

Daring "River Rats" Ride White Water Through Western Cliff Lands Where Now-extinct Reptiles Met a Mysterious End

BY JACK BREED

With Illustrations from Photographs by the Author and Justin Locke

"THIS river is strictly a one-way street," said Bus Hatch. "Once we enter the canyon of the Yampa, there's no turning back. So if any of you fellows want to reconsider..."

His glance traveled deliberately over each member of the little group. Our three rubber life rafts, loaded with sleeping bags, food, ice chests, a two-way radio, and camera equipment, were drawn up on the muddy shore under the cottonwoods at Lily Park (map, page 364).

Ahead of us lay 75 miles of white water twisting and tumbling through some of the West's most spectacular gorges, the bright-hued cliffs and caverns of Dinosaur National Monument. We grinned back at Bus. Why should we reconsider?

Canyons Best Seen from Boats

In a sense we had no choice. If we were to see Dinosaur in its true dimensions and color, it would have to be by boat. A plane could take us over it, yes. But from the air these canyons of Utah and Colorado tend to lose much of their brilliance and grandeur; with such vast distances lying beneath one, from horizon to horizon, even fissures half a mile deep become mere ditches.

Nor are there any improved roads through the monument's 328 square miles, except for an 8-mile stretch of bumpy gravel from Jensen, Utah, to the headquarters. By car or packhorse one can jounce cross-country to some of the rims of the Green and Yampa Rivers, but such a view of Dinosaur is fragmentary compared with the perspective one gets from the depths of the gorges themselves.

Bus Hatch smiled. "Well, don't say I didn't warn you. Let's shove off, then."

I clambered aboard Bus's raft with Tom Vint, Chief of Design and Construction of the National Park Service. Conrad Wirth, its Director, and Howard Baker, Director of its Region Two, teamed up with Don Hatch, Bus's son. Into the third boat went Ronnie Lee, Assistant Director of the Park

Service; Jess Lombard, superintendent of the monument; and jovial, cigar-chewing "Boon" MacKnight, a rancher from Jensen (page 365).

We felt we were in pretty good hands. Bus, a jolly, plump little contractor from Vernal, Utah, was one of the small and select group who have run the Colorado River down through the Grand Canyon. That was a good many years ago, but Bus has kept in trim by taking on most of the West's other major rip-roaring streams. His son Don, a school-teacher from Salt Lake City, is a "river rat" of no mean skill himself; and Boon made up in high spirits and resourcefulness what he may have lacked in experience.

As for our boats, they looked ugly but dependable. Navy craft, they were designed to hold 10 men each and were certainly never intended for inland use. But their rubbery flexibility and buoyancy gave them obvious advantages over wooden skiffs.

To enliven their appearance a little, Bus had painted bright-red stripes along their sides and a legend in silver: "Hatch River Expeditions" (page 384). As a finishing touch, we christened each boat after one of the various dinosaurs that had wallowed in this region in ages past: *Stegosaurus*, *Plesiosaurus*, and *Allosaurus* (page 373).

Closed Season on Dinosaurs

We had made the acquaintance of these beasts the previous day over at the Dinosaur Quarry, where Jess Lombard had shown us the vast rock "graveyard," 40 feet high and wide and 400 feet long, from which a million pounds of petrified dinosaur bones have been removed since its discovery in 1909 (pages 367, 372, and 383).

"My big problem here," Jess had begun, "is to—but watch that tourist car coming up the road. You'll see."

He walked over to the dusty auto and said hello.

A 12-year-old in the back seat popped her head out of the window. "Can you tell us

where the dinosaurs are?" she asked eagerly.

"Young lady," said Jess, "I'm afraid you're a bit late. You missed 'em by about 120 million years. But we do have a nice museum that'll tell you all about the ones that used to live here."

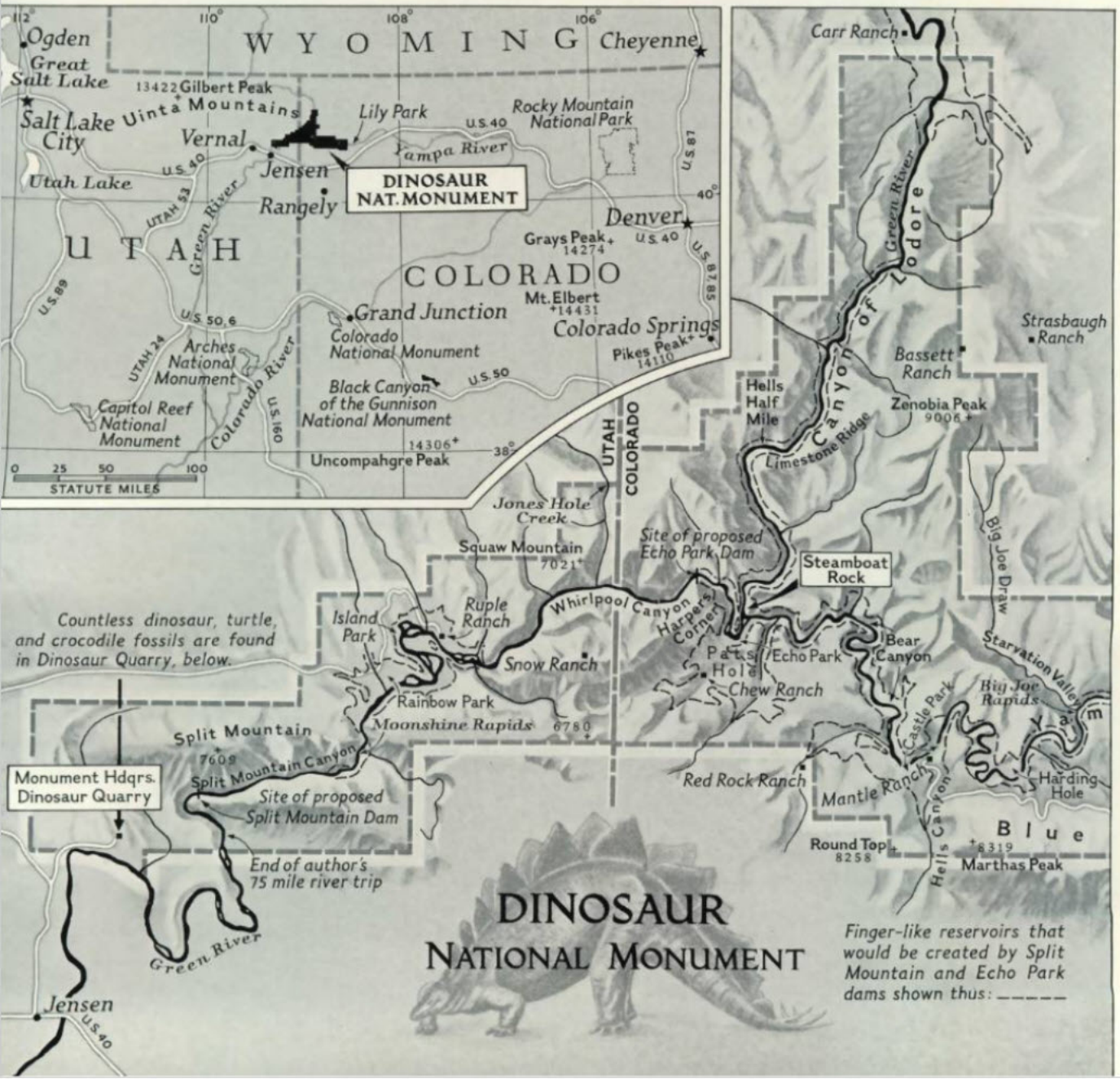
The kids moaned their disappointment, their father muttered something about people who listed a place on the map and got other people to drive for miles on a dirt road only to find nothing at the end of it, and the car turned around and drove off.

