Champion Ray Zubiri confirms:
The Strength and Maneuverability of
THE HART-SIOUX KAYAK

Salida, Colorado
June 7, 1957

Dear Sibley,

I made many runs with the HART-SIOUX in the Arkansas and I can say that I have never had a better boat. I shot 'Tin Cup and Cottonwood Rapids each time with my paddle out of the water. The kayak carried me over the waves like a cork.

The HART-SIOUX kayak is the best touring kayak I have used—very stable, very maneuverable and very solid.

(signed) Ray Zubiri
Conqueror of the Royal Gorge, 1954
2nd Place Winner, Arkansas Race 1954
Pacer and Opener, Arkansas Races 1955 and 1957
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EDITOR.. Dave Stacey

American WHITE WATER is mailed to all members of the American White Water Affiliation in May, August, November and February. Membership is open to all who are interested in river sport, for the sum of $2.00 per year.

The magazine welcomes contributions of articles and photographs, but assumes no responsibility for them. Address all editorial and membership material to: Dave Stacey, 601 Baseline Rd., Boulder, Colo.

Printed in the United States of America

COVER—Last run on the Blue—Roy Kerswill
The American White Water Affiliation

We are many individuals who wish to promote river touring, and to keep informed about wilderness waterways and the ways of white water.

We are an affiliation of outdoor groups, outing associations, canoe clubs, ski clubs, hiking groups, all interested in river touring for our members. Our groups range from the Appalachian Mountain Club in Boston, to the Washington Foldboat Club in Seattle. These groups have pioneered in developing river know-how. They are the local sources from which flow the currents tributary to our growing sport. Through group representatives, the knowledge of all is made available to all.

We are a non-profit organization. Our organizational simplicity permits all dues to go directly to the building of our magazine and services.

OUR PURPOSE

To encourage exploration and enjoyment of wilderness waterways; to foster research, development, and teaching of improved techniques and equipment designs for safely negotiating white water; to protect the wilderness character of our waterways for the growing number who are discovering the rewards awaiting the river tourist.

OUR PUBLICATION

All members receive our quarterly magazine "American WHITE WATER," which is a voice for all American boatmen. You are urged to contribute articles, pictures, cartoons, information and ideas (ideas to increase the fun of our sport and ideas for improving our services to you).

MEMBERSHIP

Membership is on an annual basis with the new year starting in March.

Tell your friends who might enjoy canoeing or canyoneering about the AWWA. Their $2.00 will help foster enjoyment of wilderness water and bring each into the boating fraternity through the pages of American WHITE WATER magazine.

COUNT ME IN

as a member of the American White Water Affiliation. As a member I will receive issues of American WHITE WATER magazine in May, August, November and February. Here is my $2.00. My address is

Type of boat preferred: ________________________________________________________________

Boating club membership: ___________________________________________________________

Suggested articles: __________________________________________________________________

From Your Editor

As Fall approaches, pretty much the same thing is happening to all of us. The water and the weather are getting colder, and it is no longer much fun to be out on the river. Most of us are probably relaxing, and catching up with the jobs that we should have been doing all summer.

As usual, the house needs painting or patching up, the plumbing has its problems, and there are those many pictures that were taken, but never developed, in the rush of summer. While a fortunate few live far enough South to have year around boating, many of us must retire indoors. This is the season when the more energetic members of our fraternity think about designing or building new boats. Looking forward to our winter (February) issue, we will have many articles on the subject. In particular, there is a hilarious one by Larry Zuk. We won’t tell you much about it, except that he discusses such academic problems as keeping beer and plastic in the same kind of containers.

This issue is heavily slanted toward safety. This is partially by coincidence (due to the large response to our Safety Committee activities) and partially due to the fact that now is a good time to consider these matters. Our memories are still fresh as to what we did and what either happened or might have happened.

Your editor is always moaning and groaning about your reluctance to send in articles and pictures. It’s hard to do justice to all sections of the country, and all varieties of boating without a large selection of articles to draw from. For a while we had a backlog of material, but now we need some more. Now that winter is here, how about taking a few rainy evenings to write up last summer’s experiences? Don’t forget to send some good glossy print to make it more interesting. Please don’t send negatives or color slides, for your poor overworked editor doesn’t have time to process them.

Dave Stacey
Editor

On page 31 we have information about giving WHITE WATER as a Christmas present.

Rolf T. H. Godon
20885 Wardell Road
Saratoga, California

Dear Dave:
I enclose my check in the amount of — for the last ad. The reactions to the ads during this year have been good and they are starting to pay off. This year has been quite successful for me and it has been active all over the U. S. There is a lot of room for improvement but I am hopeful. We are constantly working on improving our service and our boats and I trust that the coming year will show the results.

Please note that I have in mind to change the ad for the 1958 issues. Also, I want you to know that I enjoy the AWW Journal a great deal and I like to compliment you on the work you and your staff are doing.

Best regards.
Rolf
White Water Canoeing
With the AMC

by FRED SAWYER

Meet one of the oldest White Water groups in America.

The Appalachian Mountain Club, or the A.M.C. as it is briefly called, is many things to many people. It might be a sturdy shelter in the White Mountains of New Hampshire, a ski-holiday on Mt. Mansfield in Vermont, the ring of the rock climber's hammer on piton, the kinship of camp companions, the words of a guidebook on a strange trail, or a group of canoes running a steep rocky stream. To an enthusiastic and growing segment of the Club this latter activity is the most appealing. In a Club with a membership of six thousand, the number of white water canoeists is relatively small, but it is a growing activity with an estimated active list of four hundred. Most of these are centered in New England and New York.

White Water canoeing is a natural outgrowth of a mountain club. In the spring when skiing is on the wane and it is still too early for rock climbing and hiking, white water canoeing is at its best. The run-off from the receding snow and spring rains swells the rivers so that even the small mountain streams make a challenging canoe run.

Our season starts the end of March in New York and southern New England when we try the nearby streams such as the Souhegan or the Piscataquog, which run out first. Such early season white water streams are close enough to our major cities so that the canoeists who live or work in town can make a one day trip. As the season advances we make weekend trips farther and farther north until we finish up the spring season with the Ammonoosuc River in the White Mountains of New Hampshire. The spring season usually ends the first of June. After that we think about summer cruising or vacation trips for a week or two in the great rivers of northern Maine or Quebec which still have enough white water when our local rivers have become just bubbling trout brooks. In the fall, we schedule a few trips to take advantage of the expected rains of late September and October. Sometimes we hit right, but the fall season is less reliable for good white water canoeing.

A glance at our schedule (printed in March) for three seasons of the year reveals a surprising variety and frequency of trips. This year the Club, including its two Chapters most active in canoeing—Connecticut and New York—have scheduled fifty-seven white water trips, only one of which has been cancelled to date. In addition there are numerous flat water trips with which we are not concerned here.

All white water canoeing trips are classified by order of difficulty for the convenience and safety of prospective registrants. Leaders and co-leaders take registrations for trips and attend to the many preparatory details as well as actually leading the trip. In an expanding program it is not possible for leaders to be familiar with the abilities of the many canoeists from far and wide who want to sign up. It is therefore very helpful to be able to check a canoeist's qualifications with the chairman who keeps a card file of all water water canoeists who come in contact with the Club. This file is kept up to date by trip reports. This is actually a simple and workable system that has developed with the recognition that white water canoeing must be a "controlled" group sport.

For such a program there must, of course, have been an organization to develop it and keep it running. White
water canoeing as a group. Sport or activity of the Club started here in the early twenties when a few enthusiastic canoeists shipped their canoes to the head of a white water run in the fall previous to the actual canoe trip. This had to be done, for in those days most of the roads were a sea of mud by spring, making transportation to the better canoe runs, such as the Westfield River, all but impossible. There were not many people who could afford the purchase of a canoe to risk on white water, much less hire one at a livery and take a chance bringing it back unscathed. The Club recognized the demand for greater participation in the sport and financed the purchase of a fleet of canoes (at that time, wood and canvas and second hand). Members could then, for a small fee, use them on white water trips. The proceeds were used to maintain, replace, and enlarge the fleet. At the same time, a white water canoeing committee was especially created to guide the program and care for the fleet. Thus was born the basic principle and organization that has led to the extensive program of today.

Each of the three major groups in the Club now have a white water canoeing committee which plans their own local activities. In order to coordinate the entire program and maintain close ties among Club canoeists, the chairmen of each of these groups meet at least once a year to discuss general policy. Meanwhile, throughout the year they are in frequent communication through the exchange of letters or minutes of local meetings. In this way, uniform standards are maintained and an overall schedule is published. Also significant, is the fact that canoeists from all parts of New England and New York have an opportunity to go on a variety of trips and mingle freely with each other.

Instruction for beginners in white water canoeing is provided by an introductory meeting and movies. Three or four trips a year are also devoted entirely to instruction. Qualifications for beginners are good health, ability to swim, and to handle a canoe in still water. Since this is a white water canoeing program, we do not undertake the teaching of smooth water canoeing. Actual instruction on the river is provided by experienced canoeists of the Club who unselfishly give their time and skill to indoctrinate and train new white water canoeists. The first trip is made on a river with mild current, a few easy rapids and, some rocks to dodge. At the end of the trip the leader in turn includes this information in the trip report to his chairman. The rating thus given will govern whether the canoeist should repeat an instruction trip or progress to a more difficult stream. Most of our white water streams are classified according to the international system from 1 to 6. Classification of canoeists, while in use earlier, is also conveniently numerical with roughly parallel definitions. (A complete description will be supplied upon request to our Inter-Chapter Chairman for White Water Canoeing)

The White Water Canoeing Committee has developed a general safety code and all trip leaders are admonished to conduct Club trips with safety as a prime factor. Our principal safety rules are the same as those printed in the 1957 Winter issue of A.W.W. with only minor differences peculiar to our locality and type of trips and canoes. For example, we use a $\frac{3}{8}$" manila painter for both bow and stern instead of the recommended $\frac{1}{4}$".

