to building stitch and glue kayaks like the Shrike, Christopher has also built numerous wood strip kayaks, skin on frame qajaqs, and sailing boats. In addition to building kayaks, Christopher is a past president of Qajaq USA and the rolling mentor behind the popular Qajaq Rolls website.

1. Don't cut your panels with a jig saw until you have worked out how the wood frays when you use your saw. You may find the plywood splits on the top (or bottom). Knowing this, then cut so that the cleanest side is going to be facing outwards.

2. Do pay attention specifically to the keel line edge of the bottom panel.



Top: Taping off to make neat epoxy seams. Bottom: Crowhurst in his workshop, planing an edge.

This one joint will make a huge difference to how the kayak handles, especially in cross winds. Spend plenty of time to adjust the joint to create a smooth, beautiful curve.

3. Don't use copper wire stitches; consider using tape instead. Tape is very strong, adjustable, and doesn't need holes being drilled and then filled. Tape can leave residue, so test the tape you choose to make sure it does not impact your epoxy.

4. Do use the minimum epoxy you can. It's heavy. Even if you thicken your epoxy with micro balloons it's still a very dense material. Don't just smear it everywhere thinking you are making your kayak stronger. You are just making it heavier. Consider using masking tape on joints and then using a tool to create minimal fillets.

5. Don't plane the top (gunwales) of the side panels until you have fitted shear clamps, but do bevel the rest of the panel edges so the edges join seamlessly. Leaving the gunwale edge "raw" will

DOES AND DON'TS

give you maximum flexibility and allow you to match the edge of the deck curvature when the time comes.

6. Do consider just using fiberglass tape on the joints, or just the underside of the hull. You don't need to fiberglass everything inside and out. It's very heavy and for most uses, plywood alone is more than strong enough.

7. Don't omit deck beams behind the cockpit. Lay out your deck beams so you have lots of support where you sit when you get into and out of your kayak. Also use deck beams to provide support around your hatches to create extra strength where the most pressure will be.

8. Do trim the deck panels with a hand saw once you have bonded them to the hull (sheer

clamps) Then plane the last few mm of overhang. Make sure to plane away from the center of the kayak (toward the ends) so that the top veneer doesn't split out.

9. Don't epoxy the deck to the sheer clamps and hull until you have fitted all the deck fittings. Make sure the deck lines attachments, hatches, compass, etc. are all test fitted and that you know which ones you can reach after you have fitted the deck. You may not be able to reach the underside as easily once the deck is in place.

10. Do minimize the size of all the wood and epoxy you add. For example, can you use quarter round or smaller section timber for beams and sheer clamps? Remember the strength comes from the curves. Thickening members is the least efficient way to create additional strength.



Take Five: Simple Moves, Better Paddling

Activate your muscles with dynamic stretching on the beach

By Cathy Smith

Before launching your boat on your next kayaking trip, take five minutes to practice a little dynamic mobility stretching. You can perform dynamic stretches in full gear, standing right next to your boat, with no equipment needed.

Dynamic mobility stretching is “active” and moves your muscles and joints through a full range of motion. Dynamic stretches warm up and activate your muscles, helping to prepare your body for physical activity. Taking the time to complete dynamic stretches can help you move better and more easily.

Dynamic stretching also helps your brain and body connect for healthy movement patterns that are activity specific. Practicing kayak-specific dynamic stretches can serve several crucial purposes and can enhance your overall kayak performance and endurance. Adding this routine to your pre-launch checklist will increase your overall flexibility and perhaps even your kayaking longevity.

Dynamic mobility stretches increase blood flow and oxygen delivery to muscles and elevates your heart rate. The result is improved circulation, which ensures that both heart and muscles receive a steady supply of oxygen and nutrients, reducing the likelihood of early fatigue. Depending on water

and wind conditions, the physiological demands of kayaking can require high levels of both aerobic power and anaerobic capacity. Taking the time to warm up your circulatory and cardiovascular systems is beneficial for the short and long-term kayaking experience.

Kayaking involves repetitive movement patterns. Kayak-specific dynamic stretches activate and engage those muscles and muscle groups that are most utilized. This activation helps prepare your muscles for the demands of kayaking, reducing the risk of muscle strains or fatigue.

Practicing dynamic stretches can help decrease muscle imbalances and promote better muscle alignment. Specifically warming up the hips, torso, shoulders, and upper back muscles will help get those kinks out before launching. As a result of this routine, it will also feel easier to focus on proper posture and form while in your cockpit.

Kayaking involves utilizing a wide range of motion, from torso rotation to repetitive arm movements. Dynamic mobility is the key to increased flexibility, whether kayaking or during daily functional life. Dynamic mobility stretches reduce muscle stiffness and enhances joint range of motion, thus allowing for more efficient and powerful strokes. This increases flexibility and reduces the risk of overuse

Cathy Smith is a full-time personal trainer and fitness instructor in Ellicott City, Maryland. She has 29 years of experience sharing her passion for fitness with clients ranging in age from 5 to 95. Specializing in functional training techniques, Cathy teaches her clients how to move better through improved muscle and core strength, flexibility, and balance. She trains both individuals and

small groups focusing on proper movement patterns and form. Her goal is to enable clients to be functionally fit for daily living. Cathy is also a fitness consultant with the Howard County Public School System. Her professional fitness certifications include: AFAA Certified Personal Trainer; REEBOCK Certified Cycle Instructor; AFAA Aerobics Instructor; Resist-A-Ball CORE Instructor.

FIT TO PADDLE

injuries. It can also improve your overall endurance. Performing kayak-specific dynamic stretches before you start can help you feel more confident taking on those longer paddle sessions or facing more challenging water conditions.

I recommend nine dynamic mobility stretches to practice before you launch your boat. Once you get the rhythm of the stretches, the routine should take five minutes. They are simple to complete, effective, and do not require any special equipment or accommodations.

These dynamic mobility stretches activate muscles that are kayak-specific. They can be done in any order; however, I always recommend warming up the lower back and core muscles first. Complete these active stretches at a consistent and steady pace, and at a range of motion that feels comfortable in the moment. Breathe normally.

Notice if you feel one side has greater range of motion than the other. If you experience differences in range of motion, you could have muscle imbalances, which if left unaddressed could lead to future mobility issues.

Do not overextend a joint, or over stretch a muscle. Stop if something feels painful. Check in with your doctor if you are experiencing persistent muscle pain and discomfort.

Exercises

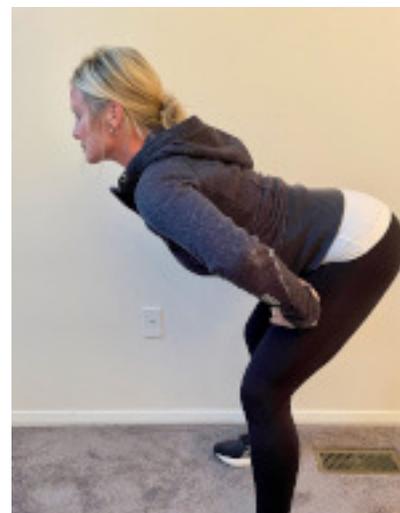
Forward Flex Cat Cow
Hula Hoop Circles – both directions
Elbow Pec Openers
Backstroke Arms
Thoracic Spine Rotation & Dip
Baby Gate Hip Opener
Shoo the Chickens
Squats
Sumo Squats

Supported Forward-flexed Cat-Cow

Primary muscles activated: Lower back, abs (core)
Directions: Stand with your feet shoulder width apart. Bend forward at the waist and place your hands on your thighs for support. Arch your spine, tucking your chin to your chest and drawing your pelvis in towards your belly button. (This is cat position.) Pause for 2-3 seconds. Move into the opposite direction by lifting your chin, looking up and pressing your belly button down. Pause for 2-3 seconds. (This is cow position.)
Number of repetitions: 5x each direction.



Cat (above) and cow position, below.



Hula Hoop Circles

Primary muscles activated: Lower back, abs with emphasis on rotational movement.
Directions: Stand with your feet shoulder width apart. Place hands



FIT TO PADDLE



on hips. Gently rotate hips and pelvis in one direction, simulating moving a hula hoop around your waist. Repeat the other direction. Number of repetitions: 8-10x right, 8-10x left.

Elbow Pec Openers

Primary muscles activated: Chest, posterior deltoids (shoulders).

Directions: Stand tall with your feet shoulder width apart. Place your hands behind your head with arms and elbows wide. Press your elbows together, then separate them. Try to pull your shoulder blades together when opening your arms and elbows wide. Number of repetitions: 8-10x

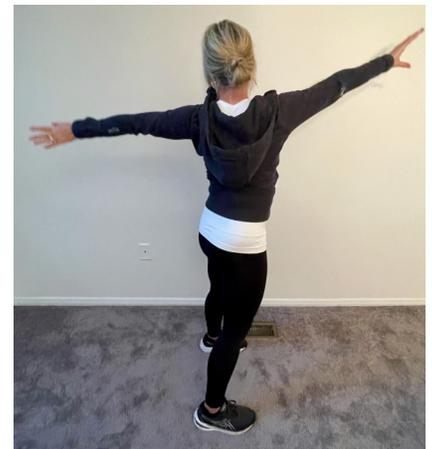


Pec Openers, top and bottom.

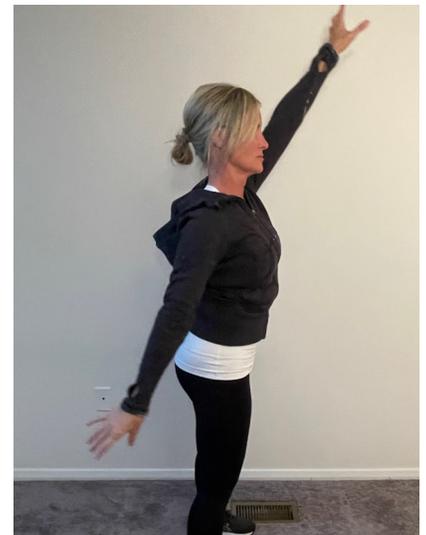


Backstroke Arms

Primary muscles activated: Chest, posterior deltoid (shoulders), obliques (abs) with emphasis on rotational movement. Directions: Stand tall with your feet shoulder width apart. Lift one arm up over your head, rotate your torso and reach behind, simulating a swimmer's backstroke. Bring the arm back to start. Repeat with the other arm. It's OK to keep your elbow slightly bent when reaching behind. Number of repetitions: alternate 8-10x each arm



Backstroke Arms, top, bottom.



Thoracic Spine Rotation & Dip

Primary muscles activated: Chest, posterior deltoids (shoulders), obliques (abs) with emphasis on rotational movement, latissimus dorsi (lats). Directions: Stand tall with your feet shoulder



STAYING AFLOAT



Thoracic Spine Rotation & Dip

width apart. Place your hands behind your head with arms and elbows wide. Rotate your torso to the right. Dip your right elbow towards the ground. Release the dip and rotate back to center. Repeat the movement to the left. Number of repetitions: alternate 5x each direction

Baby Gate (Hip Opener)

Primary muscles activated: hips, glutes.
Directions: Stand tall with your feet under your hips. Lift your right knee up towards your chest and slightly rotate your torso to the right. Lower your knee and place your foot back on the ground. Lift your right knee up, rotating your torso back to center. Repeat same side 10x. Switch legs. Note: this exercise is similar to stepping up and over a baby



gate. This exercise is good for practicing balance, too. Number of repetitions: 8-10x right, 8-10x left

Shoo the Chickens

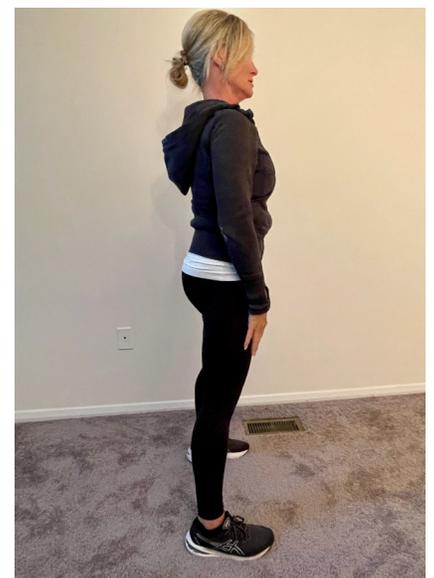
Primary muscles activated: glutes, hamstrings, calf.
Directions: Stand tall with your feet shoulder width apart. Extend your right leg forward, heel on the ground, toes flexed towards your ankle. Sit your hips and glutes back. Lean your chest forward towards your ankle. Reach your hand forward in a sweeping motion like you are "shooing" away chickens. Stand up tall, bringing your feet next to each other. Be sure to keep your knee soft, not locked out. Switch legs. Number of repetitions: alternate 8-10x each leg.



