American

WHITEWATER

the Journal of the American Whitewater Affiliation

JUL/AUG 1975 Vol. XX, No. 4

ABOVE: The Middle American is one of the few Class 4 rivers in California that run all summer. BELOW: Kayakers play in one of the beautiful rapids in the mile below Ruck-a-Chucky. See story on p. 124. Photos by Joe Bauer.

American WHITEWATER

Sponsored by The American Whitewater Affiliation

JUL/AUG 1975 Vol. XX. No. 4

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COVER: Black Wehling (bowl and Don Miller (stern) of Boston A.M.C. demonstrate classic C-2 form at Smooth Ledge on the Rapid River (ME). Photo by Zdenek Mezel.

Letters from Readers

14th April, 1975

Dear Canoeist,

I was talking to one of our canoeing guys from Hawkes Bay, at our nationals by Wairoa, and he showed us guys some of your magazines and we thought they were pretty good, so I am sending over six dollars to see if you can send us some over. We hope you can because they are too good to miss out on.

We are from Wanganui and are in the stage of starting up the Old River City Canoe Club. Most of us are in the Palmerston Club. We do a lot of canoeing with these, they are'a great lot. Us River City guys are still in the learning stage; three of us have been to two slaloms, two to one slalom and the rest have just been on the cruises. We canoe rivers like the Tongario, the Whangaeu River from Fields track down, the Rangitikei and the Mangawhero River. This one is our favorite river because it's the closest and one of the roughest, although we have canoed only about 15 miles of it. The only drawback with this river is that it can be canoed only in the winter.

Yours faithfully,
Robert Baldwin
115A Karaka St.
Castlecliff,
Wanganui, N.Z.

May 21,1975

Dear Ms. Sindelar:

Much has been written lately about shoulder dislocations in whitewater. In an interesting article, ***American Whitewater,*** Winter, 1973, Dr. Walt Blackadar declined to discuss the problem of getting out of a boat and swimming ashore with a dislocated shoulder because he had not had the experience of doing so. Having had surgery some years ago, I no longer experience recurrences of this injury nor have I ever had a dislocation on a river. But in the early Sixties I did dislocate a shoulder while swimming alone in deep water on a wilderness lake. It was not my first dislocation and that may be why I was able to overcome a momentary inclination to panic. I rolled over on my back and with my good arm I pulled the forearm of my injured arm across my stomach. The fingers of an arm dislocated at the shoulder remain quite strong and can be used to hold the arm in position by grasping an edge or fold of a garment or wetsuit. With my injured arm held in this sling-like position, I was able to swim on my back using one arm and two legs (about 100 feet) to shallow water.

I think it unlikely that I will dislocate a shoulder while kayaking, because I have had surgery on both shoulders, because I swim and paddle a lot which keeps my shoulders strong, and because I practice to avoid the shoulder-dislocating positions. But should I dislocate a shoulder in a river, I would use my good arm to push myself out of the boat and try to swim ashore as indicated above.

Respectfully yours,
Wayne A. Leeman
702 Cresent Drive
Columbia, Missouri
65201

Dear Iris:

I wonder if you would care to peruse, for possible reprinting in **American Whitewater,** some articles and stories from an East European underground whitewater newsletter having, of course, a very secret circulation. Copies have only just come to my attention, and the translations are very difficult — even the title **i.e. Underground Cataracts, Subterranean Waters** or something on that order — I'll have to consult with some linguists I know. Some of the titles appear interesting, and should the translated substance(s) prove too racy, you can always clean them up without fear of legal retribution. A few which come to mind are:

1. How I paddled into the Rocky Jaws of Pyorrhea (author: M.D.)
2. How to make love in a wetsuit (ditto)
3. Does a threaded helmet compress the brain? (ditto)
4. Practice makes perfection on an underwater gate (author: coach)
5. In the eye of the whirlpool
6. If your head is not screwed on straight try paddling backwards! (author: M.D.)
7. Down the sluice and into the turbines
8. Exploring the sewer systems of your city by boat
9. Even your mother-in-law can do it —with helium bags
10. Run between der Polse Gerhardt (author: coach)

Regards,
John Berry
Waitsfield. VT

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Land Access to Whitewater: Private vs. Government Ownership

*Wayne A. Leeman**

Entry to and egress from rivers are a recurring problem in whitewater sport. Most whitewater boaters are reluctant to pay private owners for access. And they have some justification for their position. Rivers and their banks are a natural resource, not produced by men, and economists long before Henry George recognized that land rent is an unearned income, a surplus. What seems to be an obvious solution is for the government to acquire river-frontage and give the boater access free of charge. But kayakists and canoeists would be wise to look at these proposals a little more skeptically. Government ownership may present problems.

Put simply, government ownership brings govenment control. The government may decide who can boat and when. It may forbid boating entirely, in the name of safety, without regard to the capacity of the boater. Kayakists and canoeists have encountered controls of this kind quite frequently in the last several years. Under these circumstances, whitewater people might look again at private ownership of river frontage and the terms under which they might obtain access.

In the first place, many landowners start out by being quite friendly and generous to .boaters. "Sure go ahead. Right below that boulder is a good place to put in." But the word spreads and the sport is growing. A friendly welcome to an occasional small party becomes an uneasy reception of dozens of regular users. The privacy of the wilderness is lost. Paths are developed. Ruts in access roads are deepened. (A lot of whitewater boating occurs in wet spring weather.) Some littering occurs. A time comes when the riverfront owner puts up a sign: "PRIVATE, KEEP OUT" or "PUT INS—$1.00 PER BOAT." If the kayakist or canoeist pays, he does so grudgingly. "It's a ripoff. Access to water provided by nature should be free." And what started out as a friendly relationship ends up one of bitter hostility.

Now look at the situation from the point of view of the landowner. He bought the land. It may have been a free gift of nature to all mankind, but he paid money for it. He probably felled some trees, graded a road, and put crushed rock on it. He is paying taxes to the locality, perhaps in part for use of the county highway which opens up his land. Some of the land rent, Henry George's surplus, may be collected by the government. In any case, his river frontage is no longer pure land. The gravelled road or driveway is capital and use of it by boaters increases its rate of depreciation. Now why should not the riverfront owner ask boaters: "You are using my land regularly now. Should you not pay a little toward the cost of keeping up the road or the costs of picking up trash and disposing of litter?"

"Hell no," replies the enthusiast for whitewater, "I believe the government should acquire river frontage and give everyone free access to rivers."

To be frank, I think many if not most of my fellow kayakists are a bunch of cheapskates, and short-sighted to boot. They contribute very little to the local economies in which they enjoy their recreation. They come into the area

Professor of Economics, University of Missouri --Columbia, Missouri

almost completely self-contained. Camping out, they buy their supplies at home in the supermarket. Why should they pay the high prices of the low-volume local grocery? Or the high gasoline prices of the small-volume service station? At a major whitewater meet, I have seen kayakists fill their water tanks free several times at a crossroads filling station and not even gas up upon departure. A kayakist will spend several hundred dollars for equipment and some 10 and 15 cents a mile to drive to and from a river, yet object to paying 50 cents or a dollar for access to the river.

But why should he pay? The government could give it to him free.

The whitewater boater is an individualist and he might give serious thought to whether a governmental structure or a private market is most compatible with his individualism. The government as owner will control access and it will tend to lay down rules for large classes of people:

All boating forbidden on the Lower Squeamish River until further notice

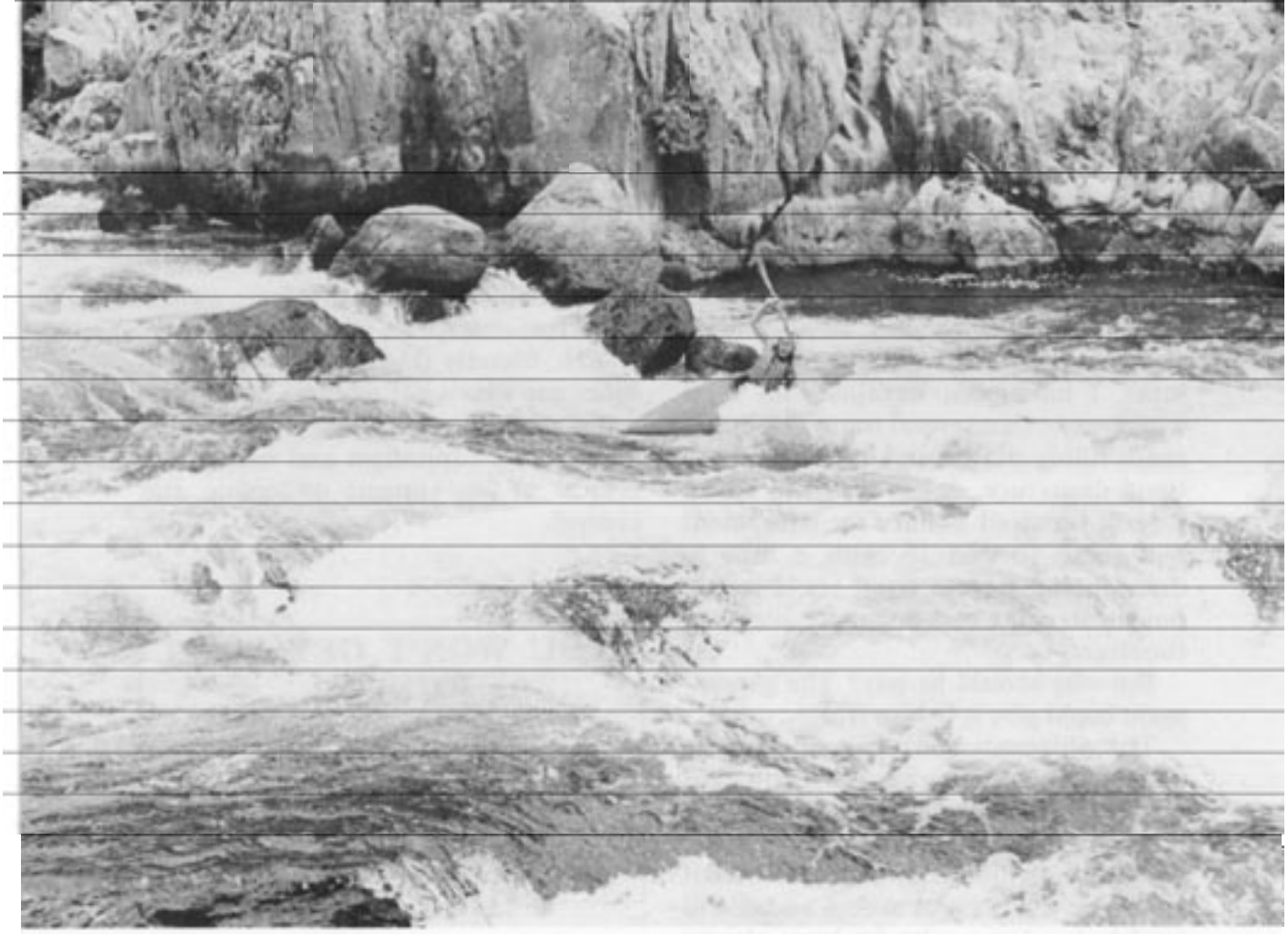
No boater may run the Grand Echo River two seasons in a row

Ten percent of the runs will be reserved for non-commercial parties

Etc., etc.

If the whitewater boaters are assiduous and patient, they might organize a system of paddler ratings and succeed in persuading government agencies which control rivers to use it.

But I suspect that they would be prudent to do what they can to keep some whitewater rivers in private hands and free of government control. And then where usage is heavy, pay (cheerfully) for access. "Money talks" in market economies; economists describe this phenomenon as consumer free choice and consumer sovereignty. (We do not want money to talk in the form of bribes of public servants in the government sector, although we might want to consider some form of market socialism where access to rivers is under government ownership.) Private ownership, free enterprise and consumer free choice, friendly trade. Let not the venturesome who want to enter into whitewater rivers be unthinkingly hostile to all forms of capitalism and naively uncritical of government ownership and control.



There are lots of places to play in the Middle American, but the long mileage keeps you moving.

THE MIDDLE AMERICAN

Words and photos by Joe Bauer, Box 394, Invemess, CA 94937

The American River system is one of the most important for California whitewater boaters. The lower American above Sacramento is a very popular Class 1 run with two Class 2 rapids, a perfect first-time-out run. The South Fork is probably second only to the Stanislaus as a popular Class 3 intermediate kayak run, as well as a commercial rafting river. Plus, the upper reaches contain challenging Class 4-5 water. The free-flowing North Fork is known for a short but excellent Class 4 run, which has been called, and I think rightly so, "perfection in whitewater rivers."

Somehow the Middle Fork has been largely overlooked. Like the South Fork, it is dam-controlled and has a good flow on most summer days.

The 26 miles of river left after the dammers and power companies get through breaks down into two long runs: a 17-mile Class 4-5 and a 9-mile Class 2.

For the upper run you should get an early start because it contains a number of rapids that should be scouted and at least three portages, one of which is quite difficult.

The put-in is on a reservoir (Ralston Afterbay) just above the confluence of

the Middle American and the North Fork of the Middle American. After paddling about a mile across the lake, you must portage the dam on the right and then carry down to where the water gushes from the powerhouse.

By mid-morning there is usually 800 to 1000 cfs, but they can release much more, and at any time. On one trip last year we had about 700 cfs until the middle of the afternoon, when it suddenly increased to about 1500 cfs. Needless to say, this drastically changes the character of the river. On all the dam-controlled Sierra streams, it is advisable to put your boat and paddle a few feet from the river when you stop, to guard against losing them in a surge.

What a surprise to return to the river after lunch and find twice as much water and your paddle floating in an eddy.

The first few miles after the second put-in is generally Class 3 and a pleasant warmup. After 2½ miles a steep rapid introduces Horseshoe Bar, the next portage.

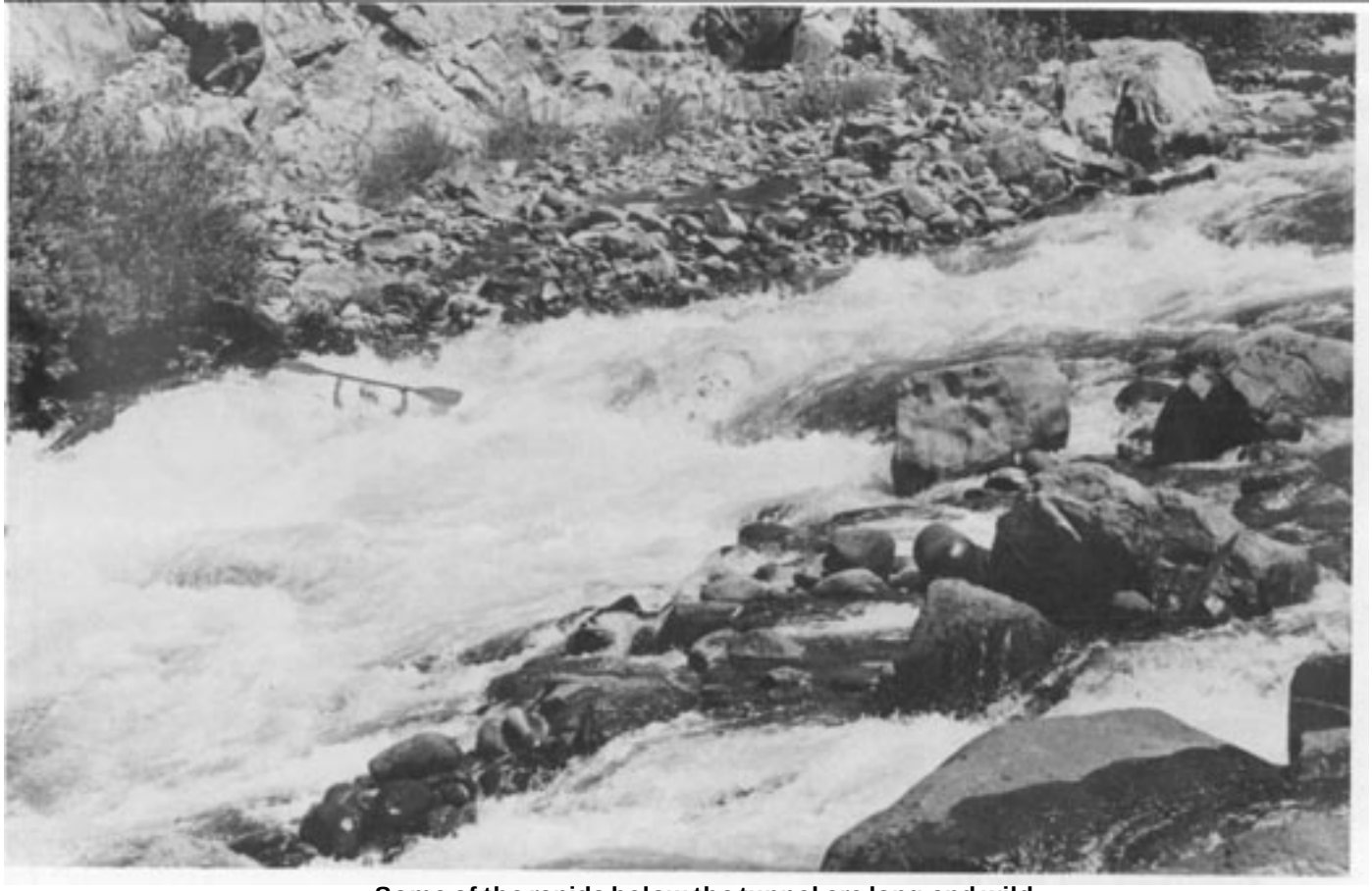
The river originally made a one-mile horseshoe bend, the end of which was only about 75 feet from the beginning. Many years ago, some enterprising gold miners blasted a tunnel through the rock that separates the two parts of the river, leaving the oxbow dry for prospecting. The old riverbed is now full of trees and the river flows quietly through the tunnel. The place to watch out for is the rough blasted chute which leads to the tunnel. It makes all the drop that used to happen in the long horseshoe, in about 80 feet of wildly turbulent whitewater.

The big problem here is that in some places, the chute isn't as wide as a kayak is long. If you happened to turn sideways, your boat would be instantly destroyed. Although it has been run,"

See* American Whitewater, *Vol. XV, No. 4: "The Wild Middle American," by Charles Martin.

The tunnel chute on the Middle Fork of the American River. This Class 6 drop has been run a number of times — not always successfully.