*On a flooded New England stream*  
Ray D'Addario
The New England region, as far as I know, was the first to have a genuine guide to canoeable waterways with "Quick Water and Smooth" written by John C. Phillips and Thomas D. Cabot. Although now out of print, it is still used today as our basic guide, taking into consideration new dams etc., that have changed rivers in recent years. The fact that we still have a good guide is also unfortunately the reason we have been slow to put out a new one for which there is a real demand with expanding interest in the sport. Copies of "Quick Water and Smooth" are now scarce and newcomers find they can only borrow them. Only this year a subcommittee was appointed to study the development and production of a new guide.

Like the A.M.C. which is the oldest mountain club in America, the white water canoeing division developed from a small dedicated group. The broad program and active organization of today was not created in one or two meetings, but slowly and sometimes painfully evolved. The A.M.C. has passed on to many canoeists the benefits of its experience and has shared in the development of a countrywide awakening of interest in this vigorous sport. Eliot DuBois of the A.M.C. was a founder and first secretary of the A.W.W.A. This affiliation more than anything else, however, is responsible for the dissemination of canoeing information.

Over the past thirty years we have used many types of canoes. Prior to World War II the wood and canvas canoe of the so-called Canadian type was the popular type. We used to buy up old canoes for white water use and discarded them when they fell apart, usually on an average of ten trips. The steep, tortuous, rocky streams of New England are difficult to navigate and even experts occasionally brush rocks. Therefore, the search was on for a canoe that could take it. There was a period when many of our canoeists were buying or building their own foldboats. About 1946, however, the Club purchased a few of the first Grumman aluminum canoes which were light, maneuverable, and incredibly tough. The model most used for white water has been the 17 footer, whose design is best adapted to river work and follows closely Tom Cabot's recommendations. After using these canoes, fewer individuals have purchased foldboats which draw more water and have low visibility. These are serious disadvantages in our streams which are often shallow and require constant maneuvering. The Committee has considered the new fiberglass canoes but has not yet had an opportunity to observe their performance.

White water slalom is a very new phase of the sport in the Club, as it is over the rest of the country. It has not taken hold here in the east as rapidly as it has elsewhere for several reasons. Old timers feel that our streams are a natural slalom without adding an artificial one. Newcomers, on the other hand, take readily to it and find slalom an exciting challenge. After a few abortive attempts, the A.M.C. groups combined with the Ruck Ridge Ski Club in sponsoring the First Eastern White Water Slalom Championships on the Salmon River in Connecticut in the spring of 1955. This was a genuine success from all aspects and the commentary and sound was made and is available for public rental upon application to the Club's headquarters at 5 Joy St., Boston, Mass.

As a former Chairman of the White Water Canoeing Committee, I was constantly aware of the time and effort spent for no other compensation than the satisfaction in leading well managed trips, maintaining equipment, and giving new canoeists the benefit of experience. Such spirit and dedication pervades all activities of the Club and are expressed in the simple requirements for membership. They are the desire to support and carry on the public service tradition of the Club, to enjoy the benefits of its facilities, and to a responsible and sharing companionship with others in common activities of a like interest. To ascertain these qualifications, sponsorship by two members of the Club and the approval of the Membership Committee is generally required. Annual dues for those over 23 years is $7.50 plus $5.00 admission fee for the first year. For those under 23 years dues are $3.00 with no admission fee. What more genuine bargain can be found than this?

American WHITE WATER
Rubber rafts aren’t glamorous, but they offer a lot of fun and adventure.

RAFTING is a white water sport. Too many people think of rubber rafts as something for duck hunters in a swamp, or as huge, unwieldy, 20-foot pontoon monsters requiring an outboard engine to navigate in white water. There is a place in between these extremes for hand-rowed life rafts of five- to ten-man capacity. They are great fun in white water and almost a necessity for long cruises with kayaks on desert rivers. Our New Mexico river rats call these life rafts "elephants" because of their slowness, size, strength, and dependability.

The five-man rubber life raft costs $85 to $90 surplus, depending on condition (when you can find them) and is the smallest practical model for running heavy rapids. This size holds two people comfortably and safely. The rower’s seat is usually about one-third of the distance from the bow to the stern, with the oarlocks placed midway between bow and stern. The passenger needs a seat—a surplus waterproof knapsack filled with canned goods or other non-destructible items and lashed to the bottom between the rower’s feet provides both storage and a seat. This arrangement gives the best weight distribution for two people. Sitting on the side of a liferaft in heavy rapids is not safe, unless one plans to go swimming.

A rubber liferaft has several characteristics which make it ideal for shooting sporty rapids:

1. The raft does not have directional stability when compared to boats having a keel, which makes it easy to spin—in fact, spinning is easier than rowing in a straight line. This is an advantage when maneuvering in white water but a disadvantage in still water because it makes frequent correction in steering necessary to travel in a straight line. In rapids, occasionally it is easier to make a quite simple turn by yielding to the current of the river and turning in the opposite direction (270 degrees) to make a 90 degree turn.

2. The extreme flexibility of an inflated raft permits it to navigate boulder-filled rapids having less water than required for many other craft. Here in the dry Southwest this is a distinct advantage in late summer boating. A raft can hit blunt rocks with such force that the passengers are thrown from the raft (very embarrassing), yet the raft may not be damaged. Sharp, jagged rocks, snags, barbed wire, broken beer bottles, and beaver-chewed stubble along the shoreline are the chief enemies of the thin skinned raft.

3. Even when the raft is swamped and completely filled with water it is reasonably manageable, permitting one to row to shore. Rafts tend to ship a good amount of water, since a wave can easily slide over the round gunwales. Bus Hatch and Kenny Ross who use heavy ten-man assault boats have a second inflated ring-type sponson which prevents many of the small splashes from sliding in. Commercial raft runners on the Snake River have developed a canvas coaming supported on metal tubing flaring out from the bow which keeps out much of the froth.

4. The five-man raft is more compact when deflated than a two-man kayak. Inflation time is reasonably fast when an "Engine-Aire" spark plug auto engine pump is used. Using opposing cylinders with two pumping units connected to one tube proves satisfactory and takes only fifteen minutes. A tube-type vacuum cleaner provides more rapid inflation for washing and drying the raft at home following a trip, although a hand pump "trimming" is necessary for full pressure. Care should be taken not to over inflate the raft, as this will split many a seam or patch. When the raft is on the beach the
main side tube should depress from one to two inches when a 150 pound person sits on it.

The rowing procedures outlined in the following paragraphs have proved practical on rivers of 16,000 cubic feet per second flow and less. The big desert rivers should be discussed by one of the professional white water men who know the big rafts and the big rivers. The practice of paddling rafts while sitting on the sides will not be discussed here.

On smooth, open water, the normal rowing position is often used, the rower facing upstream, the bow downstream, and the passenger sitting on the stern gunwale of the raft. Thus, the rower sits in the best position for strong and easy rowing if any headway faster than the current is to be maintained, especially against a heavy wind when there are few obstacles. Sensitivity to wind is a major disadvantage of an elephant. On a recent trip on the San Juan river between Bluff and Mexican Hat, Utah, our party encountered very severe headwinds, with dirt and sand in the air cutting visibility to less than two miles. With the oars out of the water the wind pushed us upstream, even with a 6 miles per hour current. Rowing constantly was very tiring, so we held the oars motionless against the current, with an occasional stroke to keep the bow into the wind and the raft in the swift water. This sufficed to carry the raft downstream against the wind. A sea anchor might be practical, provided one keeps alert, pulling it in to avoid snags and rocks.

For positioning in fast, smooth water, such as at the head of a rapid, the passenger shifts to a crouching position, facing the stern and grasping the gunwale lines with both hands. Care should be taken not to have the passenger kneel on the raft bottom, as serious injury to the knee cap is quite possible should the raft strike a submerged rock. The oarsman turns the raft sideways to the current, enabling him to row forward or aft across the current to improve his position in relation to the approaching obstacles downstream. This quickness and ease of maneuverability in crossing the current is the unique advantage of a raft. The oarsman should use care not to "trip"

Photos by Stretch Fretwell

The Black Canyon of the Gunnison River during an Explorer Post 20, Los Alamos, New Mexico, outing which included Scouts and their dads. The author repeated this rapid several times as many of the Scouts lacked experience and all wanted the thrilling ride.

A diagonal backferry is used to avoid the throw of the current toward the left of the picture which leads to a steep drop with dead water below, visible in picture on following page.

Later a successful backferry placed the raft in the smoother drop where it was pivoted to present the stern first to the rough water below the slick tongue.

over his downstream oar with too deep a stroke if the river is shallow. Additional time in traversing the current to a better position can sometimes be gained by pointing the bow up current and rowing hard at a very small angle toward the desired position, although this is definitely a last ditch effort when the current is faster than a person can row.