Shoo the Chickens

Squats (YES YOU CAN!)

Primary muscles activated: glutes, hamstrings, quads, core.
Directions: Stand with your feet a little wider than shoulder width apart. Reach your arms forward and at the same time, sit your hips back like you are going to sit on a chair. Try to keep your head and chest lifted. Your weight is in your glutes, not your knees. Do not



Squat, beginning position

FIT TO PADDLE



Squat, finish

let your knees extend beyond your toes. Lower your hands back to your sides as you stand back up. Number of repetitions: 8-10x



Sumo Squats

Primary muscles activated: glutes, hamstrings, adductors (inner thighs), core. Directions: Stand with your feet wider than you would for a squat. Slightly rotate your toes and feet outwards. Reach your arms forward and at the same time, sit your hips back like you are going to sit on a chair. Try to keep your head and chest lifted. Keep your weight in your glutes, not your knees. Do not let your knees extend beyond your toes. Lower your hands back to your sides as you stand back up. You may need to adjust and separate your feet a little wider. Number of repetitions: 8-10x



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History Out of the Shadows

How the kayak you paddle today came to be in 1959

By Mike Hamilton

There were few dry eyes in the place when Paninnguaq Korneliusen told the story that she came 2000 miles to share. Vulnerable, proud, angry, emotional, invested in and fiercely proud of her heritage, she left this year's Delmarva Paddler's Retreat participants stunned. And extraordinarily thankful for her presence. She truly helped all of us further our appreciation of Greenland-style kayaking.

In October 2023, 85 paddlers participated in the 34th annual gathering at the Delmarva Paddler's Retreat, Rehoboth Bay, Delaware. The unofficial theme of this year's event was "Giving Credit Where Credit is Due."

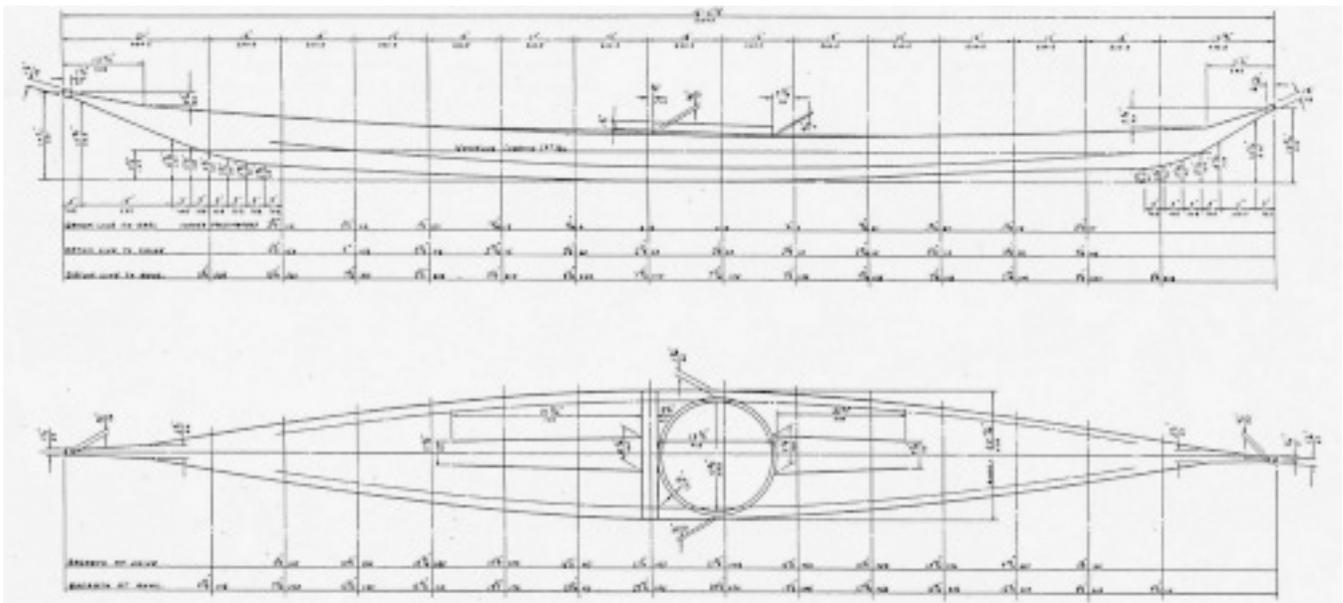
To achieve this goal, we had two objectives: 1) retell the story to the newest generation of kayakers of how a qajaq from Illorsuit Island, Greenland, became the inspiration for the design of what would ultimately become the modern production

sea kayak and 2) highlight and thank the man who built that qajaq.

The Euro-Centric Version

Here's how I learned the story of the birth of modern sea kayaking. In 1959, a Scottish anthropology student named Ken Taylor was sent to Igdlorsuit (now Illorsuit Island) to study Inuit culture. While there, he commissioned two qajaqs to be made in the local skin-on-frame style. One qajaq was for Taylor, and one was for historian John Heath of Texas. Both were outfitted with hunting implements (harpoon, line tray, screen, gun bag, float, knife etc.) but there was only enough seal skin available that year to cover Taylor's qajaq.

Following his return to Scotland, Taylor held local demonstrations on Loch Lomond, resulting in a lot of interest. In the following years, several local boatbuilders made rough copies of the qajaq based on photographs. When Taylor moved to the United States in 1962, he left the qajaq with his



Where it started: the Emmanuel Korneliusen qajaq that became the Anas Acuta.

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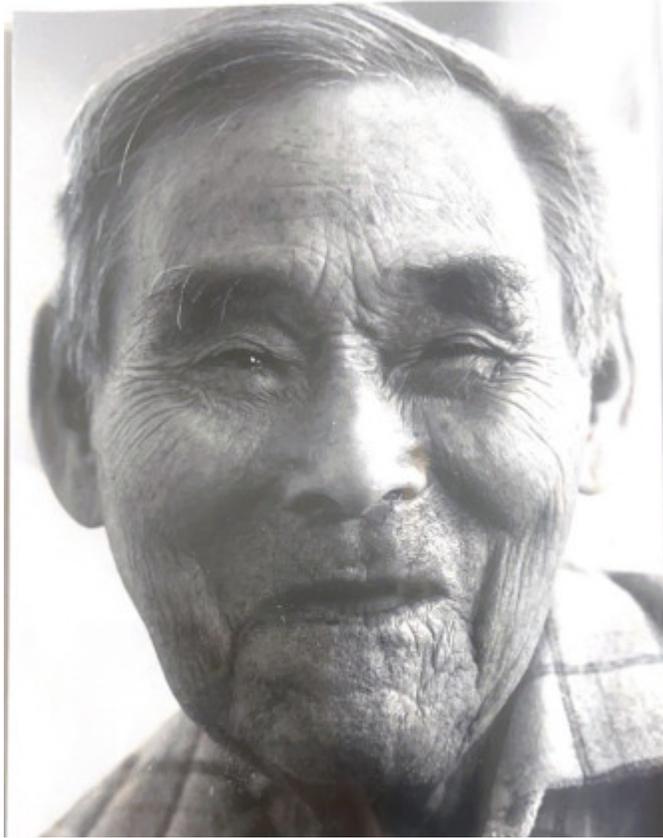
friends in Scotland, Joe Reid and Duncan Winning.

The Anas Acuta

In 1964, Winning took measurements of the qajaq and created a line drawing of the frame, allowing anyone to build replicas more accurately. He made them available to anyone at no cost and they were widely distributed. Later, Geoff Blackford made a plywood version based on the drawing and named it Anas Acuta. Since fiberglass had been in use to make whitewater kayaks for some years, it was only natural that Carel Quaife and Alan Byde adapted the design to fiberglass. Together, they sold the patent to Frank Goodman of Valley Canoe Products in England. Goodman kept the name Anas Acuta and mass produced the kayak beginning in 1972. Thus, the Valley Anas Acuta became the first fiberglass sea kayak to be successfully mass produced and is still in production today, 50 years later.

Many kayak companies have adapted this design for expeditions and other

recreational uses, creating a proliferation of modern sea kayaks by P&H, Current Designs, NDK (now SKUK), etc. Thus, the original Inuit qajaq made for Ken Taylor was the progenitor of most modern boats.



Old and young: Emanuel Korneliusen.

Credit Where Credit is Due: The Rest of the Story

In 2004, Ken Taylor visited the Delmarva event and brought a qajaq which he had recently built using the survey drawing by Winning. He told the story of how he commissioned a local Inuit man to build the 1959 qajaq and his experiences while in Greenland. Before his passing in 2019, and with the help of his long-time friend Vernon Doucette, Taylor chronicled his Greenland experience in a [Wordpress](#) article.

What the current day retellings of this story often overlook is the fact that the Inuit man who made that qajaq for Ken Taylor in 1959 was Emanuel Korneliusen, a resident of Illorsuip qeqertaat (Illorsuit Island) and local hunter.

This year, we invited Paninnguaq Korneliusen, the

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granddaughter of Emanuel Korneliussen, to attend the retreat and tell us more about her *aataa* (grandfather). By sharing photographs and stories about her grandfather, Paninnguaq helped the audience get to know more about the man whose contribution formed the genesis of modern kayaking. Further, she helped us to see that the qajaq means a great deal to the Inuit, both culturally and spiritually. It brought her grandfather's previously unacknowledged role in the development of the modern sea kayak out of the darkness of obscurity and into the light of appreciation.

Here's what Paninnguaq told us. In 1963, Emanuel suffered a stroke that left him paralyzed on one side and unable to speak. After an accident in his home, he lost the use of one arm. His wife was dead, his family was torn apart and his nine children were fostered. Some did not see each other for 30 years and have only recently reunited.

Paninnguaq said that her mom told her that there was an effort by Ken Taylor to contact Emanuel in the 70's, but contact was unsuccessful. One can only assume that due to his physical condition, the language barrier and his isolation, Emanuel was unaware of the subsequent development and popularity of recreational sea kayaking that resulted from his building effort.

The Korneliussen family was not aware of this part



Paninnguaq sewing a replica of the qajaq her grandfather built.

of Emanuel's history until recently, when Paninnguaq was searching the internet. The impact of this new knowledge has yet to fully sink in, and the family is only now trying to grasp its meaning. For many years, she only remembered an old man with a

loving smile; now Paninnguaq knows he was so much more.

Paninnguaq said, "I am both thankful and sorry that my *aataa* didn't manage to experience his huge impact on how people use a kayak. I would have loved to see his reaction to how important his work was, and his legacy. His family was splitting apart, because of his condition, and he became alone all of his life again." He died in 1988 at the age of 82 years.

