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AMERICAN WHITEWATER

JOURNAL OF THE AMERICAN WHITEWATER AFFILIATION

January/February 1988

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in this issue

Departments

6 awa briefs

AWA names executive director...Hydro head injured...Paddlesport 88 scheduled

8 Conservation Currents

NY's Letchworth Gorge threatened...Reclamation of Yosemite...AWA subpoenaed...California Rivers designated...How FERC works

14 Safety Lines

A look back on 1987 trends
by Charlie Walbridge

36 Synthetic Resin Dangers

by Peter Skinner

40 The Last Note

Choosing a Christmas paddle, and something more...
by Ken Burst



Features

16 CPR--Leaving the Classroom

It's not as easy on a riverbank
by Greg Noose

22 Romaine River Roulette

A wilderness tripper veteran and a rookie
recount a class 5 Canadian expedition
by Bob Gedekoh and
Dean Fairburn

29 Russell Mania!

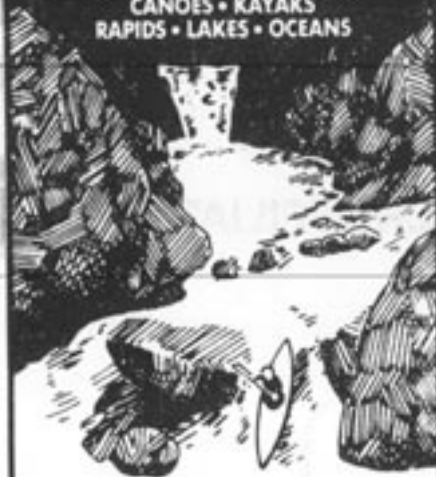
Fear and loathing on the Russell Fork
by Forrest Callaway

31 The Americanization of Vladimir

Noah's Vladimir Vana profiled
by Chris Koll

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editor's forum

This issue of American Whitewater marks the beginning of my second year as editor. I've come a long way during the past 12 months--I hope the same can be said about the magazine.

When I accepted the position, my knowledge of computers was limited to an occasional foray into word processing. I thought a hard disk was something you played in a jukebox and MS Dos just the name of a liberated female.

Now the entire issue of American Whitewater is edited and designed on a personal computer using PageMaker desk-top publishing software with the photo-ready mechanical produced on a laser printer.

The computer has enabled us to tighten up our publication schedule. I hope you've noticed that American Whitewater now appears regularly in your mailbox every two months. The days of publication delays are in the past.

And as I gain increased familiarity with PageMaker's potential, I think you'll see more attractive page designs. The larger page size has added flexibility for original lay-outs and improved our position in soliciting advertising.

Under the direction of Phyllis Horowitz and Risa Callaway, ad sales for the upcoming year have already jumped dramatically. A self-sustaining American Whitewater is definitely a possibility, freeing AWA funds to go directly to conservation activities.

None of this would have been possible without considerable assistance. The technical guidance of the Syracuse Computer Store and of our new print shop, the Hi-Neighbor of Cazenovia, has been invaluable.

But the future of American Whitewater, to a large extent, lies in your hands. We continue to lack appropriate manuscripts and photographs for publication. All of our readers are encouraged to submit articles. My only criteria for publication is that your submission must be entertaining, educational and deal with some aspect of whitewater. Save your flatwater articles for Canoe.

Even if you don't feel up to authoring an article, feel free to write and let me know what direction you want this magazine to pursue. American Whitewater wants to represent the interests of its readership--but you've got to let me know what they are.



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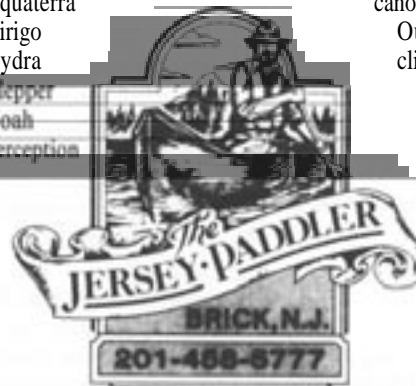
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awa briefs

American Rivers Hydro Lawyer Recovering After Auto Accident

Late Sunday night, November 22, the car driven by American Rivers hydro lawyer, John Escheveria, left the road on New York State's "Northway" interstate just north of Albany. After the car flipped over and slid on its roof for some distance, John crawled out of the seat belt and struggled to the roadside where trauma units quickly came to his aid. 7 hours of surgery later, John's left arm was reattached and his prognosis excellent for eventual complete recovery.

Somehow during the accident, John's arm was largely severed in the bicep area. Although more surgery will be necessary to complete repair, John told AWA that he now has some feeling in his fingers and they move, in spite of the extraordinary damage to his upper arm.

John had just finished a whirlwind tour of hydro project sites located on several river basins in the Adirondacks. In spite of frigid temperatures and savage snow squalls, John and AR staffer Jamie Fosberg inspected nearly a dozen sites, some of which are of great concern to AWA including Long Lake Energy's Moose River and Felts Mills Project on the Black River.

John and Jamie also visited proposed and constructed hydro sites on the St. Regis, Oswegatchie, and the Indian River. Their visit is part of an effort underway at American Rivers to identify projects on New York rivers which deserve special attention. This aspect will be a key part of work contemplated for AR's new National Center for Hydropower Policy. Watch your next AR newsletter for more information on this important step in their growing commitment to protect America's rivers from the scourge of small hydro.

Drop John a note if you can in care of American Rivers, 801 Pennsylvania Ave, S.E. Suite 303, Washington, DC 20003. We (and his new wife) are all thankful nothing else on John was damaged and modern medicine was available to make the necessary repairs.

Risa Callaway Named AWA Executive Director

World famous squirter and river explorer, Risa Callaway, Denver, North Carolina has accepted the post of executive director at AWA. From her home, Risa will manage the planning and execution of on-going and new programs for AWA. She will respond to all information requests, carry out financial planning and facilitate a new level of fiscal control. She will also improve communication between the staff and affiliated clubs and whitewater businesses.

Risa will also be in charge of stimulating donations to AWA from individuals, foundations and companies. Likewise, she will help facilitate program priorities established by the new Board of Directors to be chosen in the next issue of American Whitewater.

Best of all, Risa will draw on her marketing skills to create a new line of AWA products and carry out fulfillment of all orders. Small but ultra energetic, expect to see Risa at gatherings around the country representing the new image of AWA. Her skills will also be strongly felt in solicitation and management of American Whitewater advertising. So in the days to come, if you have any problem with or want to know more about AWA, all you have to do is Call Risa - AWA's Source! Her address is Risa, Box 325, Denver, NC 28035. If you are really anxious, call her at 704-183-2754.



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Paddlesport 1988 Scheduled in NJ

Canoe and kayak enthusiasts from New York, New Jersey, Pennsylvania and Delaware will converge at the Princeton Marriott in Princeton, NJ on February 21 for the 1988 Paddlesport Exhibition.

Sponsored by The Jersey Paddler and Wildwater Designs in cooperation with local paddling clubs, this popular event offers something for both novice and experienced paddlers.

Newcomers to the sport can attend sessions on equipment selection, trip planning and watersafety. Experienced boaters can see the latest designs and attend sessions on ocean kayaking, river rescue, canoe repair and outdoor photography.

There will be continuous showings of paddling films and slideshows of trips to areas of unique interest. Representatives of area clubs and canoe dealers will also be in attendance.

Hours for the exhibition are 9:30 a.m. until 5:00 p.m. Admission is \$5 for adults or \$8 for a family pass.

For more information, contact The Jersey Paddler (201)458-5777 or Wildwater Design (215)646-5034.

American Rivers Takes Hydro Stand

American Rivers has established a new National Center for Hydropower Policy.


Well known for its excellent work in seeking protection for rivers through wild and scenic status, American Rivers' move into the anti-Hydro arena confirms the AWA's long-standing contention that the proliferation of small-hydro projects stands as one of the prime threats to our river resources.

The new National Center will be headed by John Escheveria and will concentrate on support for federal legislation favoring rivers, enforce existing hydro legislation, monitor relicensing applications and assist grassroots organizations.


The AWA welcomes American Rivers down in the trenches of river advocacy.

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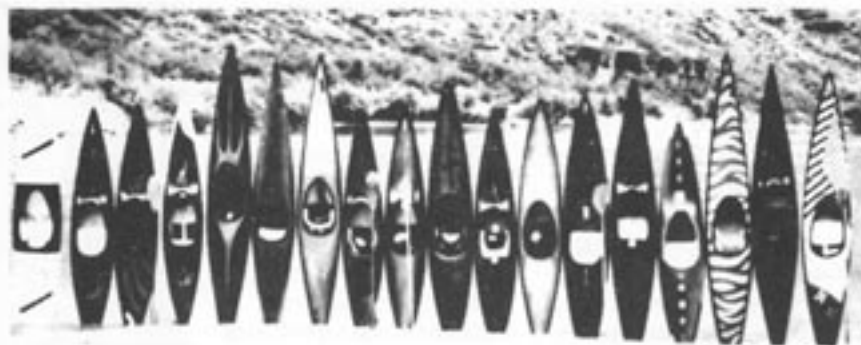
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conservation currents

NY's Letchworth Gorge Threatened by Hydro

Story and photos by Don Cochran

Can you remember your first taste of whitewater slapping you in the face in the form of a three-foot standing wave? Remember the exhilaration you felt in control of your boat as you powered into that first eddy turn, and probably flipped in the end?

How often have you gone back there? Have you taken others with you to experience the same sensations that you felt as a beginner?

And how would you feel if that special place was gone, or soon to be lost under another proposed hydro project?

This river story is about one of those easy "beginner/intermediate" places and the hydro project that threatens it. With nationally recognized whitewater runs like the Savage and Gauley threatened by developers, it's easy to overlook this particular river. But the Letchworth Gorge is a special place for central New York paddlers who first learned the thrill of whitewater inside its sheer canyon walls.

Letchworth State Park in western New York possesses a unique attraction for hikers, campers, bicyclers, photographers, x-country skiers and hunters as well as boaters and rafters in the region.

The 14,350 acre state

park is located approximately 35 miles south of Rochester, NY and features 17 miles of winding canyon with walls approaching 600 feet high.

The Gorge was carved following the last glacial retreat as the Genesee cut a new course northward to Lake Ontario. Within the gorge, the river plunges over three major waterfalls, one of them a 107 foot straight drop. Below the Lower Falls are five miles of class II/III whitewater followed by ten miles of isolated class I river to the north end of the park at the Mt. Morris Dam.

This is the second time the dramatic natural beauty of Letchworth Gorge has been threatened by development. In the mid 1800s, logging interests proposed stripping the area before William Pryor Letchworth purchased the land to preserve its integrity.

Letchworth granted the park's original 1,000 acres to the state in 1907. A rock near the park's Inspiration Point bears a plaque with an excerpt of a poem created for the park's dedication: "God wrought for us this scene beyond compare, but one man's loving hand protected it and gave it to his fellow man to share."

The 215-foot high Mt. Morris Dam was constructed by the Army Corps



Bill Hoyt, member of NY House of Representatives, paddles inside the deep Letchworth Gorge.

of Engineers in 1952 for flood control purposes, and it has done its job well, saving an estimated \$344 million in damages to Rochester and other communities down river.

During most of the year, water flows through the base of the dam allowing the river to maintain its natural character. However, the Army Corps and a Boston hydro developer are

Letchworth support grows...Salt Caves faces roadblock

studying the feasibility of adding hydro-electric generating capacity to the present dam.

The addition of hydro would necessitate raising the height of the dam to maintain current flood control capacity and creating a 12-mile reservoir, partially filling and permanently changing the character of the Gorge. The class I river section would be inundated by the reservoir with the whitewater buried most of the year, and possibly engulfed totally during high-water runoffs.

One local construction company has obtained a preliminary permit from FERC to study the proposal, but has not yet filed for a developmental application.

If "one man's loving hand" protected the Letchworth Gorge when it was endangered by logging development, there are a legion of angry voices raised over the current threat.

The Buffalo, NY office of the Army Corps has been deluged with letters and petitions since the proposed project received a public hearing in early September.

A news conference to announce the formation of the Letchworth Preservation Alliance, a coalition representing Rochester and Buffalo chapters of the Adirondack Mountain Club; AWA; Sierra Club; Audubon Society; American Rivers; New York River Council; Adventure Calls Rafting; Wilderness Canoe Trippers of Western New York; Erie Basin Sons of Ahab and numerous con-



Janice Mussacchio surfs at first rapid in Letchworth Gorge.

cerned citizens.

The conference was conducted by Bill Hoyt, Steve Mitchell and Al Kremer and was well publicized by several television crews and local newspaper reporters.

Shirley A. Scherlein of Alden, NY presented a petition she had single-handedly assembled con-

taining 1,500 signatures. Hoyt, a NY State Assemblyman, accepted the petition and pledged his support in the legislature to stop the project.

The N.Y. State Parks and Recreation Commission and Department of Environmental Conservation have not publicly stated

Salt Caves faces setback

The plans by the City of Klamath Falls to dam the Upper Klamath River were set back by the Oregon Department of Environmental Quality's (DEQ) recent denial of a Section 401 Water Quality Certificate for the Salt Caves project. On August 19, the DEQ denied the city's 401 application on the grounds that the proposed diversion of most of the river's flow through a power canal would cause an unacceptable warming in the summer of the 350 cfs flow proposed to be left in the river.

Denial of the 401 certificate is a significant setback for the city and a victory for river conservationists. The

permit is necessary for the project to be licensed and the only State decision binding on FERC.

The city is left with the options of appealing the decision in a "contested case" to the Environmental Quality Commission (EQC) or submitting a new application to DEQ incorporating a higher minimum flow for the diversion reach. Statements by DEQ officials indicate that if the city were to propose a higher minimum flow in a revised application, the project would be certified. It is not known at this point what effect such a revised flow would have on the project's economic viability.

their approval of the proposed project, but several politicians have stated their opposition to the proposal. This time, a hydro project may have been caught early enough in the process to formulate a strong defense, but no one is resting on their paddles just yet.

More letters need to be written to politicians and the Army Corps District Office in Buffalo (addressed to Wiener Cadet, Project Manager). This battle has just begun.

The Letchworth gorge may be small potatoes for "gonzo" type paddlers and "wilderness purists," but we all started somewhere. The future of the sport depends upon the preservation of those special places where we first start out for the next generation of boaters.

The Genesee River in Letchworth Park is just that--a stream of unsurpassed scenic beauty that provides a challenge to the beginner or a close-to-home afternoon of enjoyment for the experienced boater.

For more information or to join the Letchworth Preservation Alliance (no cost), write to Nancy and Steve Mitchell, 789 Tinker Tavern Rd., Webster, NY 14580.

Paddlers who wish to boat the Genesee in Letchworth State Park will require a permit. Applications are available by writing or phoning the Park Office, Letchworth State Park, Castile, NY 14427. Phone (716)493-2611.

Long Lake Energy's subpoena Labeled illegal harassment

AWA Board president Marge Cline was served personally on November 11 with a deposition subpoena ordering the AWA to produce to Long Lake Energy all its documents relating to AWA's small hydro opposition activities. The subpoena also commands Peter Skinner, long time AWA director, to appear for questioning on these issues.

Long Lake is the New York State company which has built the Moose River Project on the Bottom Moose and who plans to build over a dozen more on New York rivers. Long Lake issued the subpoena in a case they filed this summer against New York State Electric and Gas (NYSEG) complaining against monopolistic and harassment practices which have hindered the company's plans to dam and divert several rivers in the eastern Adirondack mountains.

AWA has objected strongly by letter and court motions to the use of a lawsuit unrelated to AWA's environmental concerns about small hydro development to carry out a "fishing expedition" into AWA's files.

Federal rules of procedure specifically prohibits access to documents and testimony of non-party witnesses which are irrelevant to the issues of the case. Further, these rules preclude demands for information which would be burdensome or duplicative. A cadre of lawyers has come to the aid of the AWA to prepare and file the necessary papers and

other documents which illustrate the irrelevance and burden associated with this unfounded subpoena.

In fact, AWA has not had either contact with NYSEG or involvement with the projects discussed in Long Lake's papers in a fashion even remotely related to their anti-trust complaints. This situation led Skinner to remark in his November 22, 1987 objections to the Long Lake subpoena,

"We are very disturbed that communication between Long Lake and AWA has deteriorated to the level of court orders, but we will defend our rights as a non-party to the extent necessary. Because your subpoena so egregiously violates the federal Rules of Civil Procedure,

California rivers named wild and scenic

Two major California rivers received final wild and scenic designation earlier this month and a third is waiting in the White House for signature.

President Reagan signed November 2 a law (PL 100-149) that designates 114 miles of the Merced River as wild and scenic. On November 3 he signed a law (PL 100-150) protecting 93 miles of the Kings River.

On November 9, the House accepted the Senate version of a Kern River wild and scenic bill (S 247) and sent it to the White House. S 247 would protect 78.5 miles of the north fork of the Kern and 72.5 miles of the south fork. Reagan is expected to sign S 247.



AWA director Pete Skinner indicates his defiant attitude toward Long Lake's harassing behavior.

we have no reason to not believe that the Court will provide AWA the protection it deserves and send a clear signal to your client that judicial harassment will not be tolerated."

Because Skinner filed AWA's objections in a timely manner, Long Lake must now obtain a court order to obtain AWA files and its director.

The Kings River was given number one national priority for protection this year by the conservation group, American Rivers. The Merced and the Kern were high on the group's list. Tough compromises among recreationists, water resource developers and preservationists opened the way for enactment of the bills. The Forest Service resisted the measures, but not vigorously.