When attempting heavy white water, the oarsman must face downstream, with the stern downstream and the bow upstream. Always present the long axis of the raft first to avoid overturning sideways. After the sideways positioning at the head of a rapid, the oarsman rotates the raft 90 degrees by simultaneously backwatering with the upstream oar and rowing forward with the downstream oar, which quickly presents the stern to the rough water. This gets the passenger rather wet, but has the advantage of maximum stability and full visibility of the obstacles ahead for the oarsman, besides keeping him drier.

Some oarsmen advocate lowering a small raft down rough rapids by rowing vigorously upstream, which is fine for avoiding shipping water from small rollers, or as a last effort in positioning. However, this lowering technique can lead to an end-for-end upset when entering large holes with surf-like (dead water on top) waves rolling in upstream on the downstream side of the hole. With insufficient forward velocity, the broad stern of the raft will be held back and

American WHITE WATER
lifted vertically by the dead water, the fast upstream water forcing the bow down deeper, promoting a lengthwise upstream inversion of the raft, with passengers and bailing cans dumped on the struggling oarsman. Longer, sharp-nosed kayaks and canoes do not have as much trouble penetrating the dead water as do the broad-sterned small rafts. I firmly believe in rowing downstream into this kind of wave in an attempt to penetrate the dead water. The longer pontoon type of raft is able to bridge this dead water wave, but a small raft should avoid such pure water obstacles if at all possible.

Large rocks which project above high-velocity, smooth water usually present a collar which has enough dead water to make it nearly impossible to hit the rock. The hole behind the rock is frequently more of an obstacle. By allowing the raft to follow the collar, it can be utilized in a final effort to avoid the hole when there is insufficient time and room to better the position of the raft. Frequently this is the case when a large rock projects into and above the water on the outside of a sharp turn and the collar becomes a throw or a diagonal roller. Behind these throws and collars there often is a counter current or upstream eddy which provides a good resting place while waiting for the rest of the party. Wolf Bauer mentions these in more detail in his article "Playing the River" in AMERICAN WHITE WATER.

Should the raft completely fill with water, it is difficult to beach safely in a fast moving river due to the inertia of its load of 500 to 1,000 pounds of water. Continue to coast downstream, if practical, and attempt to get into an eddy or still water, then stern first into the shore. When first contact is made the passenger should leap out with the painter, paying out line until firm footing is found. With the combined effort of the passenger pulling from shore and the oarsman back-watering vigorously, the heavy raft can be stopped. With the following technique, a swamped five-man (Over)
raft can be dumped by two strong people. First bring the raft broadside to a rock or a ledge submerged in about two feet of water, then remove the oar from the oarlock on the shore side. Have one person stand on the inshore gunwale of the raft and pull toward the shore on the remaining oar while the stronger person wades around to the river side of the raft and lifts it, using the rock or ledge as a pivot. An inverted raft can be righted in mid-river by one person using the handles on the bottom. Getting in the raft is more difficult, requiring two people or assistance from another craft.

In many respects the rubber raft is a poor man's river pram, as the small rafts do not respond as rapidly, have slightly more draft, and have a soggy feeling in the oar locks furnished by the manufacturer. Many river rats replace the canvas oarlocks with standard ring-type steel ones placed in a wooden frame which also serves as a seat. Secure the oars to the raft by an oar stop so they are always in position, even when unattended. A slightly larger oar blade than the one normally supplied with the elephant is recommended. Five and one-half foot wooden oars with the shafts turned down to fit the oarlocks are good. White water technique when using either a pram or five-man rubber raft is similar. The cost, versatility, and portability of the raft make it my choice.

The following paragraphs emphasize items peculiar to rafts when used on a cruise, which I think of as a major overnight trip. Needless to say, this takes considerably more planning, as mentioned in the excellent article by Fred Sawyer, "Planning a Wilderness Boat Trip" in AMERICAN WHITE WATER.

Pack everything in waterproof bags, as the interior of a raft is always wet. A heavy, surplus, black rubber knapsack with roll-down bellows top is excellent and a 50-caliber ammunition box makes a good container for quick open-and-shut use, as for a camera. Pack every bag so it will float if the lashings break. Usually the canned goods will fit in a single knapsack and still float, but be sure to test it in water to make certain. A knapsack of canned goods makes an excellent seat for the passenger, but with such use sometimes the bag will leak due to the passenger's motion pumping water into it. Therefore, it is wise to mark all cans with grease pencil or fountain-brush pen since the labels may be destroyed.

Tie everything into the raft snugly, but beware of long, loose lines which can tangle around one in an upset. He sure to tie in the bailing can, which is sometimes thrown overboard with the water that is bailed out (a 46 ounce juice can makes a good bailing can).

As in all other types of boating, the two cardinal rules are: always take more than one boat, and always wear a life jacket for both calm and white water.

For the western desert rivers, long pants, long-sleeved shirt, broad brimmed hat (secured by a line to your belt), and sun glasses make the trip easier for pale-skins, even if you are tanned deeper than most. Make sure your suntan lotion is waterproof, since the alcohol base ones are water soluble and wash off too easily. A pair of fisherman's canvas ankle-height waders are excellent shoes for river work.

When cruising with kayaks and canoes, a raft provides a good "mother ship" for hauling canned goods and rescue work, and can be overloaded with the crew of a smashed kayak and still reach its destination when there is no way to walk out. The best policy is to have the raft proceed first down rapids and wait in an eddy for the more fragile craft, since it takes valuable time for the slower raft to overtake a capsized boat when the raft is behind at the beginning. This is a good reason for sticking together on all trips, although it requires much waiting by the canoes and kayaks which, unlike the raft, require forward speed for maneuverability. "Playing the river" is a good way for the canoes and kayaks to let the slower moving, more dependable elephants catch up.

A seven-man elephant, which is about 12 feet long, is a good sire for cruising, provided the oarlocks are midway between the bow and stern. This size easily carries two people plus all the gear and food (approximately 200 pounds) for four people and has emergency room to carry two other people. This seven-man size has the increased stability required on large desert rivers like the San Juan

American WHITE WATER
and Colorado, although some maneuverability is lost when compared to a five-man raft. A five-man raft, which is about 9 feet long, can carry two people plus their gear and food, and has emergency room for one extra person. It is wise not to overload your raft with semi-useful personnel or camp junk.

Never forget your pump and repair kit, which should include pliers for stuck valves, patches, rough emery cloth and a good rubber cement. One of the best cements I have found is "Pliobond" made by Goodyear Co. After inflation on a hot beach, frequently the air pressure in a raft will have to be "trimmed" when it contracts due to cool water.

Rather than drag the raft along shallows and up rocky beaches, it is better to unload and carry, in spite of the labor involved. Avoid standing inside a raft on rocky or stubble-covered shores, as this frequently will cause a puncture. Always tie an empty, unattended raft to a tree or large rock as it is easily blown off the beach. Placing several large stones in the bottom is a good idea for overnight parking when the raft is not loaded.

When you get home be sure to inflate your elephant and dry it thoroughly. A boat packed wet will mildew and rapidly rot the cotton fibers. Washing the sand and mud out with a garden hose helps too, but thorough drying is the most important. Protect your boat in transit from abrasion by packing it in a duffle bag, or even in a cardboard box. The raft will suffer more damage rubbing against a jack handle in the trunk of your car than striking a rock while on a river.

You can have a barrel of fun bouncing through rapids in an elephant, and don't underestimate its durability and maneuverability.

A later run in the same rapid, taken from a higher camera angle with the raft below the position in Picture No. 1. The steep drop and dead water are visible over the mft. Photo by Fretwell.
WE MISSED THE FLOOD

by RICH CHAMBERS

THERE are all sorts of ways to make people aware of the White Water Sport. Haley and Chambers took a rather obtuse, unlikely way out in the Willamette Valley of Oregon and the results were more than a little surprising.

For ten years we have been running the really worthwhile rivers (there are about eight of them) running into the big, placid Willamette River. Interest in paddle craft didn't grow very fast because that white water "didn't look like anything from the road" and we didn't ever try to explain how much different things look when sighted down the top deck rod of a foldboat.

A warm rain in early March this year brought the Willamette River to eighteen feet above normal, two feet below flood stage, and big things started coming down; whole buildings, trees, interesting stuff. A chance conversation with a big boat owner where words like "suicidal" and "impossible" were bandied about made us realize how really safe a foldboat, properly handled, moving only slightly faster than the debris, is in water like this.

The upshot of it was that we decided to try to set a manual boating record for the seventy-three miles between Salem, Oregon and Portland, Oregon in the Willamette River channel. We sent word of that intention to the newspapers, radio stations and television stations in both cities.

The response was little short of spectacular. Pictures, feature stories, comment in columns, radio interviews and, most important, comment from friends and acquaintances. It was hard to keep a straight face when people asked us how we could get up enough nerve to venture out on the water with "a little boat like that." Interest in the project and the boats could not have been greater if we had announced that we were going to run Angel Falls on surfboards.

By the time twelve days had gone by and we actually got around to making the trip, however, we were victims of fickle Western Oregon weather. March is usually a wet one here but nary a drop fell for days and days and as we put the boats in the water on the day we had planned, the stage was four feet plus, just under fourteen feet lower than at the time we dreamed up the trip.

We didn't make it. The first thirty-five miles to Newberg, Oregon, were made at an average seven miles per hour, but then the backwater of the Falls of the Willamette and the next twenty-five miles were lake-like; four miles per hour was the best we could do. Very funny ha-ha. the dry spell broke up and the rain pelted down on us all day. The collarbone portage around the falls took us until thirty minutes before sunset so we decided to settle for a manual record for the sixty river miles between Salem and Oregon City.