Jess grinned wryly. "The other day, a State highway patrolman found a family from the East parked alongside U. S. 40. They'd been sitting there waiting in the hot sun for hours. Said a man had told 'em if they sat there long enough they might see a

dinosaur cow and calf cross the road there!"

For the first few miles of our journey down the Yampa we had leisure enough to study this country in which giant sauropods and smaller dinosaurs of other groups once really had lumbered about. The river, yellow brown with silt, was at this stage a sluggish stream about 150 yards wide and a quarter of a yard deep; we had to use our oars more often than our outboard motors.

I tried to imagine this country when the dinosaurs owned it. A lot different, of course. This would have been the Jurassic period. No Rocky Mountains, no dry canyons; just a huge plain from central Utah to the Mississippi, with a fringe of active volcanoes showering ash and dust over the interior from time to time. A tropical land, it must have been,





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↑ Ready for Rapids—Nine Men Who Crossed Dinosaur National Monument in Rafts

The National Geographic flag accompanied author-photographer Jack Breed (in swim trunks) on the exciting run through the Yampa and Green River gorges.

Other members of the expedition were (left to right) Boon MacKnight, Don Hatch (standing), Conrad Wirth, Bus Hatch, Ronnie Lee, Howard Baker, Tom Vint, and Jess Lombard (pages 363 and 384).

← Dinosaur National Monument straddles the Colorado-Utah border. Its heart is Steamboat Rock, where the Yampa and Green Rivers join (pages 368, 376, and 378).

Two high dams have been proposed within the monument to further the Bureau of Reclamation's plans for developing power and irrigation resources in the upper Colorado River basin. One would span the Green River canyon a mile downstream from Steamboat Rock, submerging most of the "steamboat" (page 366). The other would rise in lower Split Mountain Canyon (page 380). Their impounded waters would drown rapids, parks, and glades, as indicated on the map.

thick with vegetation, warm and moist.

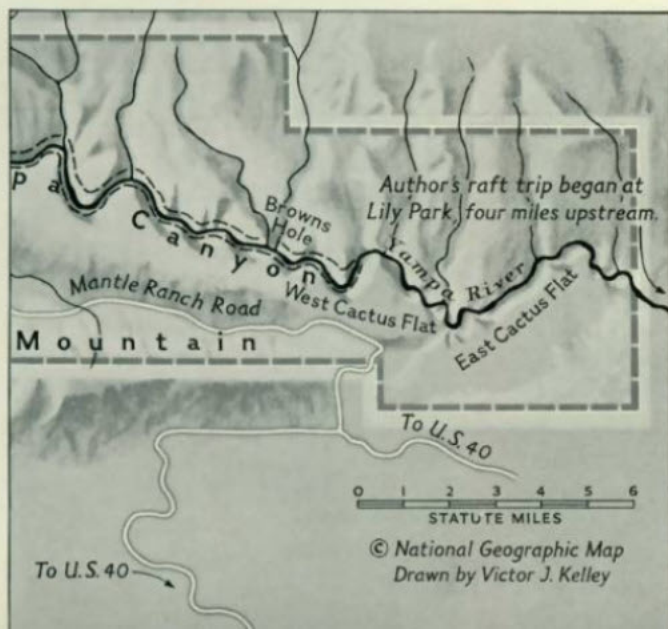
In these dank lowlands several kinds of dinosaurs had developed about 115 to 120 million years ago. Some of them were no bigger than a modern cow; others, like the brontosaurus, were 80 feet long and weighed 40 tons. Most of them were vegetarians; it took half a ton of fodder a day to keep the biggest of them happy. Others were carnivorous, like the vicious allosaurus with his monstrous jaws lined with serrated bread-knife teeth (page 373).

Tiny Brain for Massive Body

All of them had been a bit stupid. An elephant has about nine pounds of brain for some four tons of body. The average sauropod had to get along with a 1-pound brain for his whole 40 tons of bulk. Essentially a cold-blooded reptile, he was doubtless torpid a good deal of the time, immersed whenever possible in swamps that helped support his overblown body.

What killed the dinosaurs that ended up in the monument's geologic boneyard? Nobody is quite sure. Perhaps a suffocating blizzard of volcanic ash. Perhaps a flood. Perhaps, even, the subtler enemy of bacterial plague. Whatever it was, it struck down hundreds of them at once, big and little. Rivers washed their carcasses against a great sandbank, and there they piled up, to be covered layer after layer by sand and silt.

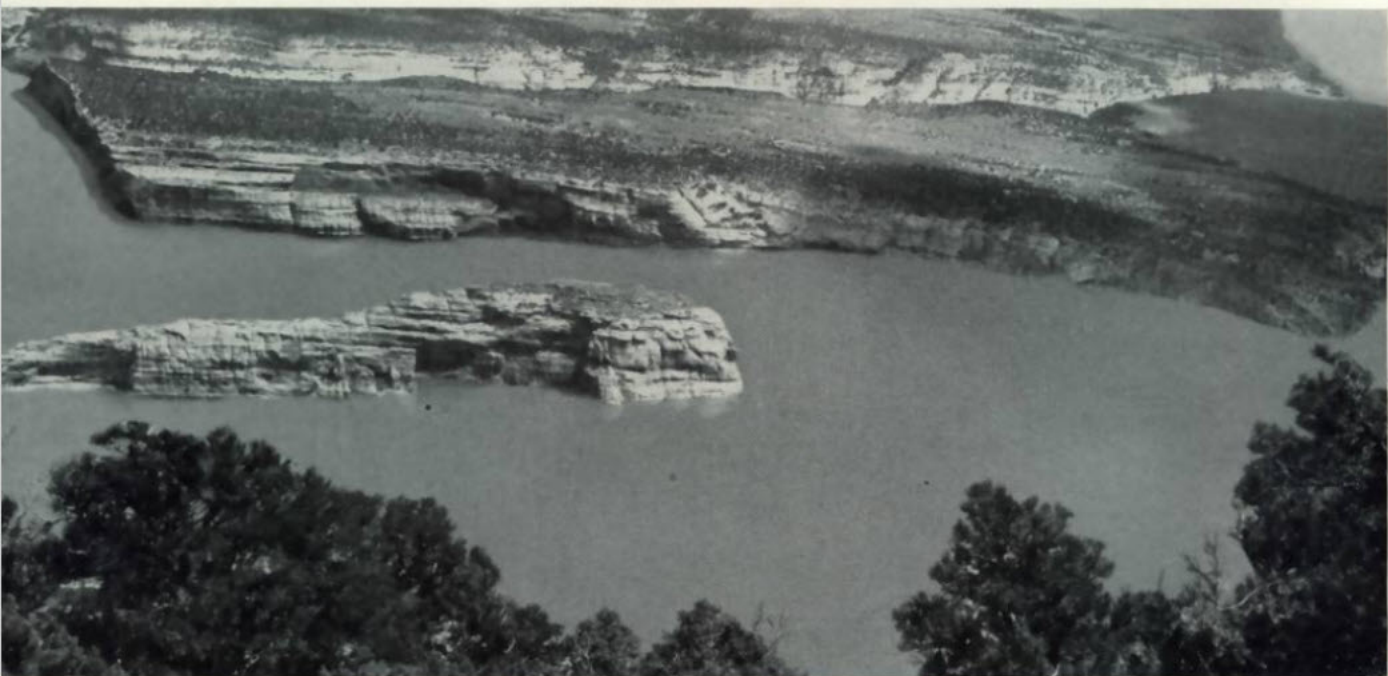
Silica impregnated their bones, hardening and petrifying them. The entombing sand





If Echo Park Dam Goes Up, Canyons Will Become a Lake, Steamboat Rock an Island

Proposed Echo Park Dam would flood this gorge to a depth of 520 feet and impound more than six million acre-feet of water some 40 miles up two canyons. It is part of the billion-dollar Colorado River Storage Project, which anticipates the irrigation of 380,000 acres, generation of power, and other benefits for Wyoming, Utah, Colorado, New Mexico, and Arizona. Echo Park Dam, costing \$176 million, would not disturb Dinosaur Quarry (page 363). Though inundating scenic canyons, it would create a playground for anglers and boatmen. Illustrations are from the same photograph, one retouched to show the reservoir.



became the solid stone of the Morrison formation. Here the bones might well have lain deeply buried for the rest of time, had not the earth strained again and thrust up the Uinta Mountains, tilting the dinosaur beds and exposing the fossilized remains.