Meanwhile, the Forest Service has agreed to give rivers in southern national forests added protection while they are studied for wild and scenic potential. A pact struck by the service and the Sierra Club Legal Defense Fund and American Rivers will protect 35

rivers covering 305 river-miles, said American Rivers November 6.

The agreement follows a similar one struck in July that will affect 100 rivers in the East while they are being studied. The Forest Service will study the rivers in both regions over the next five to ten years and submit recommendations to Congress.

One Forest Service official said the agreements "are not really a change in policy, they are more of a clarification. Here we've negotiated with American Rivers and the Sierra Club to clarify our policy. And we settled the appeals."

An old wrong undone?

By Philip Shabecoff
Reprinted from the New York Times

A battle to save the spectacular Hetch Hetchy Valley of Yosemite National Park, fought and lost nearly 75 years ago by John Muir, a founder of modern environmentalism, is about to be reopened.

Interior Secretary Donald P. Hodel is suggesting that the reservoir that flooded the valley more than half a century ago, to provide water for San Francisco, be drained and the Hetch Hetchy restored as closely as possible to its original condition.

Environmentalists and members of Congress told of the proposal, which Mr. Hodel discussed in an interview today, were enthusiastic about its feasibility and the motives behind it. Representative Richard H. Lehman, the Democrat whose Congressional district includes Yosemite, said he would be willing to explore restoring the valley, which he said was "the victim of the biggest rape in California history." But, he said, "it's hard to understand what Hodel's motives are, because he has no record of taking positions like this."

Mayor Dianne Feinstein of San Francisco, who learned of the plan from Mr. Hodel Tuesday night, said: "I think this is the worst idea I have heard

since the sale of weapons to Iran. I think it is a strongly precipitate and dangerous proposal. There is no issue on which there is more controversy and concern that water in California."

So Far, It's Just a Suggestion

Water was the prevailing concern in the early 1900's, and the Hetch Hetchy Reservoir now provides water not only for San Francisco, 150 miles to the east, but also for other communities and farms, and it provides electricity for much of California's Central Valley.

Mr. Hodel acknowledged today that his idea faced many obstacles, particularly finding alternative sources of water for San Francisco. He emphasized that what he was offering was an idea, not yet a specific plan.

But he said he was convinced his suggestion was feasible. He said staff members of the National Park Service and the Bureau of Reclamation had assured him that there were no insurmountable physical or biological barriers, and he has told the agencies to examine the obstacles and come up with solutions.

Mr. Hodel said that reopening the Hetch Hetchy Valley, which had been called a "twin" of the dramatically beautiful Yosemite Valley, would relieve some of the pressure on the Yosemite Valley, now one of the most heavily visited areas in the entire National Park System.

Future of Forests and Wildlife

Getting San Francisco "to go along with us is only the beginning," Mr. Hodel wrote in a memorandum to his staff about the idea. "Once the dam is emptied, we will have to clean up the valley and revegetate it, and remove the dam," he continued. "But within a decade of starting that, we will see green mountain meadows and young forests and wildlife. What a thrilling project that would be, and what a tremendous payoff for America."

Mr. Hodel said Congressional approval would be needed to take the dams out of the park and probably to provide new water facilities for San Francisco. He suggested that revival of a dormant proposal for a dam at Auburn, Calif., intended as a flood control project for Sacramento, would be a suitable replacement for the Hetch Hetchy Reservoir as a water source.

Environmentalists have regarded Mr. Hodel as more interested in developing public lands for economic growth and energy supplies than in preserving areas for scenic beauty and recreation, and today Mayor Feinstein suggested that the Secretary's real motive might be to breathe new life into the quiescent Auburn Dam project.

She said draining the valley would mean tearing down three large dams and three smaller ones, abandoning hundred of miles of pipes, tunnels and roads

and having to take water away from other users in

an area where water "is a life-and-death issue."

J. Michael McCloskey, the chairman of the Sierra Club, which as a young conservation organization played a major role in fighting the damming of the valley, said today that "there is considerable interest in exploring the issue with Secretary Hodel," but he noted there "was no real plan yet."

The original dispute over the Hetch Hetchy was one of the most bitter and famous environmental battles in the nation's history. On one side were Muir and his allies in the fledgling movement to preserve the nation's wild places; they were pitted against the city of San Francisco, California water developers and the formidable Gifford Pinchot, the friend of Theodore Roosevelt who headed the forest service under Roosevelt and Taft.

Pinchot was arch apostle of the creed of "utilitarian" conservation, which held that the nation's resources should be used wisely and not locked up.

In arguing for the flooding of the valley even after he had left the government, Pinchot told Congress in 1913 that "I am fully persuaded that...the injury... by substituting a lake for the present swampy floor of the valley...is altogether unimportant compared with the benefits to be derived from its use as a reservoir."

'Perfect Contempt for Nature'

Muir, a bearded prophet who preached that nature had a right to exist

for its own sake, denounced those who wished to flood the valley as "devotees of ravaging commercialism" who "seem to have a perfect contempt for nature and instead of lifting up their eyes to the God of the Mountains, lift them to the Almighty Dollar."

Congress approved the damming of the valley in 1913. Muir dies a year later, some say of a broken heart.

Secretary Hodel noted today that there was a current precedent for removing dams from national parks. He said Congress had already

taken steps toward removing the Longmont Dams in Rocky Mountain National Park. In that case, he said, the aim was to remove unsafe dams rather than to restore a flooded valley.

Mr. Hodel also said the time might be right for such a proposal because of high environmental consciousness in San Francisco and California generally.

He said it probably was easier for him to raise such a proposal because "with my development and energy background, no one can accuse me of being oblivious to those needs or the need for water."

Long Lake changes rules

Negotiations between Long Lake Energy and AWA regarding access procedures for the mile-long section of spectacular whitewater on New York's Bottom Moose affected by Long Lake's Lyonsdale Hydro project have bogged down over a critical issue.

Long Lake's license calls for the provision of 20 days of water release back into the dewatered section of river. However, AWA negotiators, New York City attorney paddlers Eric and Adrienne Ryan, have objected to Long Lake's intention to prohibit access to the section the remaining 345 days of the year—even when high water might provide sufficient natural flow over the dam.

This prohibition is not authorized by the license, and Long Lake appears committed to precluding recreational use of the river except where and when it is specifically required.

The prohibition flies in the face of the agreement

reached with Long Lake years ago which contemplated use of the river on other days when flows allowed. At that time, Long Lake modified the shape of their dam to facilitate flows over the river right side of Agers Falls during facility operation. This redirection of the fishery mitigation flow of 60 CFS over the right side would permit the now famous and much enjoyed falls plunge to end the day's ruin on the Bottom Moose, even on days when releases are not provided.

If allowed to stand, Long Lake's proposed prohibition will set a very bad precedent and have a chilling effect on all uses of river segments affected by hydro development. If developers are allowed by FERC and federal law to choose whatever other existing and potential river uses they wish to preempt by virtue of their particular license, recreational activity options will become a memory.

NY notes: DEC slow in releasing information; river survey completed

Between August and November, AWA has filed Freedom of Information requests with the NYS Department of Environmental Conservation for documents associated with over 50 separate sites undergoing licensing review by that agency. In a separate request, AWA sought access to all NYS DEC dockets associated with relicensing actions of existing utility dams also being considered by that agency.

DEC's response to these requests has been less than forthcoming. Arguing that staff limitations have hobbled their ability to extract from the files for documents exempt from FOIL requests, DEC access delays now extend more than two months. To make matters worse, DEC won't stop making decisions about these projects while access to documents associated with each project is denied.

Access to a few files has already borne fruits. Information set forth in the Deer River/Kings Falls project file indicated that the developer had changed the location for the tailrace to a scenically and recreationally objectional site. When Ron Smith of AWA brought this fact to the attention of FERC and DEC, project construction was halted until the developer adopted a more sensitive site development and restoration plan.

Thanks to the AWA's investigation and presenta-

tions by AWA hydro site inventory specialist, Steve Massaro of Watertown, the problems with this project were debated at some length by the Public Service Commission.

Even more importantly, this effort has forced DEC attorneys to probe the operations of the Division of Regulatory Affairs. This probe has reportedly uncovered project review procedures which will require a significant overhaul.

Taking stock

Thanks to the diligence and sacrifices of Steve Massaro of Watertown, New York, AWA has largely completed preparation of a massive hydro site documentation and photographic database describing over 100 hydro project sites undergoing licensing or relicensing.

Contained in three-ring binders filled with plastic slide holders and transparent document folders, information about each project is available for immediate review and consideration for people concerned about designs for and construction of these projects.

Steve endured privation and great difficulties in his efforts to find, photograph and describe these sites. Driving thousands of miles of back roads, often in dreadful Adirondack weather conditions and in disintegrating vehicles, hiking miles in difficult terrain, sleeping on roadside reststops

How FERC Ruins Rivers

by Ron Berke

Getting FERKED sounds like it could be fun, but judging from the reactions of those who have been FERKED, it is a lot like what happened to the fat boy in the movie *Deliverance*. It's not a pleasant experience.

You can only get FERKED by FERC. Who the Hell is FERC? And why do they go around FERKING with our whitewater rivers?

FERC is a Federal Agency. Its real name is the Federal Energy Regulatory Commission and, sadly, it has considerable authority over whitewater rivers. Since whitewater rivers are navigable and navigable rivers are public property, Federal law says they can be dammed up by private businesses only with the approval of a government agency. This could be good, except for one hitch...the agency is FERC.

Most people know if anything about FERC and could care less. FERC likes it that way. They keep a low profile and do their dirty work in the dark. In recent years, however, a lot of whitewater rivers have been FERKED or have threatened with being FERKED and the noise has been getting louder. FERC has presided over efforts by developers to go after the Black, the Penobscot, the Kern, the Klamath, the

Payette, the Moose and many others.

Whitewater boaters and outfitters more or less directly in the bulldozer's path have noticed how little attention FERC paid to the law it was supposed to be administering and how little value the agency placed on outdoor recreation. They were amazed and angered. These were not your typical wall-flower types. They have been squawking loudly about the mess being made by FERC. They have squawked to FERC, to the courts, to the Congress, and to anybody who would listen. The bureaucrats at FERC did not like all this noise and it has slowed them up a bit. They could not keep going full-tilt approving projects willy-nilly with someone else watching and publicizing the damage and generally nipping at the wheels.

There is something about a free-flowing river which just plain bothers some people. They cannot bear to leave it alone. They have to improve on it, no matter what the consequences are. In the old days when you heard about environmentally abusive dams, the villain was always the U.S. Army Corps of Engineers or TVA or some other government agency building its own pet boondoggle. But somewhere along the line, money for Federal government water projects dried up. But then along came FERC with its clientele of private developers to take up the slack.

FERC used to be a sleepy agency called the Federal Power Commission. It never did much of anything, but early in the

energy crunch era, a new breed of dam-building enthusiast sprouted in Washington's bureaucratic greenhouse. Their mission was to save the world with free energy produced by water falling off the mountain tops. Small hydro became the new craze. These zealots found the Federal Power Commission insufficiently macho. So about 10 years ago the name was changed to FERC and the agency launched a massive effort to get thousands of private hydroelectric power projects under construction throughout the nation. FERC really got moving on hydroelectric power development in a **big** way about seven years ago. Since that time, the agency has processed more than 7,500 new hydroelectric projects!

Many people believe that with FERC and various State agencies standing guard, the public interest in free flowing rivers will be protected from the careless greed of private developers. Unfortunately, this has not proven to be the case. Despite the fact that the Federal Power Act instructs FERC to approve private power projects only when they are in the public interest, as a matter of actual practice, FERC approves almost all hydro projects. Except for rivers protected by other laws (such as the Wild and Scenic Rivers Act), FERC denies approval only where two or more developers are competing to build at the same site. One of them has to be kicked out to allow the other to go forward.

FERC has never made a serious attempt to preserve scenic, natural or recreational values which

may be harmed by hydro-power. Power production is their mission. Even State governments do not fare so well when they attempt to resist FERC projects. Under the legal name of "Federal preemption," FERC has openly disregarded State laws designed to protect important scenic and recreational waterways, State water rights and other matters of local concern.

Where does all this leave America's whitewater rivers so far as FERC is concerned? In a tough spot.

State and Federal fish and wildlife agencies may try to limit damage to fishery resources, but they make little, if any, attempt to address other recreational interests in FERC cases. National environmental organizations such as the Sierra Club, Friends of the Earth or the National Wildlife Federation may oppose one or two large and especially harmful projects, but no national organization can participate in all FERC cases affecting a whitewater river.

The bottom line is this--if local whitewater boaters and boating groups do not take action themselves to find out what is going on at FERC with their favorite rivers, and if they do not aggressively participate in the FERC process every step of the way, FERC will continue to preside over the destruction of whitewater rivers.

Some of our best rivers have already been lost...how many more will follow? If you would like more information, write to the AWA Whitewater Defense Project, 136-13th St., S.E., Washington, D.C.

safety lines

A review of the year reveals alarming trends

The end of the year is a time for evaluating the events of the past few months, and then trying to spot future trends. There are two **things** which occurred during the past year which could have an effect on river runners in the future.

First, many people have asked me about the events leading to the tragic deaths of the five American business executives on the Chilko River this past summer. The accident resulted when an 18-foot self-bailing raft flipped on a midstream boulder, spilling all occupants into this glacially-fed class V river.

A recent heat wave had raised the river to seasonal high levels, but this was not in itself the cause of the accident. Difficult rapids are run commercially throughout the world without loss of life. But it is clear that several mistakes were made.

Jim Cassady, the California raft manufacturer who developed modern self-bailing boats, stated in an article in **HEADWATERS** that he felt that the raft was overloaded; an appropriate passenger load was eight, not twelve. Overloading the raft made it more vulnerable to capsizing, yet other oversights combined to make the flip extremely dangerous.

First, the passengers were not outfitted with **wetsuits** even though the Chilko is extremely cold. Second, there was no other craft along on the trip to pick up swimmers. This meant that there was no margin for error in the event of trouble. Had the passengers been properly dressed for the cold and split between two rafts, this capsizing would have been routinely handled.

The type of accident is not likely to happen to most American companies, which run large trips, employ many guides, and insist that their customers wear proper protective gear. While it does point out the dangers of ignoring safety rules, we must remember that whitewater contains an element of uncontrolled risk.

There were three on-river deaths involving Eastern commercial outfitters this summer, each on a different river. One was a foot entrapment in Cucumber Rapid on the

Lower Yough. The victim ignored a standard safety warning, yet was recovered and revived by a crack team of river guides only to die in the hospital days later.

In the other two instances the victims were pinned against undercut rocks after a raft high-sided a rock and capsized. Both trips appeared to be well-run; in each case failure to follow the instructions of guides contributed to the accident. Nor were these difficult rivers; in only one instance was the water difficulty grade IV or higher.

As our sport has grown, the competence and resourcefulness of the average outfitter client has dropped. In the early years of Eastern commercial outfitting, most guests were active athletes. Many had significant outdoor experience as backpackers, climbers or skiers. When something went wrong these people could react quickly without the help of guides. During the past decade, rafting has gone mainstream. Outfitters often book church groups, office parties and other subgroups of the general population for whom this may be the most active thing they have done in years.

Heart attacks are no longer unusual. The problem of alcohol abuse has become so pressing that one outfitter has a breathalyzer available to settle arguments between his staff and impaired guests. Although waivers are signed, I feel that many people do not fully respect the seriousness of their undertaking. And this lack of understanding can lead to trouble.

Yet despite this, the difficulty of rivers being run commercially has increased greatly over the past fifteen years. Ten years ago the **Cheat over 4'** was not run by guided parties, and the Gauley was attempted only by small, tightly controlled groups. Today, high-water Cheat and Gauley trips are routine. Runs like the **Russell Fork, Upper Yough, Cherry Creek** and **Burnt Ranch Gorge**, formerly off-limits to all but the most seasoned expert kayakers, are now being offered to the

"Today, high water trips on the Cheat and Gauley are routine."

By Charlie Walbridge
AWA Safety Chairman



general public.

Better equipment and guide training makes running class V rapids commercially feasible, but the dangers of these runs have not gone away. I don't know how you communicate the potential for danger accurately to a clientele with limited experience, but somehow these people must be told that rivers are not natural, wet roller coaster rides but natural forces with serious potential for injuring the unwary.

The same forces effecting commercial rafting also effect canoes and kayaks. We see open canoes on the Grand Canyon, high water runs in remote California gorges, and people running class V in their first year of paddling. Expert paddlers are being killed on difficult runs for making trivial errors in boat handling and judgement.

Expert paddlers are being killed on difficult runs for making trivial errors in boat handling and judgement.

We can't ignore the advances in the sport over the last fifteen years which have brought class IV rivers within the reach of any reasonably trained and motivated kayaker. But we must see that those who are beginning to learn whitewater skills and those who are pushing their personal limits understand that skill and equipment improves our ability to cope with danger, but never eliminates it. Safety depends on sound judgement and a respect for the consequences of errors. There is no shame in progressing at a more moderate pace or limiting one's activity to easier water. Fun, not fear, is the ultimate goal.

STATE REGULATION: THE NEXT THREAT

As most of you know, the "Reagan Revolution" has caused severe cutbacks in the Coast Guard budget. One beneficial aspect of this has been the reduced interest of Office of Boating Safety personnel in regulating our activity. Much of this authority has been delegated to the states, which deal with non-powered craft with varying degrees of understanding. Pennsylvania, Ohio and California have the best programs in terms of their recognition of the unique aspects of various self-propelled sports.