When the water rises to twelve or fifteen feet in the Willamette again we intend to go the whole way, and fast, but in the meantime we have gone back to the McKenzie, the Santiam and the rest of the rivers more noteworthy for the quality of their water than the quantity. There is new interest in the sport, and there have already been more participants, as a result of a trip on the peaceful Willamette.
DONN CHARNLEY, Chairman

The Safety Committee of the American White Water Affiliation was set up to promote safe practice among all who enjoy our sport. It might be well to dwell entirely on the pleasures of boating, but the serious side must not be neglected.

HEKE it's Fall already, with footballs filling the air where baseballs were only yesterday! Countless gallons of water have passed under innumerable canoes, rafts, foldboats, punts, and riverboats since Spring. Remember those sun-drenched coves, rolling white water, park-like woods, sandspit campgrounds, waltzing surf, sentimental mountains and green meadows? I hope your memories are of such happy times and places.

One pleasure of the past summer for me has been the letters I've received from many of you regarding our proposed Safety Code. If I were a conscientious letter writer, my thanks to each contributor would have been sent out long ago. Since my reaction to such endeavors is more normal, however, I would like to take this opportunity to thank all of you who have relayed to me your thoughts and reactions.

Here are some examples of those comments on each section of the Code. We are publishing them to inspire anyone else who wants to add his, (OR her), ideas regarding the Code, to send them in. The Safety Committee is hoping to boil the Code down to a final form this winter, and any new ideas will help! (See the end of this article for information regarding committee members, and other information which we need.)

Comments on rule 1: (Never go alone)

"The undersigned . . . makes a practice of going contrary to your cardinal rule. I go through rapids of class V, sometimes class VI, alone. I'm the only one in the boat, no one else even knows I am there . . . my safety technique has to be highly developed." !!!! "I suggest adding: never go at night."

Rule 2: (Wearing life-jacket related to swimming ability)

The overwhelming number of writers suggested making an iron-clad statement: "He a competent swimmer . . . or don't participate!" This is an undeniable point, yet I don't like to discourage non- or weak swimmers from becoming interested in our sport. This comment seems good for this point: "More emphasis could be brought on becoming a good swimmer as soon as possible, to be matched with a boating classification advancement." "We feel that even good swimmers should wear a workable, inflated jacket in rapids, and weak and non-swimmers at all times . . ."

Rule 3: (Boating ability related to river classification)

". . . could be made clearer." Granted! The main point is: KNOW YOUR ability, and be able to read the ability requirements of the river.

Rule 4: (Wearing of lifejacket related to river classification)

". . . experts should wear them as an example to the less expert." "I agree and would add: if any doubt exists, wear the life jacket!" "In Colorado, the top boatmen wear them on any river they can't wade."

Rule 5: (Clothing for extremes to be encountered)

"I subscribe to this idea. Extremes of temperatures are common here in Dinosaur." " . . . and I have never been in water too cold for me." NOT sent from Florida!
Rule 6: (Essentials)

"I don't think that on the . . . I may need extra food, sunglasses, skin protection, waterproof matches, candle, knife, flashlight, map, compass, a mirror signaling device—though the latter might be useful to a girl. Nor do I need a spare paddle per person, or a spray deck."

". . . you might add: water-purification tablets and salt tablets." "Perhaps the knife should be worn" "... the rule might read: 'depending on the type of trip', or: 'at the discretion of the leader', adequate supplies of such items must be taken on each trip." A good suggestion.

Rule 7: (Boat equipment)

". . . would suggest being more specific regarding paddles: Keep an assembled spare paddle on the deck . . ." I suggest you add: Each person . . . in any conditions . . . should have a minimum of 20 feet of 1/4 inch line, one end of which is tied to the boat, the other end tied securely around the waist of the individual in such a manner that it will not come loose accidentally; but can be readily released if desired." . . . notation that the spray deck must allow the boater to free himself easily is suggested.

Rule 8: (River organization)

". . . is perhaps too restrictive. The general feeling is that this rule should express the idea that each boat is responsible for three things: 1) pass on all signals, 2) indicate obstructions, route, etc., which would be necessary or helpful in leading the boat through a difficult stretch, 3) checking the safe passage of the following boat through each hazardous stretch . . ."

Rule 9: (Still-water organization)

Only comment: "... this forbids me from paddling off a Long Island beach alone, without sea anchor and tidetables . . . even though I have done this at least twice a week-end in the past."

This is just an example of both the agreeable and critical comments sent in. Those criticisms which are given in a constructive vein are especially appreciated, for a flat NO, without any suggested remedies or replacements, makes it difficult to write a rule which will fit as many cases as possible! Please send your comments either directly to the chairman, or to the committee member nearest you.

(See end of this article.) I wish to send special thanks to Bruce Grant, Porter Raker and their San Francisco group for some very good ideas. They got together and discussed the Code, and sent in the results of the group's thinking.

While we are on the subject of writing, your Safety Committee needs your help on compiling an accurate accident file for the past year. If you know of any accidents which occurred on White or Wilderness waters, PLEASE send your comments, clippings, and/or details to the Safety Committee member in your area. This is an important task, which needs the support of all AWWA members. Thanks!

Our thanks also go to Harry Ashley, Director, Safety Services, Erie Chapter of American Red Cross, for an excellent account of the French Creek accident mentioned in our 1956 accident report. Harry also inspired me along another line: What sort of training programs are the various affiliated clubs of AWWA giving to the boaters of their areas? I, personally, would be very interested in comparing those from different areas, using different types of craft. SO, a third request, (about par for one article!): Will any club or group which gives any kind of training program or clinic please send a brief outline of same to the Safety Committee Chairman. If enough interest is evidenced, we'll publish them in the AWW for our mutual benefit!

Here is the roster of the Safety Committee. Each member represents a different section of the country. This gives the Committee a cross-section of local experience, and each can act as a clearing center for information from and for his area:

AREA 1—Pacific N.W. & R.C.
Donn Charnley
5128 48th N.E.
Seattle 5, Wash.
Franz Conrad
677 West 20th Ave.
Vancouver, R. C.

AREA 2—Northern Mid-West: U. S. & Canada
*Deacon Kiehm
2019 Addison St.
Chicago 18, Ill.

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Chicago 18, Ill.

American WHITE WATER
Cold Water Is Dangerous

All too often we overlook this business of cold water. Earl Oliver gives us information on its hazards. Ed.

6127 Rockridge N.
Oakland 18, Calif.
Sept. 16, 1957

Dear Mr. Stacey:

While the report of the May, 1956, drowning in the Merced River reported in your Summer issue ("Safety as we see it") is generally correct, I feel that some safety lessons have been overlooked.

(1) Cold water greatly multiplies the hazard. Although I had no difficulty reaching shore in 10 minutes or less, I was so numb I could not walk for several minutes. "Safe" immersion time before onset of muscular weakness has been estimated as follows (source: Will Siri):

<table>
<thead>
<tr>
<th>Temperature, °F</th>
<th>Time, Minutes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Below 40</td>
<td>Under 10</td>
</tr>
<tr>
<td>40-50</td>
<td>5-20</td>
</tr>
<tr>
<td>50-60</td>
<td>13-40</td>
</tr>
<tr>
<td>Above 60</td>
<td>60 or more</td>
</tr>
</tbody>
</table>

American WHITE WATER

(2) Extraordinary care is warranted where the river becomes progressively more dangerous below the intended take-out spot, as does the Merced below Briceburg.

(3) People used to swimming in rough water may be unable to anticipate its effects on others, even men accustomed to potentially dangerous activities. The victim, although a glider pilot, ski mountaineer, Polish underground fighter, etc., could not be induced to let go of his boat in 5 miles of rescue effort.

The report is not inaccurate enough to warrant a letter without the above lessons, but while I am at it I may as well say that the victim was bruised, although not on the head. It is an oversimplification to say he "became exhausted and drowned." He was floating face-up after the rescuer capsized, and it is unlikely that he had hit anything solid up to that time. But he was too far gone to grab a rope thrown across his chest from shore. He had probably swallowed water and I think had been in 40-50°F water for 45 minutes. He thereafter went through a murderous rocky rapid, and all luck of the day being bad, stopped face down in a place where he could not be immediately reached.

The tragedy is not a pleasant subject, but, in the hope of preventing others, I think the safety lessons should be reported. None of us considered that such an improbable combination of difficulties was any reason to stay out of white water, but reflecting on the situations that could develop may keep people out of trouble.

Sincerely yours,
Earl D. Oliver

So doubt, our members have many comments and contributions to make to the Safety Committee. Please address them to Donn Charnley, 5123-48 N. E., Seattle 5, Washington (Note the new address).

XMAS CARDS FOR BOATERS
Send for free sample

KERSWILL ART STUDIOS
1760 Magnolia Denver, Colo.
Strong Words on Safety
by DAVE STACEY

ON reading the various comments on the Safety Code sent to your Safety Chairman, Donn Charney, your Editor felt moved to offer some opinions. Safety is a rather abstract consideration until one of your friends has lost his life. Then it becomes a matter on which we should not mince words.

