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The history of whitewater boating in Grand Canyon is rich with colorful characters, from one-armed Major Powell to the daring Kolb Brothers. From the pioneers of motorboats to the entrepreneurs who developed visitation on a grand scale. Yet nothing tells the story of these innovators better than the boats they chose to challenge America's biggest whitewater. River running's evolution follows the modification of boats and techniques developed for this unparalleled fastwater proving ground. The story of Grand Canyon boating continues today as new materials are incorporated in rowing rafts, motor rafts, and dories; quieter, cleaner engines and new composite oars propel them, and new techniques of running rapids continue to push river running into an ever-safer and more enjoyable future. Yet as exciting as today's world of whitewater is, it is made far richer by preserving, interpreting, and understanding the boats and the boosters that brought us here.

Below: Ellsworth (left) and Emery Kolb (with Bert Lauzon on the back) before running Wattenberg Rapid on Christmas Eve, 1911. Photo: Kolb Bros. NAU.PH. 568-3434

Cover: In Wattenberg Rapid, the Edith hit a rock, tearing a large hole in her side. The Kolb Brothers and Bert Lauzon spent Christmas Day, 1911 repairing Emery's boat with tin, canvas, and pieces of mesquite. Photo: Kolb Bros. NAU.PH. 568-3435.
In October, 1938 river runners Julius Stone and Russell Frazier accompanied rancher Leo Weaver to a burned pile of stubble in his field at Lee’s Ferry, where the Colorado River enters Grand Canyon. After searching the weeds, Weaver pulled out fragments of what he said had been, until that morning’s brush fire, a boat. The following May, Park Naturalist Edwin McKee confirmed that the men had found the only known remnants of one of Major Powell’s boats.

John Wesley Powell had made history with his voyage of discovery down the Colorado in 1869. In 1871 he launched a repeat voyage, wintertiming his boats at Lee’s Ferry, then continued downstream the following summer. They left behind one boat, the Nellie Powell. Had Stone and Frazier arrived a little earlier, the collection at Grand Canyon National Park might include the complete Nellie Powell instead of a few charred fragments.

Powell’s 1869 voyage brought the Colorado River and Grand Canyon to the American consciousness. He not only discovered terrain, he studied and interpreted it. Many of his concepts of geology became cornerstones of modern theory. Likewise his discussions of water in the arid West remain prescient even today.

Powell’s boats and most of those who followed over the next few decades were of a design that evolved in New York Harbor. Called Whitehall boats, these sleek, keeled catamarans were ideal for fast travel in relatively smooth water. They were powered by one or two men pulling downriver while facing upstream, and steered by a man in the stern with a sweep oar, or rudder. Unfortunately, the Whichalls were poorly adapted to shallow, rocky rapids, so Powell and those who followed ended up portaging around most major rapids or lining their boats along the shore with ropes. By the end of the 19th century the Whitehall had all but vanished from the Colorado.

Nathaniel Galloway is considered the father of modern whitewater rowing technique. He was a trapper from northern Utah who devised his own boat and rowing style to cope with the challenges of the Green and Colorado Rivers.

Rather than using a deep-keeled boat like Powell, he devised flat-bottomed upturned boats for shallow draft and ease of pivoting. And rather than pull downstream with his back to the view, he chose to face the rapid, pull upstream to slow his momentum, and ferry gently back and forth to miss the obstacles. His system revolutionized whitewater boating, enabling him and those that followed to navigate rapids with greater safety and success.

In 1897 Galloway and a fellow trapper ran the entire Grand Canyon using his new boats and technique.
In 1909 an Eastern industrialist, Julius Stone, hired Galloway to lead a group of four Galloway-style boats down the Green and Colorado. Stone rowed his own boat, which is now the centerpiece of the Grand Canyon National Park collection.

Two years later Grand Canyon photographers Emery and Ellsworth Kolb, after much communication with Stone, rowed similar boats down the river, making photographs and movies as they went. Both their boats, the \textit{Edith} and \textit{Defiance} are in the collection.