Cowboys roaming the area in the 1880's and 1890's spotted these odd rocks but guessed little of their significance. One rancher used a big stone as his doorstep for 20 years without knowing the imprint on it was left by a dinosaur's foot. Not until 1909 did Dr. Earl

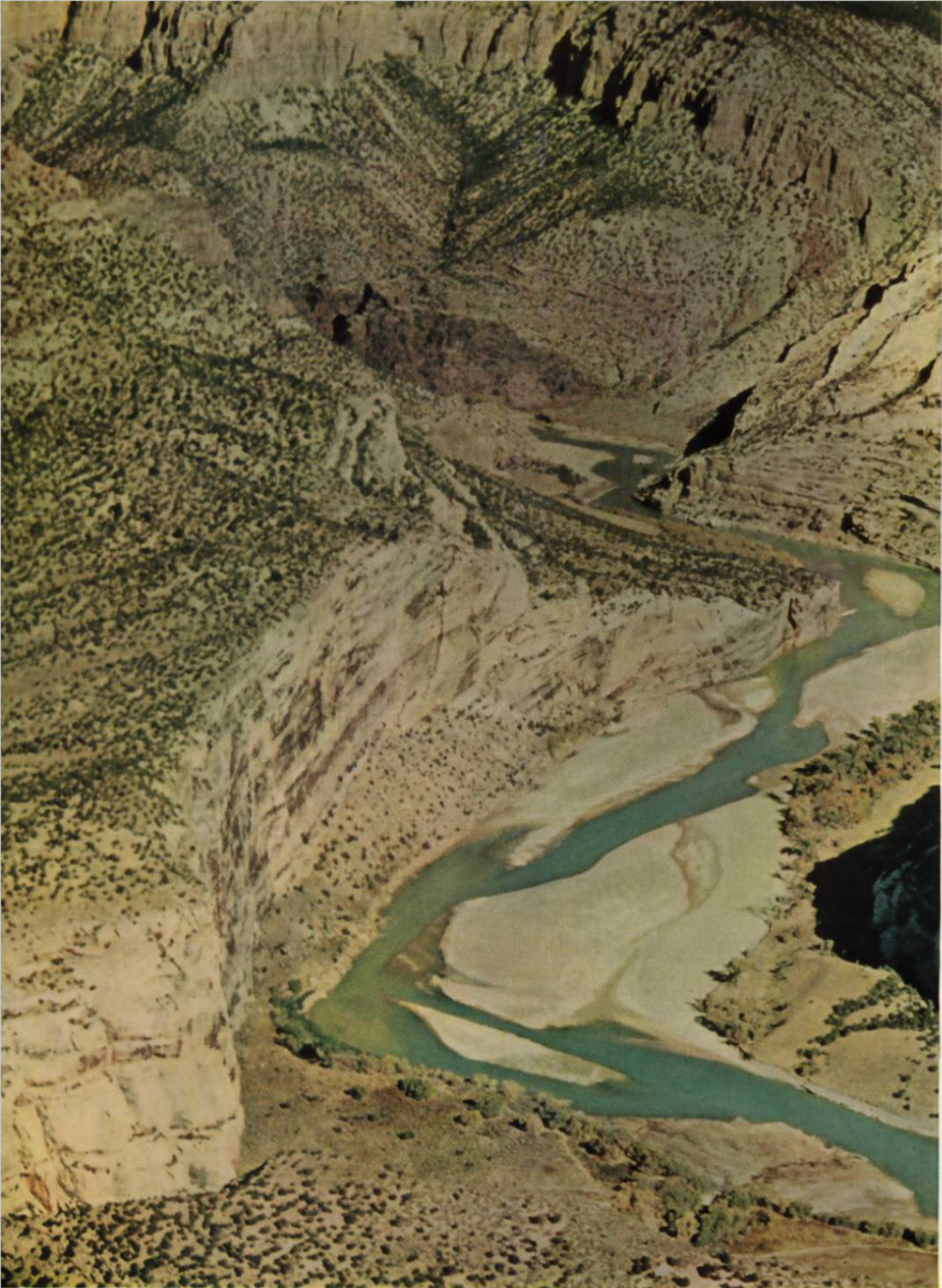
Douglass, exploring for Pittsburgh's Carnegie Museum, discover the main sandbank deposit, one of the world's richest paleontological treasure-troves.

That was one gift of the Uinta uplift. The other was the creation of the Green and Yampa River canyons themselves. To protect the big fossil quarry, President Woodrow Wilson set aside 80 acres as a monument in 1915; to protect the magnificent adjoining canyons that soon became better known and appreciated, President Franklin D. Roosevelt



Diplodocus, a Swamp-dwelling Vegetarian, Breathed Through the Top of Its Head

Bones of this 70-foot-long giant at the U. S. National Museum, Washington, D. C., came from Dinosaur Quarry. The world's largest dinosaurs weighed 10 times as much as an elephant; the smallest were no bigger than chickens.



Dinosaur Monument's 700-foot-high Steamboat Rock Juts into Green River

Proposed 525-foot Echo Park Dam would span the canyon a short distance downstream (left) and flood a large part of this valley in northwest Colorado. Far below, a motor trail from U. S. 40 crosses the foreground.



Echo Park Lies in Deep Shadow at the Confluence of Canyon Rivers

Here the Yampa, flowing across the shadow on right, joins the Green, which drops out of the deep Canyon of Lodore. Echo Park takes its name from Steamboat Rock's startling resonance (page 378).

vastly enlarged the reserve, increasing its total area to 209,744 acres.

Of this ample real estate, our immediate preoccupation lay with a canyon just ahead, a few miles upstream from Harding Hole. Our placid period adrift on the Yampa was drawing to a close; distant but distinct came the roar of white water ahead.

Stopping our outboard motors, we tipped up the propellers to avoid concealed rocks and drifted silently toward our first rapids. The canyon walls converged. It looked as if the river were turning into a broad staircase, each step capped by curling spray.

Rubber Boats Flexible in White Water

In other years I had run many of the West's rivers, always in wooden boats. Instinctively I flinched a little now as the first ripple glistened ahead of us and Bus swung the bow straight into it. But nothing happened. Our rubber boat simply buckled in the middle, folded itself over the rocky steps like a caterpillar, and slithered down to calmer waters.

Tom Vint, relaxing against a pile of sleeping bags in the stern, looked disappointed. "Is that all there is to a rapid?" he asked.

"That's just a wee one," said Bus as he hopped from the oars to the outboard motor. "We'll hit some real ones soon enough."

On a sandbar beneath Yampa Canyon's lofty walls we sat down to a typical river rat's lunch of bean stew and sandwiches. We needed no further explanation of how the Yampa had earned its title, "river of no return"—a name applied, incidentally, to more than one river of the West. We could not possibly have climbed its 1,400-foot cliffs, nor could we have found enough banks or ledges to let us hike back upstream (opposite). I began to be glad I had no appendix.

Back on the river, we had chugged only a little distance down quiet water when Don Hatch in the neighboring raft called out, "Look ahead!"

I expected to see a huge log or rock thrusting up to puncture our rubber compartments. Instead, I could just make out the half-submerged body and craning neck of a dark bird.