Other states' approaches vary considerably. Fortunately, an education-oriented approach is very popular now, but many states are looking at ways to improve communication with non-powered boaters. As an oddball minority, canoe and kayaks tend to be shuffled in with other non-specialized craft. There are two ongoing trends beginning to emerge:

(1) **An increased push for registration of non-powered.** This is partly as a revenue source, and partly because non-motorized watercraft are involved in a large number of accidents. Legislators, however, can be dissuaded from this policy by a well-organized grassroots effort. In Pennsylvania, a statewide coalition of paddling clubs has stymied efforts for several years. It is hard work, but not impossible.

When you cannot stop a bill, you may be able to influence it. The use of 3-inch registration numbers, especially kayaks, sailboards and others which lack space is troublesome. Of greater concern is the issuance of title and transfer requirements which would necessitate payment of sales taxes and use of a notary for all casual sales of used boats. These are currently exempt under most sales tax laws, and amount to a "hidden tax" which far exceeds the funds that boating agencies would collect. Being forced to carry registration documents on your person would be an added nuisance in our sport and in others where everything on board gets soaked.

(2) **You can expect an increased push for mandatory boating education courses.** Regulations requiring this has already been passed in Maryland. There it is slowly phased in by having youngsters currently under the age of 16 pass a basic boating safety course before being permitted to operate any boat in their state. This is a preliminary to mandatory licensing of all watercraft users, powered and non-powered alike.

The problem with these laws is twofold. First boaters will probably be required to carry some type of card with them to prove that they've passed the course. It's only a small step from here to full-scale operator licensing with regular renewals. By limiting its effects to non-voters, Maryland has minimized opposition to the bill, and we can expect to see this approach continued elsewhere.

One major problem with "mandatory education" is that it is difficult, in a short course, to cover the information relevant to powerboats and specialized non-powered

sporting craft. There will certainly not be time for a full orientation to white water! I expect the course to cover "rules of the road" and other powerboat-oriented information, but to ignore the safety rules for small boats like sailboats, canoes and kayaks.

The result is likely to be a course that wastes the river paddler's time, creates a false sense of security among inexperienced people, and creates one more obstacle to the responsible paddler preparing to launch. The case can be made for powerboat education, but non-powered boats are so diverse that I don't see how any reasonable course could make a difference.

It is going to be extremely important for

But we must see that those who are beginning to learn whitewater skills and those who are pushing their personal limits understand that skills and equipment improve our ability to cope with danger, but never eliminate it.

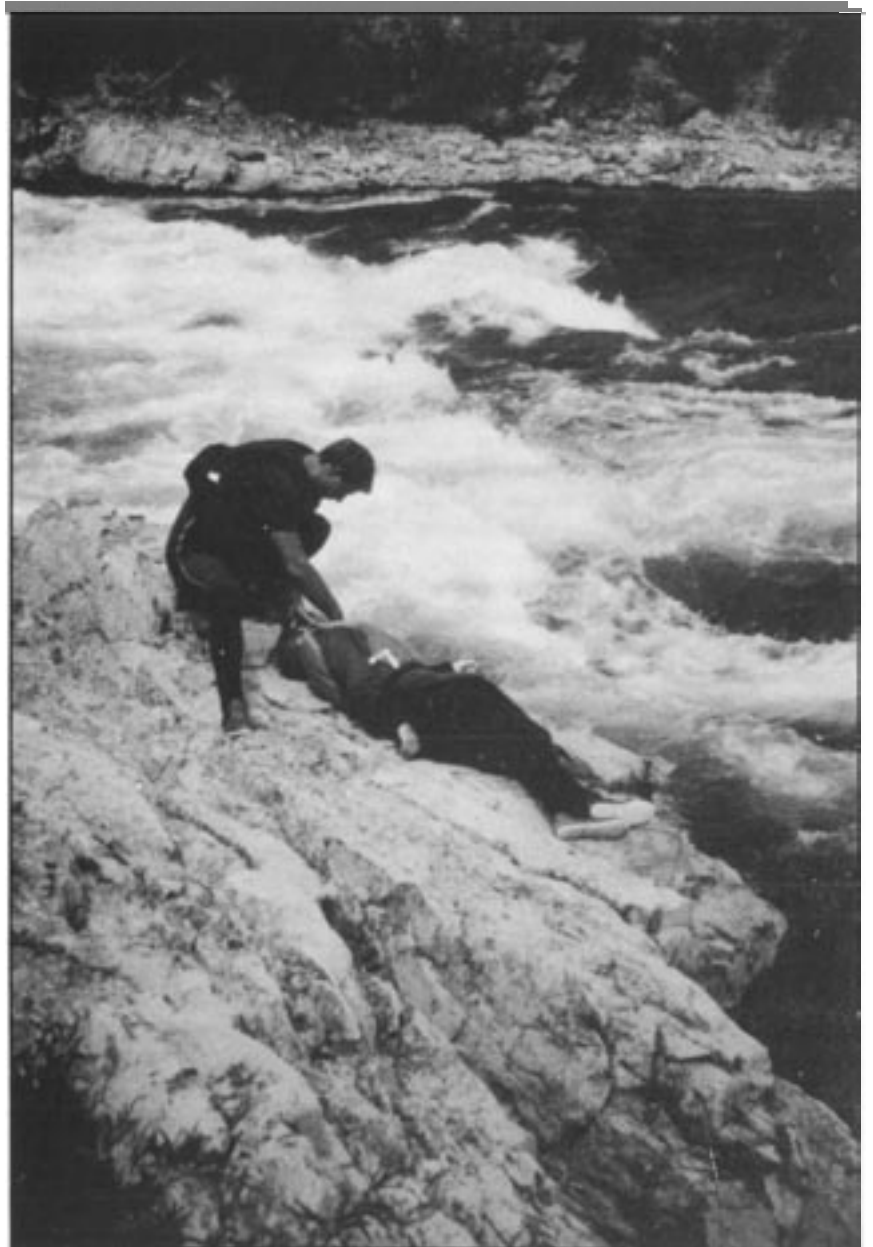
boating clubs around the country to keep abreast of these issues. Get to know your state boating safety agency and keep in touch with these issues. My suspicions are that we have a lot of allies throughout the boating world, but that we must show leadership. The alternative is regimentation of one of the last bastions of freedom: the small non-powered boat.

CPR

LEAVING THE CLASSROOM

**"You've completed
a CPR course.
Are you ready for
the real thing?"**

*Story and photos by Greg Noose.
All pictures are realistic
simulations of
emergency situations.*



July 4, 1976. Highwater. Two brothers, Bill and Richard Whitehead, are spending the bicentennial **kayaking** the wild rivers of central Idaho. A day trip from Yellow Pine on the East Fork of the Salmon puts the young boaters in position for a two-day seventy mile **run** from a road's end put-in on the South Fork to the Vinegar Creek take-out on the Main.

On the South Fork, the whitewater is intense. Within a few miles the South Fork's volume is tripled as the East Fork and the Secesh River add their water to an already exaggerated cfs flow. Continuous rapids, huge holes, and high canyon walls make the **run** both exciting and dangerous.

Day one passes without real mishap. The brothers are repeatedly capsized in powerful reversals and forced to roll again and again. Bill swims once below an especially big drop but he exits the river without difficulty. His kayak though, a homemade fiberglass **Letzman** Mark IV, is trapped in an eddy below sheer cliffs. The roped-up recovery is tedious and time-consuming.

Day two provides no let-up. Big water. All day long the brothers are pummelled by enormous hydraulics and each man has to roll four or five times. The problem comes at Elk Falls, the Falls Creek rapid, near the end of the South Fork Run and several miles upstream from Mackay Bar.

Bill approaches the rapid on the right, in the main flow, while Richard fumes and waits just out of the heavy current, river left. Bill gets a clear look at three six-foot drops. Scouting **seems** almost impossible so he starts his run. Two more huge holes are concealed out-of-sight, just below.

Within seconds, Bill is in trouble. He stalls on the first drop and he is turned sideways and almost stopped in the second. At the third hole, he is slammed hard into a jagged rock wall. With violent force the **nose** of his boat is broken and folded back and the kayak is capsized. An **airbag** collapses and his paddle snaps. Even then, he tries to roll as he crashes into the fourth drop, but the paddle is useless and he swims. Hole five is a keeper but Bill is lucky and he flushes through.

As he drags himself from the river he looks up for Richard. Seconds go by; it seems like days. Then Richard's paddle shoots by. Bill relates what happens next:

"When I saw Richard's paddle go by I scrambled up a cliff and there ahead, in the fourth hole, I saw Richard swimming. It was the washing machine effect, round and round, and then he was spit out against the wall. He was being pounded in the hole and I could see that he wasn't fighting.

"As he entered the fifth hole he was pounded again but he came close to shore and I was able to leap in and reach him. That pushed us both out of the reversal. Just below that was twenty feet of bubbly swiftwater and I just grabbed on. I was able to wedge my legs in the rocks and hold him. As I got him part way out of the water, his boat flashed by. I remember thinking that that's where all our first aid gear was.

"I thought he was already dead. I got no response at all and I could see that he wasn't **breathing**. Water came out of his mouth and I pushed on his back and on his chest. I pushed with a lot of force, you know, I was scared. I **had no** restraint, just adrenalin. I think that's where his lifejacket was punctured.

"I tried mouth-to-mouth and I gave him three breaths. That's when I could feel the vomit coming out of him. It was like bile and came up as I breathed into him. I just rolled him over and let him vomit and he

About the author...

Greg Noose, the sheriff of Stillwater County, Montana, is a whitewater kayaker and rafter on Montana and Idaho Rivers. A registered EMT, First Responder and CPR instructor, Noose has authored numerous rescue-related articles that have appeared in a variety of publications.

He introduces this offering:

"After the first time that I had to do CPR as an emergency medical technician I was a little shaken up. The skills that I had used were certainly the same skills that I learned in training, but the circumstances were so different. My classroom training hadn't fully prepared me for the interferences that I encountered out in the real world.

"As an EMT, I have learned a little about how to cope with these interferences to CPR that often prevent themselves at the rescue scene. My partners and I have had to learn how to apply CPR in a boat, a helicopter, on a stairwell during transport, or in the back of a moving ambulance. I think that whitewater boaters need to think a little bit about making the same kinds of adjustments. How can a paddler deal with the complications that can arise at the scene of a near-drowning incident? How can he learn to perform effective CPR under those stressful conditions?

"In the manuscript that's enclosed, **CPR: Leaving the Classroom**, I have tried to apply some of the things that I have learned as an EMT to some of the problems that I've seen come up on-scene at the four drownings that I have been present at."



A near-drowning victim may not have time to be evacuated to an "ideal" location for the performance of CPR.

finally began to breathe on his own."

It was almost two hours before Richard could really respond. For a long time, he could only wheeze and he would retch each time he tried to breathe. Finally, he could walk with Bill along the rugged riverbank downriver towards the Main Salmon.

Bill found Richard's paddle and downstream Richard's heavy fiberglass boat, "the white whale," was located wedged against a packbridge. From there, Richard could float the flatwater out. Bill hiked on

alone to a free burger and beer at Mackay Bar. Later, jetboaters shuttled the two kayakers on down the Main. At Shepp Ranch, they found Bill's wrecked Lettman set up on the bank, the broken paddle stuffed inside.

"It wasn't textbook CPR," says Bill Whitehead, "but it saved Richard's life. It had to, there was no one else there to help. When it's happening, only you can do it."

CPR (cardiopulmonary Resuscitation) is a complex set of skills taught worldwide as a basic life support technique. It's a holding mechanism, a stop-gap measure, that allows a trained rescuer to temporarily provide respiration and pulse to the person who cannot breathe or circulate blood on his own.

CPR works. That has been proven over and over many times. Lives are saved when the skills are applied rapidly, effectively, and aggressively in the field. And that's the catch. For most of us, CPR is a lifesaving technique that's applied **in the field**. And it's **in the field**; by the riversides, creekbanks, streambeds and lakeshores that CPR may be most necessary to save a life. A few hours of classroom training alone may not really prepare a rescuer for the environmental interference and real-life complications that can occur at the emergency scene. That **interference** may affect a river rescuer's ability to perform effective CPR. It is once you leave the classroom that things really get tough.

CPR is performed according to a simple sequence:

R -- Responsiveness

A -- Airway

B -- Breathing

C -- Circulation

By following these steps, a rescuer can assess a victim's condition and provide, on a priority basis, the life support measures that the victim requires. CPR instructors demand that students practice these measures "by the book". In order to pass the course, a student must demonstrate the skills in the correct order according to an established checklist. That's good. Under stress people tend to perform in the way that they practiced in training. Learning in an orderly sequence may ensure that important steps are not overlooked or forgotten during a crisis.

At the scene of the whitewater accident though, things will not often be orderly. More likely, the near-drowning scene will be chaotic, emotional and unstable. Still, it is essential that CPR always be performed "by the book," in proper sequence, just the way that you learned in training. For this reason it is important to consider in advance those complications that may present themselves at the near-drowning scene so that they can be **dealt** with appropriately and **that** effective CPR can be rapidly administered. The key is common sense and an aggressive attitude about getting the

job done.

Access

In the classroom, the CPR mannequin always lies ready, cleaned and positioned for the student to begin practice. Out on the river things are never that easy. Gaining access to a victim may involve river rescue techniques like those taught by Les Bechdel and Slim Ray. As the rescue begins, rescuers must be alert for hazards like downriver snags, keiper holes or reversals, entangling lines, undercut boulders and other potential sources of underwater entrapment.

Reaching the victim may be accomplished by a boat, from a bank, or even by direct contact in the water but safety must be a **first** concern. Rash heroics may complicate the situation needlessly and compound the tragedy at hand. Don't help anyone if you become a victim, too.

Oxygenation, providing life-giving oxygen to human body cells and tissues through artificial respiration and artificial circulation, must begin as quickly as possible. To start, a rescuer only needs access to a victim's airway and chest. A safe starting spot may be a gravel bar or sandbank, in a few inches of water, or in the bottom of a raft. A complicated evacuation to an ideal location may take time that the victim does not have. The starting spot doesn't need to be perfect, only adequate, and once an adequate spot is reached, go for it. Begin your assessment. Think oxygenation.

As Bechdel points out during his class, sometime's it's better to stay with the victim where you are rather than to try to move the non-breathing, pulseless person in a hurried, haphazard fashion. Effective CPR in-place, while others work to get help, will give the victim better care.

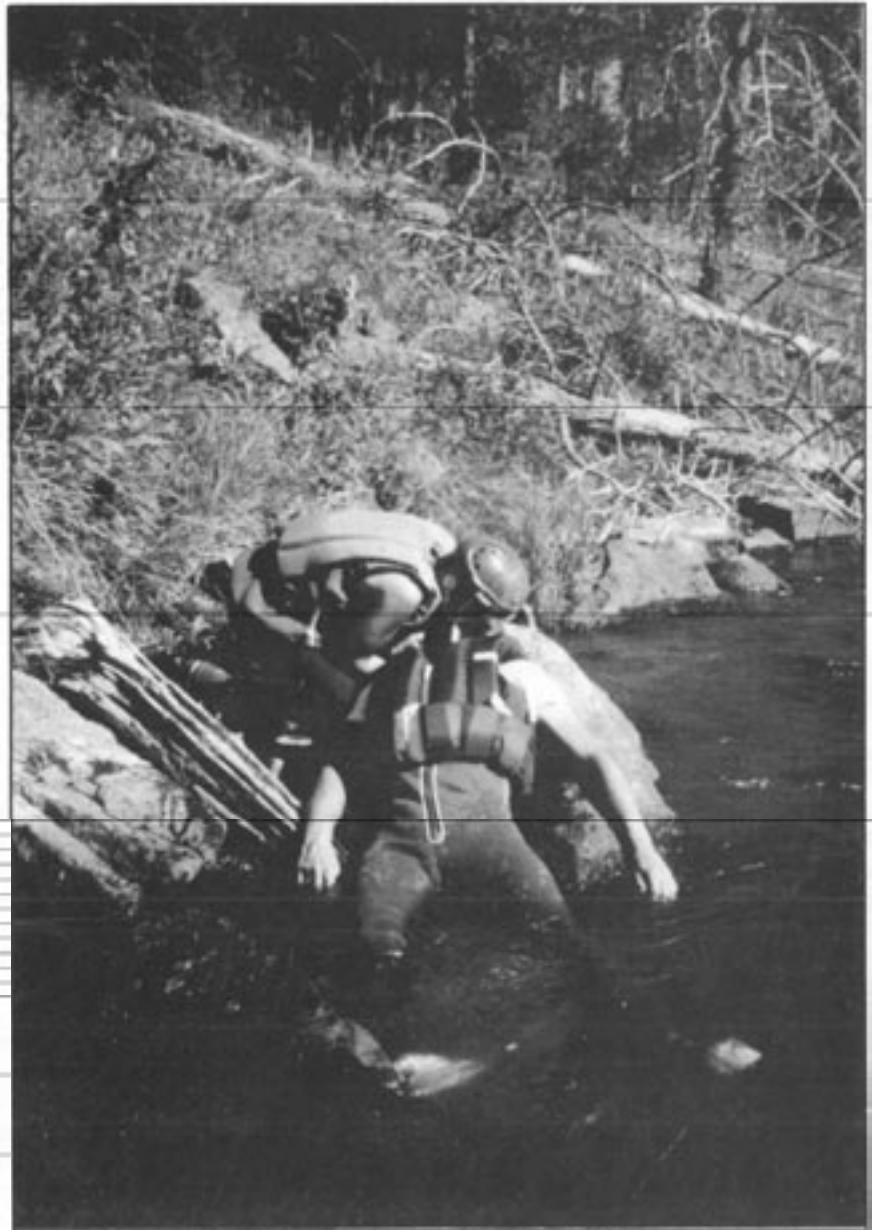
Gaining access to a near-drowning victim may also mean a little riverside crowd control. Two or three trained rescuers may be all that is needed to attend to the victim. Too many helpers could become a distraction. If the victim is being cared for, other rescuers should look around to secure the scene and to prevent patient-side interference. Someone else could clear a route for evacuation or ensure that help has been summoned. Teamwork is the name of the game.