The wilderness aspect of the adventure began to fade in 1923 when the United States Geological Survey completed their mapping survey of the Green, San Juan, and Colorado Rivers. More than just charting the terrain, they were looking for damsites, several of which were eventually used to tame the muddy torrent. One of their boats, an oversized Galloway-style named \textit{Glue}, is part of the NPS collection.

Galloway boats dominated river travel for four decades before modern materials—plywood and neoprene—brought new designs to the river.

In the heart of Grand Canyon lies an old metal rowboat. For nine decades it has represented the highpoint of comic calamity on the river.

Charles Russell joined with his old partner Bert Loper in 1914 to film their whitewater trip down the Colorado. But in Utah’s Cataract Canyon, Russell sank his boat. Stashing Loper’s boat, the two made an arduous hike to civilization. Loper designed and built a third—and far superior—boat from galvanized steel. It was named for local steamboat pilot Roswell “Ross” Wheeler. After a disagreement, Loper dropped out of the expedition. Russell took the \textit{Ross Wheeler} and a new crew and started the trip over.

In Cataract Canyon they rescued their stashed boat, only to find it. They had a fourth boat built and named it the \textit{Titanic II}, after the recently sunken ocean liner. As they entered Grand Canyon, winer’s chill froze the river solid. They climbed out and waited, starting again in February. Then the \textit{Titanic II} sank. The crew hiked to the canyon rim, ordered another boat, and wheeled it down the Bright Angel trail on an old wagon axle.

Russell rowed the new boat a few miles downstream to where they had stashed the \textit{Ross Wheeler}, only to find a rockfall had smashed its bow. Out they went again to get repair materials. They launched again, but
Norman Nevills began running whitewater on Utah's San Juan River in the 1930s. Designing and building his own plywood boats, Nevills, based in the hamlet of Mexican Hat, offered tours down the San Juan and Colorado Rivers through Glen Canyon.

When botanist Dr. Elzada Clover sought Nevills' advice on studying cactus in the area, Nevills expanded the idea into a grand expedition down the Colorado River. To tackle the major rapids of Cataract and Grand Canyons, Nevills devised a new boat, modeled, he said, after boats his father saw on the Yukon. Called Cataract boats, they were much wider than the traditional Galloway boats then in use on the Colorado. And using modern marine plywood, they were far easier to build. With the help of Don Harris, Nevills built a fleet of three boats, naming his own WEN after his father, W.E. Nevills. Harris named his boat after their town, Mexican Hat.

Nevills launched from Green River, Utah on June 20, 1938. After a week of arduous lining and portaging around major rapids, the expedition arrived late at Lee's Ferry to a minor media frenzy about the lost expedition. After replacing some crew and resupplying with food, they pressed on. Dr. Clover brought her assistant Lois Forster on the trip, the two becoming the first women to traverse Grand Canyon.

The success of his 1938 expedition shot Nevills to national fame as America's top fast water man. He continued to run trips on the Green, Colorado, San Juan, Snake, and Salmon rivers until his untimely death in a plane crash in 1949. By then he had run Grand Canyon seven times—the previous record was two—without a fatality or upsetting his boat. Nevills had brought Grand Canyon boating from the era of expeditions to commercial viability. His boat design lived on another twenty years before yielding to more modern craft.
The folding kayak—devised in the 1890s and brought into production by Johann Klepper in 1907—underwent a boom in the United States when Jack Kissner moved his Folbot factory to New York from England in 1935. Kissner set about publicizing his folding kayaks, championing the sport of paddling them in whitewater, and mass-producing the boats to meet demand.

Alexander "Zee" Grant was in the forefront of the new sport. He had won several whitewater championships in the East before he turned his eyes to the Rockies and beyond. He took on the Canyon of Lodore on the upper Green River in 1939 with fellow folding-boat pioneer Stewart Gardiner. Gardiner had soloed this stretch in 1938; her on the heels of a trio of French paddlers who had kayaked the Green and Colorado all the way to Lee’s Ferry. In 1940 Grant, Gardiner and three other paddlers ran the Middle Fork of the Salmon. In its own small way, kayaking was booming.

