

EVOLUTION OF BOATS **and the** **SPREADING OF KAYAKING TO OREGON** **Rob Blickensderfer**

BACKGROUND

Strong archaeological evidence shows that our distant cousins, Homo Erectus, constructed watercraft for crossing significant distances of the Pacific Ocean 800,000 years ago. The watercraft were probably bamboo rafts, not actual boats. Photo 1, Ref. 1.



1. A large bamboo raft, Asia. Sometimes people lived on them.

Homo Sapiens (humans) have constructed paddle craft of many shapes and from a wide variety of materials for millennia. Bamboo, wood logs and reeds are the typical materials, tied together with vines or palm fiber. Undoubtedly the earliest paddle craft were rafts, which technically are not boats, but are still used in some parts of the world. A simple log raft is shown in Photo 2, and a more refined raft with curved ends is in Photo 3.



2. A crude log raft.



3. Log raft with curved end.

A rock carving in Azerbaijan around 12,000 years old depicts a reed boat manned by about 20 paddlers. Reed boats were common in ancient Egypt. The earliest discovered **remains** from a reed boat are 7,000 years old, found in Kuwait. Reed boats are still used in Africa and South America. A fine large one is seen in Photo 4. Similar boats are made from papyrus, Photo 5, which begins to resemble the shape and size of a kayak. Such boats are built by assembling bundles of reeds, or other thin branches, into pointy kayak-like shapes.



4. Elaborate reed boat, Lake Titicaca, South America



5. Papyrus boat. Approaching the shape of a canoe or kayak.

Evidence of several types of hide boats, made with a hide covering the bottom of a stick frame, found in northern Europe, dates them at about 11,500 years.

The earliest **existing** boat known is a dugout canoe, the Pesse canoe, Ref. 2. It was found in the town of Pesse in The Netherlands in 1955, during construction of a motorway and carbon dated at around 10,000 years old, Photo 6.



6. Oldest known existing boat, the Pesse dugout canoe.

A coracle is a round bowl shaped boat. The wood frame is covered with animal skins on the bottom. Instructions for building one date to at least 4,000 years ago. Coracles, which are light weight and can be carried by one person, are still in use today in Wales, Scotland, India, Vietnam, Iraq, and Tibet. Most are about 6 to 12 ft diameter. Photos 7 and 8.



7. Coracle. Various types were made worldwide.



8. Fishing from a coracle. Ireland

Dugout canoes were common in North America where large softwood trees were plentiful. Photo 9. Hollowing out the inside of the log was laborious. The opening in the top of the log was literally **dug out** by pounding with sharp rocks. Fire was also used to burn out the inside of the canoe. The ends were usually tapered. The American Indians are better known for their birch bark canoes which were much lighter and faster than dugouts.



9. Dugout canoe. Native American

Kayaks were in use over 5,000 years ago, and probably much before that. Ref 2. The Inuit, Aleut, and Yup'ik people of the far north built kayaks, and they still do. Compared to most other paddle boats, kayaks are long, fast, and the occupant is well protected from waves and the elements. The kayaks were used in the sea for hunting as well as for transporting goods. Some had two or three individual cockpits. Two Eskimo kayakers are shown in Photo 10. Most used a two blade paddle although a few used a single blade paddle.



10. Eskimo kayakers. Long bow end for holding a spear.

Kayaks were built from driftwood and/or whalebone and seal skins. Frames were made according to the various cross sections of the boat. The longitudinal stringers ran from bow to stern and were secured to the frames with gut to form the framework which was then covered with stretched skins and water proofed with whale oil. The wooden frame of a kayak is shown in Photo 11. Typical length of a solo kayak was 17 ft, but some were considerably longer. Typical width was 20 - 22 inches. A kayak with a hunter is shown in Photo 12. Note the “Greenland” paddle with narrow blades used to stabilize the kayak while the other arm launches a harpoon.



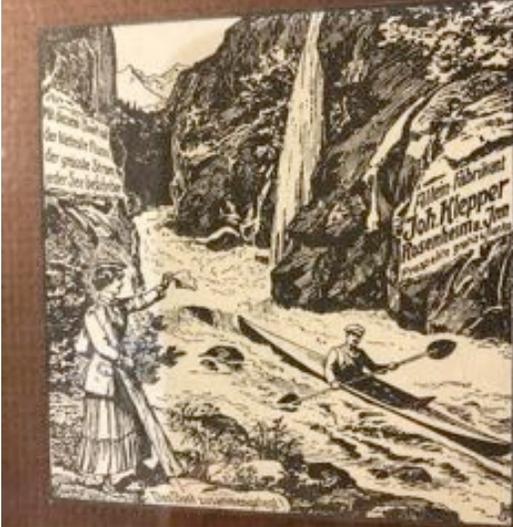
11. Wood frame of kayak.