Assessment

In a CPR class, students use mannequins to learn various techniques of patient assessment. Students learn to assess responsiveness, or level-of-consciousness, by the shake and shout. Later in the sequence, students learn to assess breathing by looking, listening and feeling for the actual exchange of air. Finally, students learn to assess a patient's circulatory status by taking a carotid pulse. Once learned with mannequins, however, patient assessment must be practiced until the skills are almost second-nature to the rescuer.

Level-of-consciousness must be quickly assessed. If an accident victim is alert and oriented to time, place and person, rescuers can assume that, at least for the moment, the victim's respiratory and circulatory status are relatively intact. Oxygen is getting to the brain. Everyone can breathe a little easier. With an unconscious victim things are much more complex.

Once you have opened the victim's airway, assessment for breathing begins. Look for the rise and fall of the chest. Listen carefully at the airway passages for the actual exchange of air. Feel for the exchange of air against your own face or



Once an adequate spot is reached, begin CPR.

cheek. Normal breathing is quiet and unobstructed and may be hard to hear while sitting next to a thundering class IV rapid. If there is any doubt, don't wait for closer assessment. Ventilate, or breathe into the patient, immediately.

After delivering the first two long slow breaths, assessment for a heartbeat begins. While it is probably not harmful to accidentally ventilate a breathing person, it is definitely harmful to perform chest compressions on a patient whose heart is beating on its own. Careful assessment of the

type III lifejacket, is a paddler who may or may not be breathing or have a heartbeat. Usually it will be necessary to remove at least some of the victim's clothing in order to perform effective CPR. To do this, you must undo zippers, snaps, Velcro and Fastex buckles and open, loosen, or remove the inhibiting clothing.

At the scene of a whitewater accident it is dangerous to attempt to cut the clothing off of an unconscious victim. Most paddler's equipment is tough and resilient and is not easily cut or torn. Handling a



Careful patient assessment requires baring the victim's chest.

carotid pulse is essential before beginning chest compressions.

If you cannot instantly find a carotid pulse on the warm person sitting next to you, you won't be able to find the pulse of the cold, wet victim lying on the riverbank after a whitewater accident. Practice is the key and practice taking the pulse of everyone that you can lay your hands on. A radial pulse, taken at the wrist, won't work either. During a crisis the human body will carry blood away from the arms and legs and send it to the vital organs in the body's core. A carotid pulse may be the only pulse you find, even though the heart may be beating quite adequately.

Paddler's equipment and clothing can often get in the way of effective patient assessment. Underneath the polypropylene underwear, the fanner john wetsuit, the lumbar pad, the pile sweater, the spray skirt, the paddling jacket and the hi-float

wet, slippery double-edged survival knife with numb, cold, clumsy hands can be dangerous to the victim and to the rescuer. Take a moment, look at the zippers and snaps, and use them as they were made to be used. It should be very possible to expose the victim's chest and upper airway in just a few quick seconds.

There is no need to remove the victim's whitewater helmet, though, unless of course, it interferes with maintaining an airway. Just loosening the chin strap will usually allow full access to the victim's nose, mouth and carotid pulse. The soft suspension of the helmet will support and protect the rest of the victim's head.

Airway

The airway opening maneuvers taught during a CPR class will work. Airways can be opened using the head tilt-chin lift or the jaw thrust. Obstructed airways can be cleared using victim positioning, the finger sweep or the abdominal thrust. In an emergency, these clearing maneuvers must be applied tenaciously in order to give the victim his best chance.

It is common for the victim to vomit when CPR is applied. Air may leak into the stomach, pressure is applied to the chest, injuries may cause some nausea and as a result, vomit may show up to block the victim's air passages. "And people don't vomit chicken broth," says Jim Ross, EMT and instructor for the St. Vincent's Hospital HELP Helicopter in Billings, Montana, "they vomit chunky soup."

Airway passages can also be obstructed by blood or water, loose teeth of the victim sustained facial injuries, or by chewing tobacco, candy, gum and other foreign bodies. The airway clearing maneuvers that you learned in class will almost certainly work if they are properly and persistently applied. Don't give up. Try again. Struggle to open the airway. Remember, there is a life at stake.

Don't worry too much about getting water out of the victim's lungs, either. Many near-drowning victims don't actually swallow very much water and the vascular lungs quickly absorb much of the water that may be inhaled. If the airway is clear, ventilate. Remember, the immediate objective is oxygenation, air in, not water out.

Without an airway everything else is academic. Within four to six minutes after a victim stops breathing, brain cells begin to die. Damage becomes irreversible, death is imminent. The Mammalian Diving Reflex encountered during cold-water near-drowning incidents may prolong a victim's survival time while submerged beneath cold water. Remember though, that once the victim is removed from the water, the reflex protection stops. The clock begins ticking. The airway must be opened and ventilation must be accomplished within four to six minutes. Once opened, the airway must be maintained manually until the victim can do so on his own. Specialized medical equipment is not necessary. You don't need a first aid kit. Just use your hands, the skills you learned in training, and the good sense that God gave

you.

Breathing

It is not possible for a near-drowning victim to be breathing and yet not have a pulse. It is possible, however, for breathing to have ceased while the heart continues to beat as it struggles to sustain life. Ventilatory assistance will be all that is necessary for the non-breathing patient who has a pulse. For the non-breathing adult patient who has a pulse, you should ventilate, or give a breath, once every five seconds. Children must be ventilated at least once every three seconds. Practice on a CPR mannequin can give you a good feel for what it is like to ventilate a victim in a real-life emergency. A good mouth-to-mouth or mouth-to-nose seal must be maintained during ventilation and an adequate volume of air must be provided for the resuscitation efforts to be successful.

Sometimes after a near-drowning incident a victim may be breathing on his own but his efforts will be weak, distressed or slow. This patient may also need ventilatory assistance. If the victim's respiration rate is very slow (less than 8 or 10 respirations per minute), a rescuer should intersperse additional breaths between the victim's own efforts to breathe. If the victim's breathing efforts seem shallow, a rescuer might add to the victim's tidal volume by breathing with him as he attempts to breathe himself. These techniques go beyond the normal procedures taught during a CPR course. Concerned river rescuers should seek additional training from the American Red Cross or First Responder and EMT programs available in the local community.

Circulation

When CPR is being done correctly, chest compressions squeeze the heart between the sternum and backbone and an artificial circulation is created within the victim. Circulating blood picks up oxygen from the lungs and transfers this oxygen to the body cells and tissues. Effective chest compressions depend on the rescuers correct hand position, the proper depth, and the proper rate. These skills can best be learned by practice on a CPR mannequin. Other factors can play a part, too.

CPR, for example, cannot be per-

formed on a victim who is in a bed unless a board or some other support has been placed under the victim so that the chest can be compressed and the artificial circulation can be created. Soft surfaces, like the mattress on the bed, will absorb the rescuer's motion and the heart will not be sufficiently compressed. The artificial circulation will not be created. Most closed-cell foam lifejackets are not really soft enough to cause this problem. But some lifejackets, like the large Mae West jackets, or some surfaces, like thick mossy banks or the floor of a raft, may absorb the force of the chest compression and reduce the compression's effectiveness.

The best way to determine if chest compressions are being delivered properly is to have a second rescuer check the victim for a "compression generated" carotid pulse. If compressions are being properly applied, the second rescuer should feel a carotid pulse each time the chest is compressed. If this does not occur, the rescuer at the chest should recheck his hand position or look for anything else that might be interfering with the effectiveness of the chest compressions being delivered. Unless that artificial circulation can be created in coordination with artificial respiration, no oxygen can be delivered to the victim's brain, organs, or other body structures. The result will be a tragedy.

When CPR is properly administered, a non-breathing, pulseless victim is literally "attacked" by one, or perhaps a small team, of rescuers. This "attack" is not violent or unnecessarily forceful but it is aggressive, purposeful and meaningful. Rescuers do for the victim what he cannot do for himself in a well-coordinated, prioritized and timely way.

Bill Whitehead did a good job eleven years ago. His brother, Richard, is alive today. Yet the CPR skills that he used seem strangely different from the CPR skills that most paddlers learn in class. It's the river that makes the difference. Environmental influences modify the techniques that have to be applied.

Paddlers can't learn on-the-job. Instead, they must learn through practice with mannequins, frequent and thorough review of the CPR curriculum, team training with other paddlers and forethought about where and when the skills will need to be applied. As a paddler at the scene, on the river, during the emergency, you are in a position to make all the difference for the victim in trouble.

Will you be ready to help?



A near-drowning victim may vomit when CPR is attempted.



Romaine River Roulette



Top) Mike Bush silhouetted against the backdrop of Le Grande Chute. (Above) Dean Fairburn preps boat for his first wilderness expedition.

Two veteran wilderness trippers search for a third boater willing to accept the travails of a Canadian expedition...but maybe someone who doesn't know what he's getting into will do.

by Dean Fairburn and Bob Gedekoh

Editor's note: Last August, Dean Fairburn, Mike Bush and Bob Gedekoh kayaked Quebec's Romaine River, 150 mile, ten-day odyssey through one of Canada's most remote and picturesque wilderness areas. The Romaine, which empties into the St. Lawrence, features class 1-6 whitewater. To their knowledge, no other parties attempted the river last year.

This was the third Canadian trip organized by Gedekoh and Bush. They paddled the West Branch Magpie in 1985 and the St. Jean in 1986. Fairburn has been boating for less than three years; this was his first wilderness kayaking expedition.

The following is the story of the Romaine expedition, told from two perspectives—that of the veteran and the tenderfoot.

Portions of the text written by Fairburn are italicized. Material penned by Gedekoh is in conventional print. Photos are by Gedekoh.

THE TEAM

Every year it gets harder to recruit a team to tackle these Canadian Rivers. Our paddling companions have all heard about the brutal eleven-hour portages, the monotony of the freeze-dried food and the thii-hour marathon drive to Quebec. They've heard that these expeditions are good places to get eaten, if not by **hydr**alies, then by blackflies.

Those who have never been laugh when asked, and those who **have** been resort to drastic measures to avoid going again. John Bolger doubled the size of his cattle herd. Dean Smith took a job. Jim Goddard fell in love. Jess Gonzales went so far as to become a father.

That leaves Mike and me. Not enough to tackle the Romaine safely. We need fresh meat.

The Whitewater Orgy, held every April in West Virginia, seems a good place to start. Plenty of enthusiastic boaters come from **all** over the east. Some may not have heard of our previous trips--atleast not the gory details. Surely we can **find** a likely candidate among the crowd.

What are the qualifications? Solid class 4 boating skills. The physical stamina to complete the journey. The fortitude to spend ten days in the wilderness with less than twenty-five pounds of gear. And, perhaps most important, an easygoing disposition--theability to laugh in the face of adversity. Whiners and snivelers need not **apply**.

By the end of the Orgy we have some-one in mind--an amicable twenty-five year old industrial arts major from the University of Tennessee named Dean Fairburn. Still a little shaky on class 5 water, but confident on class 4. A competitive swimmer at the college level. That might come in handy--one never knows. A veteran camper. Says he can start a campfire in the rain. Enthusiastic, but not cocky. A bright conversationalist with a whimsical sense of humor that should mesh with our slightly skewed view of the world. The kind of guy you wish would date your sister.

But is he naive enough to accept our invitation? A week after the Orgy, I call and pop the question.

I feel like doing backflips all over my house. Bob Gedekoh and Mike Bush have just asked me to join them on a Canadian

kayaking expedition. Finally, after three years of boating, I'm going to get a crack at a genuine adventure. My old friend, Dean Smith, accompanied Bob and Mike on the St. Jean and the Magpie. His tales are exciting--horrendous rapids, giant waterfalls, deep canyons, tough portages, strange wildlife encounters and spectacular scenery.

This is something I only dreamed of doing. There's no need for Bob to ask twice. I'm going!

Second thoughts come later, while daydreaming in class. Now there is less excitement and more concern. I guess I knew that I would get nervous, have misgivings, but so soon? Mostly I'm thinking about dangerous whitewater. Mostly I'm thinking about recirculation.

*At the Orgy I was recirculated in a gruesome **pourovers** on the Blackwater River. A good friend shared the experience--friend who soon stopped boating and experienced a religious conversion. The very next day I was recirculated in a megahydraulic on the Shaver's Fork--it was in full flood. I can't help remembering that in both these **instances** I was following Bob Gedekoh. He escaped both of these situations unscathed.*

*What does this mean? I make a mental note. In Canada, I **just** not let Bob lead me into such predicaments. In Canada, I must be careful.*

NETHERLANDS

*After carefully packing (and borrowing) my gear, meeting Bob and Mike, and driving a total of forty hours from Knoxville, we reach the **tiny fishing** village of Harve St. Pierre. The road that parallels the north shore of the St. Lawrence **Seaway** ends here. By **now** the sudden rushes of adrenalin are intense and sickening.*

I try to disguise my anxiety, but apparently I don't do too well. Bob is eyeing me from the passenger seat of the Jeep.

"Wondering what you're getting into?" he inquires.

"Ya," I choke.

Bob and Mike seem unconcerned. I wonder if they felt this way on their first trip.

*We reach the airport, a stagnant lake on the outskirts of the village. Again the adrenalin. Mike and Bob saunter into the **office**, a dilapidated shanty, to arrange the flight. I study the ancient single-engine float plane docked in front. The monstrosity is supposed to carry us, our gear and our kayaks **thousands of feet into the blue?** God, I wish I weren't so afraid of heights.*

We have some time to kill, so we ramble around the village and wind up at a restaurant. I keep checking the storm clouds billowing over the western horizon.

*"This may be our last supper," Bob announces mischievously. I find it hard to laugh until **Bushie** tries to order an **ice-***



Mike Bush tethers plane to shore against a strong wind as Dean Fairburn helps Canadian bush pilot unload boats and supplies.



Mike Bush reels in one of countless fish pulled from the Romaine's waters. Authors Gedekoh and Fairburn report that they uncounted much better luck in netting larger specimens.

cream cone in French. He winds up with onion rings.

Back at the airport, we load up the plane. My last chance to back out is approaching rapidly. I tell myself that I must go through with it. I cannot let my nerves ruin a once-in-a-lifetime opportunity.

I strap myself into the seat. The garrulous French-speaking bush pilot fires the engine and we taxi across the lake. I can't help but notice how many gauges are missing from the pilot's control panel. I wonder what those missing gauges were for.

With a deafening blast we accelerate into the air. The plane trembles and dips and pivots, and my heart is pumping. The engine wails and the exhaust is overpowering. Perched in the copilot's seat, Bob nonchalantly snaps pictures. Mike straddles the kayaks in the fuselage. It is impossible to communicate over the roar of the engine.

The scenery is so fantastic that I forget my apprehensions. At first lakes are everywhere, surrounded by desolate swamplands. As we fly north we cross a range of enormous mountains, with craggy granite cliffs that plummet thousands of

feet into rivers. Finally, we pass the boundary of the permafrost and enter the tundra.

Our flight doesn't follow the Romaine so we can't scout from the air. Perhaps that's for the best. But I can see other rivers with rapids that look terrifying, even from this altitude. The specter of recirculation reenters my mind.

After an hour we descend. Finally I spot the Romaine. It is big. Very big. Much bigger than the other rivers we have seen. And it looks like we are going to land in a class 1 rapid!

There are two-foot swells on the river. I brace for the worst, but our landing is smooth. I open my eyes as we taxi toward a beach. We start to unload our gear. Suddenly, a powerful blast of wind dislodges the plane and it starts to drift away. The pilot tosses Mike a rope, and he digs his feet into the sand and secures the plane with a deep brace. As we hastily retrieve the last of our supplies I consider backing out again. This is absolutely my last chance.

The engine fires. I stand in a trance. The plane taxis away and soon is off. The plane hovers in the air, just beyond my reach. It

is hard to describe what I feel right now, but I know I will never forget it. The word "abandonment" comes to mind. I tentatively wave goodbye as the plane disappears into the gloom.

"No turning back now," Bush observes soberly.

My mind races. Did we bring enough food? Did I forget any important equipment? Is my gear adequate? What lies ahead? Will anyone get hurt? Can I put my faith in Bob and Mike to see me through this ordeal? Have I made a serious mistake? Who has the toilet paper in their pack?

Mike and Bob are already in their kayaks. I scramble to catch up.

INITIATION

We drift past the remote-controlled meteorologic station indicated on the map, one of the only signs of civilization on the Romaine. Around the bend the first class 4 rapid is waiting. It's a long one, nearly a kilometer, according to the Canadian survey. They lined their canoes down the right. We certainly don't intend to do that.

We pause at the top on river left for a strategy session and crane our necks to look downstream. The rapid doesn't look intimidating to me--just a long wave train that terminates in a placid pool. Only a few rocks break the surface; it won't be technical.

"I don't think we should waste time scouting it," I announce matter-of-factly. "That would take forever."

Mike nods his agreement. Apparently he's not impressed either.

Dean looks a little uncertain. "What the hell," I think to myself. "We can't scout every class 4 on the river. He's got to get his feet wet sooner or later."

I flash a knowing grin that is supposed to inspire confidence as I peel out into the current. I am pleasantly surprised to discover that the waves are juicier than I had anticipated. The magnificent scale of the Romaine had dwarfed them when viewed from upstream. I bob along cheerfully until I reach the crest of a particularly lofty one, perhaps twelve feet from trough to crest.