There has been more darn foolishness about the wearing of life preservers in white water. Someone always comes up with the old nonsense about being a good swimmer. This very statement exposes their ignorance of what happens in rough water after an upset. Unless one is a passenger with no responsibility, one always ends up with a paddle in one hand and an upset boat that needs to be taken to shore. This is a full-time job and usually requires help from another boat. There is no time for such nonsense as “swimming.” This applies whether one is dealing with a Kayak, canoe or larger craft.

In Colorado, the group I boat with include two former World Slalom Champions, the American National Champion and such renowned river runners as Bus and Don Hatch. None of them go in for this baloney about being a good swimmer.

With regard to loose ropes on the boat, and ropes between the boat and the boat-er, most of my friends and I share a common terror. If you are drifting down a river at a good rate and this rope should become snagged in anything, you are through! Also, experience has proved that in an emergency the average person cannot even remember to inflate his life jacket, to say nothing of untie a wet knot.

The business of rescue ropes on shore has, in my opinion, been vastly overrated. In moderate streams, it may serve as a rescue method for men and sometimes for boats. However, in a stream with any speed, the forces on a rope are such that the victim can neither hold on to it, nor can three or four people from shore keep from being pulled in. When moving with the river, one is free to swim and move about with relatively little effect from the motion of the water. The moment there is a solid connection to the stationary bank, the full force of the river comes into play and makes rescue very difficult. There is one exception, which is the case of the tired swimmer who is in moderately slow water and too tired to make it the rest of the way. In this case a rope is vital. In the case of races, there should be crews stationed below major rapids, with ropes to save people who are in danger of drowning. Note, however, that the boat must be sacrificed in this operation.

The danger of cold cannot be appreciated by someone who has never felt its numbing and deadly effect. During the war I watched a man fall from a dock into water that was approximately at freezing. Though heavily dressed, in less than 90 seconds he was utterly helpless. We had him out in approximately 60 seconds, but it took two weeks in the hospital to bring him back to normal. While this is an extreme example, one should always be aware of how many minutes one has in cold water before one becomes helpless. At the end of half this time, a man should be considered in mortal danger, and everything should be sacrificed to save his life. (See the accompanying letter by Earl Oliver)

It is incredible how stupid one can be on the subject of spray covers. Yours truly was no exception. Rack in 1948, my wife and I turned over in our foldboat on the Green River above Lodore. We had a conventional purchased spray cover that was supposed to release the occupant. We had believed what we read. Although I came to the surface immediately, my wife failed to show up. After a few gasps of air and looking around, I went down after her. Because the water was muddy, I never did find her. However, she managed to work herself clear and come up in about 30 seconds.

Like so many people, we had assumed that the spray cover was instant releasing. If there had been rocks close to the surface at this point, my wife would have been dragged through them head down-
ward. Another case occurred on the Arkansas, where a good friend of mine never did manage to get out of the spray cover. Luckily, some men on the shore managed to drag him out of the water and save his life.

The spray cover is a wonderful improvement to the open cockpit. For many rivers, it is an absolute must. However, anyone who uses a spray cover, should not only know how it works, but also have tried it a number of times in calm water. If it takes longer than one (or perhaps two) seconds for complete escape from the cockpit, the spray cover is potentially dangerous.

Perhaps these words are strong—or perhaps they are not strong enough. My personal feeling is that it is worth a bit of effort to save someone’s life. Are you, our reader, willing to make an effort to protect your own?

Illustrations We Missed

In the Spring, 1957 issue, we carried an article on the Indus by Don Hatch. It was a story of adventure and danger, and achievement. Unfortunately, we were unable to get any illustrations of the Indus in action.

Now, in the September 16, 1957 issue of Life, two fabulous color illustrations give us a picture of that terrible river. They are both taken from the forthcoming Cinerama production entitled Search for Paradise.

If you missed this issue of Life, be sure to find a back issue. It's well worth it.

Sports Illustrated on Canoes

Sports Illustrated carried two very interesting stories on canoeing through the Lakes of Southwestern Ontario. If only American White Water could afford those beautiful color illustrations!

The second was entitled “We love These Canoes” by Sparse Grey Hackle. Sparse Grey Hackle is an old friend and member of American White Water Association. He writes with humor and affection of the sport he has known well for many decades. Some idea of the tone of the articles can be found in the quotation “He ain’t brave, he just don’t know no better.”
Grand Canyon Adventure

by ROBERT PEAVY

Here's one way for a beginner to start.

It was a hot, clear afternoon in late June, 1955. At Lee's Ferry, just another desolate bend in the Colorado River in northwestern Arizona, eleven shirtless men unloaded pile upon pile of odd-shaped equipment from an open truck. For several hours they sweated on this rocky shore, mingling gay tunes with their labors and anxiously eyeing the brown river which glided swiftly past. But finally, around four o'clock, everyone pressed into a tight circle, sang one last song, said one last prayer, and gave one last mighty yell which echoed back and forth across the water.—Thus began my Colorado River adventure.

So far as river trips are concerned, the Colorado River is unique, and, so far as Colorado River trips are concerned, our river trip is unique. Ten experienced "river-rats" from Salt Lake City, Utah, and one green, "eastern dude" from Philadelphia (this being myself—17 years old at the time), set out in two rubber, navy-surplus rafts to ride some of the wildest, swiftest water on the continent—the stretch of river that runs from Lee's Ferry, Arizona, through the heart of Grand Canyon, and empties into Lake Meade, Nebraska. None of our party had ever been through before.

Later that same afternoon we hit our first rapid. Soap Creek. It wasn't very long, and had no protruding rocks, but the waves were extremely high. One such wave stood our thirty-foot boat vertically on its nose.

The only record that I have of our experiences is a water-soaked notebook and memory. We went through rapids of all types.

There were names like House Rock, North Canyon, President Harding, Nankoweep, Kwagunt, Lava Canyon, Tauner Creek and Unker. At Unker the current pounded against cracked, sheer wall with unencouraging ferocity. We ran this on the right side, over some big waves, and came to Hance Rapids... unexpectedly about five minutes later. Before we could ground the boats, we were being carried into the boiling waters, the worst we had seen thus far. We hit some big rocks at the top BROADSIDE, and slid off into the foam and STERN FIRST! The rapid was nearly a mile in length and snaked around 2 bends. We somehow managed to avoid most of the ugly rocks which jutted up everywhere—when we came out into the warm sunshine, our bow was pointed downstream and I was hunched over my oar in an exhausted state, fighting desperately to pry my hands loose, as they were cramped tightly around the oar. My memories of those long moments are nothing more than a grey, nightmarish hell.

Next came Sockdolager. I had respect for even the name. This rapid we wisely inspected before starting through—the walls were sheer on both sides, and made anything look more dangerous and risky than running. Portage was out of the question. It lived up to its reputation. It lived up to its reputation.

Next was Grapevine Rapids, very short, but steep, treacherous, and very wide. Here the smaller boat capsized. However, everyone was rescued without injury, and the only things lost were several cameras and lots of time.

The canyon, deep and placid.

Bob Peavy
The reader is most likely familiar with the mule trips that can be taken inside Grand Canyon. On the fourth day of our travels, around eight p.m., we arrived at Phantom Ranch, where anyone taking the mule trip down may acquire a night's lodging before making the return trek to the rim. When we arrived at this spot, three of us decided to hike to the South Kim. We were to purchase some extra clothing for several of the fellows who had had their pants mutilated when the smaller fourteen-foot craft capsized in Grapevine Rapids.

So, after a sixteen-hour day on the river, we set off, looking rather stunning in our Bermuda shorts, and arrived on top at one a.m. Here we slept soundly in a mule barn for several hours, though at one point an attendant took a couple of shots at us, mistaking us for thieves. Later we ventured over to the general store, bought our supplies, and dropped into the canyon once again. The round trip was twenty-one miles, and it wasted an entire day.

The following morning, however, was a tragic one—a morning whose quick, unforeseen events nearly stopped our journey cold. It happened like this.

Until just before noon everything went smoothly, but then we came to a rapid known as Hermit Falls. Grounding our boats above the boiling waters, we conducted a thorough inspection and soon decided that any attempt at running this rapid would be out of the question. A portage was also voted down, because of the great amount of time that process consumes, and because we were already behind schedule. Thus, we prepared to engage in a lining operation. We would let the boats down the left side of the river, avoiding contact with rocks, and miss the had part of the rapid. Hermit Falls was our first lining job on the trip, and three men were inside the boat to fend off rocks with oars. I might say here that my rowing position was on the port side near the bow. In our thirty-foot boat were four oarsmen and two navigators, while in the other were five oarsmen, one of whom acted also as navigator.

It took a full half-hour to get the operation under way—and, when we finally did begin, the strong eddies, currents, and counter-currents threatened at any moment to transform the task into a disaster.

Suddenly it happened! Without a moment's warning, the boat strained heavily on the rope and shot out into the rapid like an angry bull. Immediately there was a loud, grating sound of flesh on rubber (an amplified version of a damp hand squeezing on a toy balloon), as one of the three men remaining in the boat was dragged bodily from his position—his right leg being trapped in a loose coil of rope—and, when the boat jerked to a stop, he hung suspended over the raging waters. But only momentarily, for, in the next instant, the rope snapped, and he disappeared beneath the surface.

Somehow the boat rode out the rapid, traveling broadside most of the way, and somehow the two men inside it managed to land it not far below. By the time they returned, we had already rescued the third member and begun treating him with what medical supplies we had. The nearest telephone was 25 miles away, and the nearest person was even farther.