Audience Reaction

Paninnguaq's presentation and subsequent conversations left a deep impact on the Delmarva participants. Her delivery was revealing, heartfelt and honest, emotional and strong, leaving more than a few participants a little weepy, the author included. One participant later wrote that "It was one of the most profound and heartwarming experiences that I have had in decades." You could feel the empathy permeate the room. We did the right thing. We listened. [You can watch "A Conversation with Paninnguaq" here.](#)

New Beginnings

Serendipitously, participant Mark Heatfield of Virginia had just finished building a replica frame of

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the Korneliussen design prior to the retreat. It figured prominently in the proceedings. Paninguaq, Mark and Peter Strand held a skinning demonstration to complete the qajaq. By participating in this work, Paninguaq followed in the footsteps of generations of Inuit women who traditionally sewed the skin on qajaqs.



Ken Taylor with the Korneliussen qajaq.

Having only been in a qajaq twice before — once as a child, which she recalled as a fightful experience — and once more recently as an adult, Paninguaq was reluctant to try it again. After some encouragement and with some guidance, she paddled the qajaq, even learning to lay on the water in a balance brace!

Deeper Understanding

Paninguaq also reported that she had complicated feelings about using a qajaq for a recreational purpose, as qajaqs are held as sacred in her heart, especially due to her grandfather. After seeing other participants learning and practicing

the ancient maneuvers and witnessing the respect that we give to qajaqs and the Inuit who created them, she said that she now understands why we do what we do. As to whether she is comfortable with it remains to be seen. Are we appropriating or appreciating?

Paninguaq has helped us see that the story begins with the Inuit, not the European white man. She is justified in feeling both proud of her heritage and angry at those who benefit from it, at the expense of the Inuit. We will continue to celebrate and help preserve a slice of her cultural heritage and do it in a way that is respectful, caring and gives credit where credit is due. While recognizing that qajaqing comes from a place of necessity — hunting and migration — we must also recognize that kayaking meets the modern need for recreation, spirituality and growth.

By the way, the Inuit word for “thank you” is “*qujanaq*.” Qujanaq, Emanuel Korneliussen!



A few of the many activities at Delmarva: Left, Peter Strand the Elder helps stretch the skin on the Korneliussen replica qajaq. Center, Peter Strand the Younger works on a iqyax replica in the building workshop. Right, hard at work at Don Beale's paddle-making instructional.

AT DELMARVA

What else happened at Delmarva?

Many attendees come to the retreat for the sole purpose of learning skills. Most often, they want to learn to roll. Sometimes it's about learning how to get the most efficient and graceful strokes. Some folks want to see how deep the rabbit hole goes and endeavor to build a qajaq, carve a paddle or make some other kit. Some want it all.

This year, Norwegians Anders Thygesen and Jannie Heegaard led the qajaq build class. Participants built five Greenland-style qajaqs, two Aleutian iqyax (*baidarka* is the Russian name) and one King Island qajaq. The class worked a week of 12-hour days. All paddled away with water-ready qajaqs, complete with sea socks for safety. They held the qajaq christening ceremony and got on the water in time to enjoy the rest of the event.

Don Beale from Oregon led the paddle carving workshop on Friday. Don has carved over 900

paddles, so the class was in the hands of a master. The skills classes included a strokes class that utilized sculling as the basis for propulsion, an edging and bracing class that set the stage for rolling instruction, a dry land rolling prep class which allowed students to experience concepts and body mechanics without the concern of submersion, a harpoon throwing class, a top-notch rescues class, and of course, one-on-one rolling instruction. Additionally, we held yoga, functional training classes and rope gymnastics demos.

2024

The 35th annual Delmarva Paddler's Retreat is scheduled for October 11-13, 2024. Registration opens on July 4, 2024. [Find more information and registration here.](#)

Anders Thygesen on the joys and perils of qajaq building in his class.

Q: We live in a world where we buy more and more and more, make less and less. What's happening with people who want to build a qajaq with you?

A: A lot of people are nervous about doing it. I think actually we could have more people coming to classes than is the case because people — especially a lot of women — they think, I'm not skilled at woodworking. But you don't need to be, because I do the planning and instruction.

What brings them to it in the first place?

There are a lot of different motivations. I like to get a feel for people's motivation before the class because they can be so different. Some, they just think, I want a qajaq. Yeah, it will be light! I'll do it!

Some have lots of thoughts about the

engineering of the craft and blah, blah, blah. Some have ten kayaks already and they want the eleventh. Because they're just curious about the whole skin-on-frame thing.

And some are very specific. They think, I want to compete in rolling. They want to build the best rolling qajaq.

I have two elderly customers who have a cabin by the sea. They have been kayaking a lot. They had these huge plastic kayaks. I had several conversations with them. They were nervous and thought they weren't going to make it. One was 76 and the other was 83. I asked them, What are your skills? They had been fixing their cabins, knitting. Knitting is also a skill. It's about putting things together, being able to visualize and get your hands

AT DELMARVA



In the Delmarva qajaq workshop: Instructor Anders Thygesen and a collection of students.

into things. Knitting is a great skill. They each built a 24-pound qajaq and had a good time.

The whole thing can involve a lot of frustration for everyone. You can't imagine the whole of what's going to happen And you're nervous about making mistakes. And at some point I might say, No no no no! And you've got to stop.

So you have to be thinking independently for yourself, but also follow instructions and don't do things that I haven't approved. But there's great relief when we find we have made a qajaq.

People feel satisfied because they've mastered a task. At a deeper level they have this dream of making their own craft. That is a big thing, bigger

than the thing itself.

How did you get started?

I got into a really amazing qajaq, a Greenland-style qajaq, and I loved it. It was a skin on frame. I found a guy in Denmark who has become my mentor. He had gone to Greenland to learn how to build a qajaq. He has been doing classes like I do. We talked and agreed on a project. I built my first qajaq with him.

Then I was on my own, just trying to figure it out. There were no books available. It was before the internet. So there was a lot of trial and error even after I learned the basics from my mentor.

[See Anders' website here.](#)

Translating Between Cultures

Paninnguaq has some tips

How did you feel when you learned about your grandfather's role in inspiring the modern plastic or fiberglass kayaks?

It's only from my own perspective but it's hard. I can say that for me and my family it's been a very delicate thing — knowing that you here had a knowledge that we weren't able to have or could somehow be part of.

You have to respect that there are some ways of living that can't be explained by words. It's an experience. And also it could be a sacred thing. The mindset of the Inuit isn't necessarily the same as that of western people.

I had a moment out there in the water when I was sitting in the qajaq. As I said earlier, it's a hobby for you guys. And for me, there's another whole perspective that's different. My granddad used the qajaq for survival for him and for his kids. That difference is like the opposite of each other.

Is there a way to bring those levels of understanding into harmony?

I don't know if you can if you live in a land where you can just drive down to get a burger.

The mindset of the Inuit is learning by doing, and not by asking questions about it. It's hard for outsiders to see that. They wonder, *Why am I not allowed to ask questions? Why shouldn't I ask questions?*

But it shows so much respect to watch without asking or interrupting

people. That's a culture thing. For Inuit, people who are saying things are saying it because it's important.

But the chitchatting here — there's nothing like that in Greenland because people think, *Why should I speak just for speaking? Just for making nonsense.* It's a cultural thing. You have to respect that. The mindset of being curious is a good thing, but it can overstep some boundaries for Inuit.



HERE, AND THERE

Do you think there are ways where you can interact with, or approach this body of knowledge with more respect?

By not trying to be an expert in things. Invite people here from Greenland who can tell you about it. That's one way. Invite people who have a knowledge behind the tools, or someone like me who has an historic link to the qajaq.

Also, by being humble around it. I think you guys are very good at being humble here. This humbleness, it's a very big part of our culture as well. We don't brag about things, because that bragging could get you in the wrong way in the end.

I don't want to use the word egocentric. But here you are doing these things with the qajaq for yourself. We were doing it for the community as well. That gap plays a big role in how you see the qajaq and how we see it. So have that knowledge with you as well— that this tool isn't made for

only me, but it's for the community.

Have there been other things you've seen that point out the differences between here and your home?

Sometimes just looking at the qajaq and the tools, it becomes very technical and you forget the people behind it. It becomes individualistic, like it's an ego thing. And Greenland isn't a place for egos. It's a place for a social and cultural approach to everything.

What else would be useful for people here who are interested in Greenland?

Something you can also do is to update yourself on what is happening in Greenland. There's information on the internet. You can just Google to get everything translated. Greenland becomes closer to you guys when you have that connection. If you do that you are showing some engagement between relationships with Qajaq USA and Delmarva and Greenland.

Me & My Qajaq: It Doesn't Make Sense

The quirky, bull-headed partner that I love



By Dan Segal

There is nothing rational about my relationship with my qajaq. Perhaps this is true of us all. It is not a perfect qajaq. It's wet. A short chop pushes the stern around. Sometimes, when I'm tired, it can get more bull-headed than I'd like. And since the stern is flat with little sheer and little freeboard, it makes a loud "krump" as it sucks air in triangular following waves – like the ones we have here in Plymouth. The first time I heard that I thought I'd broken something. My qajaq, a replica of one collected by Dutch whalers in the 1600s, is long, narrow, and low. It doesn't suffer fools gladly.

But I think of this inanimate object as a friend. Explain that to me. It makes no sense. But there it is. It was broken once, and I grieved. Not like I grieve for the loss of a human friend. But still. Then another friend found a way to re-build it. And I was so, so happy.

Qajaqs are remarkably intimate gear. Especially good-fitting skin-on-frame qajaqs. You wear a

qajaq. You don't just sit in it. You move; it moves. It's pushed by the water, you're pushed by the water. Greenland-style qajaqing is a swimming sport; you're in the water as much as you're on the water. So, your buoyancy needs to complement your qajaq's buoyancy. If your qajaq has too much, it turtles you when you capsize. So, it's hard to lie on the water in a balance brace and rest, rocking slightly on the waves and soaking up the sun. If you have too much buoyancy, you can't capsize. So, you can't escape that big, breaking wave and you get slapped, hard, by the water. When you don't match, the two of you – you and your qajaq -- are always fighting each other for dominance. It's hard to achieve that special complementary relationship where you do the work, the qajaq facilitates it and responds with enthusiasm. You are a team.

This can be true of any qajaq when fitted as you like it and you get used to it. Good tools are good tools. But, it's more likely in a skin-on-frame. Even a small hard shell is relatively big compared with its paddler. You sit in a seat, you add foam to get in contact with the shell. Comfortable. Easy to get in

On Usage: *Following the suggestions of our Inuit partners, we are using the term qajaq for traditional skin-on-frames, and kayak or qajariaq (like a qajaq) for commercially-produced vessels. Similarly, we are using the word Inuit (or Inuk, singular) for the people of Greenland. This is a work in progress, and obviously a balancing act between respectful interaction and confusion.*

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and easy to get out. All very good things.

But you give up...something. Intensity? A subtle, pleasurable contact with the environment? Intimacy with the water? In a hardshell, you push against the foam that pushes against the shell, that pushes against the water. In a skin qajaq, you push against the water, and the water pushes you. You touch it. There's only a layer of cloth between you. I once had the pleasure of spending a couple of hours in a strip-built

replica of my qajaq. It was as light as mine, faster, and astonishingly beautiful. But I missed the touch of the water. The owner, who had spent many hours drafting full-size sections from drawings, then building the lovely kayak offered it to me. I passed.

There's more. To maintain contact with a hard-shell kayak usually requires muscle tension: to keep her bent legs against the thigh hooks, the paddler presses her feet against pegs, or a bulkhead, or a bar, to push her back against the back band or seat back. Releasing that pressure releases the kayak. You lose control of your vehicle, you lose contact with your partner. OK, sometimes that can be relaxing. But it requires constant work. And it can be dangerous. You sometimes have to fight to stay in the kayak, in confused seas, or when you get maytagged down the face of a large wave. A good-fitting skin qajaq

just holds you in place.