Grant wrote pioneer river runner Norman Nevills in 1941, asking to join his upcoming Grand Canyon expedition. Nevills was dubious but agreed.

Grant, in preparation, worked with Jack Kissner to produce a custom “sixteen-and-a-half foot, folding, rubber-covered battleship,” with “bulbous ends carved from balsa wood, and huge sausage-like sponsons along the sides, made from inner tubes of Fifth Avenue bus tires.” For added buoyancy he crammed in eight additional inner tubes and five beach balls. He named it the Escalante.

Grant’s pluck knew no bounds. He described getting hit by the huge waves in House Rock Rapid: “about halfway through one of the little fellows picked the Escalante up, and slapped her down smartly on her topsides, leaving me sputtering in the water alongside. In a moment, climbing on her keel, I had the foldboat under control again and paddled ashore almost as easily as if she were right side up.”

He ran most rapids but, following Nevills’s lead, portaged Hermit and Lava Falls. Upon finishing the river, the group caught a row across Lake Mead, arriving at Boulder Beach on August 3. Wrote Nevills: “Pictures are taken and Zee is the sensation of the hour—and justifiably so as he turned in a swell job of bringing his boat thru.”

Even during his lifetime, Bert Loper was known as the Grand Old Man of the Colorado. He was born in Bowling Green, Missouri in 1869 just as his later hero, John Wesley Powell was first exploring the Colorado. Essentially orphaned when he was four, Loper was on his own by the age of thirteen. He wandered west, working as a ditch-digger, mule Skinner, and hard-rock miner before
finding himself on the San Juan River in 1893. He spent the next dozen years farming, mining, and serving in the Spanish American War. All that time, however, he yearned to return to the river.

In 1907 he launched on a voyage down the Green and Colorado Rivers in steel-hulled Whitehall boats, but circumstances prevented him from continuing into Grand Canyon. Instead, he rowed his boat 365 miles back upstream in the dead of winter. For eight years he placer mined on the banks of the Colorado. In 1916 he left the river and married.

Later that year with Elsworth Kolb, Loper was the first to boat through Utah's Westwater Canyon. In the early 1920s he was hired as lead boatman for surveys of the lower Colorado, San Juan, and Upper Green Rivers. To his great disappointment he was not chosen as boatman for the 1923 Grand Canyon survey, and his dream was squelched once again.

In 1939, as Loper neared seventy, a young boatman named Don Harris sought advice on running Grand Canyon. Loper's advice: Let's do it together. They launched in July and became one of the first parties to run every rapid. They pledged to do it again ten years hence.

For his return trip in 1949 Loper built a new boat, the Grand Canyon, incorporating design elements of Galloway, Neills, and his own ideas. He launched on July 7, three weeks shy of eighty years old, leading Don Harris and two other boats. The next day, Loper flipped in 24½-Mile Rapid. Loper was last seen motionless, floating downstream.

That evening they found his boat and dragged it high on the shore near mile 41, where it lies today. A half-century of sun, rain, rockfalls, and tourists have not treated it kindly. What remains is extremely fragile. If you visit it, please do not touch.

Ed Hudson, a druggist from Paso Robles, California, caught the bug to run the Colorado from fellow Nevills Expedition affiliate Harry Aleson. For his attempt, Hudson built in his garage a plywood craft modeled after A.J. Higgins's revolutionary World War II landing craft. With a strong V-shaped prow to burst waves and withstand debris impact, and a reversed-V stern to protect the propeller and rudder in a "tunnel," the craft was ideal for high-speed operation in shallow water.