From this vantage I get a good look at what lies ahead. For the first time concern enters my mind. Not panic mind you. Concern.

Not all of the waves downstream are as nicely rounded as the one I'm on. Some are

peaked, and a few are exploding. Actually, more than a few are exploding. Some erupt intermittently, but others, like the monster coming up fast, explode continuously, forming a great big #!#!## hole.

Now concern is displaced by genuine angst. Not panic mind you. Angst.

I paddle vigorously (not frantically mind you, just vigorously) toward the middle of the river, hoping to skirt the edge of the hole. But the 15,000 cfs flow of the Romaine has its own itinerary, and my strokes don't seem very effective. Soon the possibility that I might slide smack into the vortex of the sucker crosses my mind.

The hole in question is less than a quarter of a way through the rapid. How many others lie below, just as big--or bigger?

Now is the time for frenzied paddling. Now is the time for panic.

So inspired, I manage to clip the edge of the stopper. Nonetheless, it rockets me into a **tailstand** that could easily have been a backender.

I recover in time to avoid the second hydraulic. Then I select a beeline toward a river left eddy, dodging several more holes. It is not until I reach the sanctuary of the eddy that I have time to consider the plight of the others.

It takes a while to locate Mike, side surfing the first hole, sometimes upright, sometimes not. Eventually he ends out and rolls, just in time to punch the second keeper. Even at this distance I can tell that

Mike is impressed.

Dean is nowhere to be found. "Where the hell can he have gotten to?" I wonder, and then, "What the hell have we done? Surely we haven't deep-sixed the boy on the first class 4."

Notice the use of the pronoun, "we." When things go well, "I" take the credit. When things go poorly, Mike shares the blame. That's what friends are for.

I scan the rapid again from top to bottom. But there is no sign of Dean.

Just when I am starting to feel confident, it happens. What I feared most--a giant hole. First it chewed on Bob, and now it has eaten Mike. I'm still at the top, wondering what to do.

Up to now it's been class 2 and 3, but not the kind of water I'm used to. These class 3 rapids have eight foot waves! The volume of the Romaine is greater than any I've seen, nearly three times that of the New at high water! The current is deceptively powerful. The weight in my boat makes me sluggish; catching eddies is a real chore. But I've started to get used to it, started to think that I had the situation under control. Until now.

I fight to catch a micro-eddy in the middle of the river, well upstream of the hole. I keep looking for Bob and Mike. Several decades later Bob appears two hundred yards downstream on river right. After a long time, Mike joins him. There has been pandemonium of some sort, and I

remember what happened on the Blackwater and the Shaver's Fork. I cannot afford a mistake this early in the run. Boat rescue here would not be easy. I try to think rationally.

Bob and Mike finally spot me, and they point to the right. With some trepidation, I manage the ferry to the shore. I know the Canadians lined their boats down this side, but I'm not taking any chances. I climb out of my kayak and scout.

A few minutes later I attain the eddy after paddling along the right hand shore. Bob and Mike look a little green around the gills. Once again, Bob perceives my anxiety.

'We'll have to be a bit more careful from now on. Those hydraulics were rather uncharitable,' he observes. Bob is a master of understatement, but hearing him say that makes me feel a little bit better.

There is a sandbar beside the eddy, and we decide to break for the day. Bob and Mike pitch the tents while I start the fire. Then Bob dozes off while Mike explores the shoreline.

I get my map out and count the class 4 and 5 rapids. There are quite a few. I toss a sacrificial raisin into the river and worry some more. Tonight I get to listen to the rumble of man-eating hydraulics while I sleep.

I hope there will be no nightmares.

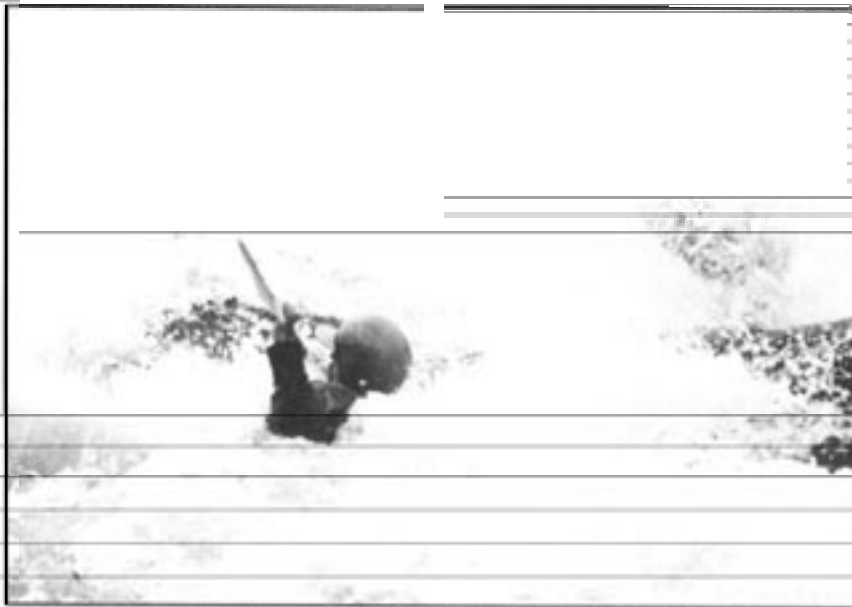
THE FISHERMAN

Mike is really looking forward to the fishing. He talks of little else. He extols the compact but sensitive virtue of his break-down pole, the fidelity of his high tech reel, the invisibility of his appropriately tested line and the glamorous allure of his spoons and spinners. God only knows how much time and money he has invested in his tackle.

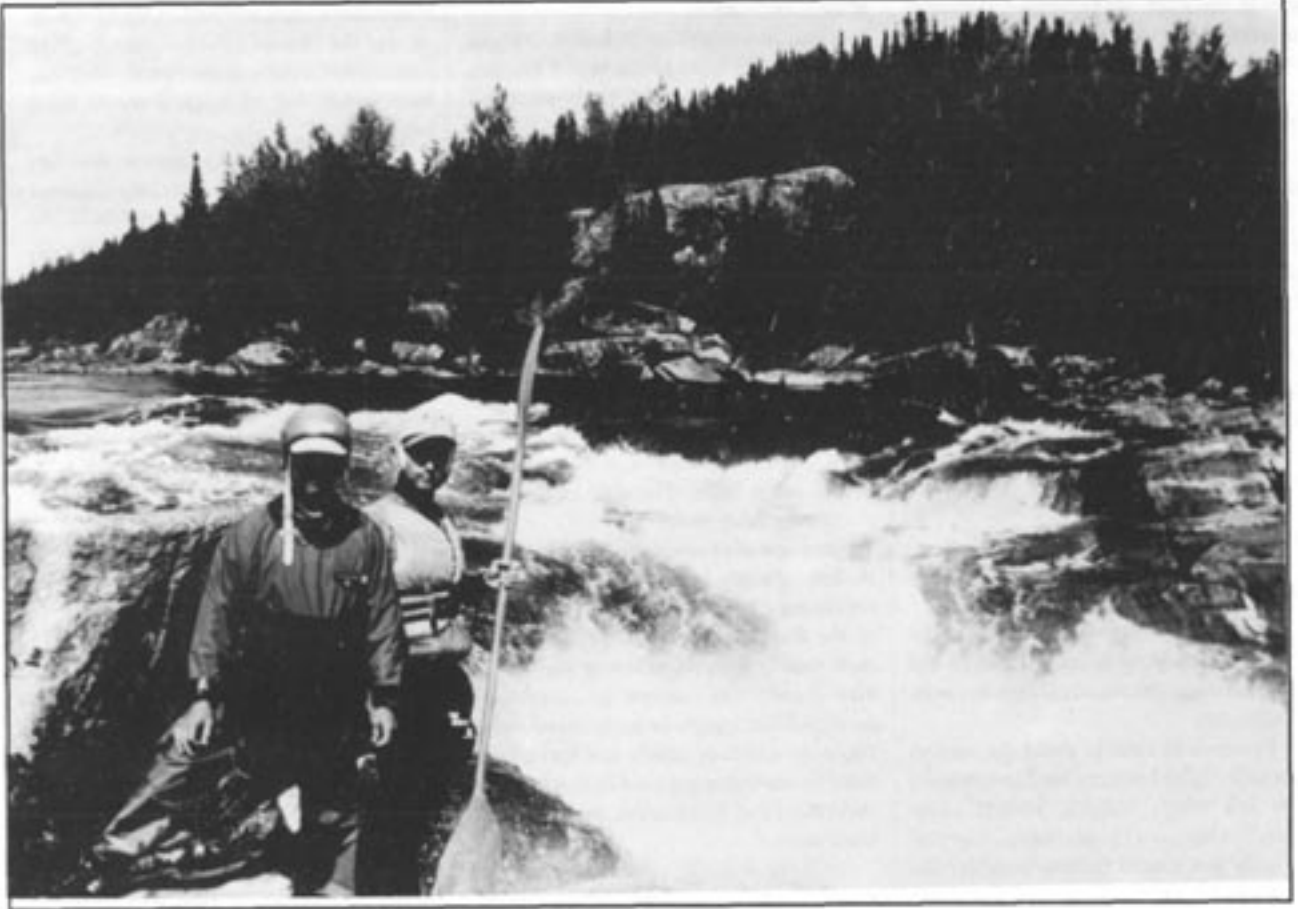
Dean and I brought fishing gear along as well. My entire outfit cost ten dollars at K-Mart. Dean's gear is comparable to mine.

Nonetheless, we're betting that we will catch just as many fish as Mike. We have good reason to believe this. We have inside information that we haven't shared with Mike.

According to my Canadian sources, no one has ever caught a fish on the Romaine. As far as they know there aren't any to be caught. They offer no explanation. There surely isn't any pollution. The watershed is



Mike Bush is buried to the shoulders as he blows through one of the Romaine's juicier rapids.



Mike Bush and Dean Fairburn pose before one of the Romaine's many steep chutes.

undeveloped. Pristine. And the Magpie and the St. Jean have lots of fish. They lie less than fifty miles away. Nonetheless, the Romaine is said to be void of fish.

We have not shared this intelligence with Mike for a reason. It might have broken his heart. Worse yet, he might have backed out. After all, he's still bemoaning the sixty-three blackfly bites he counted on his body one night on the St. Jean. The only reason we brought fishing tackle was to keep him from getting suspicious.

But this is the moment of truth. We've taken a break in the middle of a class 3 rapid, and Mike is whistling optimistically as he assembles his gear for the first time. Dean and I exchange guilty looks as he makes his initial cast.

A few seconds later Mike hoots with delight as his pole bends abruptly. But his joy is short-lived; almost immediately his line goes slack.

"Had a good hit, but he spit the hook," Mike explains disgustedly.

I nudge Dean knowingly. "Must have

been a snag."

Mike casts again. Once again his pole bends abruptly, but this time it stays that way. While Mike eagerly reels in his catch Dean and I watch halfheartedly, certain that he will find a clump of weeds or an old hunk of wood on the end of his line.

Suddenly, a sizeable trout breaks the water just offshore. It has a lure in its mouth. Now we exchange looks of wide-eyed astonishment.

"Where did that come from?" Dean whispers.

"Beats me," I reply. "Probably the only one in the river."

But it is not. Within a few minutes Mike has landed three more trout, and Dean and I are scrambling to retrieve our tackle from the kayaks. We soon discover that the Romaine has more fish than Mrs. Paul. So many, in fact, that we establish a policy of keeping only those hooked in the gills or the eyes--those that would not survive if released. Even so, by the time the trip is over we will all be tired of eating

trout.

This might be a function of the way we cook them, over the fire like marshmallows on a stick. Without a frying pan or even margarine, we have no choice. At least we're not eating them raw.

BY LAND OR SEA

These portages are tough. We even scouted this one to select the best route, yet it has taken over two hours to come this far. Mike and Bob carry slings of climbers webbing to facilitate boat dragging. Next time I'll bring one, too.

The terrain is rugged. The vegetation is dense, the ground is covered with thick, slippery moss, and there are boulders and fallen trees everywhere. Now we must descend a twenty-foot granite cliff. A fall could be disastrous.

The blackflies are particularly fierce here. My wrists itch, and I scratch them till they bleed. I have never seen blackflies until this trip, and I would not have be-

lieved that anything that tiny could inflict so much genuine misery. Mike and I are wearing headnets, and we have bathed in repellent. Undaunted, the blackflies crawl into my clothing and bite me around the neck, waist and ankles.

Bob isn't wearing a **headnet**. Sometimes he doesn't even wear a shirt. The blackflies don't bother him much at all. He jokes that he is immune to their bites, and I guess it must be true. He teases us **unmercifully**. Mike, whose right eye is swollen shut, and I don't think his blackfly jokes are the least bit funny.

We pause at a blueberry patch and start to forage. This happens often. Bob eyes the river downstream and mumbles, "Hmmm." I hate it when he does that. I don't know what he's thinking, and I'm not really sure I want to know. That doesn't stop him.

"I believe if we hang tight to the base of that cliff and stay clear of the main current, we could spare ourselves the next section of this portage. We ought to be able to nab that eddy above that next drop."

That eddy is about the size of a teaspoon, and that drop looks like certain death to me.

Just as I exasperate, "You've got to be sh...," Mike intercedes.

"Looks reasonable," he declares. I think he must be awfully tired of dragging his boat.

Oh well, here we go again. Bob will run first; Mike clambers downstream to intercept him at the eddy. The current at the base of the cliff is unruly, and Bob swirls through several 360 degree revolutions before reaching the eddy. Mike catches Bob's bow and steadies it while he climbs out. Now it is my turn.

The run isn't all that **difficult**, but by location it is quite unnerving. I am more than relieved when I reach the safety of the eddy.

We carry the drop, then line our kayaks another eighth of a mile. By the time we finish, I note that it has taken three hours to circumvent this single rapid.

Lining, boat catching and these rugged portages are all new to me. A change of pace from carrying my boat to and from the Ocoee. But I must admit that sometimes the portages offer welcome relief from running the intense class 4 and 5 water.

And there are always plenty of blueberries.....

WILDWATER

The Romaine features some of the most peculiar whitewater I have ever seen. Many of the rapids indicated on the Canadian survey are not single drops at all, but long, continuous series of class 4, 5 and 6 whitewater. As a consequence we have been able to paddle portions of the river which the Canadians deemed **unrunnable**.

Often the Romaine is a half-mile wide, braided through islands and weird rock formations. It is difficult to decide which way to go. Midway through one rapid we encounter a fourteen foot curling wave that forms a pipeline that would have knocked the socks off Gidget and Moondoggie. It would be a wild ride, but there is an imposing hydraulic, at least twenty feet deep, just below. "Big enough to surf the Titanic," I observe. "Terminally."

Sometimes the whole river starts to heave in its basin. Near the bottom of one mile-long series of falls the water surges and recedes nearly eight vertical feet on the boulder strewn shore. Dean spins into an eddy on a crest of water, then finds himself perched high and dry twelve feet from the water's edge. He leaps from his kayak and secures it just in time to avoid the next surge, one which might have carried him back into the rowdy main current and on to hell in a bucket.

We decide to scout the remainder of the rapid. Not far downstream a nine-foot deep, eight-foot wide hydraulic blocks our path. It is clearly impassable. As we catch our breath I notice that the hold is evolving, decreasing in height and width. After about forty seconds it is gone completely! Then slowly it reappears, soon it reappears, soon regaining its ominous proportions.

"It could be run if you hit it at the right time," Mike observes, but I notice he's not heading toward his boat.

"What is you hit it at the wrong time?" Dean inquires.

"Then you hold your breath for forty seconds and come out squeaky clean," I reply.

We monitor the cycle several times, taking pictures to document this **whitewater** marvel. The longer we watch, the meaner it looks. In the end we all elect to portage.

Every day Dean grows more confident. No longer is he intimidated by the powerful and unpredictable class 4 water. Though still wary of class 5 rapids, he's running

most of them afterscouting. Someday soon he will be better than Mike and me. He's ten years younger and in a lot better shape. I wonder if he'll associate with us when we're old and decrepit.

I'm glad that Dean is having a good time. This kind of experience is not for everyone. Dean has worked out perfectly. He does more than his share of the work, never complains and keeps us laughing. His alter ego, Harve St. Pierre, world famous whitewater adventurer, is a **one-man riot**.

Camping on the Romaine is more comfortable than on the St. Jean, where we slept in boulder fields and in bug infested swamps. Here the campsites are spacious sand bars, usually at the base of a rapid. There is a breeze to discourage the blackflies, and firewood is plentiful. So far we have seen bear tracks, but no bears. Last year we saw bears.

We brought a two-man tent and a **one-man bivvy sack**. We take turns sleeping in each. This proves interesting. I talk in my sleep and Mike snores. Dean spends most of the night scratching his **blackfly** bites.

Tonight we camp beside a stunning waterfall. There is a jagged cliff behind the site that supports a lush, primeval, hanging garden. Behind that a majestic peak towers thousands of feet in the air. Not long after the sun sets a full moon creeps over the horizon. Sprawled around the campfire, we start to bay like wolves. At first it is funny, then downright eerie.

I've lost track of time.

It seems we have been on the river a long, long time. Yet it seems we left Harve St. Pierre just yesterday. I **check my** watch. We have passed the half-way point. We have been on the river six days.

THE MAELSTROM

Day seven. I still hate it when Bob says, "Hmmm."

I hate it even more when he says, "I don't think it's as bad as it **looks**."