In Greenland they differentiate between a qajaq and a qajaqariaq, a kayak-like boat. In a discussion with Kampe Absalonsen on what the difference is, he

slowly got across the concept: A qajaq is a prosthesis that allows us to swim with the sea mammals. You sit in a qajaqariaq; you wear a qajaq. It is as close to being part of you as an inanimate object can be.

I resisted skin-on-frame qajaqs for a long time. Before my current partner, I paddled a kayak

given to me by a close friend and mentor. He had built it for himself by the methods he knew best. It had a fiberglass hull with lines from a West Greenland qajaq that is in a local museum, and a skin deck. It paddled and rolled beautifully, and, unlike most West Greenland qajaqs, it surfed on anything that could be called a wave. People on the Qajaq USA Forum were making arguments much like mine above about the merits of skin qajaqs. But I knew better.

Until I tried one. Richard Nonas brought his late 1800s South Greenland replica to Delmarva. He let me borrow it. It was a petite, elegant little thing. I thought it would be interesting. Without realizing it, I played with that qajaq for hours, until Richard demanded I let other people try it as well. Then Richard let me take it home for a few months. Everything people said was true.



Under construction in Richard Nonas's workshop.

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I paddled several skin qajaqs after that, all I could find, mostly replicas of qajaqs that were in museums. Dating. Slowly, I learned. I saw drawings of my qajaq, the original of which is in the Rijper Museum, north of Amsterdam, in Holland. But I never paddled one until I paddled mine. It took us a while to get to know each other – the qajaq dumped me hard in the surf on our fourth or fifth paddle. In front of a knowledgeable audience. But really, I was delighted from the first.

People often ask me about this qajaq. So much so that that I've a little laminated note in the rigging with information:

West Greenland Qajaq – KOG #3
Late 17th century
Rijper Museum, #42
18"9" LOA; 16-3-4" beam; 6-1/4" depth to sheer; 7-1/8" depth overall
Reproduction built by Harvey Golden 2003
Rebuilt by Fred Randall 2019
2-part polyurethane over 10-ounce ballistic nylon

Strangely, no one has even asked why I paddle a replica of a qajaq that's 350 years old. I paddle this qajaq because I think it's fabulous. Better. Superior. The qajaq is long, narrow, and tight. Its length and beam make it very easy to move at a

very good clip at a near-resting heart rate. It has a long, buoyant bow that climbs over everything in its way well before I get there.



Bare bones: photo this page, next courtesy Harvey Golden.

It is incredibly seaworthy and in waves surprisingly stable – think half-tide rock. That is a surprise, I know. But think about it. A wide boat is stable on flat water because it wants to float parallel with the surface. When the surface becomes inclined – the face of a wave – the wide boat also inclines. And, gravity being

what it is, the wide boat with the paddler in it wants to fall over. The paddler has to brace to stay upright. The kayak and the paddler are not in sync. Yes, my narrow qajaq requires more skill in flat water. But it requires less of me when things get interesting. And I get less tired. The qajaq doesn't fight me.

The same is true with rolling. Wide kayakers are stable upside down, as well as right-side up. After capsize, you have to rotate a wider, more stable kayak up past its "balance point" to recover. That can be a lot of work. Once you get there, the kayak pulls you up. But you have to get it there. The Rijper doesn't care all that much about being upright. But it doesn't care all that much about being upside down, either. It takes very little effort to right it, and very little effort to chest scull while choosing the right moment to get back to paddling when you've been dumped. It never fights me. That's what I love best.

If I hadn't paddled replicas, my replica, I wouldn't

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know this. It's something the Rijper taught me. It's still sharing other truths from some unknown qajaq builder and/or paddler through the centuries.

Whoever had the original qajaq was a professional paddler. So was his father, and grandfather, friends, children. I'm a dilettante. By comparison to these people, the same can be said of any modern kayaker, designer, of builder. I want to learn from the experts.



Ready for the water outside Harvey Golden's studio.

Until my friend and kayaking mentor Bart Hawthaway built his qajaq, he was sure that kayaks needed to have round bilges. Because "water doesn't go around corners." Bart was a master of kayak design. Later, chagrined, he conceded that he had been "doing it wrong for 30 years." I don't know enough to know what I don't know. I'll stick to replicas.

My qajaq and I have history.

We adventure together. As you would expect. Mostly these adventures are pleasant and placid. We wander along shore watching the birds. Or explore marshes. Or dash across a bay, or a pond, to see how fast and how far we can go in a given time. Often we amble along with friends. We practice rolls, and try some new ones.

Sometimes these adventures tend toward more thrills. I like waves. Sometimes big ones. Once, my qajaq and I shared a very large wave with a good paddler in a store-bought kayak. Where he was, the wave continued to grow and broke into a

huge curl. He was suspended, briefly upside down under that growing curl, then fell off. He dropped through the air still upside down, from the crest to

the trough. It seemed like he fell some 20 feet. He crashed, still upside down, as the wave passed. Had he broken his neck? Being the one closest to him, I sprinted over, very glad of the Rijper's speed. He rolled up just as I got there. He was fine, though the ocean was littered with all the detritus that was

under the bungee cords on his deck. What was it like, looking down on the water upside down? "Don't know," he said. "My eyes were closed." He headed to the beach with his paddle companions. I headed further out with mine.

Once, on the second day of a December 'Noreaster, the Rijper and I were caught upside down under the curl of a large wave. A fellow paddler was a wave ahead of me. He was slapped, hard, by the much larger than usual breaking rogue. To avoid that, I rolled to take the break of the wave on the bottom of the qajaq instead of in my face. A standard practice. But usually, when you do this, you feel the water crash on the bottom of the kayak. Then you pop out on the back of the wave, roll up, and move on to the next.

But that crash wasn't happening. After a few seconds I realized that the dump was past the stern, and the surface current up the curl was holding the qajaq in place underneath it. We were in the barrel, surfing — if you want to call it that — upside down

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and backwards. Who would have thought? I rolled up and took a moment to savor the unknown territory.

Upright, of course, the qajaq was sliding down the face backwards. Fast. Not so good. The Rijper's low-volume stern would bury deep at the bottom of the steep wave, the buoyant forebody would be thrust up, and we'd likely be pitchpoled backwards.

That wasn't anything I wanted. So, I rolled under again, figuring that the I'd get maytagged down the face, and the wave would pass over. We were not that lucky. This wave was not letting go of us yet. I came back up from the capsize with the qajaq side-surfing, the curl falling right onto the deck. That was an very odd feeling. Then I realized why: the falling water had popped the skirt of my tuiliq off the coaming. The water was breaking right into the cockpit, right into my lap. I had float bags fore and aft. But.

The wave was going to pass over a deep channel soon. When it did it would drop. And it did. Then I only had to miss a few rocks and get through the beach break to empty the kayak. Not as tricky as I thought it might be. The Rijper has little volume. Between the float bags and the volume I used up, there actually wasn't that much additional water in the qajaq. It was still easily manageable. We hit the beach. I pushed out of the qajaq fast (on the sea side, so that the next wave wouldn't sweep the qajaq under my feet) and we were done. I grabbed the bow and hauled the Rijper out of harm's way. Right up to a somewhat dazed couple who were walking the beach.

Both stared with eyes like saucers. The beach

break had been high enough that they didn't see us until we came over the last wave onto the sand. "Where did you come from?" one asked, as he helped me empty the Rijper. "And what the hell are you paddling?"

Twice I credit the qajaq with saving my bacon. Cold and exhaustion are the most dangerous things in sea kayaking. Once I made the mistake of misjudging the tide in Plum Island Sound, where a pair of rivers add to the flow on the ebb. Gusts into the 40-knot range were against me, as was the current. The waves were confused and running in multiple directions at once, sometimes combining into large pyramids, sometimes into deep holes. But the Rijper isn't much bothered by waves, and is easy to just keep going. These are qualities I truly love. The qajaq got me back to the beach.

*My qajaq, my friend, was
built by a friend, has been
re-skinned by friends, has
been rebuilt by friends.
It was even copied by a friend.
I am always grateful for
its renewed life.*

Another time, it was blowing steady in the 30s and getting cold. A drysuit doesn't keep you dry if you soak what you're wearing under it with sweat. And a neoprene tuiliq doesn't provide much insulation if the nylon skin is wet in strong winds. But the Rijper kept going. Buoy to buoy, shivering, slower and slower. But kept going. Soon after that I had a skin-out tuiliq made for winter paddling. No nylon on the exterior; no evaporative cooling. Much warmer.

My qajaq, my friend, was built by a friend, has been re-skinned by friends, has been rebuilt by friends. It was even copied by a friend. I am always grateful for its renewed life.

Harvey Golden built it as close to the original scantlings and techniques as possible. There are no stem pieces, beyond a sort of extension to the keel. The gunwales just come together at the bow. This

THE FINER POINTS

seems common to the older qajaqs. We don't know why, but it has the benefit of keeping the ends light. The deck beams have cross lashings from gunwale to gunwale, to keep them tighter and help hold the shape. Despite that, the shape has changed somewhat over the years. The gunwales have become more vertical. The qajaq is also a little narrower, maybe a quarter inch or so.

The original had a pair of amulets. These were thought to bring luck to the owner. One was the skull of an aged arctic fox, a species known for its swimming ability. This one, with worn teeth, had prevailed through a long life. The other amulet is the skull of a seagull. My amulets are less visible. But the hands and wishes of the people who have created this qajaq and kept it alive are very much part of it.

It's been re-skinned five times over the past 20 years, repaired once, and rebuilt once beyond that. Once, at a Michigan Training Camp, Harvey cut the skin off the qajaq so it could be used in a demonstration he was to do. (I was still in the qajaq, in the water, at the time.) Almost everyone at TC had a hand in that reskinning. Once, another friend, Brian Schultz, reskinned the qajaq as a gift to me when staying at my house.

To keep the qajaq light, the gunwales are red cedar. Because it has so little depth, the oak ribs are mortised in at an angle. With heavy use the ribs pushed their way through, puncturing the gunwale. We didn't know that had happened until stripping off the skin. In fact, the skin was the only thing holding the qajaq's shape. I have no real idea when these ribs punched through. Yet here's another beauty of skin qajaq: It was very broken, and still seaworthy. There is a lot of redundancy in both concept and construction. Despite my wonder at the fact that this broken qajaq was still

giving me lessons – who knows how long I had paddled it this way – I was devastated.

Fred Randall – yes, a friend, was doing that re-skinning. He saw my heatbreak. I thought the qajaq had lived its last life, and left it with Fred for firewood. I paddled other qajaqs that I have. Excellent kayaks. But good as they were, I didn't feel the magic. In the end, still missing my qajaq-friend in advance of an event where I was teaching, I borrowed a replica that Richard Nonas built of my replica. A twin: as close to identical as could be. But somehow it was not the same. Don't misunderstand. Paddling was still a great pleasure. I just missed my friend. I was adjusting. But I hadn't adjusted.

Sometime later Fred called. What color would I like the coating to be on the Rijper. What? He had routed out the gunwales where the ribs had punched through and laminated in Alaskan yellow cedar. Then he copied the original ribs, lashed the new ones in their place, and re-skinned the qajaq. And stronger than ever. Rebuilding a qajaq was always a part of its life and evolution. My Rijper was no different. Some were repaired, or re-sized, or strengthened and re-skinned every winter. The original Rijper shows plenty of places where the structure had been modified and repaired. My friend was back!

I cannot explain my emotional reaction to this. I don't even understand it.

That was four years and several hundred miles ago.

I have friends coming from out of state to paddle this weekend. One of them just acquired a modified version of my qajaq. She's learning its ways. It's teaching her lessons on strokes and buoyancy, as mine continues to teach me. I hope she grows to love hers as I love mine.

Seal Fat. It's What's for Lunch!