"Canadian honker," said Bus. "We'll see lots of them in here. They stick around during the summer to raise their young."

More Canada geese now came into view. They made no attempt to fly but swam placidly ahead of us, sometimes diving to come up many rods away. We saw beaver,

too, swimming close to the banks, and occasional deer bounded up the talus slopes.

"You can see why early trappers liked this country," Bus remarked. "The wildlife is protected from all sides, except from the river. Look up along the banks, back in the elder groves; you'll see some small cabins rotting away. That's where the mountain men of the 1830's and 1840's used to camp. And, speaking of camping, we'd better pick out a spot ourselves."

It was only 5 p.m., but the sun sets early and rises late in these narrow canyons. Shadows were already making navigation difficult, and the toll of propeller pins broken on submerged rocks was running high (page 385). Rather than risk the remaining three miles of dangerous white water to Harding Hole, we pitched camp on a grassy slope in Starvation Valley, at the head of Big Joe Rapids.

Soon savory T-bone steaks were sizzling, and dozens of sourdough biscuits were turning a crusty brown in our Dutch oven. The life of a river rat, we found, puts a keen edge on any appetite. Long before the sun's last rays had left the canyon's rim we had cleaned our plates and climbed into our sleeping bags.

In the morning Bus ordered a reconnaissance of the rapids below. We hiked over rock rubble and through mazes of driftwood and flood-piled debris. At the narrowest point of Big Joe's defile we found the water raging over huge boulders, boiling into holes with whirlpool centers, and plunging downstream in roller-coaster fashion, with waves 8 and 10 feet high.

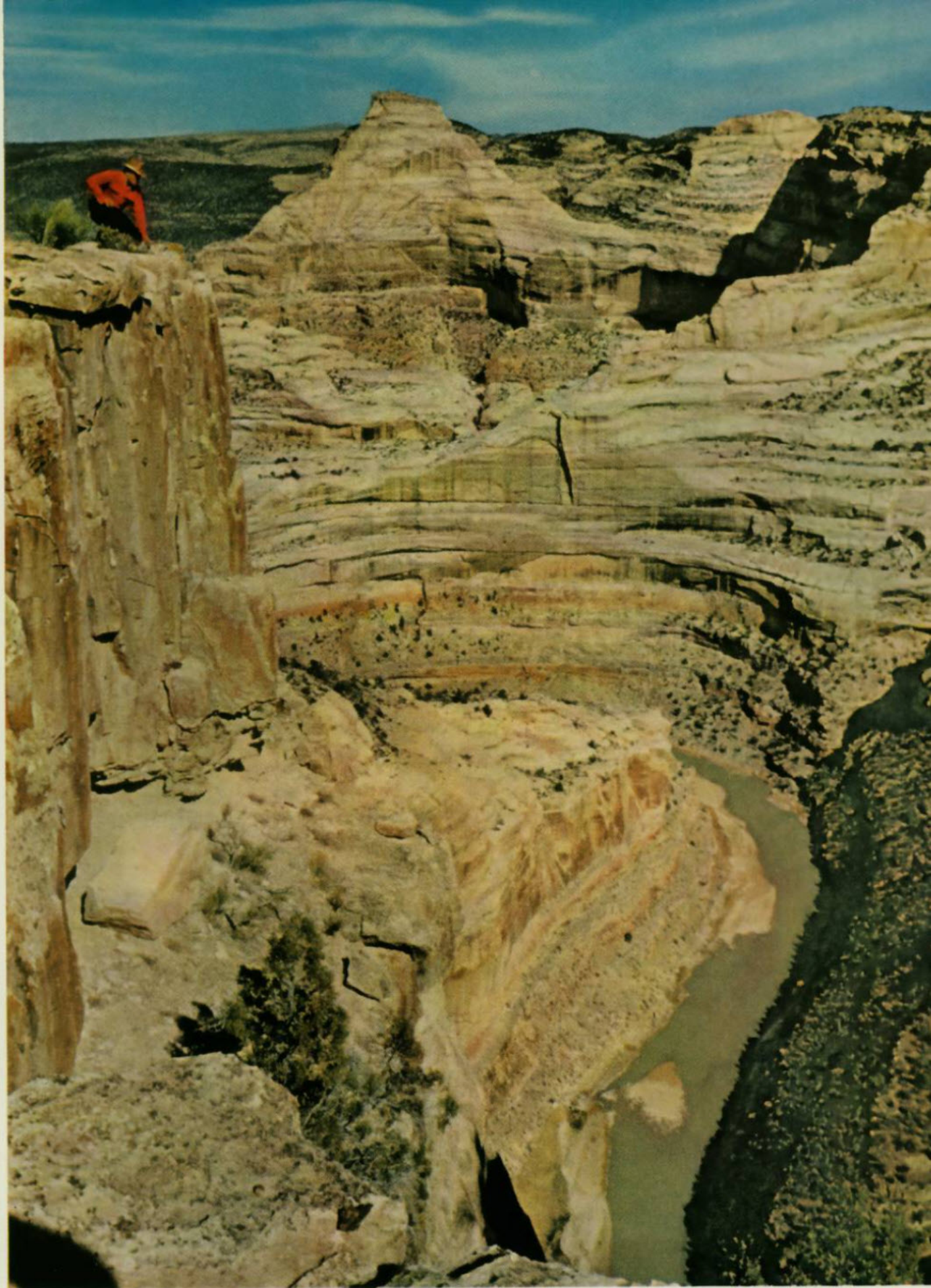
Logs Test Rapids' Violence

Bus, Don, and Boon MacKnight stood on a promontory and studied the maelstrom. Then, to get a better idea of the stream's currents and obstacles, Don clambered back upriver and tossed in several logs. We watched one of them swirl past the shore and plunge suddenly into a foaming caldron. It never came up.

"Stay clear of that one!" yelled Bus.

Other logs rode safely through the waves, only to be slammed against the bank or some projecting boulder. It looked as if we might be in for a rather rough trip.

Bus wanted to go first. After more than half an hour's inspection of the rapids, he eased his boat into the stream. The rest of us, he said, should watch from the shore and be ready to help.



Colorado's Yampa River, Catching Its Breath, Lazes Through an Oxbow Gorge

Once this region was a plain, with the river writhing across it. Since the Rockies started rising, the Yampa has entrenched itself 1,400 feet between these sheer cliffs. Its bed still follows the ancient goosenecks.



Preserving Dinosaur Bones for Science

Boon MacKnight, rancher, canyon guide, and monument handy man, shellsacs a fossil vertebra embedded in Dinosaur Quarry (page 383).

Standing in the stern to see better, Bus gunned his engine and pointed the bow toward mid-river. From our position he seemed to be heading for the worst waves of all. But he must have spotted an opening, for he shot forward into the spray—and vanished!

He reappeared again in a moment, skimming the crest of a wave, his rubber raft buckling from stem to stern as it followed the contour of the river or bent around a stubborn rock. Spume flew over Bus's head, drenching him. But he never took his eyes off the river for a second. I was covering his descent with my movie camera, and before I had exposed 10 feet he had cleared the last rapid, cut his motor, and was sculling the boat inshore. Cheers from all hands.

Don was next. Disdaining an outboard engine, he used only oars. His passenger, Connie Wirth, stood in the stern and rode the raft down like an aquaplane.

Now it was Boon's turn. Tightening his life jacket and lighting a fresh cigar, he climbed into the last boat and steered it cautiously toward the stream's center. Boon, we knew, had made only one other trip down the Yampa. Beneath his banter, which added much to the expedition's gaiety, we felt he might be a little worried.

Boon started well enough. Then, just as he hit the first real drop, his propeller struck a submerged boulder and sheared the pin. The boat went completely out of control and sailed straight into the biggest whirlpool in the stream.