12. Modern Eskimo kayak and hunter.

IMPROVEMENT OF SKIN-ON-FRAME KAYAKS

During the 1800's the kayak was introduced to Europe. The seal skin covering was subsequently replaced by canvas which was impregnated with clay, dried, and oiled. The next improvement, 1900's, was rubber coated canvas. An early add for the German Klepper kayak is seen in Photo 13. The development of polymers which were coated onto fabrics, 1940's, was the next improvement in coverings. Hypalon or PVC over a synthetic (Dacron) cloth is now used to cover the skin-on-frame kayaks.



13. Early Klepper kayak ad. Courtesy Rod Kiel

A major innovation was the folding kayak. Folbot founder Jakob Kissner of Germany took his idea of a folding-kayak business to London in 1931. The company moved to South Carolina in 1953 and continued producing tandem and single, folding and non-folding skin on frame kayaks until, quite recently, 2016. The Klepper Company continues to manufacture several models of skin-on-frame kayaks, solo and tandem, to the present time. They have replaced parts of the wood frame with a light-weight aluminum frame. The skin is Hypalon, a synthetic rubber. Around the inside top of the boat is a bladder which can be blown up after assembly. It serves as flotation in the event of a capsize.

A 17 ft tandem Folbot made in the US, circa 1960, is shown in Photo 14. The skin on the hull of the boat consisted of two layers of vinyl covered canvas glued back to back which was quite durable. The deck fabric was a single layer of vinyl fabric. Instead of each person wearing a spray skirt, a large skirt with two tunnels snapped onto the coaming around the large cockpit rim. The paddler entered the boat feet and legs first into the tunnel. Although it was called a Folbot, many of them were not foldable.



14. Tandem Folbot, made in USA, 1960. Photo by Rob Blickensderfer, 1964

RECREATIONAL KAYAKS

Canoes were used for recreation in the mid 1800's in both Europe and the US. Around 1900 the Germans and the French became the first to use kayaks for recreation. The sport spread rather slowly, probably because the long narrow kayak required more skill to keep upright than a canoe. The first recorded use of a kayak for **whitewater** was in 1931 in Germany.

In the US, canoes also preceded kayaks for recreation. In the 1940's there was a "Whitewater Champion" race in Maine. Most boats were wooden canoes while only a few (canvas) skin-on-frame, kayaks, entered the race. The down-river races were 40 miles long. Most boats became damaged and did not survive the race. Later the race distance was reduced to 20 miles.

Interest in kayaks was spreading in Europe and the US. Articles and plans appeared in *Popular Mechanics* and other such magazines for building a skin-on-frame kayak. In the late 1940s there was a "Whitewater Champion" race in Maine. The craft were wooden canoes and few canvas folding boats. Ref 3. In the 1950s the French were running canoe slalom races, Photo 15. Note the fabric cover over the entire top of the canoe. Slalom racing was more popular than river running in Europe.



15. Women canoe racing in France, 1950's Ref. 4

But in the early 1950s, German solo kayakers were running the rivers in the foothills of the Alps in Folbots. Accessing the whitewater was difficult for lack of roads, but passenger trains ran up some of the river valleys. This enabled kayakers to access the streams and rivers draining the Alps. The kayak frames were folded and put inside a bag. The fabric cover was put into a second bag. With the two bags, the kayaker boarded the train. After the train climbed uphill along a river some distance, the boater got off the train, assembled the Folbot, and paddled downriver. After a good paddle, the Folbot was packed into the two bags and the boater caught the next train home.

SPREADING OF KAYAKING FROM EUROPE, TO USA, TO OREGON, TO CORVALLIS

After WW2 the sport of kayaking and the developments of kayaks expanded rapidly in Europe, crossed the Atlantic and began growing in New England. Slalom racing and down-river racing developed rapidly in the early 1950s. In Massachusetts Jay Evans became an expert kayaker and slalom racer. He established the first training program for slalom and whitewater kayakers in 1962, and he taught all aspects of kayaking and coached the US Whitewater Team in 1969. He published a comprehensive

book on kayaking in 1975 which provided excellent instruction in paddle strokes, brace strokes, rolling, slalom racing, running rapids, and surfing.