What the Wild West can tell us about snacking on seal

By Dubsida

The first time I ate seal in Greenland I pretended to like it. In 2004 I was in Qaqortoq, South Greenland and got into a conversation on the street with a guy who then invited me into his house to meet his daughter and son-in-law who could speak English better than he could. They hadn't been expecting a guest but we settled into an engaging visit. It provided a chance for me to see some local natives in their casual home setting without formal preparation.

When it got towards mealtime, the table was cleared of newspapers and other clutter. First a bowl of dried fish was brought out. Then another bowl of

what I learned was seal fat. I was shown how to tear off a piece of dried fish, use it to scrape a coating of seal fat, and eat it with my fingers.



Top, home on the range. Lower, home in a qajaq, hunting seal.

Seal fat can be thought of as Inuit butter in that it can be applied to just about anything. Then they set a bowl of dried seal meat on the table, to be eaten with a good slathering of seal fat, as we had done with the fish. It was an unfamiliar and peculiar taste. I didn't like it nearly as much. The fish was far more palatable. But I played along, not wanting to offend my hosts.

Historically, the consumption of seal meat provided the incentive to continuously develop and refine the qajaq over the multiple generations and centuries following

its invention. If the Arctic had sufficient land animals

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and/or plants for survival throughout all seasons of the year we would not have traditional sea qajaqing as we know it today. Qajaqing's *raison d'être*, then, is eating seal meat, which can be thought of as the culmination of skin-on-frame building, tuilik-sewing, paddling, rolling, and harpoon throwing.

In a parallel fashion the mass consumption of beef in post-colonial America gave birth to the entire cowboy

ethos. Herds of cattle had to be moved from ranges all across the lower Midwest to the slaughterhouses around Chicago. The cowboy phenomenon would never have occurred in a nation of vegetarians or pescatarians.

Like herding cattle from a horse, hunting seals from a qajaq is physically demanding work, done in a rough outdoor environment, with an inherent risk of life. These two occupations require practiced skills, specialized tools, and superior fitness – admirable qualities that nurture a sense of awe and spawn legends.

The national dish of Greenland is called *suaasat* (sue – AAHH – saht). Think of it as seal stew or seal soup. It's the equivalent of our burger and fries — so commonplace as to almost be boring as a meal component yet prepared in everything from gourmet to budget varieties. It's possible to make *suaasat* with whale or caribou meat, just as one can make a burger out of buffalo or venison, yet

the standard varieties call for seal and beef respectively. And within those divisions one can use Angus, Hereford, longhorn, etc.; likewise harp seal, harbor seal, ringed seal, bearded seal, or other species.



The modern hunter. Note the rifles on the skiff's rear seat. Photo: Dubside

Usually at some time during the week of the Championships *suaasat* is served. The second time I ate it was some years later, also in Qaqortoq. Having some idea of what to expect, I found it tasted a bit better than before, yet still

more of a task than a pleasure to consume.

Most of the meals provided for the competitors weren't so exotic to foreigners – eggs, bread, oatmeal, and cereal for breakfast; vegetables typically from a can along with white bread, chicken, beef, or maybe caribou at dinner. Greenland also has fish, lots of fish: salmon, cod, red snapper, halibut and more. Shrimp and cod are big export items. Locally-raised lamb is a delicacy.

The introduction of firearms and motorboats changed seal hunting drastically and made harpoons and qajaqs outmoded relics. Guns didn't have the same effect on the American West. Rifles and pistols were already part of the picture. More reliable or faster-shooting guns, while influential in their own way, had no momentous effect on cowboy culture as a whole. What did fundamentally change the West and arguably end the era as radically as the way guns altered seal hunting was the introduction of barbed wire. As more and more

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of the open range was fenced in, thousand-mile cattle drives became impractical and eventually impossible.

Two things I've been told regarding seal meat: The farther north you get it, the better it is. And you want to get it as fresh as possible. In 2010 I and another foreign competitor were in Nuuk, Greenland's capital city, staying during the week of the championships at the apartment of Navarana Ludvigsen, a member of Qajaq Nuuk. One day she offered to cook *suaasat* if I would supply the ingredients. For regular run-of-the-mill *suaasat* one needs seal meat, potatoes and onions. That with water, salt, and pepper is all it takes. The potatoes and onions were easily obtained at one of several large food stores in town.

Nuuk is much farther north than Qaqortoq so if what I was told

was correct, the seal meat would be better as far as location was concerned. I still had to be sure to get something fresh. This caused me a bit of apprehension. I'm no connoisseur of carnivorous cuisine. About the only criteria I have for determining the age of a piece of meat is the presence or absence of green fuzzy patches. I assumed that if I were to ask anyone selling seal

meat whether or not theirs was fresh of course they would say it was.

I went to Nuuk's *kalaalimineerniarfik* (kah – LAA – lee – me – naire – nee – ARE – fick). It's like a farmer's market except this is a hunting culture, so you'd have to call it the hunter's market, which also caters to fishermen. Hunters in Nuuk make a living by bringing their catch to the *kalaalimineerniarfik* to sell.

I had a few hundred kroners in my pocket, the equivalent of about \$20-30. The tables looked a bit sparse, bearing mostly fish of several types. I managed to



Top, Narvana. Lower: Seal meat, star of the *suaasat* show. Photos: Dubside

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convey my desire to purchase some *puisi* (poo – EE – sea), the word for generic seal. Unfortunately they didn't have any. I left empty handed. At the large grocery stores in Nuuk, and in the numerous small convenience shops the display freezers contain a sizable selection of frozen meat and fish. But frozen isn't fresh.

Seal meat hunted in Greenland is consumed domestically while the pelts are sold to tanneries and made into clothing, hand-bags, upholstery and other accessories. Yet for better or worse, seals possess a

distinct characteristic that gives them a special status in western popular culture, notwithstanding their utility as a foodstuff in the far north. They are cute. The big eyes, endearing nose and charming whiskers need no Disney tweaking to pull the heartstrings of the general public. In the 1970's the animal rights movement found a goldmine when photos of baby seals being clubbed to death became part of their protest ad campaign. Environmentalists joined the cause, capitalizing on such a hot fundraiser.

The ensuing public outcry led to the passage of the Marine Mammal Protection Act in 1972, and the market for seal skin products took a big hit. People in Greenland (including the late Kamp Absalonsen) who were old enough to remember

the 1960s remain quite bitter about this episode and adamantly point out that all such inhumane clubbing was done in Canada. To this day all marine mammal products, edible or otherwise, are banned

from importation to the US, which means if you want to taste seal meat you'll have to do it elsewhere.

Unlike a bakery or a candy store, a hunter's market has an irregular supply schedule. Deliveries arrive at random and therefore the stock fluctuates, depending on how successful the area hunters are on any given day. Two or three hours after



At the *kalaalimineerniarfik* — creatures right off the boat. Photo: Dubsid

my first foray I took another walk to the *kalaalimineerniarfik*. This time they had *puisi* there, which must have arrived in the interim. I could reasonably assume it was very fresh. I got 1 $\frac{3}{4}$ kilograms, a bit less than four pounds, figuring this would be plenty for three people.

Navarana had it ready by dinnertime in a large pot. The liquid had turned a cloudy grayish brown, concealing the solids on the bottom. Ladled into bowls, we pulled the larger chunks of meat out to eat them off the bone with our fingers, and used spoons for the remainder. I didn't have to pretend to like it. It was actually pretty good. The best way to describe the taste is that it definitely does not taste like chicken. While it is unmistakably not fish, there's a vague seafood quality about it that comes from

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the saltwater seals live in, plus the fish in their diet.

These days not everyone in Greenland rolls, throws a harpoon, or does rope exercises. In fact most of the population does not. It's the same in the US with riding a horse, roping cattle, using a branding iron, etc. Only a small number of Americans engage in these activities. Yet the American diet still favors beef. And while the cowboy culture is romanticized and memorialized in movies, books, and songs, and reenacted at rodeos and ranches, the golden days of the cowboy are gone. Likewise Inuits still enjoy eating seal meat, while only a minority of them paddle. The qajaq culture is remembered, respected, and revered by young and old, and reenacted at the National Championships, but the golden era of the seal hunting qajaq has passed.

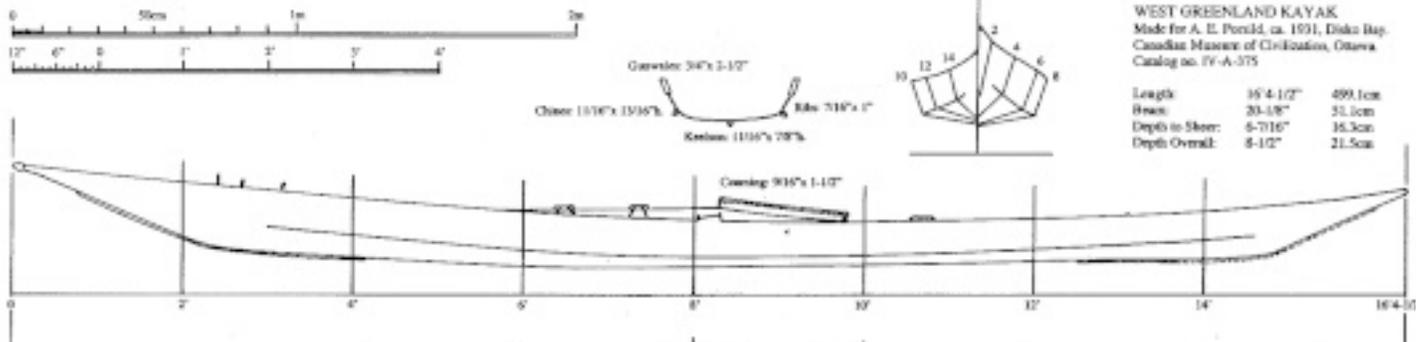
We had quite a bit of suaasat left over even after I ate as much as I could. Not wanting to see any wasted I thought the extra could be refrigerated but Navarana insisted it be thrown away. Apparently it's better to get it out of the house before it begins emitting an objectionable smell.

I've had suaasat a few more times during trips to Greenland. I'd say that as a foreigner, the main reason to eat seal meat is just to be able to say you have. It's not what I'd call a bucket list to-die-for experience. Paddling among icebergs in 24-hour sunlight, that's a different matter.

Dubside is a lifetime QajaqUSA member who only eats meat when he is in Greenland. He has sampled whale, caribou, lamb, musk ox, and seal, but not polar bear. He likes musk ox the best.

Part Six: Replicating A Greenland Qajaq

Fred Randall's expert guide continues with fitting the deck beams and ribs



Building expert Fred Randall continues his instructions on how to replicate historical qajaqs such as those illustrated in Harvey Golden's book, *Kayaks of Greenland*. In this issue he shows how to finish the frame and complete ribs and lashing.