So, three fellows started immediately to bring back help, and this came twenty-four hours later in the form of a park warden, several mules and a mule-tender.
The unfortunate victim was carted slowly back to civilization with a badly mutilated and painful right leg, while eight of the original party—myself included—busily delated the smaller boat, packed it inside the other, and continued on our way the next morning.

The remainder of the trip is a hazy nightmare of gigantic rapid after rapid. We portaged once, at Lava Falls—probably the worst rapid we saw—and ran all the others except five... more than 200 rapids in twelve days. At one point, we dragged a body from the surface of the water. The poor fellow had been Hoating in the river for more than a month.

When we finally reached Lake Meade, trouble followed us in many forms: two immense dust storms, sand bars, temperamental motors, and lack of specific maps. However, we were finally saved by two fishermen, who towed us more than twenty-five miles to Temple Bar. From here we reached the outside world, which we were only too happy to see.

* * *

**Shout It from the Mountain Tops**

Our Western Correspondent, Bruce Grant, gets around quite a bit. On the top of Mt. Whitney (highest mountain in the U.S.) he found the following entry in the register.

"If anyone is interested in planning an extensive Canadian canoe trip, contact Bob Askew, 15017 Spring Garden, Detroit 5, Michigan."

We don't know what sort of results Hob's note will bring, but he certainly has an original way of organizing a boat trip.

**More Boating Articles**


**Squalls along the Yukon** by Jimmy Hill Wood. National Geographic, August 1957.

See P. 17 for information on two articles in Sports Illustrated.

**Booklet Available**

The University of Illinois Library (Urbana, Illinois) has available a few copies of a booklet called "Canoes the World Over." These are available for 85 cents. Collectors of canoeing books may be interested.

"16 mm color film (with sound tape) of the First Eastern White-Water Slalom Championship, on the Salmon River, Connecticut. Approximate running time 40 minutes. Rental $7.50 net."

**APPALACHIAN MOUNTAIN CLUB, 5 Joy St., Boston, Mass.**
**Dinosaur Park Bill.** In the last session of Congress bills were introduced to give national park status to Dinosaur National Monument—in the House by John P. Saylor (HR.935) and in the Senate by Gordon Allott, junior senator from Colorado (S.2577). The idea is fine and we are all for it, but the Allott bill is booby-trapped with a provision that "Nothing within this Act shall preclude the Secretary of the Interior from investigating . . . the suitability of reservoir and canal sites within Dinosaur National Park for development . . ." Even though such development shall be undertaken only under specific authorization of Congress we are informed that this clause would be considered an expression of intent of Congress, reopening the whole Echo Park controversy all over again. It has already inspired a number of press stories toward that end. Conservation organizations, with one exception, are unanimously opposed to the Allott bill as now written, and are reluctant to support even the Saylor bill, which specifically excludes power and reclamation withdrawals from the park area, lest the phrasing of the Senate bill be adopted in conference at the insistence of certain senators. We might well write to Sen. Allott, praising his objective and urging him to introduce a new bill, identical with Rep. Saylor's, in the next session of Congress—"with a copy of the letter to the Council of Conservationists (588 Fifth Ave., New York 36), the sole supporter of S.2577. The Allott bill as presently written is "gravely hazardous."

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**"The Public Speaks on Recreation."** The fall meeting of the Interstate Commission on the Potomac River Basin was a fine example of the kind of survey and planning which we hope will be taken up all over the country with the enactment of legislation (S.846) establishing the Outdoor Recreational Resources Review Commission. The meeting was held in Cañon State Park in the scenic West Virginia hills, and constituted a comprehensive discussion of the outdoor recreational needs of the region.

The magnificent scenery of the Potomac River and its tributaries make up about the last major river basin in the Northeast still relatively wild. It is threatened by industrial development, the Army Engineers and their dams, highways and their noisy traffic, and profitable "improvements" of all kinds. This meeting provided a forum for putting in a strong word for planned preservation of wild areas for the use of the many thousands who enjoy the deep satisfactions from their use. That is one of our

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American WHITE WATER
troubles: we outdoor people like to slip away into the quiet woods and waterways, and it isn't until all of a sudden we find they aren't there any more that we realize—too late—that we have to talk up their importance to us, and really roll up our sleeves and fight off the materialistic "developers."

At the Friday morning session representatives of the major outdoor organizations set forth the interests and activities of their respective groups, and the restrictions and developments which threaten them: the nature observers seek a variety of wild areas in marsh and bog as well as upland woods and caves; canoeists seek to retain the wild character of the many beautiful waterways; hunters seek freer access to game and waterfowl areas (and suggested a scheme for soil conservation subsidies and financial aid to inarginal farms in return for access rights). Dr. Thomas Wallace, National Director of the Isaac Walton League, mentioned instances in western Maryland where one-third to one-half the water of certain creeks was diverted to the irrigation of single fields of alfalfa, and suggested that the water belongs to all the people, i.e., the state. W. H. Wallace, President of the Potomac Appalachian Trail Club, delivered a vivid philippic on the common scourge of all: the litterbug and the vandal, and the trouble they cause in relations with local landowners.

One of the most interesting ideas came from Dr. William Davies, speaking for the C. & O. Canal Assn. Pointing out that recreational facilities are presently distributed in inverse ratio to density of population, he suggested the application of the "filtration" concept of Benton MacKaye. By providing a great number of picnic parks, swimming pools and overnight camps relatively close to the metropolitan centers, these popular recreational facilities will serve to "filter" out the heavy weekend traffic, and afford protection to the more distant wild areas against vandalism and overuse.

Heady as some of these ideas are, the real wallop came from the vigorous talk by Dr. Ira Gabrielson, former Fish and Wildlife Director and one of the "grand old men" of Conservationists. Speaking Friday evening, after a field trip to the amazing 3000-foot Paw Paw Tunnel on the C. & O. Canal (recently restored under Mission 66), Dr. Gabrielson recalled instances of the ugliness of unrestrained industrial development in what had been beautiful river valleys. He cited other river areas where scenic and outdoor recreational values had been enhanced and the economy enriched by intelligent planning. Highways, high dams, etc., Dr. Gabrielson said, are supported by people with only one objective and one point of view, and he recalled an instance where a dam destroyed twelve millions dollars of property upstream in order to save three millions downstream. Reclamation, the Engineers, and the Highway Commission are only technical agencies, and if we leave the development of the Potomac Valley to them in will be a lopsided program. Two things make this region a decent place to live: soil and water. They can be destroyed by one-shot projects that do not take other values into consideration. The people who live here, in consultation with policy-making agencies such as Soil Conservation and Fish and Wildlife, should develop a comprehensive plan for the Potomac Valley—then call in the specialized technical agencies to carry them out.

How much direct effect all this talk will have may be problematical, as the Commission is no more than an advisory body to the several states. Yet its diverse activities and projects seem to have considerable influence on local communities throughout the region. Originally it was created by Act of Congress to cope with the serious pollution of the Potomac River—and found that pollution is only one part of the total water and land management picture. This meeting emphasized the importance of wilderness outdoor recreation and served to counterbalance the heavy pro-Engineer, pro-dam influence within the Commission. That in itself is extremely important, for if we do not speak out in the defense of our wilderness we will lose out by default.

I have probably taxed the patience of our estimable editor by commenting on this meeting at such length, yet I think it has some little significance for all of us all over the country, and it may stir us to stimulate similar discussions.

American WHITE WATER
Controversy Corner

It is with great pleasure that your Editor begins this department of honest disagreement. As someone once said, whenever two boatmen meet, there are bound to be at least three opinions. Here we plan to air the stronger and more interesting disagreements.

There are certain ground rules to be followed in any respectable magazine on this subject. Honest differences of opinion should never break down into nasty name calling. But beyond this, let's air some of the more interesting controversies that always take place when boatmen gather. How about some good letters on why a canoe is more fun than a kayak, or vice versa?

Rich Chambers
Acorn Lane
Salem, Oregon
9-3-7

To the editor—

'must rise to a point of order! friedman article in the summer '57 journal anent oregon's white water parade contained a serious error, and in the interest of furthering the foldboat sport i feel called upon to correct it.

quoting the article: "most of the craft that drop out early are kayaks and rafts, but some make it thorough to the end—and don't ask me how!"

in 1957 (four years after friedman made the trip he described) two rigid, high rocker, wooden kayaks failed to complete the trip. previous to that time i know of only one instance—in the year 1946—when a kayak or foldboat did not complete the trip.

i have run it with the same foldboat at least once each year since 1947 and i have been in the water twice, once due to very poor technique and once due to "oar evasion tactics" a phenomena peculiar to the white water parade. the point is that i was in the water a very few seconds, back into the boat and on the way each time. this "dropping out" friedman mentioned just simply didn't take place.

the white water parade is heartily recommended to any and all foldboaters that might be able to make their way to eugene that weekend in the middle of april each year. please look me up—you'll find me there at the beginning and—in a boat, yet—at the end.

Dear Dave:

I hate to admit that my second movement from a torpid state of inactivity regarding the magazine is motivated by a violent reaction to the article "The White Water Parade" in the summer issue just received.