Leaping from his seat in the stern to amidships, Boon grabbed the oars and pulled the boat about till it headed downstream. It was lucky that he did; otherwise his engine might have been knocked off. As it was, his raft bounced onto the rocks of the far bank.

Skillfully he maneuvered it through the remainder of the white water. As we pulled him in to shore, we announced a rechristening of the defile. Henceforth it would be "Big Boon Rapids."

Below "Big Boon" the Yampa widened, and we entered the pleasant little amphitheater called Harding Hole. Here, by prearrangement, we met Charlie Mantle and his sons, local ranchers who wanted us to help them round up some cattle that had strayed across the river.

Roundup of Marooned Cattle

Charlie, a handsome, weatherworn range rider, told us the animals had probably wandered across during the winter when the Yampa was frozen.

"They come down this side by way of a little pass and stumble over on the ice. When the spring thaw begins, they're marooned. Matter of fact, that's how a lot of the deer you saw upstream got stranded over there."

Spurring his horse forward, Charlie tried to ride it into the Yampa. But the cow pony, as stubborn as it was smart, had no intention of fooling with a river that looked so swift and deep.

"Hey, Bus," called Charlie. "Tie this critter to one of your boats and we'll tow it across. Once the other horses see it on the far bank, they'll follow without any fuss."

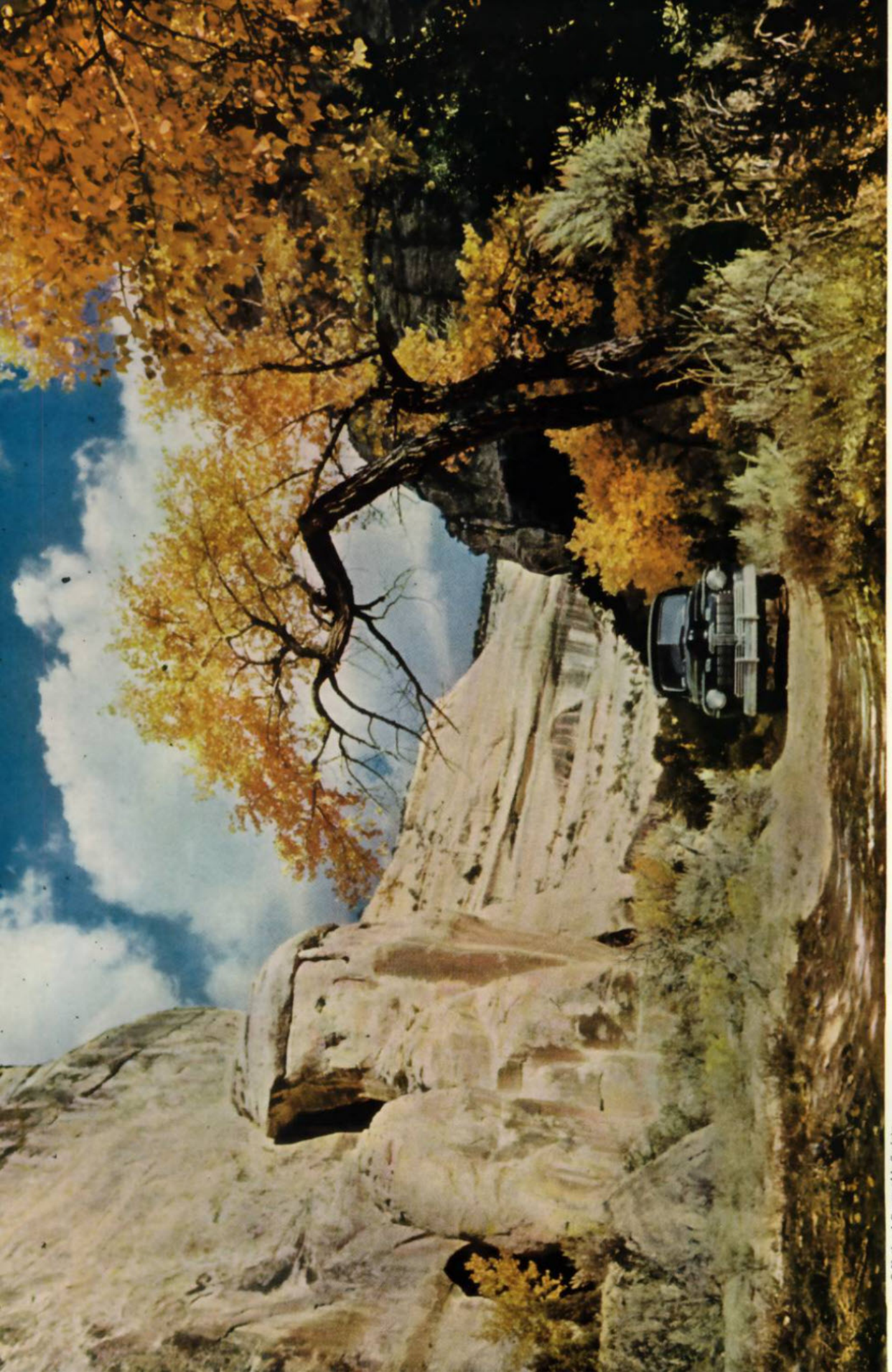
So Charlie sat in the stern, holding his pony's reins, while Bus thrashed with his



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A Ferocious Plaster Monster Rewards Visitors Who Ask to See the Dinosaurs

This roadside eye-catcher near the monument's entrance resembles ancient allosaurus, a flesh eater. The original had eaglelike claws and spike teeth but not this model's light-bulb eyes. Half its 34-foot length was tail.



↑ Cottonwoods Flame
in Hells Canyon

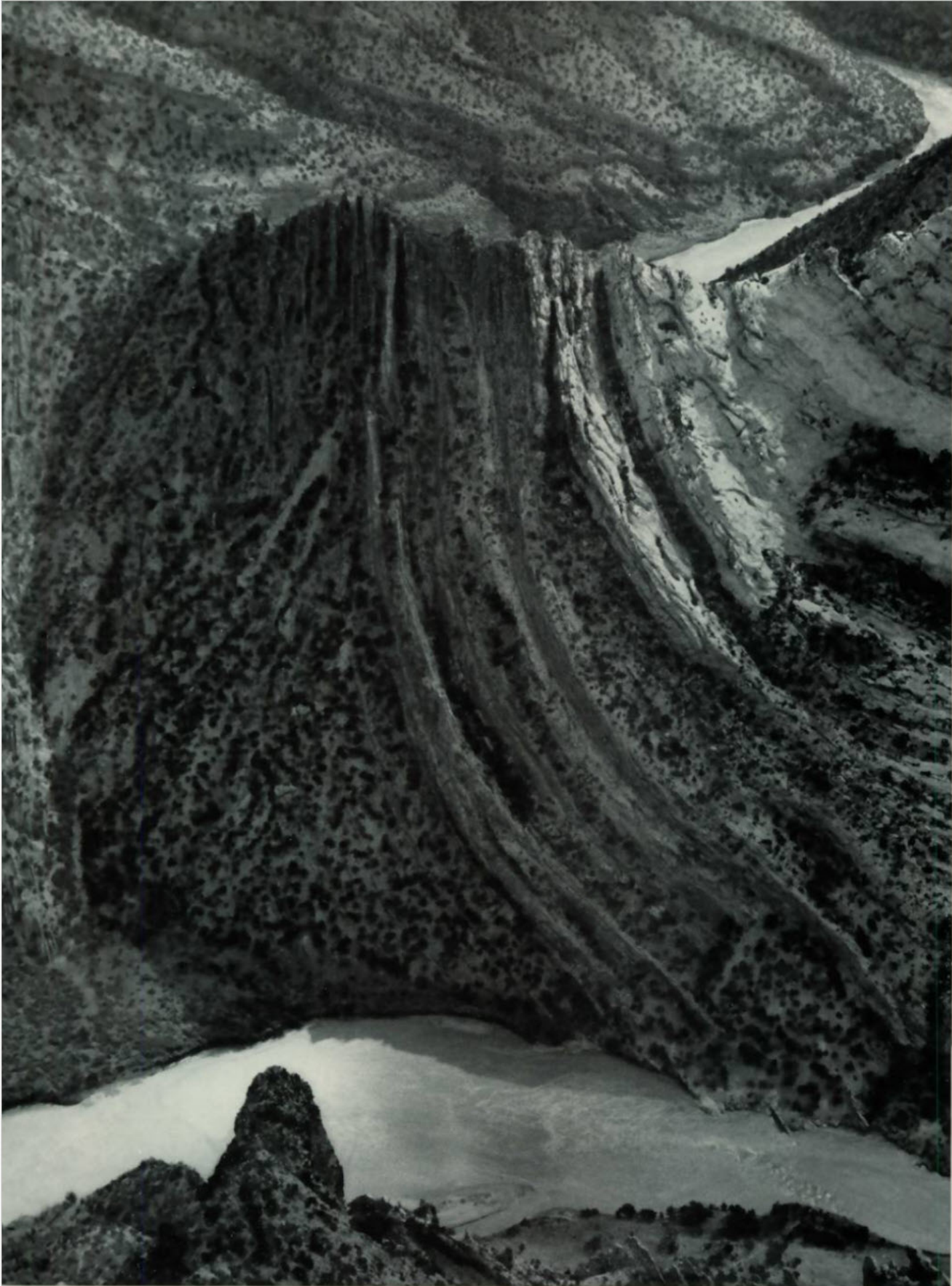
Leaning rocks challenge visitors approaching the Mantle Ranch at Castle Park, Colorado (page 384). This rough motor trail is one of half a dozen penetrating the monument to points directly on the Yampa or the Green.