You can find previous installments of his well-illustrated instructionals in back issues of the *Masik*, available on the Qajaq USA website. They include:

1. First steps — letting the original builder speak to you as you examine the qajaq survey. ([Fall/Winter 2020-21](#))
2. Starting the build — putting together a workbench and fabricating stations to create the qajaq's form, plus preparing the apummat (gunwales). ([Summer/Fall 2022](#))
3. Locating placement for the ajat (deck beams) and tippik (ribs). Cutting the tippik mortises. ([Spring/Summer 2022](#))
4. Fitting the ajat and tippik. ([Fall/Winter 2022-23](#))
5. Finishing the deck, building the hull, and fabricating tippiks. ([Spring/Summer 2023](#))

Part Six: Replicating a Greenland Qajaq

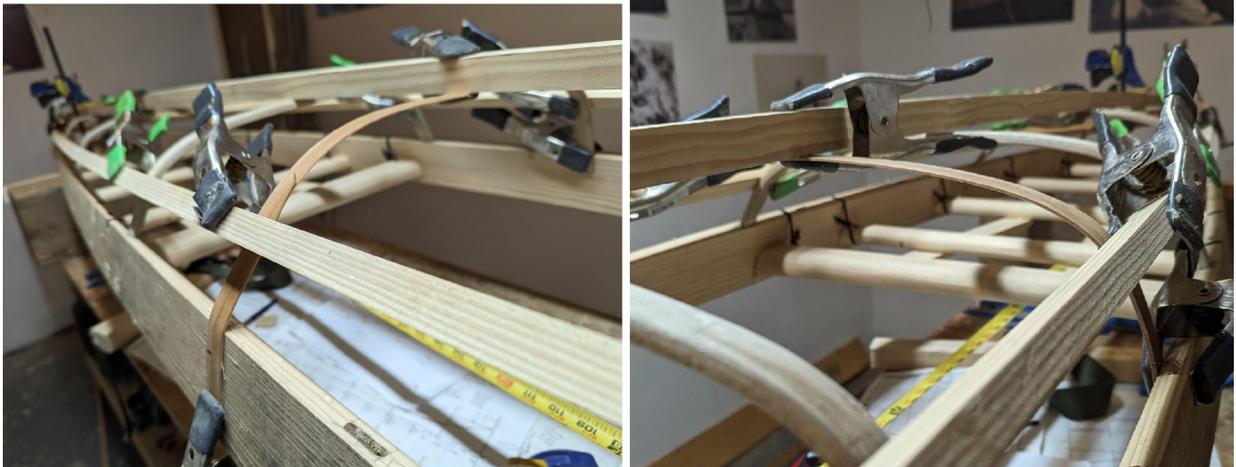
Finishing the Qajaq Frame

○ Finishing Ribs (Tippik) & Lashing

Recalling from the last article, Part Four, every 3rd tippik (rib) has been fit into the qajaq from the lofted tippik. It now remains to complete the two tippik between each pair of the lofted tippik.

A. Determining Tippik Length

1. Use of thin flexible strip of wood



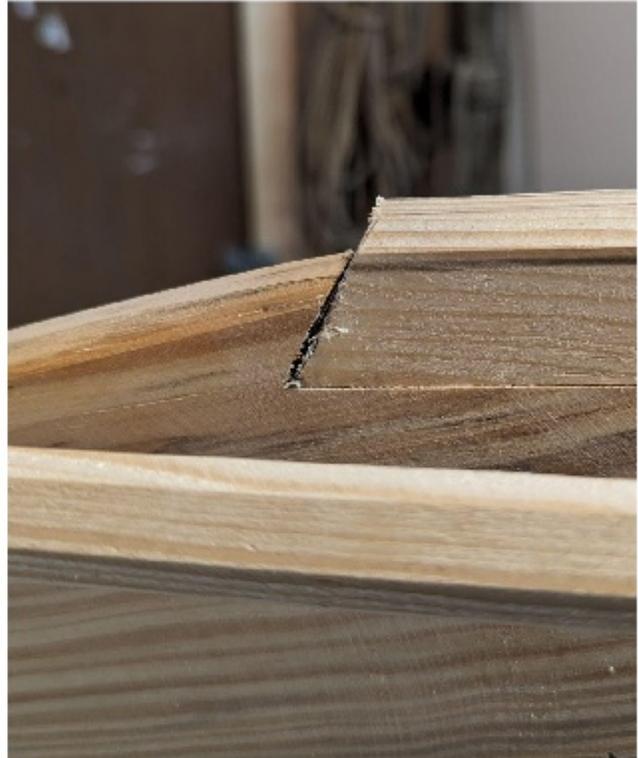
Shown in the above 3 photos is an example of using a thin, 1/8 " thick, flexible strip of wood to determine the length of a tippik. The strip of wood has been cut from one of the lengths of oak soaking for making a tippik. One end clamped to the inside of the apummâk, 3/4 " down from the top of the apummâk (the depth of the tippik mortise). The wood is clamped to the kujâk (keelson) and sianik (chine), shaped as the tippik will bend. The other end is clamped on the outside of the apummâk, and marked 3/4 " down. It is then removed, and the length of the tippik is measured from the mark on the wood strip. The same is done for the other missing tippik. The tippik are cut, prepared, and steamed as described in the previous article. They are then worked into the appropriate mortises. Occasionally, they may need to be shortened somewhat (1/8 " from each end) or resteamed and reset if the original shape is off.

B. Kujâk

Once the tippik are in place and the resulting hull shape is fair, the edges of the sianik and kujâk are chamfered. See photos below.



The stem pieces can now be cut to seat the kujâk, and the kujâk cut to lock into the stem pieces, as shown in the photos below.



The picture on the left is of a batten, clamped along the top edge of the stem piece and along the kujâk, and a line scribed so as to draw a fair line for the top of the kujâk to transition into the stem piece.

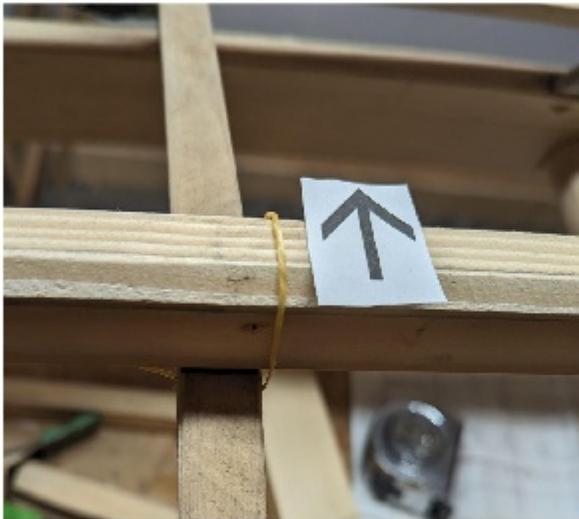


The photo on the left shows the stem piece kujâk transition has been planned to produce a fair surface. The 1/4" dowels are used to secure the kujâk to the stem piece. The picture below shows the results after the dowels are cut off with a Japanese pull saw and sanded. The kujâk is now ready to be lashed to the tippik.



C. Lashing

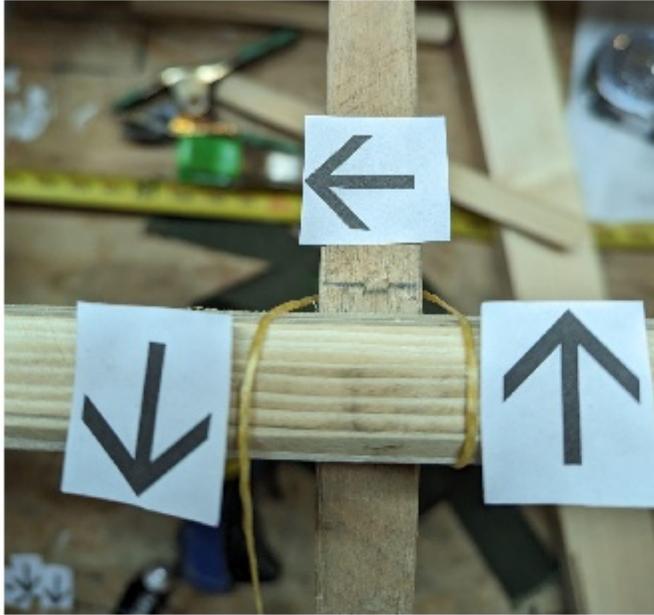
Lashing the kujâk, sianik can either be done with the lashing going over the top of the kujâk and sianik, or a hole can be drilled through the kujâk and sianik and the lashing passed through the hole. A slight bump may be caused in the skin when the lashing goes over the top. For that reason, the latter is the more traditional method. The pictures below will demonstrate both methods. The lashing comes in from the left (previous tippik) and when complete, goes out to the right, to the next tippik. Whether lashing fore - aft or aft - fore, the lashing always goes left to right. Here, artificial sinew is used, but that is not required.



The 1st picture shows the lashing coming in from the previous tippik, under the current tippik to the right side (or forward side) of the tippik and over the top of the kujâk.



The 2nd picture continues with the lashing going under the tippik (right to left).



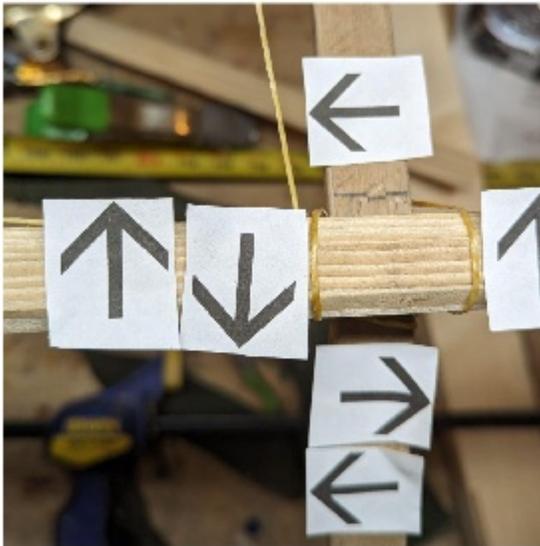
In the 3rd picture, the lashing is going over the kujâk.



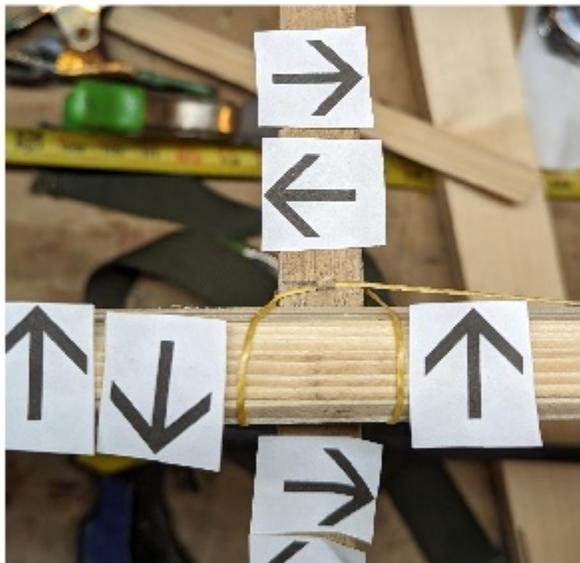
The 4th picture is of the lashing going under the tippik from left to right.



The 5th picture shows the lashing going over the tippik from right to left.