The tunnel itself has calm water and plenty of headroom.



Some of the rapids below the tunnel are long and wild.

this rapid is generally considered a Class 6, and a portage to the tunnel mouth is highly recommended and not difficult at the 1000 cfs level. With a lot more water, the put-in pool would presumably be too wild, and a carry over the hill would be necessary and very difficult.

In the 11 or 12 miles below the tunnel, there are a number of interesting Class 4 rapids, dropping to Class 3, Class 2, and finally a long flat stretch that is blessed with blackberries that hang right over the river. You can sometimes eat your fill without getting out of your boat.

Coming around a right turn you can see the river drop away and mist rising. This is Ruck-a-Chucky Rapids. Get out and scout.

The first drop is a beautiful Class 5 at 800 cfs. At 1500 cfs it looked much

Aerial view of Ruck-a-Chucky Rapids clearly shows the four main drops. Only the second drop is unrunnable.

The gang at the takeout. Left to right: Sid Eschenbach. Lenny (the dog), Banana, Mike Eschenbach and John Bauer.

more difficult and we portaged on the right. Shortly below is the second drop, an unrunnable falls and a very difficult portage.

The boaters should team up to pass the boats over the huge boulders on the right. We found that if we took our time and rested here, it was a beautiful place to be and the strenuous portage was easier.

The next mile to the takeout has about half a dozen Class 3 and 4 rapids in a beautiful rock canyon and is, in my opinion, the nicest part of the run.

The takeout is at the old Greenwood Bridge site. The bridge was destroyed by the huge surge of 253,000 cfs which came down the river when the Hell Hole Dam on the Rubicon River broke in 1964.

This is also the put-in for the lower run, a mellow Class 2 for 7% miles and then, at Murderers Bar, another hard portage around an unrunnable rapid (shades of Ruck-a-Chucky). Below here there are a few nice Class 3 rapids before the takeout at the North Fork confluence. This point is reached by road from Route 49 just south of Auburn.

Access to the Greenwood Bridge site is made by taking McKeon Road off the Auburn-Foresthill Road. It's a long, rough road and cars with low clearance may have a hard time. The upper put-in is reached by taking Mosquito Ridge Road off the Auburn-Foresthill Road just before you get to Foresthill.

The Middle Fork of the American River is presently threatened by the proposed Auburn Dam, which would inundate both of the runs described above as well as a nice Class 2 run and the "perfection in whitewater" run on the North Fork.

All the evidence shows that this dam is not needed and in fact is just a rip-off for land speculators.

To help stop this dam and save some of California's very nicest whitewater, write PARC — Protect the American River Canyons Association, Box 1978, Meadow Vista. CA 95722.

"By gar, Pierre, I wish you didn't use such a heavy paddle!"

1975 TEAMS

The 1975 Slalom and Wildwater Teams which will represent the United States in international competition in Europe this summer have been selected.

1975 Slalom Team

K-1W
Linda Harrison
Jean Campbell
Lyn Ashton
Elizabeth Watson

C-2
John Evans-Carl Toeppner
David Knight-A1 Harris
Ron Lugbill-Jon Lugbill
Jed Langley-Jay Langley

C-2M
Marietta Gilman-Chuck Lyda
Rasa D'Entremont-George Lhota
Michelle Piras-Steve Draper
Alice Hallaran-John Hastil

C-1
Angus Morrison
Steve Fulton
Drew Hunter
Ned Jose

K-1
Eric Evans
John Holland
Chuck Stanley
Dan Isbister

1975 Wildwater Team

K-1W
Carol Fisher
Candi Clark
Donna Berglund
Leslie Klein

C-2
Wallace Dyer-Ben Cass
Stephen Chamberlin-Joe Stahl
Joe Brugger-Dean Ferrandini
Tom Johnson-Chip Queitzsch

C-2M
Louise Wright-Jim McConeghy
Leena Mela-Paul Liebman
Margaret Clarke-Mike Chamberlin
Maria Hanushevsky-Mark Patlovich

C-1
Allan Button
Thomas Irwin
Mark Hall
Warren Yeisley

K-1
William Nutt
David Nutt
Doug Armstrong
Tom McEwan

Congratulations to all those representing us, and the best of luck!

***(From the May* 1975 Canoe Cruiser)**

U S I S C A

1975

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UNDERSTANDING THE UPSTREAM-LEAN CAPSIZE

BY O. K. Goodwin, AWA Safety Chairman

Early in the canoeing/kayaking game the paddler discovers that his boat may be easily overturned. When he graduates to moving water, he finds that it happens even more frequently and for no apparent reason. His companions admonish him for having an "upstream lean" and he learns that this is to be avoided . . . but what is an "upstream lean?" Why is it so disastrous?

To find out, let's go back to some basics.

The stability of these craft depends on two things: (1)the weight of the boat, paddler and equipment and the location of the center of gravity* of this total weight (Fig. 1); and (2) the volume of displacement,* the distribution of this volume and the location of the center of buoyancy* (Fig. 2). The interrelationship of these items provides the tendency of the boat to return to upright.

When the boat *is* upright, the center of gravity (G) and center of buoyancy

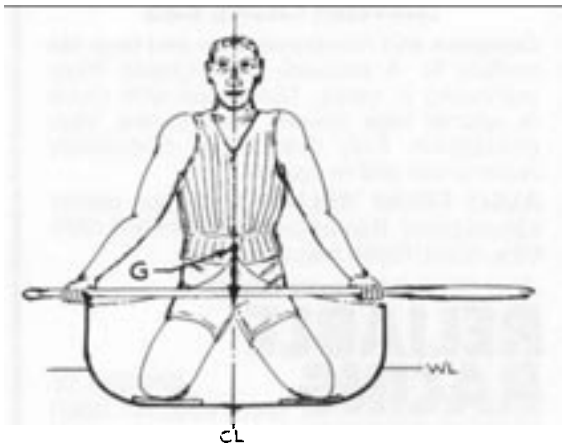


FIG. 1 - WEIGHT

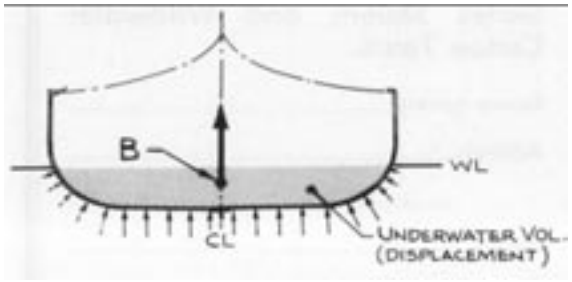


FIG. 2 - BUOYANCY

(B) lie along the same vertical line (Fig. 3). The forces of weight and buoyancy are equal; there is no lever and thus there is no moment exerted. One force downward is directly opposed by the other force upward. The system is said to be in equilibrium.

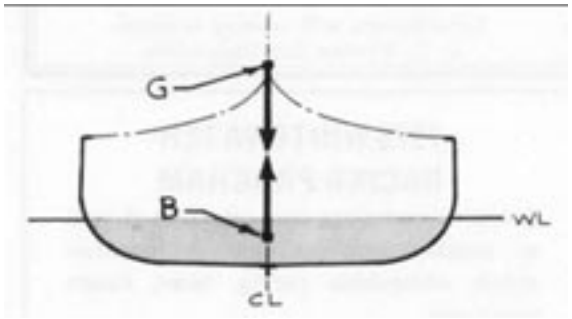


FIG. 3 - EQUILIBRIUM IN AN UPRIGHT POSITION

*Definitions:

Center of Gravity (G). the point at which all the individual elements of weight may be considered to be concentrated.

Displacement. The amount of water displaced by a floating vessel. It equals the weight of the vessel and everything on board.

Buoyancy. The supporting force exerted by a liquid upon a body floating in it. It is equal to the weight of the displaced liquid.

Center of Buoyancy (B). the center of Gravity of the displacement.

In still water and under normal load conditions, the boat is fairly stable. Excluding wind, the only forces that might upset it are fairly predictable and should be under the control of the paddler. Shift of his body weight by the paddler is the most critical of these as this drastically upsets the balance of the whole system. The incorrect application of a paddle stroke or the unexpected grounding of the boat are the others. The first two are overcome by learning the rudiments, the third is avoided by careful navigation.