From New England the sport fanned out over the US, first to Pennsylvania and downward into Appalachia where there is plenty of accessible whitewater. A branch went to Minnesota and Wisconsin where canoeing was already a popular sport, and then the sport jumped over the central plains to Colorado. Serious class 3 and 4 slalom races were occurring by 1964. Meanwhile a branch of kayaking went easily to the Ozarks, and then took a long leap over the Mississippi Valley and the arid southwest to land in central California with its many whitewater rivers. The kayakers there became a separate unit of the San Francisco Sierra Club, circa 1961 - 62, and the group grew rapidly. After a slight pause, kayaking jumped from San Francisco over Oregon and landed in the Seattle area with its beautiful rivers. About the same time, a few kayakers from Colorado and Wisconsin went to Seattle and after several years the Washington Kayak Club was formed, circa 1963.

Ted Ragsdale, who had learned to kayak and to build fiberglass kayaks in Colorado, came to Portland, Oregon in 1963 where he began building fiberglass kayaks and paddling rivers in northern Oregon. In 1965 a group of 6 kayakers from California came to Oregon to run the Rogue River. Ref 4. Five persons paddled 4-meter fiberglass kayaks, Rod Kiel paddled a Klepper Folbot. He moved to Portland, Oregon later that year and began kayaking with Ted Ragsdale and Spencer Beebe, shown below in Figure 16. The sport of solo fiberglass kayaking was beginning to develop in northern Oregon.



16. Spencer Beebe and Ted Ragsdale, Deschutes River 1966. Photo from Rod Keil

Meanwhile, a few of us in the Corvallis area who were interested in kayaking found each other. We were four couples, each couple with a tandem Folbot. Two were made in the U.S. Two were purchased in England as kits that were shipped by freighter to the U.S. and were then constructed by their owner, Fig. 17. From Beginning 1963 to 1970 we ran the Willamette River and the Class 1 and 2 sections of its tributaries, namely the North Santiam, South Santiam, and McKenzie Rivers. We also did an Umpqua River camping trip. We never saw another kayak on a river and only an occasional drift boat with fishers. We did not know about solo fiberglass kayaks.



17. Tandem kayak from English kit. Chuck and Jean Leach. Photo by Rob Blickensderfer 1969

In 1968, unknown to us, Rod Kiel, Spencer Beebe, and Ted Ragsdale of Portland paddled a section of the John Day River of Eastern Oregon in their fiberglass kayaks, photo 18. This illustrates the time lag in getting kayaking information only from Portland to Corvallis.



18. First kayaks on John Day River, 1968. Beebe, Ragsdale, and Kiel. Photo by Rod Keil

In 1969, we heard about the John Day River of eastern Oregon and that a few drift boats were running the section from Service Creek to Clarno. Our group of four couples in four tandem Folbots decided to go. Larry Oden, a skilled drift boater, led the route downriver. Our launching preparations are shown in disarray in Photo 19. Dry bags we knew not of, or were not yet invented. We packed dry gear in black trash bags, tied them shut, and put them into a canvas bag for abrasion protection. We cooked over a wood fire.



19. Group at put-in John Day River, Oregon Photo by Rob Blickensderfer

From 1965 to 1970 the group of kayakers in Portland grew and was actively exploring the rivers of northern Oregon and southern Washington. Rod Kiel helped spread the sport of whitewater kayaking. Clark Stanley, an avid kayaker, came from San Francisco to Portland around 1962 or 63. Scott Arighi, a canoer, came from Wisconsin to Portland in 1964; Rod Kiel in 1965; Margie Smith in 1968. She married Scott and both became kayakers. This group, joined by Bob Collmer Lloyd Likens, and several others, kayaked almost every weekend. They formed the OKCC, Oregon Kayak and Canoe Club in (to the best of their memories) 1970. Kayaking was established in **OREGON!**

In 1970 Chuck Leach and I in Corvallis, learned about the kayakers in Portland, we made contact and brought the first fiberglass kayaks to the Willamette valley. The Arighi's of Portland taught us how to kayak, we taught others, and in 1975 we founded the Willamette Kayak and Canoe Club. Kayaking had reached the **WILLAMETTE VALLEY!**