And any thoughts you may be thinking about characters who don't contribute but feel obliged to criticize, I accept in advance. Maybe once started, who knows—

pg. 2 "twenty mile hair raising ride thru churning, hungry rapids . . ."

pg. 3 "... to watch the boatmen fight some of the swiftest and wickedest white water in the West . . ." . . . twenty treacherous rapids . . . . . Martin Rapids, the most vicious, boulder-laden, hellish trough on the McKenzie . . .

pg. 5 "... From start to finish, I was pitched and tossed so often I felt I was riding a broncho gone mad."

pg. 10 "... Every parade sees several folding boats and up to a dozen rubber boats. Most of the craft that drop out early are kayaks (grrrr) and rafts, but some make it through to the end—and don't ask me how! (one of the few points where this author and I agree)

In my opinion that is the first editorial mistake of an otherwise perfect record, and you are certainly entitled to it, as you must like to get out with a paddle once in a while yourself.

But this type of emotional reaction-in-print of a non- or relatively inexperienced
rivcr traveler is a long step back-ward from what the AWWA is trying to do.

I hope that with the use of the following you can counteract its effect.

Factual comparisons to excerpts from paragraphs numbered.

pg. 2 "... twenty mile hair raising etc..."

This stretch of river used for the McKenzie River Parade at normal high water for the time of the year would be classified by the International Scale 11-111, and would be thus a little upgraded for the intermediate paddler and moderately easy for the experienced handler of the River Touring Single Seater foldboat or kayak.

Using the new rating chart as shown in Winter '57 White Water the result is still 11-111. The water is icy, but the road lies alongside the river most of the way.

pg. 3 "... to watch the boatmen fight etc. . . ."

During the 1956 parade in which I, several other single seaters and the two one-man prams (See AWWA Prams on the Rogue) plus 130 some odd other boats participated, most of the fighting was done to avoid traffic jams . . . .

pg. 3 "... Martin Rapids, the most etc. etc., etc. . . ."

Referring to the picture on page 16 of the current issue, it may be pointed out that the channel offers little difficulty.

1. if a course is plotted along the river's left bank then diagonally across to avoid the head of the large side eddy.

2. if a course is plotted to run between the two large rocks in the background and then straight through.

3. if the water level is high enough an intermediate kayaker may drop down a small channel on the rivers right hand side (out of the picture) and with one small lift be back in the river.

pg. 3 "... broncho gone mad . . ."

I would be very interested to see what adjectives and comparisons the author would use after a ride on a not-mad broncho.

pg. 10 "... Every parade etc. . . ."

While not stated in the article, I believe that the article referred to the 1957 parade.

When I made the trip in 1956, we had a rare sunny day, but this year there was little sun and some rain. The kayaks this author refers to as dropping out early, inferring that they could not handle this horrendous river (down which family groups were picnicing) were faced with a 250 mile drive back to Seattle that evening, and having been on the parade in 1956 did not feel it was worth the time to finish in the rain.

So with this off my chest, let me again thank you for your efforts with the magazine, and maybe we can figure out some way to overcome inertia.

John T. Fuller

Next issue #1 British Columbia—

American WHITE WATER
LET'S UNDERSTAND THE EDDY
by WOLF KAUEK
Washington Foldboat Club
Seattle, Washington

In book form there is ample space to develop the mechanics of river hydraulics in a systematic and thorough manner, but here we are forced to make statements without taking time to explain the reasons and laws behind them. Thus we run the risk of appearing superficial for the sake of popularizing a difficult subject matter in minimum space. Realizing that a single illustration is often worth many words of discussion, the reader is asked to take a little extra time to study those shown. He should recall them, and compare them in his mind with the observed phenomena in the field. In the early days of gathering information for river navigation courses, the writer studied many of the eddy currents by using colored bottles tied to cords and filled with water of the same density. These were dropped and allowed to follow the sub-surface currents to augment conclusions drawn from surface observations. With modern skin-diving equipment much additional information could be gathered, especially as it relates to extraction and escape of dunkers from strong vertical currents in all types of eddies.

We glibly speak of white-water, rapids, haystacks, curlers or rollers etc., realizing perhaps only vaguely that most of these phenomena are directly or indirectly related to the eddy in its many forms and stages. The complexity of river currents is often mirrored in the perplexity of expressions worn by emerging dripping dunkers. While we cannot guarantee a dunkless season to our readers, perhaps we'll succeed in changing some future expressions from bafflement to at least chagrin, if not a grin. Understanding and recognition is at least half the battle. Training and exercise of reflex the other.

In the pure form we distinguish between three basic types of eddies; 1) the back-eddy, 2) the side-eddy, 3) the whirl-eddy. The back-eddy exhibits, by far, the most variable forms, and is thus the subject of our discussion in this issue. (The reader is referred to the November 1955 issue of AMERICAN WHITE WATER for definitions of various eddies and components.)

There are other 'so-called' eddies such as the traveling, rotating eddies on large rivers, and the powerful vertical eddies of deep rivers where the whole river surface may momentarily flow upstream from bank to bank. More so than these purer types there are innumerable transition phases of all of these eddies. If we can understand the components of the purer forms and basic types, then we can at least partly conject about the mechanics of these many interfering and confused hydraulics. This understanding will allow the paddler to react to their forces with the appropriate boat tilt, brace, forward or back-stroke, body lean or shift, respect or disregard. He may then use their action as a navigational aid, or as a means for engaging in the many play-maneuvers that his kayak is capable of performing.

EDDY Any object moving COMPONENTS through still water, or any stationary object in the path of flowing water sets up a disturbance in the water behind it and about it. The object will deflect the current over its top or to each side, and will create an energy readjustment zone immediately downstream behind it. The more sudden or abruptly the current-

American WHITE WATER

In this article, American White Water continues its presentation of parts from Wolf Bauer's forthcoming book. It should be noted that the copyright of this material remains in the possession of the author. It is planned to present sections of this book in each of the future issues of American White Water.
disturbing object diverts and momentarily slows down or even stops the moving water, the greater will be the degree and sometimes the area of commotion downstream. A flat plate held at right angles and in a fast current would therefore fulfill the requirement for abrupt changes in direction and velocity of water impinging upon it, and thus would create maximum downstream disturbance—while a flat plate held edgewise parallel to a slow current would cause minimum disturbances.

Naturally we cannot take the eddy apart without having some standardized terminology to designate the pieces, and discuss the characteristics of each. Since some of our readers may not have the earlier terminology issues of AWW, the following terms may be restated here.

The actual eddy in a back-eddy is the center reverse current flowing upstream on the surface toward the object causing it. The eddy line defines the boundary between it and the down-stream current on each side, this line having various characteristics in relation to stream velocity and depth, as well as shape and size of object causing the eddy. The boundary may simply be a thin demarcation line, very sharp and plain near the object and less distinguishable and more washed-out with increasing distance from the object; or it may be in the form of strong, spaced whirls and vortexes in the boundary area. The eddy walls are the short raised portions and extensions of the eddy line immediately behind and next to the object sides, and may or may not be present depending on the aforementioned factors. These eddy walls may be likened to and are, in fact, the bow-wave of a boat—the faster and more blunt the boat and bow, the steeper and higher the bow wave. Thus eddy walls may vary from inches to several feet in height. The eddy tail is the turbulent area extending downstream from the end of the eddy where the split current more or less rejoins and dissipates its energy in small whirls and cross currents, moving somewhat slower than stream current at the start but soon regaining current speed. When the current is split and diverted and flows around an object, the water rushes in behind the object to fill the region of lower level and lower pressure. In popular terms, we designate such an area as a vacuum. In a back eddy, the water rushes in from both sides. If the current is very slow, then the momentum of the moving water is small, and it can change direction quickly like a slow-riding cyclist. When the current is fast, however, it has great forward momentum and requires more time and distance to change direction sideways to flow in behind the object, just as it is impossible for the cyclist to make a quick abrupt turn when traveling at high speed. The region in which the current shows this inability to flow sideways from a high to a low level is called the eddy wall as defined previously, and explains why sluggish currents do not form an eddy side wall immediately behind the trailing corner of an object.

As the water on each side of the object curls in toward the "flow shadow" area behind the object, it does so in a repeated series of more or less well-defined whirls and vortex-producing swirls along the eddy line. Under high energy conditions, two large whirlpools may be formed side by side behind the object, each spinning in opposite rotation, and followed by a series of others behind them. These fringe whirls always rotate with their outside downstream and their inside current upstream, and thus are created by the edge layers of the passing current turning around to fill in the low pressure and low level zone behind the object. Such spaced swirls along the eddy line are often very unsteady, appearing and disappearing. In back eddies of narrow sharp objects in fast currents, they may form only partly and are torn apart and swallowed or carried away as soon as formed, or they may be unrecognizable in the surging condition of a Souse-Hole or souse-eddy. This is another extreme form of the back-eddy (and sometimes side-eddy) requiring high current velocity against sharp-edged objects to form high eddy walls.

The eddy or reverse current itself takes up the main portion of this turbulent downstream condition behind a fixed object in flowing water. In deep and moderately fast streams split by wide objects, this eddy forms a well-defined surface...
current flowing upstream toward the object, at the edge of which it dives downward and also sideways. The speed of the back eddy current is always less than the stream current speed, and depends on many factors. It is highest in the center. The underwater shape of the object has much to do with the size and shape and speed of this current. The back eddy behind a large boulder of more or less rounded shape, partly submerged, may be in strong vertical rotation where the surface portion runs upstream toward the wide part of the boulder and then turns down thru the vertical spin given it by the stream current slipping underneath it from under the upward flaring sides of the rounded boulder resting on only a small area of its base. A wide bridge pier or rock outcropping in the river bed or canyon may have a wider underwater base than above, and here the eddy current may move upstream and then strongly sideways out to the edges, often under surging conditions showing both vertical and horizontal rotation. The eddy current is also influenced by the presence of other stream-splitting objects to the side and upstream of the back-eddy creating side currents against the eddy. Its maximum width is fixed by the width of the object, while its length increases with increase in current speed, and whether the object has converging or diverging sides. The surface shape of the back eddy current is wedge shaped, being widest near the object and narrowing downstream to a point.