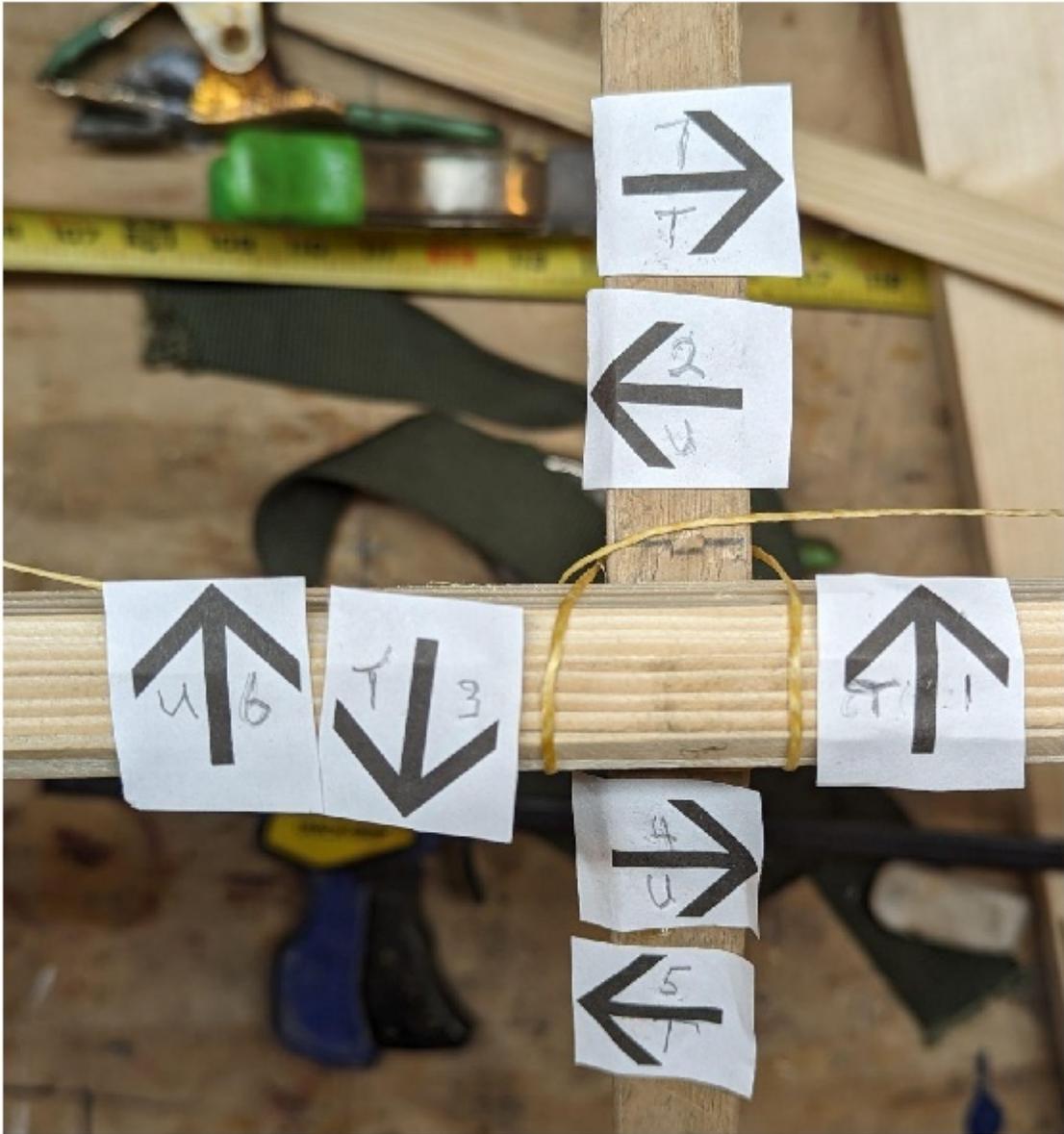


The 6th picture shows the lashing passing under the kujâk.

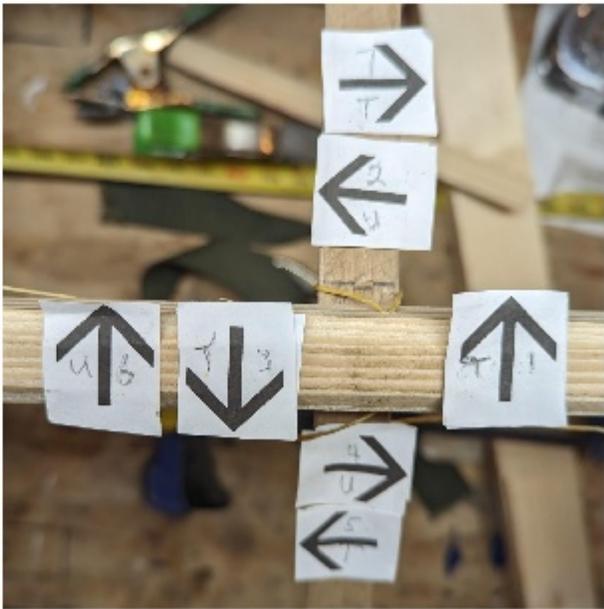
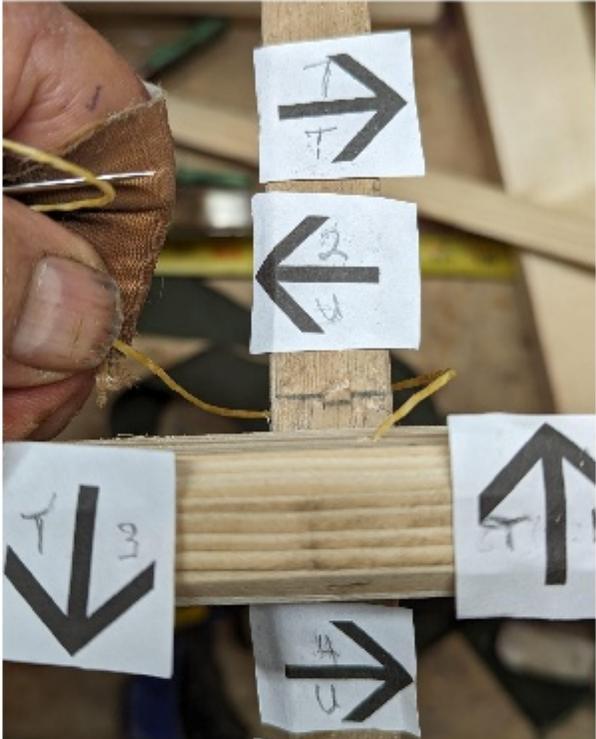
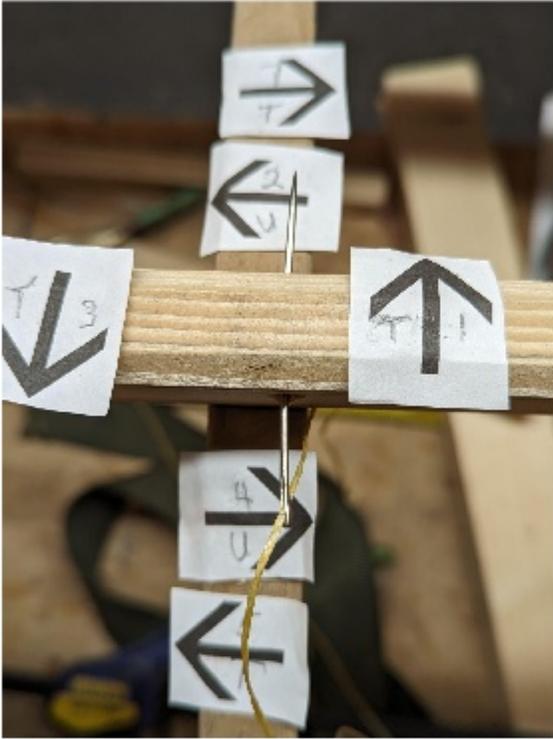


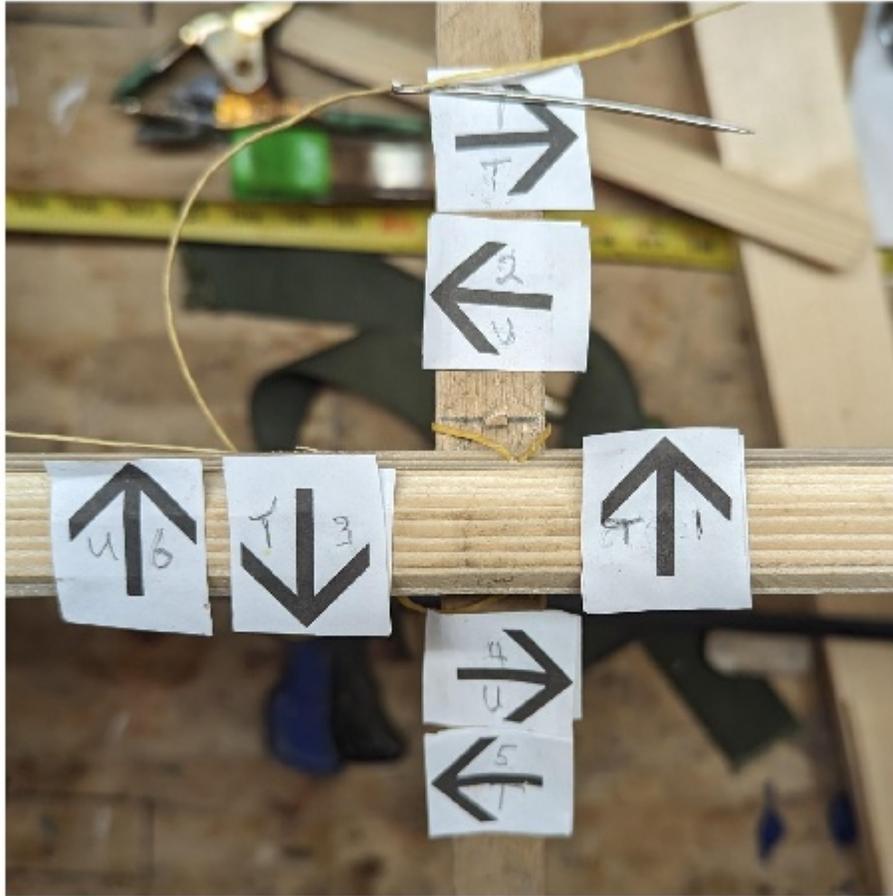
The 7th, and final picture shows the lashing passes over the top of the tippik and will go under the bottom of the next tippik to begin the next process.

The following picture below is of the completed process, shown with the arrows numbered and marked “u” under (tippik or kujâk) and “o” over (tippik or kujâk).



The following pictures illustrate lashing through the kujâk. The steps are the same, but rather than passing over the top of the kujâk, the lashing passes through the hole drilled in the kujâk.





To begin the lashing, the artificial sinew is tied to the starting rib with a loop in one end of the lashing, made with a slip knot. Then the lashing proceeds, following the same method as described above.

The photo below shows a section of the kujâk, with the lashing completed.



D. Sianik

The ends of the sianik need to be shaped in order to match the line drawings. Based on the line drawing, (see first article of “Building a Replica of a Greenland Qajaq”) the sianik should start to disappear beneath the skin before 3’-6” and after 15’-2”. Between 3’-6” and 15’-2”, the skin will fold on the sianik, going from the apummâk to the kujâk. The first picture below shows the sianik in the forward end of the qajaq. The sianik must be

thinned to match the line drawing. After removing wood (e.g. block plane, Japanese pull saw, and/or sandpaper), the second and third pictures show the sianik matching the drawing. Forward of 3'-6", a straight edge runs from the apummâk without touching the sianik.





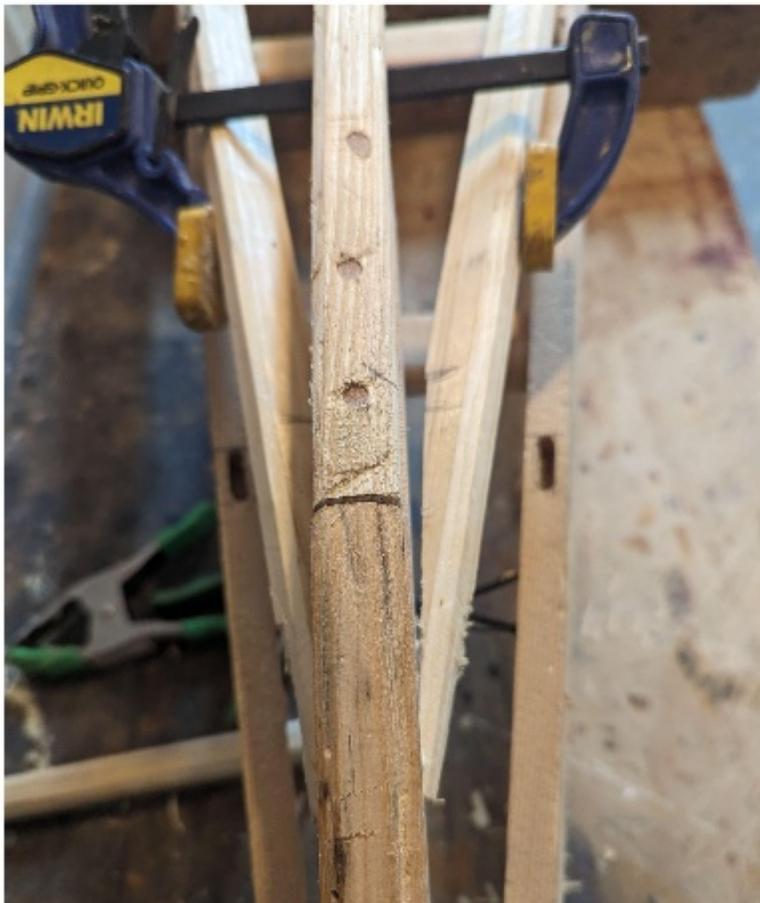
A further test that the “as built” qajaq matches the design is to check the widths between the sianik at various locations. The picture to the side demonstrates checking the sianik width at 5’.