The stability of the system in still water can be examined mathematically and shown graphically. By *assuming* the combination of boat, body, paddle and equipment to be a rigid entity and the center of gravity of these weights to remain at a fixed point relative to the boat, we can simplify this examination. If we then assume the system to be heeled to some reasonable angle it will be apparent that the portion of the boat that is underwater (the displacement volume) has a new shape (Fig. 4). This causes a shift of the center of buoyancy to a new position (B), and there is a new relationship of the forces of gravity and buoyancy. They are no longer in the same vertical line and can be described as a couple, with lever arm GZ (Fig. *5).*

This couple provides a moment which tends to rotate the system back to the upright position. The size of this

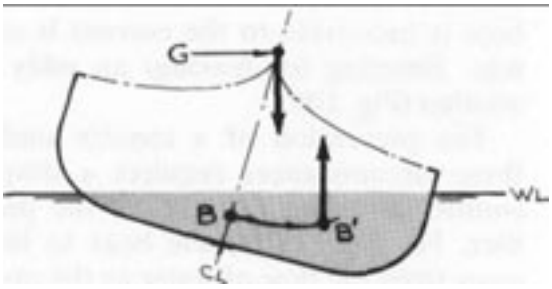


FIG. 4 – FORCE RELATIONSHIP IN HEELED POSITION

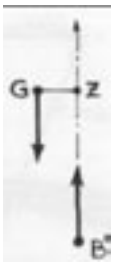


FIG. 5 – RIGHTING MOMENT (COUPLE)

moment is found by multiplying the displacement weight by the length of the lever GZ. Since the displacement remains unchanged, this tendency is directly proportional to the length of the "righting" lever (GZ). It should be obvious that GZ is zero at 0^0 heel, becomes positive and grows to maximum at about the angle at which the gunwale goes underwater and then rapidly decreases, becoming negative (now an

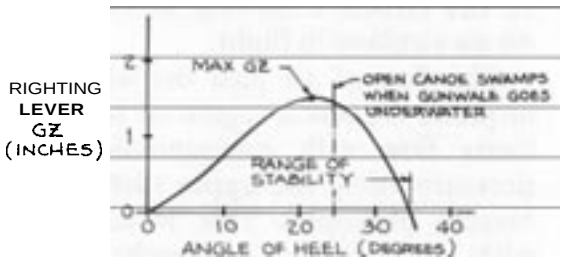


FIG. 6 – CURVE OF STATICAL STABILITY OR CURVE OF RIGHTING LEVERS

upsetting lever) at some angle slightly beyond. This can be illustrated by plotting the size of the lever at various angles of heel (Fig. 6). (Of course the open boat will start swamping as soon as the gunwale *is* underwater.)

Now, set the water in motion laterally under the keel line of the boat. This does not change the stability of the system; the basic forces of gravity and buoyancy are still acting. You have, however, introduced new, outside forces that are not understood by (and prove to be surprising to) the uninitiated.

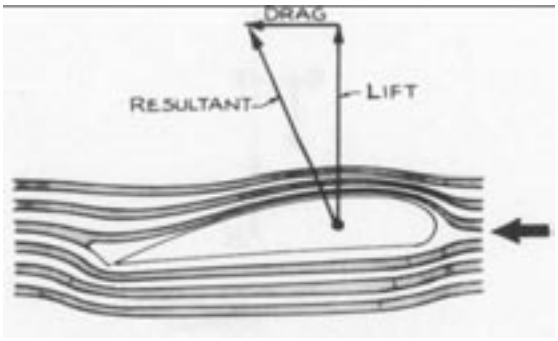


FIG. 7 – AIR FLOW AROUND AN AIRPLANE WING SECTION

The velocity of air moving past the upper surface is greater, resulting in lower pressure against the wing.

Hydrodynamics, the study of fluids in motion, shows that this flow of water has three effects on the boat. There is direct pressure against the upstream side of the boat, lift (negative) and drag. To understand lift and drag, let's refer to the effects a moving airstream has on an airplane in flight.

The flow of air past the wing of an airplane creates a region of higher velocity flow with corresponding lower pressure along the upper surface (Bernoulli's principle). This, in association with a region of somewhat higher pressure below the wing, results in a lifting force. Drag is simply the frictional resistance of wing surface to the flow of the airstream. The resultant (Fr) of the forces indicates a tendency to pull the wing (and plane) vertically upward and somewhat downstream (aft) (Figs. 7 & 8).

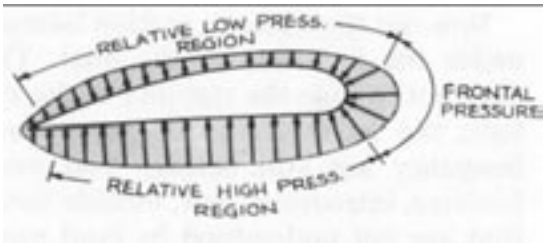


FIG. 8 – PRESSURES DEVELOPED ON AIRPLANE WING SECTION

When one of our boats is exposed to a similar flow (of water) and inclined ever so slightly in the upstream direction, we have forces acting on it that correspond to those acting on the airplane wing. First, we have direct pressure against the upstream side, then lift (negative) in the low pressure region under the boat (Fig. 9) and frictional drag on that part of the skin that is exposed to the water flow. The result of adding these forces to the situation gives a definite tendency to pull the whole boat ***down*** in the water and revolve it into a capsize. The paddler is usually thrown off balance too, which only aggravates the upsetting tendency.

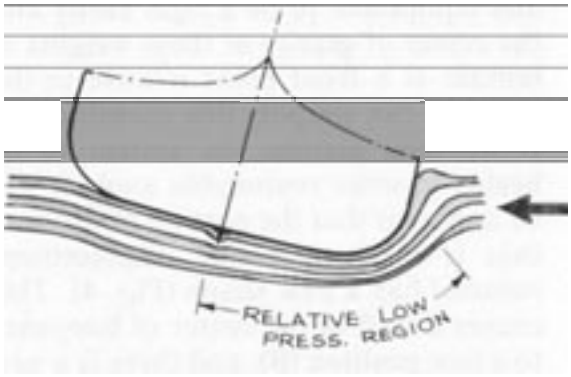


FIG. 9 – STREAMFLOW AND LOW PRESSURE ON CANOE

Low pressure under the boat means *less buoyancy.*

There are several circumstances in which this lateral flow of water is encountered. All result from maneuvering the boat from one flow pattern into another. An upstream draw when the boat is broadside to the current is one way. Entering (or leaving) an eddy is another (Fig. 10).

The prevention of a capsize under these circumstances requires a simple counter move on the part of the paddler. He must cause the boat to lean away from the flow of water as the pressure-lift-drag forces meet the boat. By "presenting the bottom of the boat

FIG. 10 – CAPSIZE IN LEAVING AN EDDY

The lateral flow of water under the bow causes the boat to "squat." The paddler is off balance. An upstream lean results and leads to a capsize.

to the flow" and "leaning" on his paddle, he effectively counters these forces and the boat is buoyed up by the pressure of water against the bottom. The maneuver requires control, timing and a good sense of balance. (By keeping his paddle in the water and using a power stroke, draw, pry or brace—as the situation demands—the paddler improves his stability and control.) It is even more effective in the decked-boats for they can be intentionally heeled to a greater angle than the open boats. (Fig. 11).

Practice this in controlled circumstances, with effective help on hand. As in any maneuver involving stability, it requires developing a "feel" for what is happening but, once mastered, the tight eddy turns that can be accomplished will increase your enjoyment of the sport. . . and improve your safety!

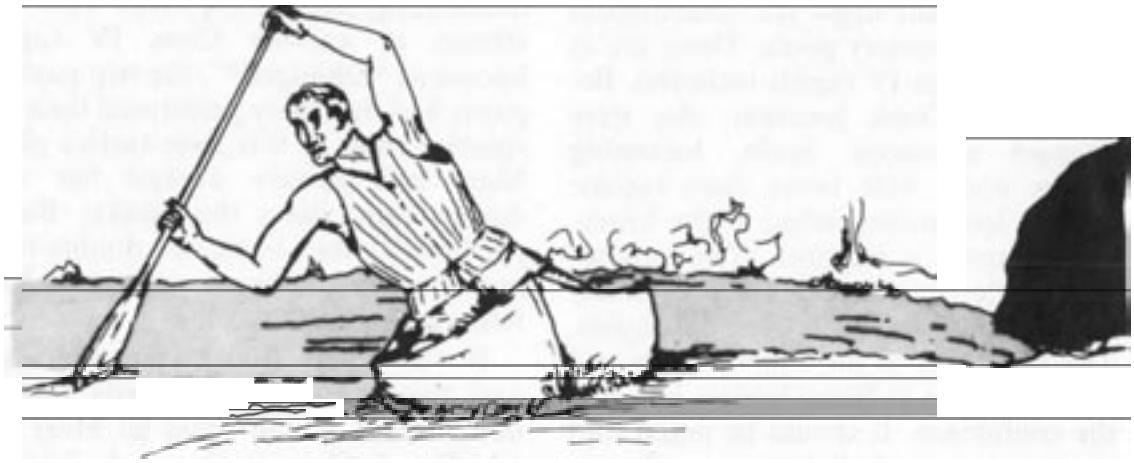


FIG. 11 – COUNTER LEAN (AWAY FROM CURRENT) IN LEAVING AN EDDY

Paddle brace provides steadying support.

ACCIDENT REPORT: Butch Bilbro

Berriman H. (Butch) Bilbro, 27 was an experienced East-Tennessee canoeist running a river that he loved when an accident claimed his life. Butch capsized shortly after entering "Rockgarden Rapid" on the upper Obed River in the Cumberland mountains of Tennessee. He and his boat were swept down through the drops and holes in this rapid until almost at the end, Butch's leg was caught beneath an undercut boulder.