PADDLE FEATHER

In the mid 1960's when I started paddling kayaks, all paddles had a 90 degree feather angle, that is the blades were off-set 90 degrees. The Eskimos knew why. When paddling off shore one usually encounters wind, often a strong and continuous head wind. If the paddle has no feather, the blade in the air moving forward encounters appreciable resistance. The Eskimos solved the problem with the 90 degree feather. The downside is the 90 degree rotation of the paddle required for each stroke. This can result in sore wrists, calluses, blisters or tendinitis. I was among the first in Oregon to advocate changing the blades to 0 degrees feather, no rotation. My arguments were the rivers don't usually have strong persistent headwinds, and the non-feathered paddle allows both hands to grip the paddle all the time. It also is easier for beginners to learn to paddle. Most paddles today are non-feathered. Some kayakers prefer a small angle, such as 15 degrees.

FIBERGLASS AND PLASTIC KAYAKS

In the 1950's fiberglass kayaks were developed in Europe. The strong fiberglass-epoxy shell obviates the need for an internal frame. Epoxy consists of two liquid compounds, which when mixed and applied to cloth made of glass fibers, hardens and bonds the glass fibers to provide tensile strength. Fiberglass boats are much lighter and easier to build than skin on frame kayaks.

The first fiberglass kayaks in Oregon were very likely those made by Ted Ragsdale in 1963 from molds of a Klepper fiberglass kayak from Germany, as was shown in Photo 16. This is the earliest proof of a fiberglass kayak being paddled in Oregon. Working inside an old barn, Ted produced a number of fiberglass kayaks.

A small fiberglass company in Portland making fiberglass water tanks began making fiberglass kayaks, circa 1970. Price was \$150. The molds for making the kayaks were made from European kayaks. In 1974 George Ice, who had built kayaks in California, was the first to build fiberglass kayaks in the Corvallis area. He helped many WKCC members build fiberglass kayaks over several years.

All fiberglass kayaks were 4 meters (13 ft, 2 in) long. The reason: Slalom kayak racing began in Switzerland in 1932, and was modeled after slalom skiing. To level the slalom course for everyone, the kayak length was set at 4 meters.

Eventually, whitewater kayakers woke up --short kayaks are more maneuverable than long ones. The first shorter kayaks I recall, circa 1978, were about 12 ft long, then 11 ft. At 10 ft they looked so short to us we couldn't imagine they would become even shorter. But they did! Incidentally, in 2005 the slalom boat length was reduced to 3.5 meters (11 ft-6 in).

One reference stated that roto-molded plastic kayaks appeared in 1973, but does not state where. Dan Valens, an old time WKCC member, bought a plastic kayak from Ron Mattsen in Oregon in 1981 and estimates plastic kayaks came to the Willamette Valley in 1979. Plastic kayaks required vertical foam structures between the hull and the decks to stiffen the hull and decks. The early models did not hold up well as they tended to develop cracks in the hull bottom, but improved plastic formulas made them the construction we know today. Around year 2000, Prijon of Germany made kayaks from a plastic consisting of two polymers of differing molecular structure which upon cooling cross-linked to form a plastic of greater strength and stiffness. This obviated the need for the interior foam walls. The future may see carbon nano-tube construction of even lighter weight and greater strength.

Many thanks to Rod Kiel for his information about early kayaking in Oregon. He was there.

Written by Rob Blickensderfer, February, 2020.

References

1. Prehistoric Craft, Jean Vaucher, 2015, a detailed history based on thorough research.
2. Drents Museum in Assen, *Netherlands*.
3. There is scant evidence of Ainu peoples using the classic kayak design in prehistoric times. The following indicates that they did use skin-covered vessels, however: "Like the *yara chisei*, bark houses, ... *yara chip*, bark boats, were probably substitutes for the skin-covered boat, elsewhere surviving in the [coracle](#) and kayak. Skin-covered boats ... are referred to in old [Ainu] traditions. -*Ainu material culture from the notes of N. G. Munro: in the archive of the Royal Anthropological Institute*, British Museum, Department of Ethnography, 1994.
4. American Whitewater, Nov/Dec 2013, History, pp 14-17.
5. Daily Courier, Grants Pass, Oregon, Thursday, July8, 1965, p 4.