→ Vanished Indians
Left These Murals

Scholars attribute the monument's abundant pictographs to an Indian occupation 10 to 15 centuries ago. These art displays include paintings in red ochre as well as the line and intaglio carvings shown here.

Standing in Island Park, Utah, Conrad L. Wirth (left), Director of the National Park Service, and Ronald F. Lee, Assistant Director, note a similarity between these horned and square-shouldered human figures and those drawn by early Basket Maker and Pueblo Indians who lived farther south. The dominant figure, that of a warrior, appears to hold a shield in his right hand.





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Spectacular Folding Streaks the Downstream Face of Steamboat Rock

Seen from Harpers Corner, tilted layers of shale and sandstone at the north end of the "steamboat" curve upward from the riverbank. Finally standing on end, they create a thin saw-toothed ridge.



Here the Rock Curtains a Confluence

Green River is seen before (top) and after (bottom) its junction with the Yampa (page 368).

oars and fought the boat across the Yampa without losing more than a quarter of a mile downstream. Mounting his horse, Charlie trotted up the far shore. Across the river the other ponies pricked up their ears and, when urged to the brink, plunged in and swam over.

Reunited, the Mantles disappeared into the brush on the trail of the missing steers. A whoop and a holler soon announced their return, the strays bucketing down through the elders. Waving their lariats, the Mantles stampeded the cattle into the stream and followed after. Submarinelike, the steers vanished beneath the swift water and, as far as we could see, walked across on the bottom.

When they emerged, we helped the riders chase the animals back up the pass toward the Mantle Ranch at the upper end of Castle Park (page 374). We were greeted at the gate by Queda Mantle, Charlie's attractive daughter.

"Come on in," she said. "You're just in time for some of mother's cherry pie."

"Homemade?"

"We grow the cherries right here in the canyon. Peaches and vegetables, too. With our cows and chickens, it means we don't have to go out much for supplies."

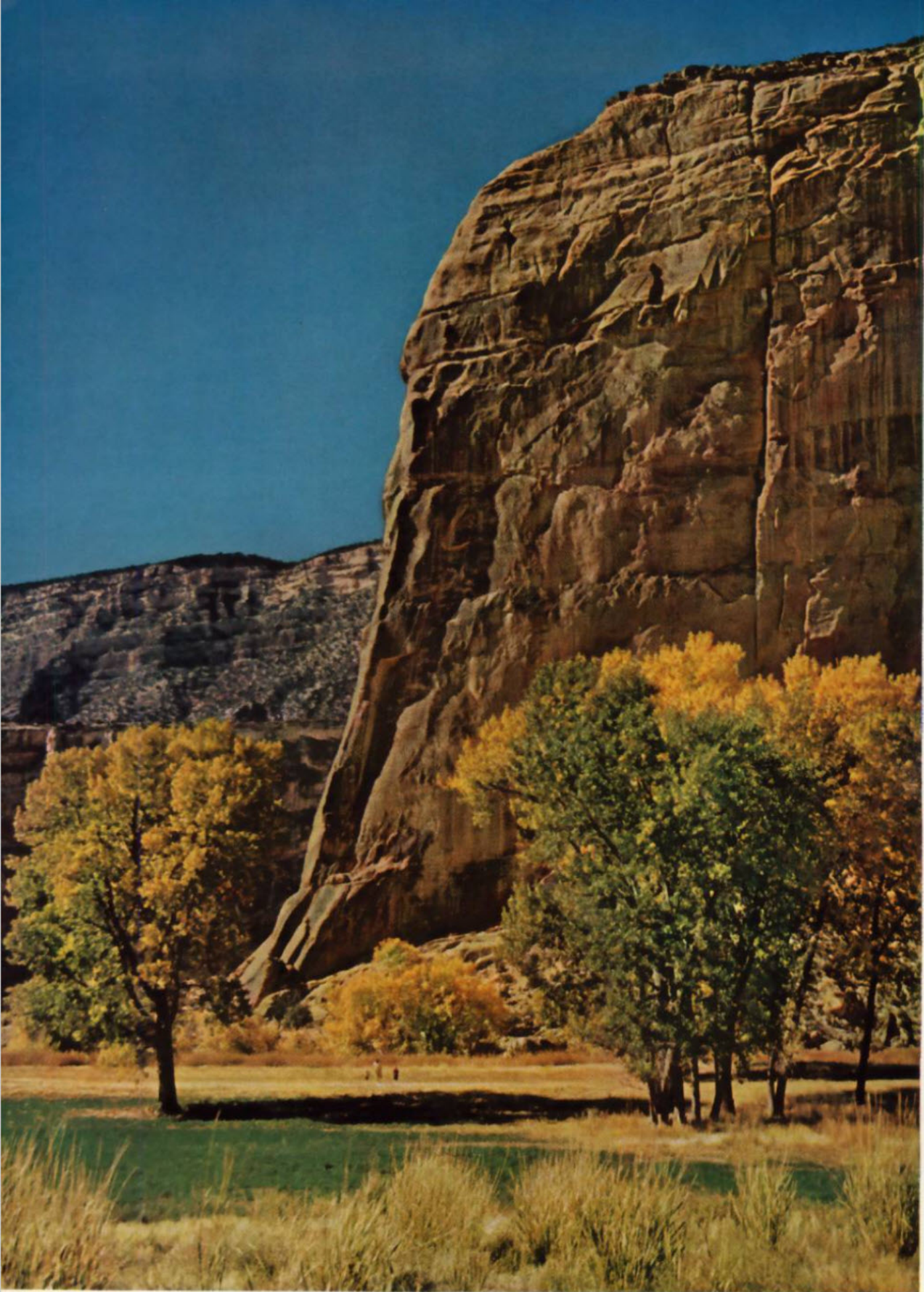
They were lucky in this, I thought. The nearest shopping center would be 90 miles away.