"Rockgarden" is a Class IV rapid on a 9-mile Class III run, commonly called "The Breakfast Table Run." The put-in is at the "Devil's Breakfast Table" low-water bridge on Daddy's Creek in the middle of a state wildlife management area. You run generally Class II water for 2 miles on Daddy's Creek until you make the "Obed Junction." Water volume is increased as you travel this section of the (upper) Obed between that junction and one from another major tributary, Clear Creek, 3 miles on downstream. This section is almost constant Class III, interspersed with small recovery pools. There are at least two Class IV rapids included. Below Clear Creek junction, the river changes character again, becoming bigger water with lower class rapids; that is, less maneuvering in the heavy-water rapids is required. The remaining 4 miles on the Obed are generally Class II with at least 4 Class III rapids. The river ends in the Emory River and the take-out is at Nemo bridge, just past the confluence. It should be noted that there are no road alignments; railways; paths; road or ford crossings along this stretch of river. Rather the river is quite remote being cut deep in a sandstone formation. This river-gorge scenery is spectacular and the confluences where rivers and their canyons merge are dramatic. The water is clean and clear.

Butch's goal was to canoe the entire length of the Obed/Clear Creek/Daddy's Creek system. Since water levels were so critical to the success of this goal, he kept relatively free of planned trips and would gather companions at a moment's notice to run a particular stretch at the proper time. In this instance, his friend Kenneth McBee had just bought a new canoe and the water had dropped to a good level (1500 cfs on the Oakdale gage, 10 miles downstream of the takeout).

Bilbro wanted to show McBee and his sister this favorite run of his on the upper Obed. So on Tuesday, April 22, 1975, Ken took his new 16' open canoe, solo, and Butch took along his 24 year old sister, Mary Ann Bilbro, tandem in his similar 16' canoe. At every demanding rapid, Butch put Mary on the bank where she would rock-hop on down the rapid. Butch would run the rapid solo showing the way for McBee to follow.

Rockgarden Rapid is located 2 miles downstream from the Daddy's Creek junction; right in the middle of the most demanding part of the river. Just upstream at another Class IV rapid, known as "Ohmigod!", the trip participants had flawlessly performed their respective roles in this river-tactics plan. Mary had gamely worked her way downstream along the banks; Butch performed the intricate double-turn maneuver in the heavy water and Ken followed his lead.

It was about 2:30 in the afternoon and they were now 50 yards further downstream. Butch again let Mary out and Ken held up in the pool above to watch the run on this, their 2nd Class IV. A hard left turn above a couple of rollers is required to enter the rapid. Then a couple of holes appear in the water and shortly thereafter, a couple

of strategic boulders split the main flow. Butch capized shortly after the left turn. With paddle in hand, he surfed behind the canoe and continued to direct it on through the rapids, probably to bring it to one side or the other of the stream-splitting boulders. Free floating canoes are usually pinned and severely damaged on these boulders. The canoe went on by, to the pool below, undamaged; but Butch was no longer behind it.

He got caught at the stream-splitting rock with his foot jammed in the large under-cut, beneath it. It happened fast. Mary saw a couple of attempts to get free. A short time later Butch's life jacket washed out. Ken had to portage his canoe around the rapid. Neither could get anywhere near the nearly submerged rock midway in the turbulence of the main chute. There was even no eddy behind the rock. The only thing they could do was to beach Butch's canoe and then continue on down this unknown-to-them, Class III river, lining rapid-by-rapid, the 5 miles to the take-out.

This is rugged country-side. Only a few relatively unknown fishing paths successfully find breaks in the 500' bluffs to approach the river. After getting out, notifying the Sheriffs office, and calling out the local rescue squad it was 1:00 AM before local authorities could pinpoint the rapid's location on the river and find the 4-wheel-drive road to an overlook from which a rough, steep trail approached the river near that site. It was 2:30 AM before anyone finally made it back to the river rapid and verified that this was the accident scene. The river was then swept downstream to the Clear Creek junction and word was relayed to come in at daylight for recovery operations. By 1,1:00 AM, Wednesday, a line had been established across the rapid and

Site of fatal accident (photo taken on previous occasion).

a rubber raft played back and forth above the ill-fated rock. The body was found below the rock with paddle in hand and foot jammed. 15 men were required to bring the body back up the bluff. Butch's brother and a friend came in that afternoon and started downstream with the canoe, lining all the rapids. Just below Clear Creek junction, they beached the canoe and walked out on a well-known, but rough, foot trail. They returned Sunday and took the canoe the rest of the way to the Nemo bridge take-out.

There's been considerable discussion about this accident on this experts-only (but popular) whitewater run. The following seems to be the consensus of opinion from those that know that run, rapid, and canoeist:

—More trip support would have been helpful; but it is questionable if it would have influenced the outcome.

—The most serious mistake (and we all make it) is that it is hard to direct your submerged canoe through the rapids and keep your feet up and ahead of you at the same time.

—Another potential mistake we all make is to keep ahold of the paddle, even in the roughest surf. Butch's paddle may have contributed to the wedging of his foot. It is possible that he tried to free his foot and paddle, releasing his interfering life jacket while he continued to attempt to break free.

—It is felt that, indeed, Rockgarden Rapid is a Class IV, due considerable respect and concern for all safety techniques; but this accident does not make it a Class VI.

Butch loved that river; that run; and canoeing. John McGinnis, his best

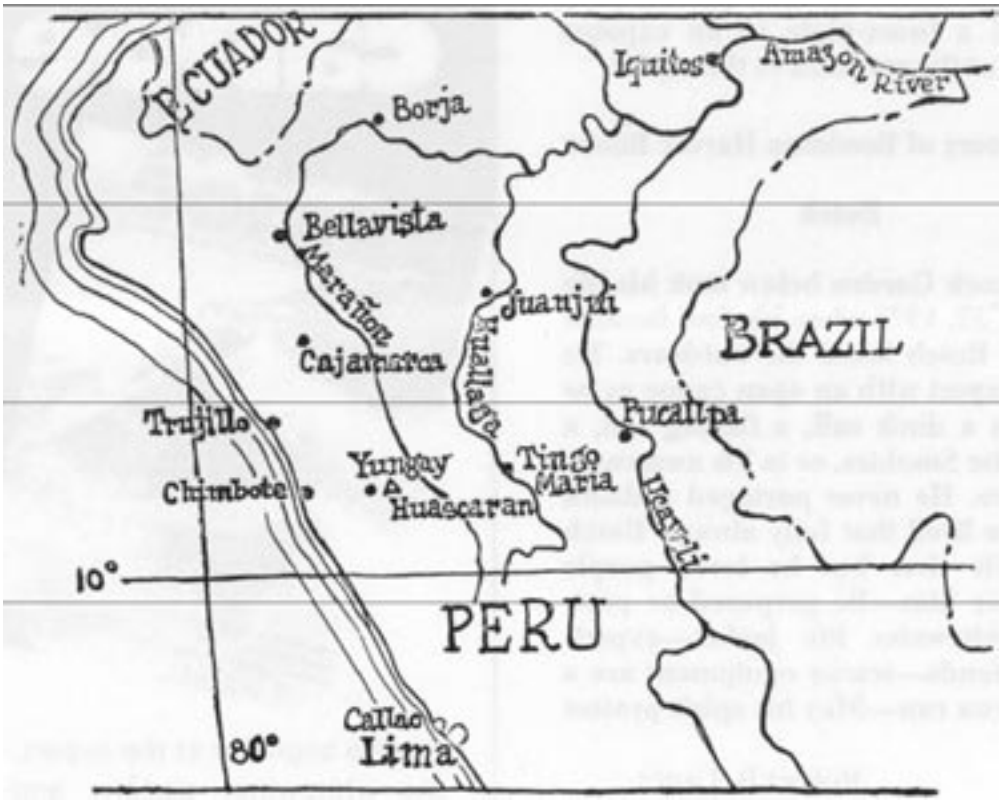
friend and frequent paddling companion, went back in and permanently attached a brass-plate to an exposed boulder at the entrance to the rapid:

"In Memory of **Berriman** Harvey **Bilbro**

Butch

The Rock Garden below took his **life** on April 22,1975 when his foot became wedged. Butch loved the outdoors. He was as expert with an open canoe as he was with a duck call, a fishing rod, a map of the Smokies, or in his awareness of Nature. He never portaged a damn thing. He lived that fully always. Butch loved this river but he loved people more. For him—Be prepared or portage. Whitewater life **jacket—experienced** friends—rescue equipment are a must if you run—May his spirit protect you."

Robert B. Lantz
Sunbright, Tennessee
May 11,1975



RAFT TRIP ON A TRIBUTARY OF THE AMAZON

by Lothar Kolbig, 323 Coffeepot Dr., Sedona, AZ 86336

After our mountaineering expedition in the Cordillera Blanca in Northern Peru broke up, I had a few more days' vacation left, so we decided to take a look at the Amazon basin, which is the largest wilderness area on the South American continent.

In Lima we used our contacts with the Institute Lingquistica to obtain a permit to stay at their base at the Ucalali River.

During our stay at the base we arranged to hire one of their four-seater planes to fly us around the Amazon basin, and from the air we could see the meandering oxbows of the middle Amazon basin as well as the turbulent waters cascading down from the Andes. Here we also were able to engage a dugout canoe with outboard motor to take us to one of the Indian settlements along the river jungle.

This brief exposure to the Amazon basin had aroused us to see more of the mysterious'and exotic area, and when two years later I participated in another climbing expedition, I decided this time I would attempt to go down one of the tributaries of the Amazon.

Before proceeding with a narration of the river trip itself, let me digress a little and give you a picture of the logistics of planning a trip in a foreign country.