We are standing on an island in the midst of a series of falls, and Bob has just said both of these things. To our left the river plummets forty-five feet onto a vicious rock jumble. To the right the river circles the island, dropping twenty-five feet in the process. Below the island lies an eddy, then an abrupt and twenty-foot flume that looks like a killer.

A portage over the island would be

miserable. It is covered by young spruce growing less than three feet apart. I study the proposed line through the sluice around the island. This time I have to agree, it doesn't look too bad--class 3--maybe 4. Provided we catch the eddy at the bottom.

I'm starting to feel a lot better about following Bob. He leads down the initial slot and is tossed around a bit. I am kicked out of the same chute sideways. We are still near the top of the rapid, but already I suspect that we have seriously underestimated its difficulty. When will we learn? Downstream Bob is throwing fast and furious braces into oblique waves that come from all directions. Soon I am sucked into the maelstrom.

Every time I get my kayak oriented, another wave explodes and sends me off in another direction. Suddenly a swirly tips me on edge. I fight to stay upright, but to no avail. A robust swell finishes me off.

Now I am upside down, bobbing in the waves, wondering if I have drifted past the last accessible eddy. I manage to roll in time to avoid a sinister hydraulic. Then I drive into the eddy where Bob is griming, sling and carabiner in hand, ready to initiate a rescue. Bushie arrives a few seconds later, turns upstream, and flips the rapid the bird.

"Are we having fun yet?" Bob sputters. I look at the deadly flume not far downstream and shudder. "Ya, we're having fun!"

One day later we reach Le Grande Chute. We bushwack along the shore to get a good look. Here the Romaine tumbles more than 200 feet over one quarter of a mile. It is, beyond any doubt, the most incredible falls I have ever seen. The fury of the river causes the earth to quake and the clamor is maddening. We scramble across the face of the cliffs looking downward, no-

body eager to get close to the edge.

We camp on a narrow beach at the top of Le Grande Chute. After eating and stoking the fire, I sit back to enjoy the celestial show. The atmosphere is clear, and the stars and moon are brilliant. Meteors pierce the sky.

A strange glow spreads across the northwestern horizon. Beams of yellow and green parade across the heavens, glowing in intensity.

"Northern lights," Mike responds to my unasked question. We sit and chat qui-



"Moondoggie" Fairburn surfs the Pipeline

etly, but I cannot keep my eyes off the aurora. Eventually Bob and Mike turn in, but I am determined to stay awake as long as I can. The trip is winding down too quickly; I wish I could stay here forever. I want to enjoy every last minute.

An hour later I awaken, shivering by a smoldering fire, ready for my sleeping bag. Just as I climb into the tent I spot something swimming offshore. I can't imagine what it is. It dives suddenly, but not before whacking the surface of the river with its tail. It is the largest beaver I have ever seen. Reassured that there are no sea monsters about, I hit the sack.

A RELUCTANT FAREWELL

Since mid-afternoon we've endured an icy northern gale that tears across the

plateau, gusting to thirty miles per hour. The water, which should be flat, has been whipped into three-foot swells. Most of the time the wind is at our backs, pushing us toward the seaway. It feels like we are being expelled.

Usually we fantasize about pizza while paddling long stretches of flatwater, but after nine days on the river we fantasize about women. Mike observes for the thousandth time that all the women in Quebec are beautiful. How can that be? Maybe they shoot all the homely ones on their sixteenth

birthday. It's a good thing that the women we boat with back home aren't listening to this!

I terminate this cerebral conversation by crooning Canadian Neil Young's "A Man Needs a Maid." Mike and Dean paddle away, muttering that I sing like Alfalfa.

After thirty miles we camp. It has been pouring for an hour and is nearly dark. We pitch the tents parallel to the wind and stack rocks on the

stakes. I'm still not convinced they won't blow away.

It is our final night on the Romaine. Dean has his heart set on a celebration. He wants to do it up right. Build a bonfire, stay up late, devour two or even three packages of freeze-dried food. He has even saved a package of chocolate pudding for the festivities.

It's not easy to make pudding without milk. Chef Dean has learned to thicken the concoction by adding instant mashed potatoes--voila!--Chocolatey Spuds.

But the Romaine has other ideas.

The rain is incessant, and there isn't much firewood. What we find is wet. Last year on the St. Jean we ate freeze-dried beef stew moistened with cold water on just such a night. I'd rather not repeat that debacle.

Please turn to page 38

RUSSELLMANIA!

...Or, how some 300 paddlers were introduced to the whitewater equivalent of a steel cage match where the river threw most of the contestants out of the ring.

Compiled from reports by Forrest Callaway

You heard it throughout the 1987 Gauley Season: after a day on the river, paddlers would part with the closing benediction:

"Hey, see you next week on the Russell Fork."

To the uninitiated, it sounded like an inviting proposition. This year, the Army Corps of Engineers had scheduled the annual **drawdown** of Flanigan Dam on the Russell to fall on the two successive weekends following the end of the Gauley season. Releases of an optimum paddling level of 1,350 cfs were guaranteed.

All a boater needed to do was load up his van and head out of **Summersville** three hours south to the Breaks Interstate Park on the Kentucky-Virginia border and, voila, the paddling season had a two-week extension.

After all, isn't the Gauley termed "the qualifying run for the expert paddler?" So, if a boater is comfortable on the Gauley, he's ready to tackle anything, right? Right?

Well, maybe ten years ago that was true. But while the Gauley remains a difficult and technical run for most paddlers, its lines through rapids are like highways when compared to the steep and narrow sluiceway known as the Russell Fork.

I was introduced to the Russell Fork five years ago by Dale Adams of Pound, Virginia. Back then, there were no scheduled releases to look forward to or plan around--just a phone call from Dale saying the river was up and pumping.

The five-hour drive from my house to Dale's place was always filled with the anticipation of running the Russell Fork gorge, a legitimate class 5 run which twists and turns through the Breaks Interstate Park. Known as "the Grand Canyon of the East," the Russell gorge is a tourist magnet for its magnificent scenery.

But the Russell itself was always the prime attraction for us. Dale's house served as the meeting place, and as Friday night turned into Saturday morning, eight to ten people would show up ready to hoot n' holler, eager to paddle.

Paddling pressure remained light on the Russell for the next three years. The number of boaters jumped to approximately 60 in 1985 when the Army Corps publicized the dates of **its** releases, but the ability level of the paddlers who appeared remained high and the Russell easily absorbed the added people.

In the following year, a mix-up with the release scheduling seemed to prevent additional growth of the Russell's popularity, but that was a situation that does not appear destined to happen again. Like it or not, 1987 was tabbed to be the year that the mainstream whitewater community "discovers" the Russell Fork.

Until ten years ago, whitewater rivers were considered more than a nuisance than anything else by the general Appalachian population. Hell, you couldn't fish half of them--the bass or trout had floated off belly-up long ago from mine acid; every couple years they'd flood in the spring and leave three weeks worth of mud covering the first floor; and they were damned hard to get across if you were hunting deer or four-wheeling in the woods.

But that was before some good ole boys in places like Hico. Albright and Duck Town discovered that there was good money to be made selling gas, beer and even rides down the river to crazy city folks who didn't have any better way to blow their cash. 'And with unemployment figures for the mountain areas of the east permanently mired in the double-digits, locations blessed with a whitewater river saw tourist dollars generated by rafters and boaters as a way to pull themselves up by their bootstraps.

So, it wasn't that much of a surprise that when Dale Adams went to the Army Corps to try to schedule the Russell releases to follow the Gauley season, he found the Corps unusually cooperative. All Dale was looking for was some guaranteed water so he and his buddies could paddle. But what the local economy not-so-secretly hoped was that the Russell would prove to be a liquid bonanza.

So the build-up began. Commercial outfitters booked raft trips. The word was spread like wildfire among private boaters. The local media rented a helicopter to shoot footage of the big opening day. Even the governor of Kentucky decided to hover over the river in a whirley-bird to check out the big event.

Russell Mania was born. Arriving at the put-in on the first Saturday, I was overwhelmed. It looked as if the Gauley Festival was taking place again. Cars with license plates from all over the east were parked bumper-to-bumper for a half mile alog both sides of the road.

My first reaction was, "...shit's going to happen."

And what developed on that fateful day when all these elements converged upon the Russell was the whitewater equivalent of a steel-cage match with the river throwing all but a few contestants out of the ring.

What all too many paddlers don't realize is that there are class 5 rivers and there are **class 5** rivers. The Russell is one of the latter.

After the put-in at Bartlick, boaters **warm up** with **two miles** of class 2-3 before entering the gorge. That's where the action starts.

There are five major drops within the 2.5 mile long gorge **linked** by tight, technical rock gardens. Although the water in the rock gardens can become quite pushy during a full release, generally they are not scouted. Boaters eddy-hop down the natural slalom course before pulling out to take

a look at the big stuff.

The Russell boasts all the usual characteristics of a high-gradient river: considerable obstructions, blind approaches and steep drops. But what can't be explained in terms of classification levels is the overall disposition of the river.

Some class 5 runs, despite their difficulty, are mercifully forgiving. Whether it's the absence of life-threatening situations such as undercutts, pinning rocks or dangerous hydraulics, a mistake on a forgiving class 5 normally results in little more than damaged pride.

The Russell, on the other hand, is a mean mother--a sad fact that many of the 300 or so paddlers who showed up on that October Saturday were about to learn.

The third major rapid in the gorge is called Triple Drop. As the name indicates, it's composed of three successive ledges. A boater can eddy between the drops if he's fully in control, but that's not always an easy task.

The peril of Triple Drop lies in the opening ledge. The left side of the first drop dumps into a hydraulic that will nail you. You've got to be on the right side of the river because the hole spans a good forty feet.

On Saturday, we witnessed four people swimming in the hole at the same time. Then we'd look back over our shoulders, and there were four different people swimming in the hole. Once in the hydraulic, they'd all but drown, but eventually the hole seemed to spit them out.

Of course, the problem at that point is that those people had to swim the next two **drops--and** the bottom one slams down on a big rock. Ropes were flying everywhere, but not many swimmers were pulled out.

El Horrendo, the next major drop, is more of a 25-foot waterfall than a rapid. The line dictates a left to right move across the lip of the final precipice before plunging over tight against a huge rock that forms the right bank.

The drop is an imposing sight--a fact not lost upon the crowd of paddlers who gathered atop the far right rock. Due to the positioning of the rock, the spectators were able to peer straight down on the boaters as they plummeted over the drop. The severity of the sight was cause for considerable deliberation for many of the paddlers perched like crows on the boulder.

And it was that kind of deliberation--the paralysis by analysis--that created **dif-**
Please turn to page 38

THE RUSSELL RAP

*I went to the Russell
Just the other day,
The parking lot was full
Much to my dismay*

*I looked to my home boy,
"What do you think?"
He said, "there's gonna be
A big ac-ci-dent."*

*We paddled on down,
Got out on a rock.
People paddled by
Lookin' half cocked*

*People gettin' hammered
Left and right,
Some should have stayed home
Went out and flew a kite.*

*We paddled on to Triple--
One, Two, Three..
I looked to my wife,
"We got company."*

*People goin' left
Down number one,
"If they keep that up,
They'll never see the sun."*

*El Horrendo was
A sight, don't you know...
The people on the rock
Were lookin' just like crows*

*Their heads were all bent,
Lookin' down at the ground.
Nobody was up
Clowning a-round.*

*S-Turn and Climax
Would be the next
When we got there,
The people were all hexed.*

*The eddies were full,
Some were eight deep.
We paddled on by,
"Yo! Ain't this river neat?"*

*Climax took heads
When people leaned right.
Then they rolled up,
Oooh! What a bloody sight.*

*If you want to do the Russell,
I'll be glad to be your host
But you better just remember,
This ain't no weenie roast!*

The "Americanization" of Vladimir

By Chris Koll

When Vladimir Vahna left his native Czechoslovakia and its socialist economic system, he didn't emigrate to the United States with the intent of becoming a raving capitalist.

It just turned out that way.

Perhaps this is the wrong way to start a profile about Vahna, president of Noah Kayaks. The word "capitalist" has such a negative connotation these days.

You can't open a daily newspaper without reading accounts of corporate executives concealing product defects from their consumers, endangering the public by dumping toxic wastes, colluding with competition to inflate profits, bribing politicians to procure lucrative contracts...

Given all the bad press, no wonder the

American public has a tendency to view a successful businessman with a degree of suspicion--"What's he really doing to make all that money?"

It wasn't always that way. At one time, the aspiring capitalist was regarded as sort of an American folk hero. Part of America's attraction was that given a little luck, a touch of imagination and a surplus of hard work, any individual had the opportunity to make money.

And if that individual was blessed with considerable luck, an active imagination and was willing to work himself to the bone--he could make a whole lot of money. Characters like Horatio Alger were held up as proof that the system worked.

So maybe it isn't such a bad beginning to call Vahna a "capitalist." And maybe a

study of Vahna will show that a "capitalist" still isn't such a bad thing to be.

It wasn't really economics that drove Vahna from Czechoslovakia back in 1975. That came later. Rather, it was the urge for individuality--the need to be something more than just part of the system that turned Vladimir away.

"It took too much energy to resist the Communist system," Vahna said. "To preserve my sanity I had to leave or end up a bitter, old man. Even if I made a good income, I still wouldn't have had the opportunity to paddle all the rivers that I wanted to paddle."

Whitewater. It remains one of the constants in Vahna's life brought with him from Europe. But some of the motives for





Noah's Jeti hurdles off a steep drop. The short boat is a favorite among "steep creekers."

boating have changed from the time when Vahna started kayaking in the equivalent of the Czech Boy Scouts.

While the American paddler might look upon the free-spirited nature of whitewater boating as an extension of his personal freedom, the Czech boater considers it one of the few avenues available to express his individuality.

"One of the reasons that kayaking is so popular in Czechoslovakia is that the long arm of the government can't reach you while you're on the river...although Czechoslovakia is doing a good job of destroying their rivers, following the example of its big brother Russia in putting up dams. Still, paddling is a refuge from the misery being imposed by the government."

Unfortunately, all too often the presence of the system intrudes even into the world of whitewater paddling.

"There are good rivers over there," Vahna said, "there's enough to paddle, especially in the spring. But the society is digressing economically and that even affects the paddling. For instance, there's no plastic boats and there isn't even the advanced fabrics for hand-built boats.

"In a Communist system, there has to be an economic reason for everything. When kayaking was taken out of the Olympics as a sport, the propaganda value from doing well was not as great, so the government doesn't really support the activity."

But in a round-about way, the limitations of the Czech system set Vahna on the course that led to his eventual professional position.

"I raced on the Czechoslovakian Army team," Vahna said, "and being a racer, I started to build boats for myself. We raced both slalom and wildwater and there wasn't enough income to buy two racing boats every year.

"I started building, and then designing boats, for just myself, and then I started building boats to escape the rigid system, to get out of the six-to-two routine. That's the hours that compose the workday in Czechoslovakia. I wanted to work from ten-to-six. I like getting up later."

Vahna's reputation as a designer/builder grew and soon he was constructing boats for the Czech national racing team. You'd think he had the basis for the beginning of a nice little business, that is, anywhere except behind the Iron Curtain.

"Of course, in Czechoslovakia, you couldn't actually sell the boats you made yourself," Vahna said. "I had to take the

new boats to a used goods store where they'd be auctioned as used boats. That was the only way I could sell them."

In retrospect, those early days might have been good training for Vahna. If an

"One of the reasons that kayaking is so popular in Czechoslovakia is that the long arm of the government can't reach you while you're on the river...paddling is a refuge from the misery being imposed by the government."

entrepreneur can succeed in a Socialist country, he's surely ready to take on the free world.

Like so many immigrants, Vladimir entered the country at New York City. After a brief stay he headed west to California for a stint at Seda Kayaks before returning to the east coast for a short, albeit enjoyable, period in Boston.

Finally in 1976, Vahna turned up in Bryson City, NC--accepting the "prestigious" position of dishwasher at the Nantahala Outdoor Center. But part of the deal was that Vladimir would have access to

the NOC's shop to pursue boat-building in his off-hours, so while Vladimir spent his days immersed to the elbows in dishwater, his mind could move ahead to plot methods of cashing in on the growing demand for whitewater boats.

Vahna soon learned there was more to being a successful capitalist than simply creating a quality product. Lesson one was in market analysis--know your consumer and what type of product he's looking to buy.

"I built racing boats at first," Vahna said. "I feel that I introduced some of the first low-volume boats seen in this country. One of the first boats I made, the Ja-Ba, was based on a C-1 that the Czechs were winning with. Now it seems like a huge boat, but at the time it was considered extremely small.

"We built another boat called the Triton and cut it down so it was similar to the squirt boats today. I was able to do some modest squirts with it. But at the time, people were saying that it was way too low.

"It's all a matter of timing. The market was not ready for such a boat at that time. It didn't feel safe and it looked odd. So I figured, why fight the market? Give them what they want.

"And besides, there really wasn't any





money in making fiberglass boats," Vahna said. "I've always said, building fiberglass boats is too honest a way to make a living."

In order to "give the people what they want," Vahna sat down and devised a checklist of the qualities a commercial boat should possess. He came up with four criteria: the boat should be safe, comfortable, simple to learn and easy to control. And naturally, a commercial boat would have to be made of plastic.

Vahna quickly decided that the best way to make the boat easier to control was to shorten its length. The traditional boat length of 13-2 was an anachronism--an arbitrary figure meant just for compliance to racing specs. A short boat, like short skis, would be easier for a novice to learn and control.

Added comfort could be accomplished by superior knee bracing, a well-designed seat and general proportions that allowed more than adequate foot room.

And so far as safety is concerned, a short boat is less prone to pinning, but even if a paddler did manage to wrap his kayak around a rock, the four-inch foam pillar

would prevent a hapless boater from entrapment.