In the aft end of the qajaq, the sianik lands on the stem pieces. As shown in the picture below, they need to be thinned so the skin will run from apummâk to kujâk without touching the sianik. The straight edge, shown in the picture below, demonstrates the need.





A piece of wood is laid against the stem piece along the side of the sianik. The sianik is marked with a pencil. The line is cut with a Japanese pull saw. Any further thinning that is considered necessary is done with a block plane and/or sand paper.



When complete, the sianik lays against the stem pieces, and a straight edge is laid against the apummâk to the kujâk to check if the as built position matches the line drawing. When satisfied, the ends are lashed into place, as shown in the two photos below.



With the ends of the sianik in position, the sianik is lashed, completing the lashing of the qajaq. The results are shown in the photos below.





○ Breast Hooks



The final step in the build process is adding the breast hooks. The breast hooks tie the top of the apummâk with the top of the stem piece. The breast hook will lay flush with the stem piece and apummâk top and will be faired with the curve of the apummâk. It will be oak and $\frac{3}{8}$ " thick. It is shown in the picture to the side: a flat board lying on the workbench next to the pencil. The apummâk and stem piece have been marked with a pencil showing its position when fitted.



The picture to the left shows a Japanese pull saw sandwiched between two boards which are the thickness of the breast hooks. Two small slats lay on top of the boards and will be clamped in place with c-clamps.

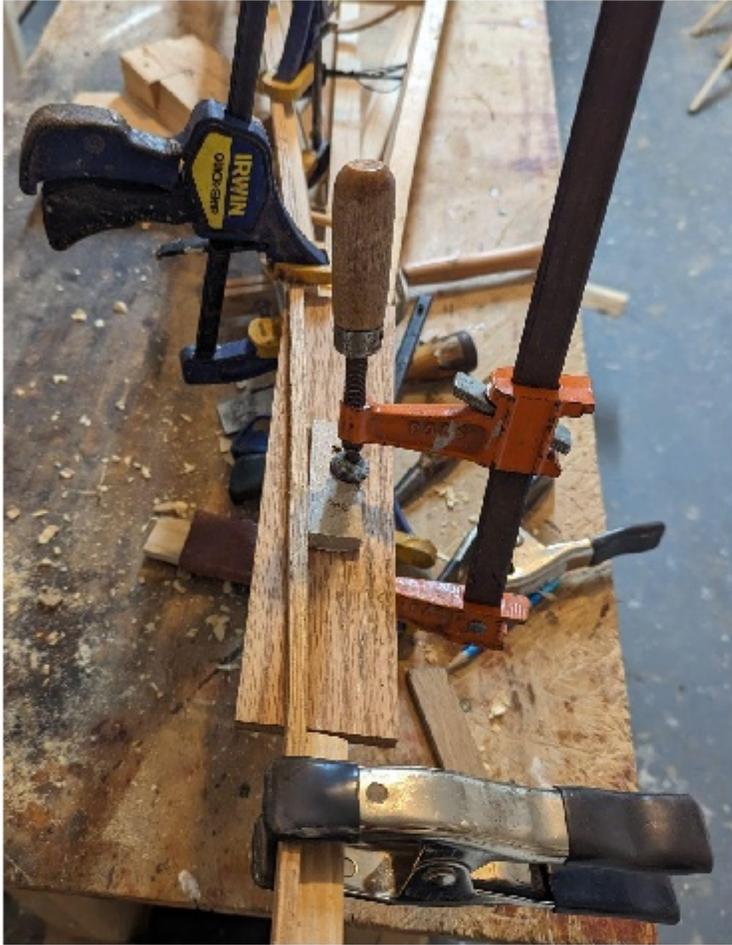
They will act as a depth gauge for cutting kerfs. This is shown in the picture below.





The picture on the left shows the series of kerfs made with the Japanese pull saw with a depth guide. The pieces are knocked out with a chisel and smoothed with a rasp.





The picture on the left shows the breast hook held in position with a clamp and a batten clamped along the side to mark a fair curve. Once both sides are marked, the breast hook is cut with a bandsaw and smoothed with sandpaper. It is then returned to the qajaq and glued and clamped. The result, when the clamps are removed, is shown in the picture below. When needed for sharp bends, the breast hook is boiled in water to soften it and make it flexible.



The breast hook is finally secured with $\frac{3}{8}$ " dowels, shown in the pictures below.



The outer top edges of the apummâk are rounded. The frame is then oiled. I use a 1:1 mixture of linseed oil and mineral spirits. For ocean paddling, the salt water is probably the better preservative. But when it is time to reskin the qajaq, the oiled wood helps prevent the urethane soaking through the skin and adhering the skin to the wood. The qajaq frame is complete.

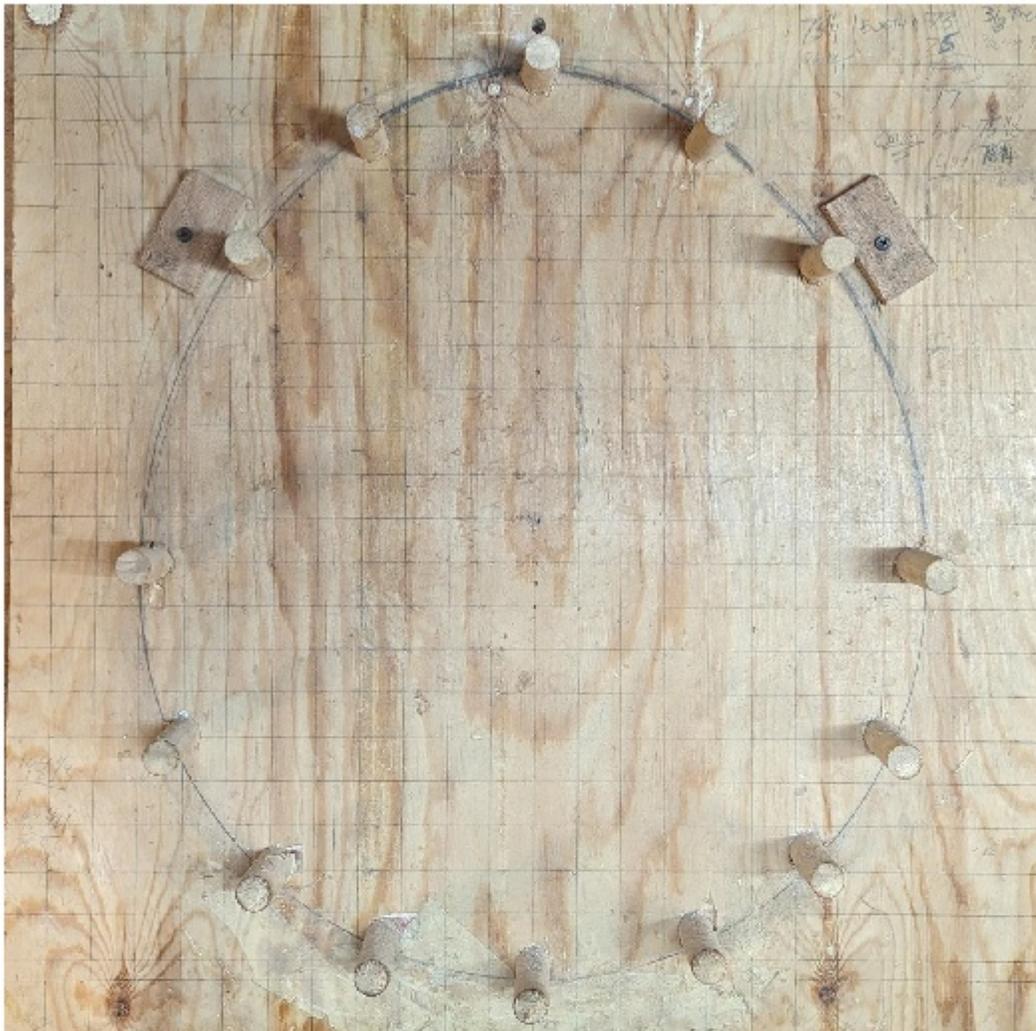


○ The Pâ (Coaming)

The length of the pâ is determined by the distance between the masak and the isserfik; the pâ needs to be long enough to rest on these beams. The width of the pâ is determined by the width of the qajaq. I like my pâ to be very close to the width of the qajaq, so as to reduce the arch in my body in rolls.

I use a $\frac{3}{4}$ " thick plywood for the base and wood dowels to form the pâ shape. A grid is drawn on the plywood to help ensure symmetry. The pâ will be $1\text{-}\frac{1}{4}$ " high and $\frac{3}{8}$ " thick, the lip will be $\frac{1}{2}$ " high and $\frac{3}{8}$ " thick. The maximum width and length of the frame for the pâ will then be $1\text{-}\frac{1}{2}$ " less than desired for the pâ ($\frac{3}{8}$ " times 4). As shown in the picture below, two tabs of wood have been screwed into the plywood on the outside of the pâ. They are held with only one screw because they need to pivot. As the wood for the pâ is bent around the frame, these tabs will hold the wood against the dowel. This little trick significantly eases the bending process.

The length of the wood for the pâ can be estimated with a soft sewing tape measure or a thin flexible long strip of wood. Keep in mind that there will be a 12" scarf, so 12" needs to be added to the length of wood determined.



The scarf for the pâ can be made with a hand plane or power plane. In the first picture below a block plane is being used. The line along the side of the wood is to show the scarf. The second picture shows the power plane being used. The effort is fast and surprisingly easy. Planing, starting at the end of the wood, on the same slope as the scarf; or as close as possible. As wood is removed, adjustments are made to the slope to match the scarf. In the final picture a straight edge rests on the cut scarf, showing its accuracy.



In the above picture, note the hose from the steam box to the steamer has no U loops in it. This is important because a U loop would allow a “plug” of water to form, preventing the steam from reaching the steam box.

Once the wood is steamed, it is worked around the pã form and held in place with spring clamps. After it is cool, the scarf will be glued with gorilla glue and clamped with C-clamps and spring clamps. Masking tape covers the area on the plywood where the glued scarf rests on the plywood.



it, in a similar fashion the length of the lip is determined. That length is eased by 12" for the scarf. Onced steamed, it is worked around the pã;

held in place with spring clamps and C-clamps. Once cooled, the scarfs are glued together and the lip is glued to the pã.





When finished, # 14 $\frac{3}{4}$ " bronze ring nails are driven through the lip every 2", starting at the top middle. Before driving the ring nail, a small hole is drilled to prevent splitting. A heavy flat weight is used as backing when driving the ring nail (I use the flat side of a steel splitting wedge). If necessary the point of the nail is crimped. $\frac{1}{8}$ " holes are drilled below each nail just below the lip (as shown in the picture below). These holes will be

used for sewing the skin to the Pa.



○ Sea Trials



As seen in the picture to the left, the qajaq is skinned, if temporary, with 20" wide stretch wrap. There are three layers, each wrapping from aft forward. The layers alternate from wrapping clockwise to counterclockwise to clockwise. If each layer is wrapped in the same direction, it is possible to twist the frame.



The plastic skin is cut out around the pâ and wrapped and taped onto the pâ, as indicated in the pictures to the left



Once complete, the qajaq is ready for trials on the water.