Hudson enlisted whitewater man Dock Manton to help pilot the vessel. Underpowered in 1948, they were defeated at 21½-Mile Rapid and retreated. For the 1949 attempt Hudson heeded Manton's advice, agreeing to make a downriver run first to test the boat and stash gasoline. On June 12, 1949; they left Lee's Ferry, taking just over five days to complete their downriver run. They refueled at Lake Mead and made another upriver attempt, no more successful than the first. However, their downriver run had made history, being the first time a motorboat had run the river. And although the *Emeralda II*
never did make it up the Canyon, it spawned an era of hardhulled motorboating through Grand Canyon that lasted well into the 1960s with Chris Craft and outboard skiffs skimming through the waves on the high summer flows.

The Emerald II, however, had one more remarkable trip. Hudson launched in summer 1950 to repeat his downriver journey, accompanied by Marston in a new Chris Craft. Midway through the trip the Emerald II developed engine trouble and crashed. In despair, Hudson cast the boat adrift and helicopter out. But a week later another river expedition found the Emerald II on a cobbled bar, pushed it back into the river, repaired the motor and drove it on through the Canyon. Afterward, Hudson got in a custody battle with the salvagers which was settled only when the NPS added the boat to their collection, where it resides today.

end of World War II, when surplus military rafts flooded the market, that inflatables made a serious showing on the Colorado. Scouting groups from Salt Lake City began running multi-boat rafting trips through Glen Canyon, and it was not long before the boats were common in Grand Canyon.

One pioneer of inflatables was by far the most famous woman boatman of all time, Georgie White. She made her first trips on the river hiking and swimming in the lower Grand Canyon with river runner Harry Aleson. Soon, however, Georgie was rowing her own surplus rafts, then tying two or three together for more stability. By the mid-1950s she had brought huge bridge portoons to Grand Canyon, powering them with outboard motors. She attracted passengers with her affordable “share-the-expense” trips and opened Grand Canyon to large scale river tourism.

The economics of Georgie’s big rigs soon spread throughout the river business and for a short time in the late 1960s few rowing trips were seen. But by 1970 the offerings began to re-diversify and expeditions by rowing raft, and even a few wooden boats, regained their place in the mix.

**GEORGIE WHITE’S BIG RIGS**

Mucho as plywood enabled the phasing out of the old Galloway boats, the introduction of neoprene—a durable synthetic rubber—facilitated the invention of inflatable whiterwater. Their ease of transport and durability in rocky rivers signaled the sunset of wooden boats on the Colorado.

The first inflatable down the Colorado was Amos Burg’s 1938 Charlie, a custom-made 83-pound raft. Although Burg’s trip proved the craft was viable, it was not until the...
WALTER KIRSCHBAUM AND HIS FIBERGLASS KAYAK

In the decades following Zee Grant's pioneering 1941 kayak trip through Grand Canyon, fiberglass was invented, perfected, and became commonly available. By the late 1950s, paddlers around the world had begun experimenting with this new miracle material to build a better kayak. One such experimenter was Walter Kirschbaum.

Kirschbaum had been paddling since the 1930s, originally as a member of the Hitler Youth organization in his native Bavaria. After being drafted into the German Army as a young teenager, Kirschbaum was captured on the Eastern Front and held for years after the war in a Siberian work camp—an ordeal that damaged his growth, health, and emotional well-being.

Once back in Germany, he began paddling folding kayaks again and won the 1953 World Championships. He visited America to paddle and fell in love with the rivers of Colorado. He conceived the goal of running every river in the Colorado River system.

Kirschbaum began experimenting with hybrid boats—a fiberglass hull for strength with a canvas deck to keep the boat light. In 1959 he ran Cataract Canyon on the upper Colorado River in one of his new boats. In 1960 Kirschbaum became the first person to kayak every rapid without portage, as well as the first to paddle a rigid kayak through Grand Canyon. After upsetting in Hance Rapid, "a giant's fist, then, it seemed, dragged me out of my kayak." He lost his paddle and tried to swim the boat ashore. He was twice sucked under by whirlpools as he drifted toward the next rapid. "Finally, I thought of the spare paddle that I always keep on my rear deck, assembled, feathered, and ready to use. I pulled it off, rode and paddled my boat ashore as it was, upside down." With classic humility, he later admitted that, aside from a few adventures, the trip was not that difficult—that in a boat so maneuverable one could sneak around almost any obstacle.