The only maps with a certain degree of accuracy are the World Aeronautical

Charts obtainable through: Commander, Aeronautical Chart and Information Center, Second Arsenal, St. Louis 18, Missouri. However, due to their large 1:1,000,000 scale these are not too useful.

As advance party I was to pick up our equipment, which had been shipped by boat, at the Institute Geophysico in Lima, which because of its status (American financed) can get shipments into Peru without going through customs. Imagine my shock when I found out that all our equipment was still at the harbor warehouse and had to go through customs. The necessary papers required eight signatures by government officials, including the President of Peru.

Every day for five days I tried to catch one of these officials at the Ministry Commercio, but with my limited command of Spanish I had only partial success. Meanwhile I had become friendly with the conciere at the Savoy Hotel, to whom I talked about my problem. The next morning he said he had talked to a man who could help me and would be at the hotel lobby at 11 o'clock. He introduced me to a young man who spoke English flawlessly and who already knew where my documents were located and that I needed four more signatures, including the President's.

We agreed to meet at two in the afternoon, at which time he would have all the signed papers. When I met him at the ministry, he had indeed all the signed papers. How did he get the President's signature? I asked. His family and the President's were neighbors, his father was a cabinet minister, and since the President was at home laid up with laryngitis, he had taken our papers to the President's bedside and had him sign them.

We raced out to the pier and our equipment went through customs in 15 minutes.

There were other matters which required my attention. Our expedition required porters, and when I called the contact man in Lima he said: Meet with my sister in the hotel lobby at 7 pm and she will give you all the details.

Now, there are two types of Americans: one, the gringo who tries to take advantage of the natives in a foreign country, and the Americano del Norte who is taken advantage of by the natives. When I asked the little lady if she had the information, she suggested that, perhaps, we could discuss this over supper. Of course, she would steer me to the best (read: most expensive) restaurant in the hotel Crillon. The meal she ordered would have put an executive on an expense account to shame. After a two-hour supper I ordered a taxi to take her home.

All night long I was tossing in my bed, thinking about the pretty gal with the olive skin and the Spanish looks who had made an Americano del Norte out of me.

Meanwhile I had found time to visit the office of the *Peruvian Times,* an English language newspaper. The editor brought out copies in which river trips had been written up, and after reading through half a dozen articles I finally decided on the Huallaga River.

With the climbing expedition over I took a flight out of Lima to Iquitos. After a stop at Cerro de Pasco we set down at Tingo Maria, a settlement of about 200 people. From the dirt landing strip I crossed a rickety suspension bridge over the Huallaga River and found myself in a block-long typical jungle settlement. Kids were playing in the dirt street, chickens were picking at scraps of food and a radio was blaring out Spanish music. I stopped at a hole-in-the-wall market and inquired if there was a hotel in town. Yes, there was, one for natives and, three miles out, one

for tourists. I shouldered my duffel bag, which contained my sleeping bag, food, gas stove, etc. and headed towards the hotel. Beautifully kept grounds and the sweet, exotic scent of tropical flowers greeted me as I turned into the lane that led to the government-operated hotel.

I was the only guest, the English-speaking manager explained. The next day I asked him if he knew someone who was familiar with the river and who could build a balsa raft. A day later he told me that a native who met these requirements would come to the hotel. With the help of the manager we discussed my plans and came to an agreement. A day later the native called for me and, shouldering my bag, we headed for his home near the river.

The home consisted of four corner posts which supported the palm frond-thatched roof, and a dirt floor, making one big room with an earthen hearth without chimney in one corner. Several small children were playing on the dirt floor, amongst whom seemed to be a hamster which, as I found out later, became part of a stew. My companion motioned to me to spread out my sleeping bag in the one remaining corner. It was August, their winter season, yet it was hot and humid.

The next day we left for the jungle nearby, looking for balsa trees which we would use for building the raft. Armed with machetes, we cut our way through the bush and located a grove of balsa trees about two miles from the river. We selected trees about six inches in diameter and 18 ft. tall, which, because balsa wood is very soft, required only a few blows with our machetes to cut them, and in a day we had our required 15 logs. Now began the tedious job of hauling the logs to the river. In the sultry heat of the day the perspiration ran down in rivulets, but after two days all the logs were at the river's edge.

About a foot from the large end of the logs we now cut 3-inch-deep V notches with our machetes, and after cutting a nearby 5-inch sapling we stripped the bark into long, inch-wide strips. Laying the sapling into the V notches of the balsa logs, we wrapped the bark strips tightly around the balsa logs and the sapling, and soon our raft began to take shape. The V-notched end would be the bow. The stern end also received a sapling; however, no V notches needed to be cut. The sapling was laid on top of the logs and tied with more bark strips. Finally, a 3-foot-high V-shaped tripod was driven into the bow and stern ends and a rudder on a long pole laid into the tripod notch. A few more balsa logs were laid on top of the raft to provide a platform for the eight bags of cement my companion would sell along the jungle settlements.

Finally after five days of building the raft we cast off. I had brought along rice, noodles, corned beef, sugar, and tea, whereas my companion had brought dried fish and a stalk of unripe bananas. These bananas are cooked and serve as a substitute for potatoes, which cannot be grown in the Amazon basin because they would rot in the humid climate. The dried fish and bananas are cooked together in one pot and when done, the bananas do not taste sweet at all and are very filling.

Since we still were in the eastern foothills of the Andes, the swift current took us along, and often speeded up when going over riffles. During the day when we felt like cooling off we would jump off the raft and swim alongside it, knowing that the dreaded Piranhas do not live in the cool waters of the Andean foothills. Occasionally during the day we would pull on shore and pick an armload of papayas.

It gets dark at 6 o'clock in the tropics, so we generally pulled on shore around 5 o'clock and camped at the

edge of the jungle. I prepared a bed of palm fronds on the beached raft and laid my foam pad over it. This way I was assured that my companion, whom I hardly knew, would not intentionally leave me behind. At night the temperature would drop considerably, and often I would hear my companion's teeth chatter because he slept under a thin sheet on the beach. I slept lightly, always alert for whatever might happen, but the nights passed without incidents. In the evenings as the campfire died down, the lights and shadows danced against the jungle wall at our backs and in its reflections in the whispering leaves I imagined seeing eyes glaring at us out of the dark. After I had crawled into my sleeping bag and became still, a million eerie voices of the jungle began to wake: rustlings and whisperings, faint squeaks and low calls. These were cold but good nights, and above us the tropic stars and the Southern Cross, nights full of allurement and beauty and exotic air.

On the sixth morning we shoved off at **3** am and just about daybreak entered a long stretch of tumbling rapids. No sooner had we gone down the wild ride of Chiote Rapids than we could already hear the next, Camote Rapids.

My companion dips the rudder and pulls hard to get over toward the shore where the waves are not too high. Meanwhile the distant jungle ridges have come closer to the river and are closing in. The shore now rises steeply, the river boils and the jungle reaches upland, vast and dim, stretching unbroken and untrodden for miles and miles. What does it contain? What creatures live in it? Tree branches extend overhead, sending aerial vines down to the river.

All day we are awash, and waves break over us in the swift and boiling water as the river cuts its way through a 100-foot-wide gorge with vertical walls rising 1500 ft., sometimes broken by shelves on which grow dense trees. Here we see monkeys looking back at us,

jumping from one tree limb to the next. That night we find a narrow beach inside the gorge. The next morning more rapids await us. We pass boiling San Fermin Rapids, at the end of which the water runs smack up against a high* cliff. We barely manage to stay clear of the cliff, but get caught in huge whirlpool and are on a merry-go-round three times before we manage to get out.

Already we can seethe white caps of Flores Rapids in the distance, and after we run these there follows Cajumba and then Jangaco Rapids.

Toward late afternoon the canyon begins to open up a little, and the rapids become less numerous and less boisterous. The next day they have played out, and we meet several dugout canoes being poled upstream by natives. They are headed for the rapids where the fishing is supposed to be good, my comrade says.

Late that night we arrive at our destination, a small village named Juanjui, where we camp at the water's edge.

The next morning, abandoning our raft at the river bank, I-raced over to the small dirt airstrip about two miles away and by luck got on a freight plane that very morning. While waiting for the plane to come in, a boy approached me: Senor, want to buy a blow gun? When I told him I couldn't take the 12-foot gun on the plane he said, Oh I make delivery, I'll put it in aisle.

This plane took me only as far as Tingo Maria, my starting point; there are no scheduled passenger planes and these planes fly whenever they have a cargo of coffee or any other merchandise. So one never knows when a plane will come along. In fact, I had to wait in Tingo Maria three days before a plane arrived that would fly into Lima. And so on home via Mexico City to Miami.

Note: anyone planning to fly to Peru can get passage for considerably less cost than flying on an American line by taking a South American line out of Miami.

There are many other river trips in the Amazon basin. Just to mention a few: the Upper Maranon: Bellavista to Borja; the Urubamba: Quillamba to Pucallpa; the Vilcabamba; the Vilcanota; the Apurimac: down to the ruins of the Inca bridge of San Luis Rey (subject of Thornton Wilder's famous novel). (Ed. note: Cal Giddings, president of the AWA Board of Directors, made an exploratory trip on the Apurimac last year, and is planning another this fall.)

CLASSIFIED

CLASSIFIED AD RATES: 30c per word. Send to AWA Editor. Iris Sindelar. 264 East Side Dr.. Concord. NH 03301.