Plane Spots SOS in Snow

"I wouldn't say we were lonesome," put in Charlie. "We've got an electric-light plant (doesn't always work!) and a radio, and the ranch work keeps us busy. Got a piano, too—see it over there? Hauled it in by wagon and team before there was any road. This is our home, always has been, and we wouldn't want to be anywhere else. But winters—well, Mrs. Mantle and I got sick a few winters ago, so now we pack up in November and don't move back till April. One of the kids tends the place while we're away."

Their bout of illness must have been a little frightening. The ranch had been well stocked with supplies; but when pneumonia struck, it was obvious they would have to get out somehow. In the ranch yard they trampled out a rough SOS in the snow.

Fortunately, a flying neighbor spotted the signal from the air. He quickly arranged to have emergency medicines and food dropped by plane, while a highway crew prodded by urgency plowed through the mountainous drifts to the ranch—in time.



If Flooded, Steamboat Rock Will Look Even More Like the Bow of an Ocean Liner

Should Echo Park Dam be built, the tip of the 700-foot rock would become an island 180 feet high. Autumn foliage borders the Green River. Harpers Corner's cliffs rise on the left (page 368).

From Mantle's place to the river's junction with the Green, the Yampa flows through some of the most dramatic canyon scenery in the West. Here cliffs of white sandstone, streaked with lines of black and brown, tower a sheer 1,400 feet above the water.

Drifting down toward Steamboat Rock, we lounged on our sleeping bags, looked up at the ribbon of blue sky visible through the canyon's lips, and contemplated in silence the ever-changing contrast of highlight and shadow on the cliff walls. No engine sputtered to break the spell; only occasionally did an oar splash the surface.

Presently, however, Tom Vint sang out, "Steamboat round the bend!"

As we turned the Yampa's last crook, we saw ahead of us the massive wall of Steamboat Rock, marking the river's wedding with the Green (opposite and page 368).

This section of the monument is known officially as Echo Park for the rock's resonant qualities; we rather preferred the older name, Pats Hole, after a hermit who lived here for nearly 50 years. Pat had chosen his hideaway well; cliffs 1,000 feet high walled his home, and for a floor he had a meadow carpeted with grass and shaded by cottonwoods and box elders.

We pitched our camp across from the rock and soon were joined by ranger George James, fire guard Roy Templeton, and trucks from the monument's headquarters with fresh supplies and mail. Jess Lombard produced his specialty, hot corn bread, and our guests contributed hamburgers and ice cream.

High-angle Look at Canyons

Next morning we jumped into one of the trucks and a jeep and ground in low gear up and up 2,500 feet to Harpers Corner, a ledge projecting above the Green River a few hundred yards west of Steamboat (page 376).

From this vantage point, visitors courageous enough to stand at the outer edge can look down upon the canyons of the Green and the Yampa in three directions. Straight below us the Green wound like a brown thread through its rose-white walls. To the east the serpentine Yampa coiled into the distance. To the northeast Zenobia Peak, rising 9,006 feet above sea level, formed the eastern rampart of the brilliant red Canyon of Lodore.

Jess Lombard took a quick look over the rock lip and reported: "It's so darn far down there, all your uncles look like ants!"

Connie Wirth, Ronnie Lee, Tom Vint, and Howard Baker pored over their maps, figuring where they might put a ranger station, a viewing platform, trails, and other Park Service facilities to make the region attractive and safe for visitors.

Connie discussed the future of the area. "We have plans to develop a national park here. But this will only be possible if the dams don't come in."

Proposed Dams Would Drown Rapids

He was referring to the two great dams for power, irrigation, and flood control, which the Bureau of Reclamation of the U. S. Department of the Interior has proposed building within the monument. One of them, to be thrown across the Green below Echo Park, would back up water through the canyons of the Yampa and Lodore, flooding the hidden ranches, the tree-studded glades, the miles of rapids we had already traversed. The other dam, at Split Mountain, would wipe out the white-water passages of the Green and inundate the Island Park sector.

"See that white mark up there on the side of the cliff?" asked Bus later as we climbed into our boats across from Steamboat Rock. He pointed to a small gash high on the rock. "That's where the water'll come, if they build the Echo Park Dam. Old Steamboat will be practically sunk!"

We took a last fond look at this bold, bowl-like crag before the river swirled our boats past it and down into the Green's impetuous run toward Whirlpool Canyon. The banks were no longer sheer, as up on the Yampa, but broken and strewn with boulders and rock slides; juniper and scrub pine clung to every crevice (page 390).

We cut short our afternoon stint on the river to give everyone a rest and pulled our boats ashore at 4 o'clock near the mouth of Jones Hole Creek. Ronnie Lee and Howard Baker took their fly rods and headed up the creek to cast for trout. The rest of us stretched out under the elder bushes for a nap.

Our final day on the Green started auspiciously with Ronnie's call, "Fresh trout for breakfast!" After we had done our duty by them, we donned our Mae West life jackets and shoved off.

Most of the morning, all we needed was a single oar to use as a rudder; the rushing Green did the work, bearing us swiftly along.



Green River, Confined Between Slopes 2,700 Feet High, Plunges Through Split Mountain Canyon, Utah

Split Mountain Dam, if built, would turn the valley into a narrow lake. Ribbonlike rock ledges just beyond the distant cliffs contain the productive fossil diggings that gave Dinosaur National Monument its name (opposite and page 383).

Chief Ranger George James Describes a Dinosaur Fossil in Monument Headquarters Near Jensen, Utah

A foot trail from this museum leads to Dinosaur Quarry (page 383). There a veritable graveyard preserves the petrified skeletons of huge reptiles that died under mysterious circumstances some 120 million years ago. To date, a million pounds of bones have been quarried for display in various museums. These seventh-graders from Rangely, Colorado, marvel at the contrast between the thighbone of a human (on wall) and that of a dinosaur. Their science instructor, Frank Watson, takes notes.

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© Kodachromes by Justin Locke



Several times, as high waves tossed our rafts, we shipped water; but our confidence in these wonderfully resilient craft was now unshakable. Almost before we knew it, we had slipped through Whirlpool Canyon into a broad meadowland called Island Park, seven miles below Jones Hole Creek.

We made rendezvous with our trucks at Ruple Ranch and acquired a new river rat for the last dash down through Split Mountain Canyon—Dave Canfield, superintendent of Rocky Mountain National Park. Loading most of our camping gear into the trucks, so that our rafts would be even more buoyant for the white water ahead, we secured our life belts and pushed off again into the stream from a point near Rainbow Park.

Slicing Through Split Mountain

Bus, as usual, had words of caution for us. "I've run boats through all the canyons of the West," he said. "Through the Grand Canyon, the San Juan, the Snake, the Salmon. But none of them has any worse sections than you'll find through Split Mountain Canyon today. None of 'em."

It wasn't long before we discovered he hadn't been fooling. From Split Mountain the roar of water rose up to greet us with deafening impact (page 380). "Big Boon" Rapids had looked formidable enough, but this seemed a young Niagara—rocky cascades, huge waves, countless hidden boulders, tightly spinning whirlpools. This was the beginning of Moonshine Rapids (page 388).

We pulled over to the shore to reconnoiter the situation downstream. For nearly half an hour we threw logs into the water and studied the beating they took. Then Bus and Don climbed into the same boat for a trial run, Don in the stern, handling the outboard motor, Bus gesticulating from the bow.

The route they picked lay near the shore. Though rocks were more prominent there, the water seemed quieter. Down they skimmed, spray flying, the raft bucking and rolling (page 389). Once in the middle of the rapids, where the river grew shallower, Bus yelled, "Cut the engine!" and jumped back himself to man the oars.

Don sat down and held on. Bus, twisting around so that he could see downstream, zigged and zagged the boat in and out of the great boulders. Not once did he scrape rock or ship anything but spray. Seconds later they were safely through.