He had the idea of powering a boat up the Colorado first arose in the early 1940s in the mind of eccentric Harry Alesen. His attempts failed, as did those of the next uprunner, Ed Hudson. Hudson tried two unsuccessful upruns in his hardhulled motorboat, the Emerald II, in 1948 and 1949. It was not until 1960 that the dream was realized, as the result of New Zealander Bill Hamilton's invention of the jetboat.

Hamilton, an inventor, perfected the jet-thrust propulsion system in order to navigate the shallow streams of his country, and consequently invented the sport of motoring up whitewater rivers. His concept proved so popular that he began producing jetboats...
In the spring of 1963 the newly built Glen Canyon Dam pinched the Colorado River’s flow to 1,000 cubic feet per second—a mere trickle compared to its normal flow of 10,000 to 20,000 cfs. River running photographer Bill Belknap proposed to his friend Otis “Dock” Marston a trip down this tiny “new” river. Belknap pitched his idea to several magazines, got a contract from the National Park Service to take photographs of the ultra-low river, and sought the ideal boat for the expedition.

In a marine supply house Belknap spotted a small foam-cored plastic boat. Designed primarily as a flatwater toy and harbor tender, the Sportyak II looked to be the perfect craft for the steep rocky rapids Belknap anticipated. He talked the manufacturer into donating seven of them, and on August 5, 1963 left Lee’s Ferry with his son Buzz, Dock Marston, former ranger Mack Miller, and a good friend, painter Cliff Segerblom, who brought his daughter Robin and son Tick. Each person rowed a Sportyak with about eighty pounds of gear on board.

The river’s current had slowed to a near standstill and they struggled across one long flat pool after another to each rapid, falling increasingly behind schedule. “With the low water in the Colorado many of the rapids become cascades which are not runnable by any type of boat,” wrote Belknap. “In such spots we either ‘lined’ the boats down with ropes along the shore or, if the situation was bad enough, actually dragged them, loads and all—over

However, due to an injury, Bill Hamilton was not able to participate, sending instead his son Jon as lead pilot. Of the four boats to descend, the two larger ones were rejected for the uprun because of their unwieldiness. The two smaller crafts, Wee Red and Wee Yellow, were joined by two new small boats, Doc and Kiwi. On July 4 the team left Lake Mead. Two days later they fought their way up the toughest upriver rapid, Lava Falls. Three days later, with the hardest rapids behind them, the Wee Yellow sank unexpectedly in Grapevine Rapid. The remaining three completed the historic ascent on July 12. The Wee Red and Doc are in the NPS collection.

With the closing of Glen Canyon Dam in 1963, sufficient water for such craft was rarely seen again. And fearing the Colorado might become a motor testing ground, the NPS soon established stringent horsepower restrictions and banned upruns.

The jet fleet maneuvering under the Kaibab suspension bridge at Bright Angle Creek. 1960. Photo Bill Belknap

Dock
Marston
and Bill
Belknap
Row Low
Flow

Otis “Dock” Marston in 1960, thirteen years before he rowed his Sportyak II down the depleted flow of the Colorado after Glen Canyon Dam was closed. Nauv. Ph.

Nauv. Ph.
jagged rocks above the water and down to the foot of the rapid.”

At Phantom Ranch the Segerblom family hiked out, sending their boats up to the rim on mules. On August 31 the remaining four floated out the end of Grand Canyon.

Marston, who was on the first motor trip through Grand Canyon in 1949 and the first and only upriver of the canyon by jetboat in 1960, could now add two more firsts to his list: first trip on the dammed Colorado, and first trip in a boat that small.

nailable rafts had been fast encroaching on Grand Canyon boating by the mid-1950s, with ever fewer river runners opting for the wooden boats. But one former Nevills boatman, PT. Reilly, felt a redesign of the old Nevills cataract boat would yield a superior craft. He narrowed the broad blunt stern to a point to punch through waves, and decked in the voluminous cockpit for added buoyancy. The boats ran a bit better but not good enough. After a few calamitous high-water trips in the late 1950s, Reilly scuttled his boats mid-Canyon and hiked out.