WHITEWATER COACHING MANUAL — by Jay Evans, U. S. Olympic Coach. $5 5 Sanborn Rd., Hanover, N. H. 03755.

CANOEING INSTRUCTORS – (Kayak in Britain, Canadian in France) required for season or short or long periods Feb.-Sept. Details and application form from Trevor Westwood. PGL Adventure Centres, 510 Station St., Ross-on-Wye HR9 7AH England. (0989-4211)

NEOPRENE SKIRTS/FLOTATION — Prices postpaid. Skirts: $23.50. Kayak bags: 5' stern $8.75; 3' bow $6.50. River Chaser split bag set, $20.25. Other types, sizes available. Write for details. DAUBER CANOE & KAYAK. Box 59W, Washington X'g, PA 18977.

AWA SAFETY CODES, revised 1974, at cost: 100/$10, 50/$5.50. Send self-addressed, stamped envelope for single copy. AWA BACK ISSUES. 4 issues of 1973 $3; 6 issues of 1974 $4. Geo. Larsen, P.O. Box 1584, San Bruno. CA 94066.

RIVER SUPPLIES – Kayaks, foot braces, life jackets, waterproof bags, wetsuits, neoprene, paddles, racks, rafts, etc. Free catalog Box 3195(C), Moscow, ID 83843.

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THE EQUIPMENT CORNER

Paddle Modification

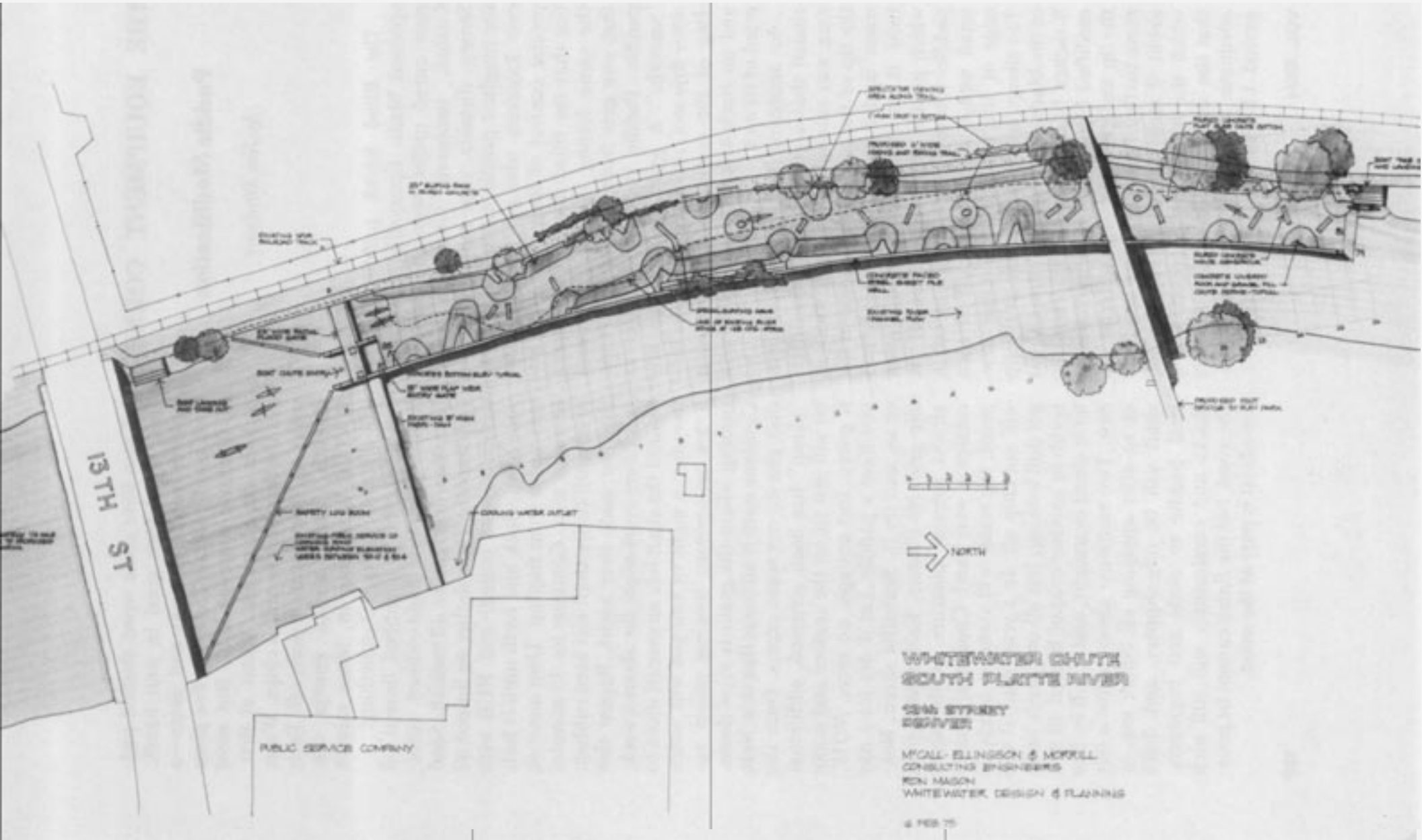
by *Jim* Sindelar

The Illiad kayak paddle. Slightly spooned blade. Epoxy/fiberglass laminate cured under heat and pressure. Coated, tempered aluminum shaft. Strong, durable, river-tough. Probably the toughest paddle made today. However kayakers who get pleasure from precise control of their craft soon notice that the Illiad does not have quite the same feeling of pinpoint control that one gets from a Kober or Prijon paddle. Paddle strokes don't feel as "smooth." A good paddle, like any other fine tool, should carry out the bidding of the craftsman with precision and no back talk. It must not have a mind of its own.

In analyzing the situation, I concluded that a good share of the difference was caused by the extra width at the tip of the blade—turbulence of the water tended to grab at the blade and twist it in my grip. A modification which greatly improved the feel of the paddle for my purpose was to cut a small wedge-shaped sliver off of each edge of the blade with a saber saw. The slivers are 3/8 inch wide at the tip of the blade and taper to nothing about 9 inches back from the tip. Thus the modified blade is 3/4 inch narrower at the tip and gets somewhat wider as you move further from the tip, up to a point about 9 inches from the tip, beyond which the blade is unchanged. I find that the area of the blade is still quite adequate and the feel is much improved. I like it.

I also have some wood shafted paddles. Wood feels good in your hands. Smooth wood. No nicks and dents—a good paddle should feel like a fine piece of furniture someone said. But most paddles are varnished. Great at first, but the first tipover and it chips. Water soaks in, more varnish peels off. Feels horrible. Every stroke annoys me. WATER is soaking in. More varnish will come off. Gotta DO something.

The answer is a rubbed linseed oil finish—just like hand-rubbed furniture. You first remove all varnish. Sand very smooth. Then slather on linseed oil (either raw or boiled) and RUB with your hand. Back and forth until it feels very warm from friction. Then move on to a new area. Continue for 15 minutes or so until entire shaft has been rubbed, then set aside over night. Repeat this procedure every night for about a week, or until the shaft has an overall sheen to it—after a night or two you will notice a few non-porous looking places appearing where the grain is most dense. Continue until it all looks like this. Note that you do not want excess. Once the "sheen" has been achieved, additional oil will just sit on the surface and make it gooey. Just enough, no more. NOW, you have a paddle. Let it dry for a day or so, and try it. Beautiful sheen. Non-slip grip. No blisters. Each stroke gives almost sensual pleasure as the shaft rotates in your hand. Completely waterproof, the water will stand in beads. It will not chip off. In a year or so, it will get dull looking, but all one needs to do is rub in another coat of linseed oil and let it stand overnight, and it will be like new. Two cautions: always allow a day or so after applying oil before use, or shaft will be oily-slippery, and don't lend paddle to clods and beginners. Rocks and carelessness will still nick the wood, but the finish cannot be penetrated—it is part of the wood.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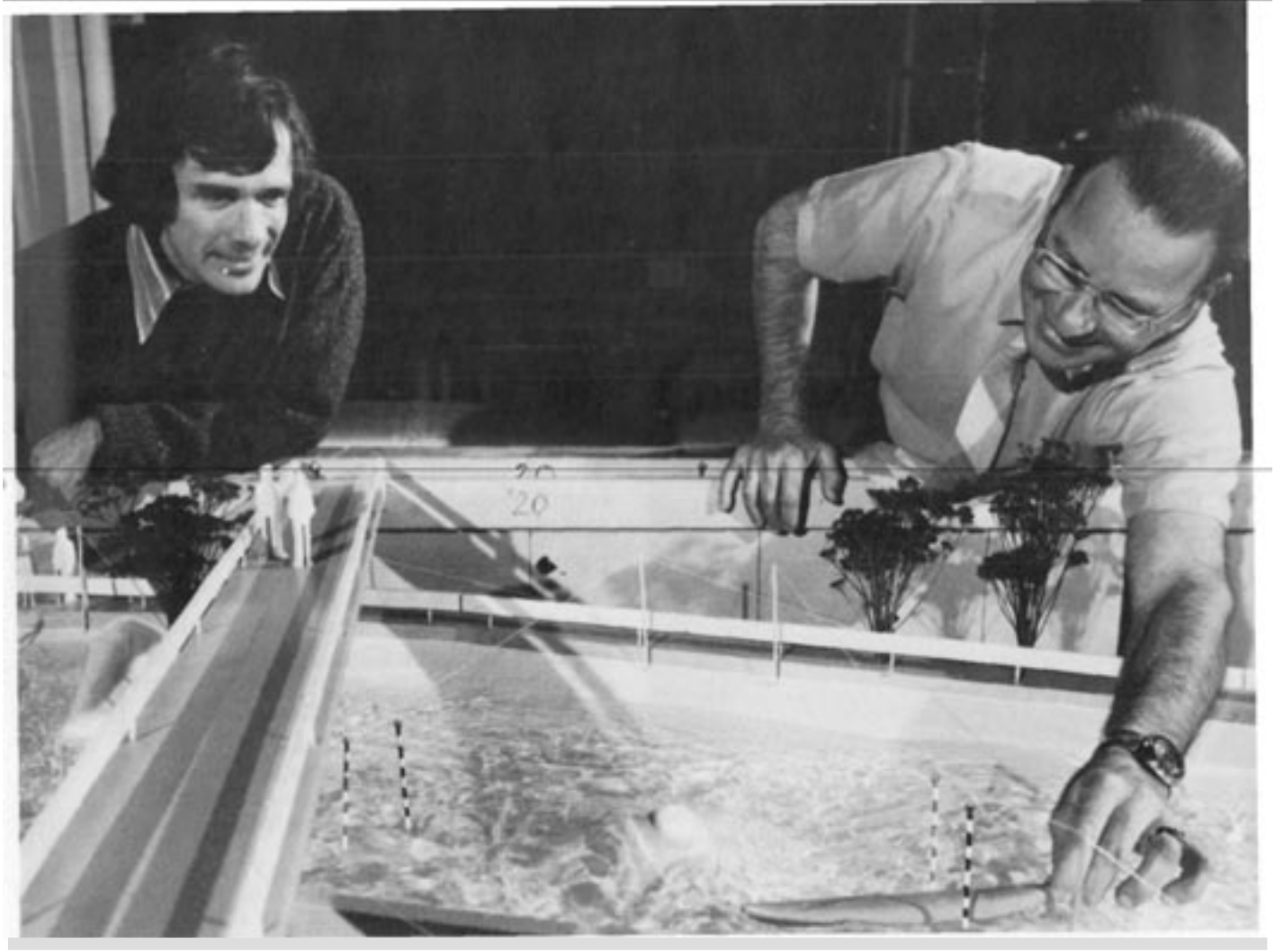