The eddy tail is the secondary zone of adjustment and turbulency. Here, shaped somewhat as a fish tail, eddies and cross-currents are created as shifting and surging stream currents invade the end of the reversed eddy current and pull off whirls and rotating water masses. Commencing often considerably upstream from the point of confluence of the split current at the start of the back eddy and to each side of the narrow wedge of the eddy current, there can be noticed a more or less turbulent but stagnant zone extending a considerable distance downstream. Stagnant at the start, this eddy tail increases slowly in downstream speed as the distance from the back eddy and object increases. In relation to a boat floating on the center axis of this whole back eddy complex or flow shadow behind an object, we would find the boat more or less fixed or anchored, as it were, in the stagnant zone between eddy and eddy tail, drawn or pulled forward upstream from this midpoint, or slowly drifted downstream below this point. Knowing, differentiating, and appreciating the separate parts of the basic eddy, it is obvious that the river traveler will keep the nose of his kayak out of a high eddy wall, see to it that he will not let his boat drift sideways on a wide back eddy against the object lest he cannot pry himself loose, (eddy trap) and learn to anchor by hovering in the stagnant zone as required.

Since no two obstacles or eddy-producing objects are alike, eddies are difficult to judge. Eliminating, for the time being, the variable factor of current, the downstream shape and shape of the object are paramount and controlling. The patient may approach one large boulder over which he cannot see, and in a fast current decide to skid into the back eddy behind the boulder, however, he may look in vain for the reverse current of the eddy that was to stop him and carry his boat slowly upstream toward the boulder.

A. Note the dark body of the back-eddy and the white eddy walls on each side. Top of boulder is above stream surface, and there is no aeration of the eddy.

B. Here a large white-eddy is formed by the saturating recirculation of entrained bubbles. Air is pumped in at the point where a thin fast sheet of water spills over the top of flat boulder. White-eddies have little buoyancy, and generally should not be used for eddy anchors or play spots.

C. This is a combination effect of back-eddy and hydraulic jump. The roller-eddy offers unsteady and weak anchor behind the roller, but permits excellent surfing depending on its size and width.

3. Note that the center of boat rests on the eddy tail, and that only the forward half of hull is pulled toward small rock. Useful back-eddies vary in size from this midget to those which will hold a whole club outing.
He may then observe that the boulder is much longer than wide, and that its downstream end comes to a tapering and streamlined point. He now realizes that the back eddy current, if any, may be shorter than his boat, and that he must be content with the eddy tail of turbulence where the water still moves slowly downstream, and where upstream paddling is required to hold himself stationary. A little later he may approach another boulder having similar upstream appearance. If he is a paddler of limited experience he may now reason that he had better cut in close behind this one in order to save himself another lengthy upstream struggle to reach the downstream end of the boulder. This boulder, however, may have a square-edged and broad downstream end. In this case he may be cutting across an eddy wall and enter a souse hole condition where the water behind the boulder is not only considerably lower in level than the current along the side of the object, but the back eddy has greater speed than he can manage in packpaddling. Thus I wish to impress on the reader that back eddy conditions cannot always be judged by upstream appearances of the object, especially when it is impossible to look at the eddy over the object because of its height above water. (See illustration A.)

There are all degrees of full back eddies and semi-eddies due to submerged conditions of the object, such as when boulders lie just under the water's surface. Here the water which flows over the top of the boulder may partly destroy the back eddy current, depending on what portion of water is involved. Large eddies behind rocky islands in strong tidal currents may show very little "upstream" current, while strong outward-flowing diagonal and side currents predominate. Sometimes, the back eddy of a large obstacle in tidal currents or wide streams is merely a stagnant zone with very little mass movement.

Later along in the series we will be ready to introduce the reader to the art and science of river navigation, as distinct from paddling technique or boatmanship. In our navigation courses we treat the river in sections on a structural channel basis in which the various hydraulics, such as the eddies, hydraulic jumps, jets, and reaction waves constitute combination problems rather than individual obstacles or aids. Space, this month, does not permit adding boat-handling techniques for the back-eddy. However, at the conclusion of the general eddy discussions in the next issue we shall show some of the practical applications of our eddy knowledge.

* * *

**REMINDER KEEP YOUR AMATEUR STATUS**

If you wish to compete in amateur slalom or other canoe competition, be sure to keep your amateur status. The rules, handed down by the ACA, are on page fifteen of the May 1955 issue of White Water. Here's a resume:

1. You're a pro if you participate for money in any canoeing activity. There's an escape clause for camp counselors.
2. If you knowingly compete with a pro canoeist, you're a pro!
3. Once a pro, always a pro. If you're a pro in one type of canoeing, you're a pro in all types.
4. You may receive compensation for traveling expenses.
5. But not for your trainer, friend, massagist, or relative.
6. Amateur can't compete as representative of business (exceptions) and can't receive money for participating in organization with canoeing activities.
7. Can't exploit canoeing fame for money by commercial sponsorship.
8. Amateur cannot write or publish articles on canoeing or engage in artistic endeavor related to canoeing, for money.
9. Amateur may not bet or risk money on a canoeing event.
10. An amateur may not compete for a prize of precious metal on which it is not possible to inscribe an inscription commemorating the event.
11. You've got to use your right name in competition.

To compete in a National Championship, you've got to be a U.S. citizen or have been a resident for five years.

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DEADLINES FOR AMERICAN WHITE WATER

For the information of our many authors, photographers, advertisers, etc., here is some information on the deadlines for presenting material to American White Water. The magazine is scheduled to be mailed on May 15th, August 15th, November 15th and February 15th. To do this the publisher starts to set type on approximately the 15th of the month before.

For the convenience of your Editor, all material should be in his hands on the 1st of the month before the month of publication. This allows your poor, over-worked Editor to work approximately two weeks before he must take material to the publishers.

Although late items can be inserted after the 15th of the month before publication, please try whenever possible, to have material in the Editor's hands on the first of the month before publication.

Tell your boating friends about American WHITE WATER, or better still, send us their addresses. We'll mail them a sample copy.

Advertising

Advertising helps support your magazine. It is also a good investment for the people who do it. No other medium reaches such a group of active, enthusiastic boatmen. Let us all show our appreciation and patronize the firms who advertise in our magazine.

More advertising means that we can afford more pages and more illustrations. If you know of potential advertisers, please drop a note to either of the following:

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Alfred Washington,
450 Maple Ave., Westbury, N. Y.

Western Advertising Manager,
Elsa Bailey,
27A Duboce Ave.,
San Francisco 3, Calif.

For everyone's information, our rates are:

1 page. $75.00 inside covers $85.00
½ page $40.00 rear cover $85.00
1 column inch $5.00
EASTERN RACES

The Eastern white water racing schedule for 1958 is expected to lure many paddlers from a distance. It is being announced now so they can plan their vacations.

Saturday and Sunday, April 12, 13
Brandywine Slalom at Wilmington, Del.
Sunday, April 27
Potomac Race at Washington, D.C.
Friday, Saturday, and Sunday, May 2, 3, 4
National Slalom Championships on the West River in Vermont
Sunday, May 11
First Hudson River White Water Derby at North Creek, New York

On the weekdays between the West and Hudson races there will be a guided tour of New England's wildest rivers. A similar tour on West Virginia and Pennsylvania rivers could be run the preceding week on demand. This will be a wonderful opportunity for westerners and easterners to see some of our best rivers.

Bob McNair, Chairman
Slalom Committee
Middle States Division
ACA

RIVER RAT'S CLUB

In Wisconsin, twenty canoe and fishing enthusiasts have purchased property on the upper Naniekgion River near Hayward. This club, consisting of canoeists from Minnesota and Wisconsin, have been canoeing together for many years.

This is a land mark in the endless battle to keep civilization from encroaching upon our beloved sport. As time goes on, more and more of our groups may find themselves in this position. Let us hope that they too can solve it in some such manner.

Send in news of your club activities and we will print it when space permits.

Mr. Dave Stacey
Editor, American White Water
601 Baseline Road
Boulder, Colorado

Dear Mr. Stacey:

The Canoe Cruisers Association has just completed its first year. As we took stock of our position we found we have grown vigorously. The relatively small group, interested in Canoe cruising, who founded our organization has drawn to it others similarly interested, and now our active members number just under one hundred.

Not only have we grown in size, but also in scope of activities. Our spring white water canoe race is a whopping success as attested by the turnout; a canoe slalom course continues to draw large numbers of enthusiastic novices; and our active interest in conservation has made itself apparent in some of the congressional committee hearings here in Washington.

President:
Andy Thomas
6203 Dunrobbin Drive
Washington 16, D.C.

Secretary:
Sid Hess
907 Malcolm Drive
Silver Spring, Md.

Treasurer:
Jim Kolb
5409 21st Street

Information Director:
Francis Christy
4229 Leland Street
Chevy Chase 15, Md.

If you are in our vicinity we would like to see you, and if you can make it, won't you join us on one of our trips.

Sincerely yours,
Sid Hess
Secretary

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