But in 1962 one of Reilly’s fellow boatmen, Martin Litton, a water and ardent conservationist, wanted to take a group of journalists and politicians down the river to fight two proposed dams within the Canyon. He convinced boatless Reilly to try a radically different hull—Oregon’s Mackenzie River Drift Boat. These flare-sided, high-prowed fishing boats—essentially dories—had evolved on Oregon Rivers for whitewater navigation. By using Reilly’s decking theories, and ballasting the boats with food and gear, the two men came up with what remains the ultimate hard-hulled whitewater boat, the Grand Canyon dory.

Although Reilly retired in 1964, Litton continued to run dories, soon expanding his hobby into a commercial operation. In the early ’70s, Litton switched from the slightly unstable Mackenzie River drift boats to the fuller-hulled Rogue River drift boat, the dory hull most prominent on whitewater rivers today.

Reilly named his original dory the Susie Too, after his wife. He later sold it to Litton, who renamed it the Music Temple, following his theme of naming boats for natural wonders destroyed by works of man. After many more river trips it joined the NPS collection, completing the tale of wooden whitewater boats. In 1999 Litton, at 82, became the oldest person to run a dory—or any boat—through Grand Canyon.
For many years, Grand Canyon National Park's irreplaceable collection of historic river-running boats languished in an outdoor courtyard—accessible to the public, but suffering degradation. In 2001, in cooperation with the National Park Service, the Park's river trip outfitters took the first step toward conservation of the boats by hiring a marine architect to make line drawings showing the dimensions, shapes and construction of the boats. In 2003, a campaign was launched to conserve the boats, initiating their relocation to protective storage where professional cleaning and stabilization began.

Now the boats and other important Grand Canyon river artifacts need a permanent home where they can tell their rich stories of explorers and adventurers who tackled the mighty Colorado River, and how this history underlies today's river experience.

Formed in 2009 by a diverse group of concerned organizations and individuals, the Grand Canyon River Heritage Coalition is taking on this challenge. We strongly support the National Park Service's vision for a state-of-the-art river heritage museum to be housed within one of the principal historic buildings at the Park's South Rim. This striking stone structure is located in an eye-catching site, just south across the railroad tracks from the Bright Angel Lodge.

We are working hard with our partners, the National Park Service and the Grand Canyon Association, on this project. Together, we are making progress. Already an architectural firm has produced a feasibility study with building renovation and display concepts. Additional historic boats have joined the collection and the conservation work is nearly complete.

With your help, the Grand Canyon River Heritage Coalition will continue working hard to make the proposed river heritage museum a reality. There is still much to accomplish before building renovation and exhibit work can begin. Please make a generous donation to the Grand Canyon River Heritage Coalition today. The Grand Canyon historic boat collection is one of a kind; this museum will likewise be unique. Here the Park's rich river running heritage will live on and remain accessible. With your support, these boats will speak again.

[Image: Drifting the boats of Julius Stone's 1889 Callaway boat.]

[Image: Boat conservation cleaning and preserving the Edith. Photo: NPS]
WE CAN MAKE THIS
BOAT MUSEUM REAL

Architect's rendering of
Grand Canyon River
Heritage Museum,
looking south from the
rim near Bright Angel
Lodge.

Grand Canyon National Park
holds an unparalleled collection
of historic rivercraft and arti-
facts that encapsulate a century-
and-a-half of river exploration and
adventure. This pamphlet contains the
germs of that story.

But the bigger story begs to be told
in a venue that befits Grand Canyon
and the Colorado River.

Please join us in creating the Grand
Canyon River Heritage Museum.
With your help these boats will tell
their story to the world.

GRAND CANYON
RIVER HERITAGE COALITION

www.gcrivermuseum.org

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