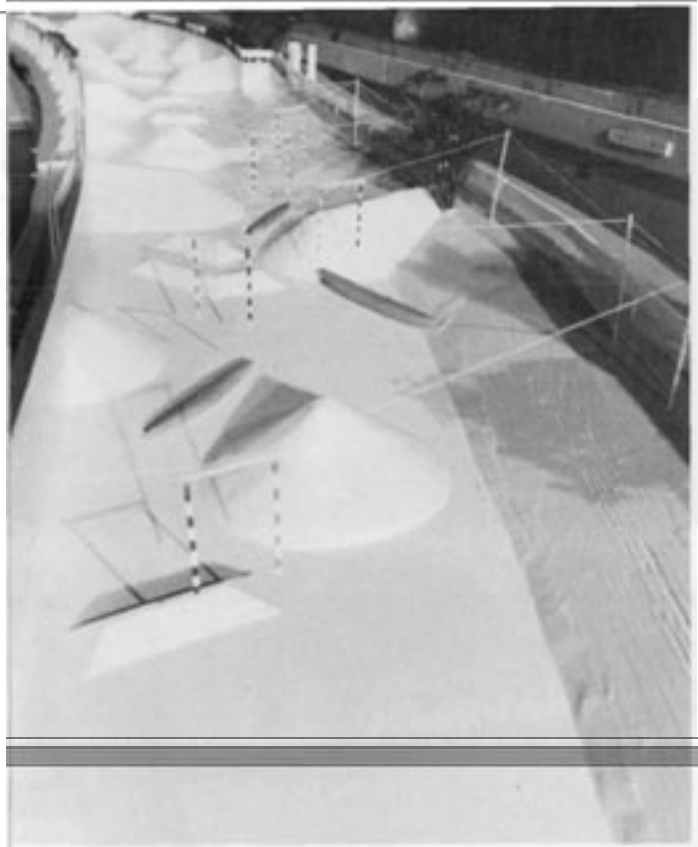
Ron Mason (left), originator of the whitewater park proposal, and Bill Simmons, a Reclamation hydraulic expert, send a hand-cawed model kayak down the chute. Bureau of Reclamation photo by R. A. Pauline.

DENVER'S WHITEWATER CHUTE

Construction will begin this fall on the nation's first manmade whitewater facility, to be located on the South Platte River in the heart of Denver, CO. The facility has been incorporated into the South Platte River Development Project, the aim of which is to clean up the ten miles of river flowing through the heart of Denver and turn it into a recreation area. One of the Denver architects consulted on the Project was Ron Mason, one of the nation's top-ranked kayak racers. He proposed turning part of the area into a whitewater park on the order of the Olympic course used in the Munich games in **1972.** The idea was accepted and a site located: the stretch of river downstream of the Colorado Public Service Dam, in the very center of Denver.

Work then began on the 1:20 model of the proposed chute, using the hydraulic model testing facilities of the Bureau of Reclamation laboratory. The staff, consisting of Ron Mason, four Reclamation staff members and numerous kayaking enthusiasts, volunteered their time for the project so that costs were limited to materials used.

The chute will provide a Class III run of 500 ft., having a drop of 5 ft. Velocities will reach **14 ft./sec.** with maximum flow of 325 cfs. The width ranges from 25 to **40** feet and the depth from 30 to **64** inches. Provisions for removable slalom gates will be included in the construction.



Berms in kayak-canoe chute generate waves and eddies producing white water. **The berms also allow the paddlers to work their way back upstream without leaving the water.** Bureau **of** Reclamation **photo by** R. **A.** Pauline

Geared as a recreational facility for all levels of kayakers, rafters, canoeists and innertubers, this public course has no holes, ledges or drop-offs that might trap a person or boat. Guidelines for operating the chute will be established by the city working with the Colorado White Water Association. Sufficient water permitting, paddlers will be allowed to use the facility year-round. Scheduling the various types of activities during periods of heavy use is planned to avoid overcrowding.

(Photos and information courtesy of the Bureau of Reclamation Engineering and Research Center, Denver, CO.)

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American Whitewater
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BOOK REVIEWS

Kayaking: the New Whitewater Sport for Everybody, by Jay Evans and Robert R. Anderson. The Stephen Greene Press, Brattleboro, VT, 1975. Paperback, 192 pp, $4.95; cloth $8.95. It took a while to get past that title, but we assume it really means that age and sex have no particular bearing on one's participation. We take heart in the idea that, like belly dancing, in theory just about anyone can do it, but in practice only the exceptional person gets it all together.

The book itself is a virtual encyclopedia of kayaking: meticulous and often eloquent, and very well illustrated with photos and drawings. You want the facts? They're right there.

The book is rather heavily slanted toward racing, which is quite understandable considering the number of years former Olympic coach Jay Evans has devoted to coaching whitewater racing.

Evans is a proponent of the technique whereby the beginner learns all possible basics of propelling and controlling his craft in a pool or other body of still, shallow water. This includes the Eskimo roll, which he feels should be mastered before one ventures into current. This will seem a radical idea to many, but the good points are obvious: beginner trips would be much more enjoyable for all concerned, and if a pool is available in winter, much beginner training can be accomplished during the winter, before the season really starts.

The emphasis on paddling safety is to be applauded, especially in a book that is aimed at "everybody." All in all, this is a book of considerable value, particularly for those who want to get started and find there is no established paddling group in their area. —ILS

CANOEING WILDERNESS WATERS by *G*. Heberton Evans III. A. S. Barnes & Co., Cranbury, NJ, 1975. Hardbound, 211 pp, $15.00.

This is a big, handsome book which contains a lot of interesting material particularly on the construction, handling and care of wood-and-canvas canoes. There are also the usual chapters on equipment, paddling on open water, paddling in current, portages, repairs in the wilderness, etc. as well as many nice photos and drawings.

The major flaw in the work, from a paddler's standpoint, is that it could easily have been written 30 years ago. This was particularly noticeable in the section on whitewater, where no mention was made of ferrying, low and high braces, eddy turns, or the stern sweep (sometimes called a "pushaway"). Worse, several statements made by the author plainly indicated that he was unaware of these techniques. Worst of all was the omission of basic whitewater safety practices—wearing a lifejacket, keeping upstream of the boat in case of upset, etc.

Another example of the dated quality of the work is the author's preference for wood-and-canvas canoes over fiberglass ones because he felt the latter were much harder to repair in the wild, indicating the fiberglass patches would take a minimum of five to six hours to effect. (What? No duct tape? In any case, under reasonable conditions a fiberglass patch will harden in as little as 20 minutes, besides which fiberglass is much less susceptible to holing in the first place.)On the whole, however, the would-be wilderness paddler will probably find quite a bit of useful advice in the book. He should be sure to augment it with John Urban's classic **A.M.C. Whitewater Handbook for Canoe and Kayak,** though, if the proposed trip includes any whitewater! —ILS

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