"While developing our first hand-made model, we probably did 20 different designs," Vahna said. "We wanted something real strong to enter the plastic boat market. We wanted to develop and fill our own niche."

Of course, that first plastic boat that Noah marketed was the Jeti. And Vahna sold nearly 1,000 boats in the first half year of production. Developed as a safe, forgiving boat for the beginner and a responsive play boat for the more advanced paddler, the Jeti fulfilled its role well.

Still, Vahna realized, sales of the Jeti were going to be limited.

"What I underestimated was that beginners would want a boat that looked like what the experts were using," Vahna said. "When I designed the Jeti, I omitted high eye appeal. It was bulky looking, and that turned a lot of people off."

Thus did Vahna learn his second lesson of peddling a product to the American consumer: it's gotta look sexy to sell.

In the beginning of 1987, Vahna intro-

duced his latest design--the Aeroquatic. He sold the entire initial press run of the boat, some 500 units, in a matter of just six weeks. As the 1988 season approaches, Vahna is optimistic that the Aeroquatic will be a break-through boat for Noah.

"The Aeroquatic can be the #1 selling boat next year," Vahna said. "We're not just looking for a niche anymore. We have enough confidence in the design that it can compete head-on with designs from any other company. It looks like a very solid boat."

"The Aeroquatic is a play boat and an ender-machine," Vahna said. "It's the best ender boat on the market because it has good volume up front along with a flat deck. It's also one of the most stable boats because of its width. People say it's wide, so it has to be slow, but there were other compromises we made to improve the speed. We put a little V in the hull to make it faster, but because of its short length, it still turns easily."

And to add a little flash to go along with the Aeroquatic's performance, Noah is offering the boat in a spectrum of hues that they label "rainbow colors." Noah's

"commercial" boat is now complete.

Your basic kayak consumer isn't very interested in the production process of molding a plastic boat. All they want is the assurance that their plastic boat, whether it was made by Noah, Perception, Prijon or Hydra, comes out of the box ready for a year or two of abuse. And they do.

But to understand Noah's operation, and perceive why Vahna believes his company is now in position to challenge for the top spot in kayak manufacturing, you have to know something about the two basic ways a plastic boat is made.

The most common method, used to produce Perception and Hydra boats, is called roto-molding. A dry plastic powder is placed in a heated mold which is spun

until the plastic molds to the walls. A single boat takes an hour or two to produce.

The second method is blow-molding. A glob of molten plastic is dripped into a cool mold where it is injected with a burst of air, conforming the material to the sides of the mold. Production is significantly faster than roto-molding—a boat is built in five to six minutes.

Up until a year ago, Noah boats were roto-molded. But as Vahna became better versed with the laws of supply and demand, he saw that blow-molding was the way to go.

"We know when the whitewater season starts," Vahna said, "and we don't want to keep boats in inventory and we don't want to have to push our distributors to buy and hold boats in their inventory. The advantage is, Noah can target the paddling season. We're in a better position to supply the market. We can produce 2,000 boats in a week.

"We'll seed the market with 500 boats in the fall and then really hit it in the spring."

Vahna has come a long way in a short time—from selling hand-built custom boats in a second-hand auction to dreaming of capturing the kayak market with plastic boats pumped off a \$100,000 machine. Only in America...

But Noah Kayaks needs to overcome a formidable hurdle before it can claim leadership. Perception remains the acknowledged forerunner in the world of whitewater boat manufacturing, and whether Vahna has learned the lessons of business well enough to overtake the top gun of the industry remains to be seen.

Whatever the result, Vahna is loving every minute of the challenge.

"I'm thriving on the free market," Vahna said. "I like it almost too much...I

...If an entrepreneur can succeed in a Socialist country, he's surely sady to take on the free world.

should try to mellow down in that respect. It's just that I could be a designing genius, but I have to prove it in the area of sales. That's the way it works...sales are considered the ultimate criteria of success.

"There are only about 10,000 boats bought in the country each year, and right

now 70 to 80 percent of the market belongs to Perception. But when you're on top, you're more open to complacency—that's one ingredient I'm counting on.

"I don't mind following them for a while," Vahna said. "But I can believe I can beat them. These things go in cycles, no one stays on top for ever, and I just hope that after we hit the top, after 10 years or so, someone else comes along and knocks me off.

"...that is--after I've made my money." Now there's a capitalist for you.



Synthetic resins pose potential health hazard

*Boating dangers
before you're on
the water*

By Peter Skinner

In the first section of this article, we explored the lung damage and other hazards associated with building fiberglass boats. For this part we consider the dangers associated with the synthetic organic resin systems used in building boats and solvents used for clean-up. Since the majority of the 600,000 small boats are built annually in America, and until the late 1970s all the whitewater boats (excepting canvas or skin folbots) are made of fiberglass reinforced plastic, the importance of health impacts is obvious.

Fabric by itself - fiberglass, nylon, carbon and boron fibers and even Kevlar and Spectra - have no substantial structural strength or water repellancy. Although resin will repel water by itself, it has no structural strength. Together fabric and resin create a high tech matrix known as "composite material" (or *layup* among boatbuilders) which can have great strength and water repellancy and can even flex upon impact without fracture.

Resin System Formulations and Characteristics

There are two basic types of resins used for manufacturing composites - poly and vinyl ester and epoxy. Polyester is formed by condensation of a mixture of dibasic acids with dihydric alcohols. The mixture has a low melting

point and dissolves well in styrene with which it is mixed for supply to boatbuilders. When a source of free radicals are added (the initiator) and often a catalyst (the accelerator) the styrene polymerizes and reacts with unsaturated sites in the polyester to form a three-dimensional cross-linked network which is fairly hard and strong in a reinforced matrix. The United States production of polyester exceeds a billion pounds each year.

Epoxy on the other hand is formed when polyphenols are reacted with epichlorhydrin in a basic environment. Advanced formulations substitute aminophenol or polyamine compounds for the polyphenols. The result is a viscous goo. In each case, the result is a viscous goo. Many hardeners systems exist. Cold curing is effectuated with aliphatic amines while heat curing is needed for aromatic amines and poly-anhydrides. First marketed in 1947, the United States production of epoxy now exceeds 300 million pounds.

The particle gelation is a strict reaction and the rate cannot be adjusted by changing mixing ratios. The reaction is controlled by diffusion of the reactants to active sites and is exothermic i.e. it gives off heat as the gel forms. Eventually, although solid, cross-linking continues to take place until the mix is in glassy state.

The properties and cure rate can be greatly affected by additives and initiators such as cobalt. Diluents can make the mix easier to squeeze into the fabric and flexibilizers can be added to make the *layup* stretch more before fracture takes place, a characteristic which helps hulls resist damage from rock impacts.

The rate of curing is also accelerated by heat - geometrically because the reaction then gives off more heat. If not controlled, the mix can "go off" especially in the pot, giving off dreadful smelling fumes and melting the pot. If the boatbuilder is applying resin which is going off in the pot, the resulting *layup* will not be structurally sound.

Epoxy resins can be formulated to be structurally stronger than polyesters. Epoxy's best characteristic, however, is its ability to stretch more before it breaks without giving up its inherent stiffness. Epoxy costs a good deal more and is much more trouble to work with.

Health Hazards

Exposure to resin systems represents several health hazards to workers. These hazards include allergic reactions and permanent sensitization, dermatitis, neural screwups and cancer.

The best documented response is contact dermatitis and allergy. According to a study of 6000 patients with dermatitis between 1972 to 1976, 3 % were found to be allergic to epoxy resin - causing it to rank among the top 20 allergens. 90% of those who do develop contact dermatitis are sensitized by the resin itself, as distinguished from the diluents or catalysts. Polyester does not appear to create the same strong level of allergic reactions.

One boat builder with whom I spoke described his experience with resin sensitivity rather graphically. "I only built a few kayaks out of epoxy. Although I took care to minimize contact with the resin, after a few boats I began to breakout with severe rashes, without even suffering physical contact with the resin. When it got real bad, the only way I could exist was to shower the area with the hottest water I could stand. The itch would then subside for a few hours." He switched, however, to making wood paddles instead.

Apart from skin problems, other physiological difficulties can result from exposure to resin systems. Boatbuilding occasions essentially continuous solvent exposure since craftspeople are either constructing (exposure to styrene in polyester, etc.) or cleaning up (benzene, toluene, acetone, etc.). Since solvents are usually very volatile, they permeate the air in the shop and are inhaled by workers, often in heavy

concentrations.

In 1985, the NYS Dept. of Health issued a fact sheet which listed the minimum detectable odor threshold to be 0.05 ppm. The National Institutes of Health recommended, however, an 8 hour exposure limit of 50 ppm, some 1000 times higher. The fact sheet goes on to say "Cases of liver damage have been found in workers employed for over five years in polystyrene plants and exposed to a concentration of 20 ppm to 150 ppm. Styrene has been found to produce lung tumors in mice

and cause changes in the genetic material of laboratory organisms (mutations)"

Dr. Philip Landrigan of Mount Sinai Medical Center in New York City stated in a 1985 letter that "There is increasing concern that chronic exposure to solvents, even at levels which lie within or close to current threshold limit values, may be associated with chronic degradation of the

central nervous systems in industrial workers." Numerous epidemiological studies exist noting "an excess of subjective symptoms, abnormalities of psychomotor performance, memory deficits, impairment of verbal concept formation and disturbances of mood..."

Landrigan and Brigham reported in the American Journal of Industrial Medicine in 1985 in their article entitled "Safety and Health in Boatbuilding and Repair" that styrene exposure can cause chronic neurotoxicity, damage the liver and create premature senility. These same authors, however, do not discuss similar exposure risks for epoxy systems.

Of course, there are the more obvious dangers associated with exposure to any synthetic organic chemicals including splashing of solvents into the eyes (MEK is reputed to be particularly

bad). Stray sparks can lead to explosions and fires.

On the plus side, many toxicologists believe the neurotoxic effects of solvents are reversible and not permanent. Although liver damage may not be reversible, that organ's ability to continue its functions successfully under most conditions will not be impaired unless exposure is great, the liver already damaged from disease or alcohol use, or severe demands placed on the organ because of other problems. Liver function tests can deter-



New evidence demonstrates dangers of home boat-building

mine the nature and extent of damage if boatbuilders have worries about exposure.

There is some evidence, however, that exposure to epoxy resins can cause cancer. In a carefully written and heavily researched paper published in a 1981 volume of "Mutation Research," Voogd, van der Stel, and Jacobs concluded "it is evident that a number of aliphatic and some cyclic epoxides are potent mutagenic substances. Some of these compounds are known carcinogens."

Much of the laboratory work behind this study was inoculation of bacteria in an "Amestest" type protocol. Results of this test is expressed as a proportion of bacterial colonies which demonstrate mutations. Toxicologist Bruce Ames and others have argued that a relationship exists between that

proportion and the likelihood of developing cancer in humans. I was unable, however, to find human epidemiologic assessments of those routinely exposed to epoxy resins alone.

In summary, although toxicological information about polyester and epoxy exists, epidemiological studies of resins, especially epoxy are not readily available. No toxicity discussions at all could be found regarding the nature or danger of the noxious fumes created when the pot "goes off." Because we do know that these chemicals can cause a

number of health problems and some epoxies have been found to be potent mutagens, it is advisable to minimize exposure to them.

Exposure reduction

There are many ways to limit exposure to these resin systems. First, of course, is to stop making or repairing boats. Short of that, gloves are a must. "Viton" and nitrile

gloves have been shown to be very impermeable to solvents, but some can be awkward especially when cold. Barrier cream slathered on exposed skin have been found ineffective in reducing dermal sorption. Eye protection when pouring solvents is obligatory.

Respiratory protection when working with such chemicals is also a must. Many systems exist featuring activated carbon filter cartridges which are not too awkward. The cartridges should be replaced when boatbuilders can detect the characteristic odors of the resins or solvents.

A great deal of information exists to help boat builders choose appropriate equipment for safe resin use. One such catalogue can be obtained for free from Lab Safety Supply, PO Box 1368, Janesville, Wisconsin 53547-1368, 10800-356-0783.

...Romaine Roulette

Miraculously Mike manages to coax some flames from a cache of spruce twigs. But every time the fire starts to crackle, the wind and the rain do their best to extinguish it. Mike has to nurse it constantly. By the time we boil enough water to dampen our chow, we are chilled to the bone.

No one will be singing around the campfire tonight. Not even Alfalfa. The fire goes out and we retreat to our sleeping bags.

Lying in the darkness, I try to imagine what this place must be like in winter. Even in August the Laurentian Plateau can be damned inhospitable. Small wonder the people of northeastern Quebec live right along the seaway. The inland region seems quite uninhabitable.

We can visit here, revel in the wildness of the place, but we cannot stay. The land would not sustain us.

I'm glad of that. It's good to know that there are still some parts of this world where we don't belong.

Not many people will see what we have seen. Not many would be willing to pay the price.

No descriptions or photographs can do the Romaine justice. Only in our heads can the magic be preserved.

I listen to the wind and the rain and wonder once again whether the tent will make it through the night.

Mike and Dean are already asleep. After a time, I pull my sleeping bag over my head and join them.

...Russell Mania

difficulties on the river entering the final two rapids.

S--Turn is an intricate rock garden leading into Climax, the last major drop. Boaters weave from right to left and back to left again, threading through the rocks, eddy-hopping down the river. Because of the gradient, the rapid is very blind, and the knowledge that Climax lurks somewhere below created a certain amount of trepidation among those unfamiliar with the run.

My wife and I cruised down through the rapid, looking to jump in and out of the eddies, but to our dismay, every eddy was packed with four or five boats. We finally resigned ourselves to blast straight down to Climax. The congestion continued straight

down to main drop where another bevy of paddlers sat agonizing over the route. River gridlock!

Paddlers had good reason to hesitate before Climax. It's a tough drop. The river runs straight down upon a rock and then slides off to the left and over a drop. The trick is to run off the rock and boof the hole at the bottom or at least brace well downstream. The result of an upstream lean is a pick flip into a very shallow hole.

One member of our party suffered such a fate and dislocated a bone in his neck requiring surgery. Other boaters flipped without such dire consequences, but more than one bloody nose was reported.

At least Saturday's numerous trashings had an appreciative audience. A considerable number of local residents, attracted by all the attention on the river, hiked in miles to Triple Drop and El Horrendo to watch the big doings. Unfamiliar with whitewater boating, the locals thought that major trashings were just part and parcel of the sport.

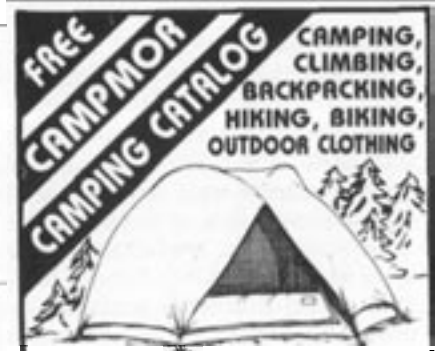
Many remained on the scene all day and were treated to a continual display of excitement. The rafting companies also helped in that regard, contributing to the number of swimmers in the gorge.

The spectacle in the gorge lasted only a single day. The number of boaters putting in the following Sunday was reduced by about 70 percent and the final weekend saw perhaps only 60 paddlers navigating the gorge.

But what happened that particular Saturday is not an isolated phenomenon in today's whitewater community. Paddlers continue to push their personal limits faster than they can develop the skill and experience necessary to handle certain class 5 runs.

That isn't to say there wasn't a surprising number of boaters present who were able to successfully descend the gorge. And it's a testimony, of sorts, of how far whitewater boating has come in the past few years that so many made it down the river without any major mishaps.

In time, most of the boaters bodyslammed by the Russell for a three-count will be back looking for a rematch. But whether Russell Mania 88 is in the future remains to be seen. I'm betting the Russell will hold on to the champion's belt for some time.



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A Christmas Paddle

A story of selecting a paddle... and of life's choices

By Ken Burst

It's Friday, the day after Christmas. The rush is over. It's peaceful now. Bonds with friends and relatives have been renewed. Presents have been opened, all but one. We've been searching for Theresa's Christmas present, a new kayak paddle, for weeks now. Paddles found in local stores just weren't quite right. Too light, too heavy, imperfect, who knows. Picking a paddle is not a purely scientific process after all. Like picking a partner or a soulmate, it involves deeper feelings, emotions, things we're not totally aware of. So we're off to the source.

The miles roll by as we pass the familiar landmarks on our way to the mountains. Out of the right window the sheer ridge of Lookout Mountain rises from the valley floor. The gentle Tennessee River winds its way around Moccasin Bend on our left as we begin the climb into our second home, and first love, those slopes smoothed for eons by the elements into the mountains of East Tennessee and Western North Carolina.

We arrive late at the campground, but they're still open. The sky is clear and the stars are brilliant in the winter mountain sky. The temperature, already below freezing, is plunging. We quickly set up our tent and crawl into the smugness of our bags. Next morning we lay in those bags, relishing the last seconds of toasty warmth before that inevitable moment when we must exit into the frost-covered wonderland created overnight. Empty stomachs and the promise of breakfast and hot coffee at the Nantahala Outdoor Center provide the impetus, and we take the plunge into the frigid air.

We are near the source now, less than a mile, and after a hearty breakfast we head up the winding road beside the rippling brook that passes our destination, Homer King's Silver Creek Paddle Company. The rough-cut lumber structure is in stark contrast with the paddles created there. Smooth flowing lines, with beautiful wood grains, the graceful implements are as much artwork as they are tools in the demanding, sometimes treacherous, sport of whitewater paddling. We're greeted by Homer at the door, a good-sized man with the outdoorsy good looks you would expect from a man in his trade. A mop of sandy hair is gently brushed back from his expressive eyes as we enter the shop. Over the next several hours we slowly collect every 202cm kayak paddle in the building and another half dozen Homer retrieves from his home.

Time is suspended for a while as we listen to Homer. As his Greek namesake spun stories of the gods, our Homer talks about paddles. He talks about length, materials, woods, weight and distribution of weight, types of construction, flexibility, designs, glues, epoxy and fiberglass. His eyes light up as he answers each question with more information than I ever suspected could exist on making a paddle. I'm worried about taking his time, but "I appreciate your interest", he insists. So we encourage him with more questions. We walk through each step in the process. There is more complexity than I ever imagined.

As Theresa sifts through the paddles she eliminates most. The rest, those judged as possibilities, she stacks against a piece of dust covered equipment, idle for the moment. Halfway through this process I noticed her interest has been captured by one of the paddles. I can see from across the room it's an unusually beautiful creation. Unlike many of the paddles, the woods seem perfectly matched in grain and texture.

Theresa walks over to point out a slight discoloration in a strip of wood on one blade.

"Are you going to paddle it or hang it?" I comment.

She ignores me but sets it aside from the other possibilities. After that, nothing quite measures up as paddle after paddle is **compared** and rejected. Still, no decision is forthcoming. Like

many men I've observed considering mamage, she is terribly involved with this paddle but can't bring herself to make that final, irrevocable choice. But each time after **looking** at a paddle she returns to the one set aside and looks at it, touches it, wraps her slender **fingers** around it and for a moment, she is on the river, paddling hard, bracing right, bracing left, now coasting, now slowly drifting back to reality. **Gradually**, through this repeated process, the bond is formed. With each return to the paddle in the comer, with each imaginary moment on the river, it grows stronger until, in the end, there is no choice to be made. They **are** old friends.

Moments later we're on our way again, winding along those ribbons of pavement laid down through the valleys and over the ridges of our mountains. The **Tellico** should be running and what better setting for the honeymoon, the maiden voyage, the consummation of relationship between paddler and paddle.

One of the most scenic rivers in the southeast, the Tellico drops at a rate between 60 and 120 feet per mile, cascading west out of the mountains of East Tennessee until it slows its pace to a milder gradient as it passes through the little town of Tellico Plains. As **we reach the final** turn onto the road which runs along the river, anticipation rises. "Will there be water?"

"Of course there'll be water."

"Enough to make a good **run**?"

"The weather forecast showed rain here two days this week."

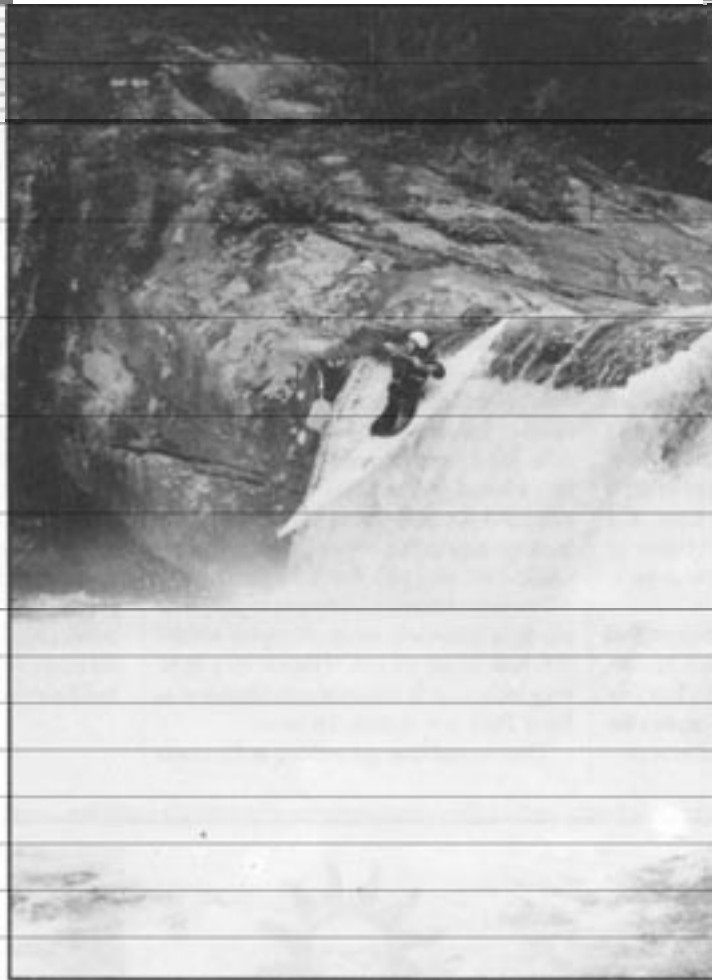
"It could be all gone. It's been a dry year."

"The Tellico always has some water this time of year...but it has been a dry year." Our doubts **are** erased as we round the last turn. There's water.

The scenery is picturesque but not magnificent, not the kind of scenery that makes you feel insignificant, but the kind that makes you feel peaceful, one with the world. **As** we begin the ascent up the narrow winding road, we pass the smaller rapids at the lower

end of the river. Excitement builds. The rapids grow in intensity as we wind our way upward. We slow down and crane our necks at each rapid.

When we reach Bald River Falls, we stop. It's a beautiful falls, well over fifty feet, nearly vertical in three steps, where the Bald River enters the Tellico. No matter how many times I've seen it,



Ken Burst at the Tellico's Baby Falls

I stop to marvel. Some paddlers like to kid novices with comments like "I think I'll **run** it right of center" which would involve a thirty foot drop onto a solid rock shelf.

Out of the coziness of the car, we suddenly realize it's colder than we thought. It's **late in** the day, too. Only two and a half hours of daylight left and there are no other paddlers in sight. Hopes begin to drop. Any one of these factors and we might try it, but the combination of impending dark, cold weather and only the two of us could prove pivotal in case of trouble. We head on up to Baby Falls, a **runable** 15-foot vertical drop. The level is perfect for this rapid, plenty of water to make it interesting but not enough to form a bad hydraulic or sweep a paddler into the next ugly rapid unprepared. We discuss alternatives. In the end we decide against running anything today.

The next day we're back at Baby Falls. The water level is holding well. But the sky has clouded up and it's colder than yesterday, around 35 degrees, and still

just the **two of us**. **To make** things really look bleak, Theresa woke up this morning with a charley horse just under her right shoulder blade and is doubtful about being able to roll. We discuss options but I'm not optimistic. With Theresa injured, even slightly, the odds are not good if one of us were to make a mistake and pin against a rock or venture accidentally into a keeper hole, not to mention her vulnerability with a doubtful roll. Not knowing what else to do, we head up river to scout the ledges above Baby Falls from the road. This part of the run could use a little more water to pad some of the rocks but it's certainly **runable**. After much discussion we head down to the regular put-in. Maybe, if we were very careful, we could make the lower run which is mostly class II and III at this level. As we round the turn just above Bald River Falls, there's a **4x4** with two kayaks on top. The driver is a familiar face.

Paddlers, if they remember **your name** at all, will probably only remember your first name, unless of course you're a famous

paddler or best friend, but they don't forget faces. I recognized **Marty** and he recognized me, but it took us thirty minutes to remember where we paddled together. The odds just got better. Marty and his friend Jeff were waiting on another crew, due to arrive around 11:30. The second crew had three **more** paddlers, Leon, Guy and Matt and best of all, a non-paddler, John. The odds are now very favorable.

The weather has warmed to forty degrees, we have seven paddlers, and John is going to drive the truck along the road, take pictures and pick up weary or cold or injured paddlers. We head for the upper put-in. Theresa and Guy decide to ride along with John in the truck until we reach the lower put-in. Theresa's injury is still bothering her, and Guy doesn't feel ready for the upper drops.

If the ledges above Baby Falls are breathtaking as you cross the horizon line to plunge downward into the pools below, then **Baby Falls** has to be described as heart stopping, especially the first time. It's almost as thrilling to watch from below as did a small group of observers who gathered.

From below you first see a helmet and paddle blades, then a face etched in concentration, then a boat. With the last few strokes the bow lunges forward across the edge. Almost in slow motion the boat piv-

ots downward nearly vertical, then plunges deep into the pool. As the downward momentum is overcome by the buoyancy of the craft, it pops up, and a well-placed brace steadies the boat. Water continues to roar over the edge like a curtain behind the paddler. Concentration turns into a broad grin.

From the paddler's vantage point, he only sees the horizon line preceded by a cluster of rocks which have to be navigated successfully before the 15' drop. Ordinarily, this entrance rapid would be only moderately difficult, but with the falls just below, the price of failure goes up.

"First concentrate on the entrance rapid" I tell myself, "only then let your attention **turn** to the falls." It worked. Successfully through the entrance rapid, I approach the horizon line. Still can't see anything but the edge, two hard strokes, the world opens up below, momentarily suspended, plunge downward, pop up, brace, it's over. I break into a broad grin as I feel the affects of the adrenalin pumping through my body. I **think** back quickly to remember the moment, the thrill...I relive it so I won't forget it.

The next one and a half miles to the lower put-in is extremely steep, dropping almost 200 feet. There are lots of rocks, very tight, very technical. It requires concentration so **Baby Falls** is forgotten, for now.

Theresa and Guy are waiting at the lower

put-in. We stop while they don wet suits, pile, paddling jackets, and gloves, It's getting colder again but no one is taking out. Theresa comes over to me with a funny look on her face. "Do you mind if I don't use the new paddle?"

I laugh, "You have got to scratch it up sometime."

She agonizes for a moment, picks up the new paddle and we're off again.

As I watch her, she paddles skillfully, careful to avoid scraping the paddle. The blades are barely dipping below the surface. This is the honeymoon after all. The rest of the trip is easily within her skill level. She paddles ever so smoothly. No chances are taken. At the end of the next rock-strewn jumble she paddles over displaying the right paddle blade. "The first scratch," she says.

"It had to happen some time," I reply.

Later, at home by the warmth of the fire, with TJ and Corky, our dogs, curled up by Theresa, she carefully rubs down the scratch with emery cloth, removing **the rough** wood exposed by the rocks. She applies linseed oil to a cloth and very gently rubs it into the open wound with small circular motions of her hand. The abrasion is hardly detectible now. The bond survives, alive, even stronger.

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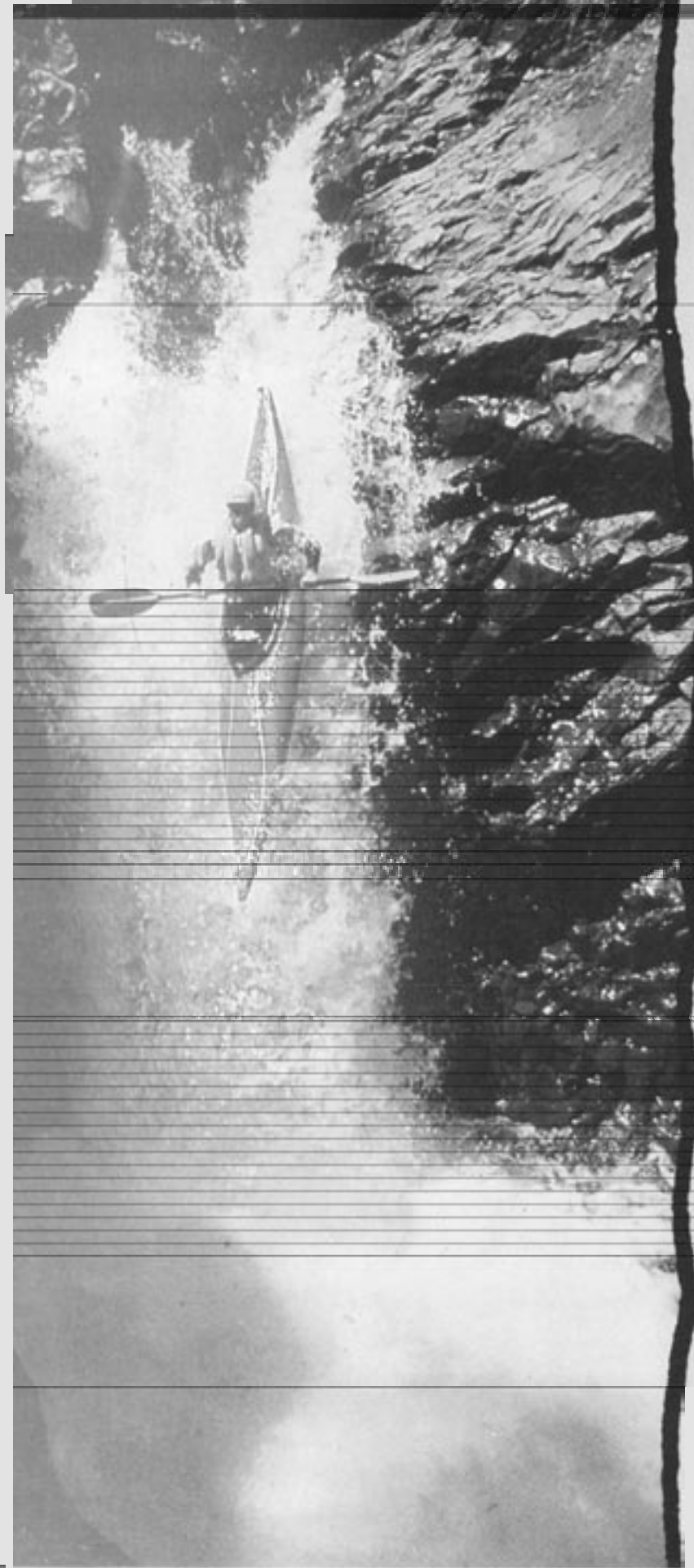
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rear-- Bob Glanville in the midst of epoch trashing on the Niagara. Photo by Don Cochran.

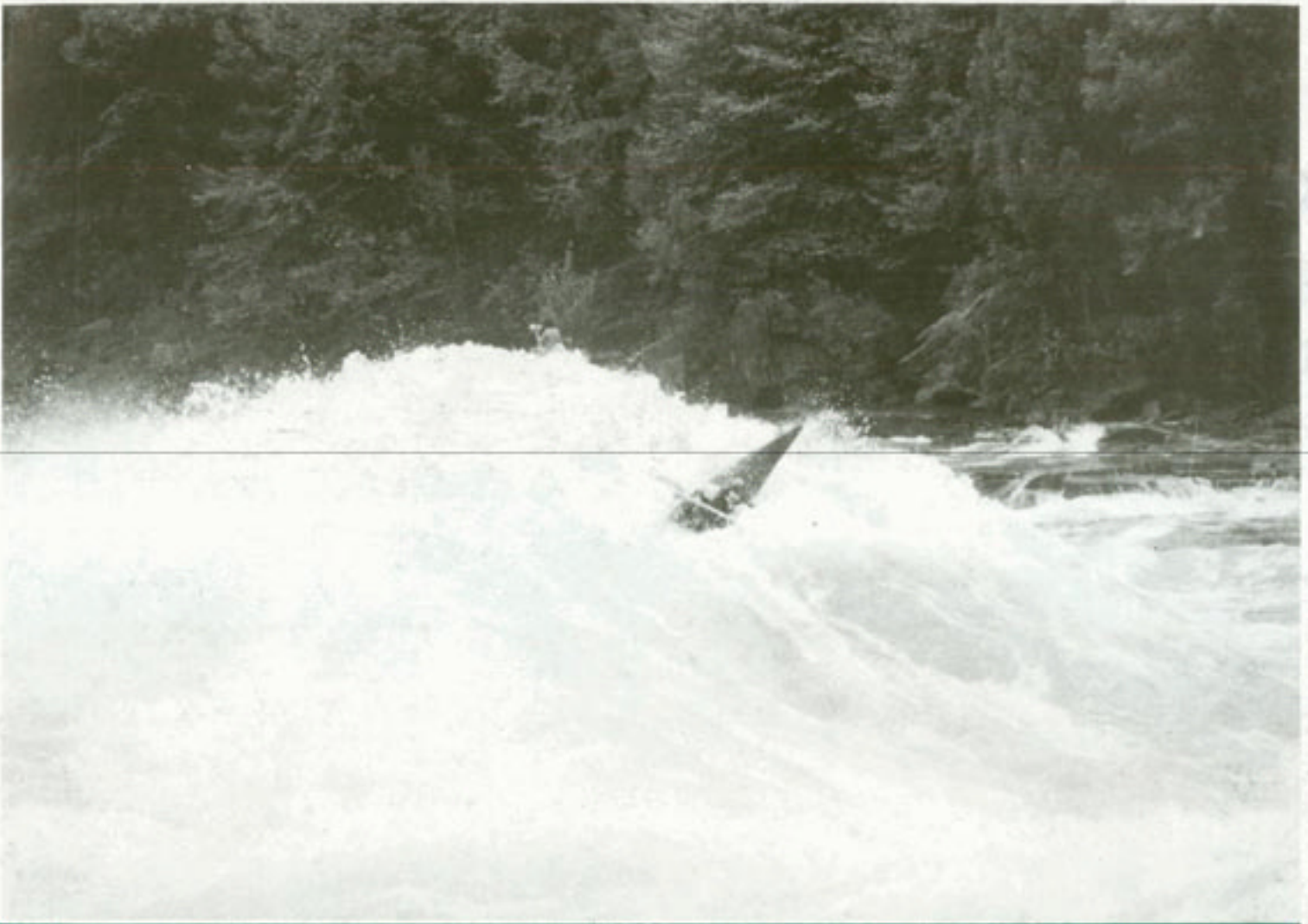


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