The next two boats came down in like fashion, Bus and Don teaming up again as helmsman and engineer, but with passengers coming along for the thrill of the ride.

No one, I think, enjoyed the run more than Connie Wirth. Teetering in the stern, he would jounce the raft up and down to make it hit the waves higher, hooting and cheering each time the boat smacked the water with an extra-hard jolt.

As for Tom Vint, he sat in the bow, grinning broadly and waving the spume-soaked flag of the National Geographic Society.

For the rest of the afternoon we skidded and floundered down similar rapids in Split Mountain Canyon, with several close calls. Once Bus lost control of our boat for a second, and we caromed off a projecting boulder. MacKnight's boat, close behind, crashed into us, broadside. We tipped badly, but slid off. Had we been in wooden boats, we would certainly have cracked up and lost all our cameras and gear, if not our lives.

By twilight we had passed the site of the proposed Split Mountain Dam. The canyon opened up, the river grew more peaceful, and soon we could see ahead of us, on a sandbar, the trucks which had come to pick us up for the last time. Our voyage through Dinosaur country was over.

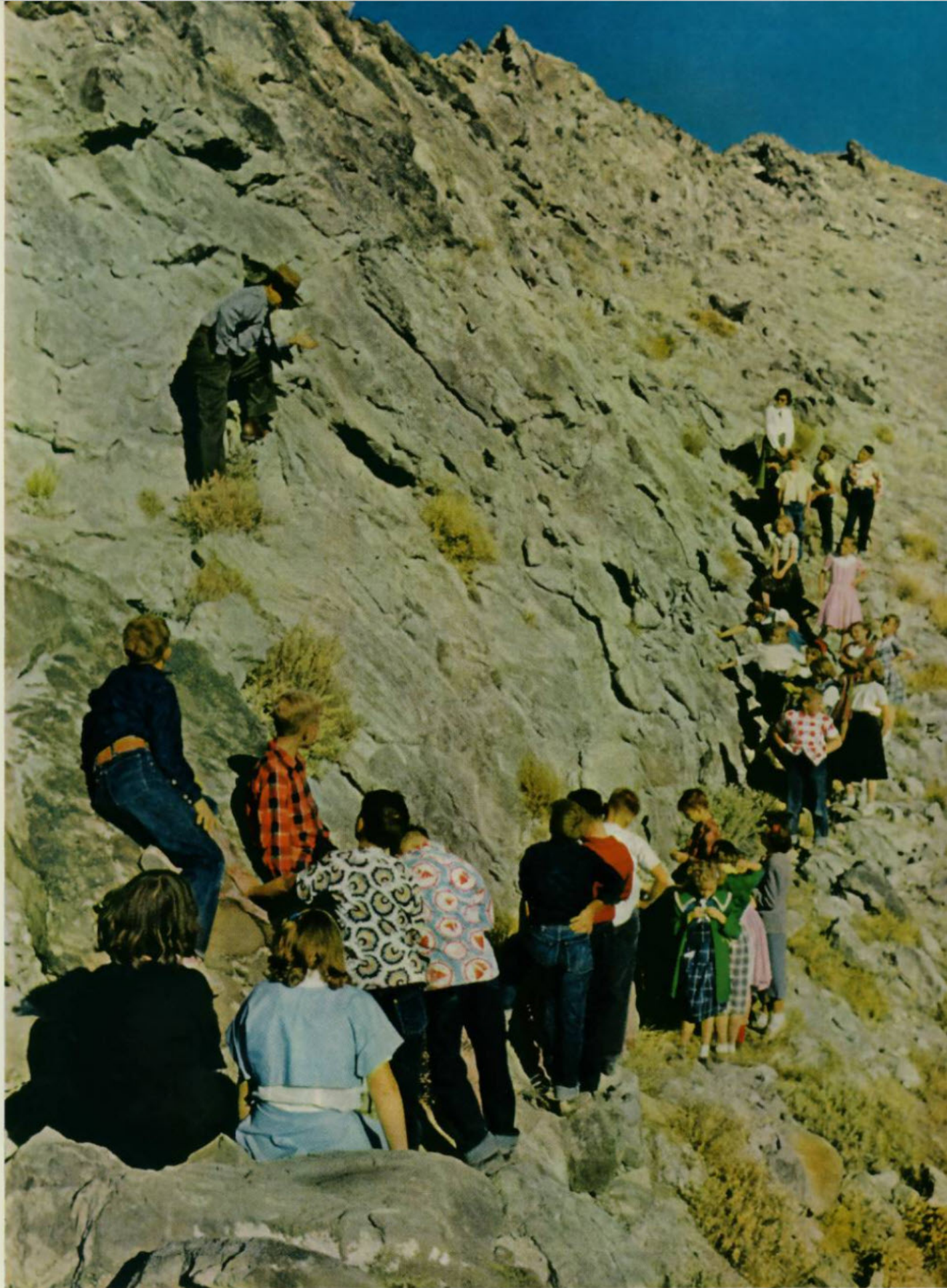
To celebrate our successful venture, we drove up to Jess Lombard's comfortable quarters near the quarry. Over cool drinks we rehearsed our daring deeds, and Jess formally presented each of us with a metal miniature of a prehistoric reptile, welcoming us into the "Order of the Dinosaur."

River Rats Get Rewards

We thanked him, but thought the honor not sufficiently specific. Connie Wirth came up with the suggestion that anyone who ran the river from Lily Park to Pats Hole should be dubbed a "Yampa," and anyone who did that and also the second leg down the Green from Steamboat Rock through Split Mountain Canyon be called a "Grampa."

To this Tom Vint made one amendment: "If a fellow shoots the rapids on both the Yampa and the Green through Lodore Canyon to the foot of Split Mountain, he ought to be named a 'Great Grampa.'"

Our trip had qualified us only to be Grampas. But we made a solemn compact to return someday and earn the right to be called "Great."



Students Examine a Giant Fossil Hidden in Dinosaur Quarry

Reptiles, trapped perhaps by flood, lay buried in sand for eons. Sand became sandstone; seas invaded the area and receded, and mountains rose. Here a string of vertebrae blends almost invisibly with the rock.

Park Officials Thread Canyons in Rubber Boats

Many of Dinosaur's most spectacular sights are known only to the venture-some few hundred who run the Yampa and Green by boat or raft each season.

Author-photographer Jack Breed joined five National Park Service officials and three experienced canyon pilots in a 4½-day 75-mile run down the two rivers across the monument. Embarking in Navy life rafts at Lily Park, Colorado, they emerged near monument headquarters in Utah. The party included Mr. Wirth (ashore with arm raised); Mr. Lee (page 375), and Jess H. Lombard, superintendent of Dinosaur Monument (both standing in far raft).

Here on the second day the boatmen paused for lunch beside the Yampa. At this point the gorge opens on Castle Park, so called for the fortresslike cliff on the far bank.

Close by, rancher Charlie Mantle and his wife have made a home and raised five children 90 miles from the nearest shopping center. Fruit trees, a truck patch, poultry, cattle, and horses make the Mantles almost self-sufficient.



Pioneers Named This Yampa Dell Starvation Valley
Boon MacKnight flips the flapjacks; Ronald Lee seasons his breakfast. Their ice chests fitted into the rafts' watertight compartments.

Shallow Rapids Took a Heavy Toll of Propeller Shear Pins
Pilot Bus Hatch replaced the soft metal keys 10 times or more a day. Stout wooden brackets adapted outboard motors to the rubber rafts.

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© Kodachromes by Jack Breed







Boatmen Secure Equipment Against Rocks and Rapids Ahead

River Admirals Map Strategy at Moonshine Rapids

Many a boat has come to grief in this churning stretch where the Green River begins its rampage through Split Mountain Canyon (opposite). Channels change from day to day as the turbulent stream shifts boulders.

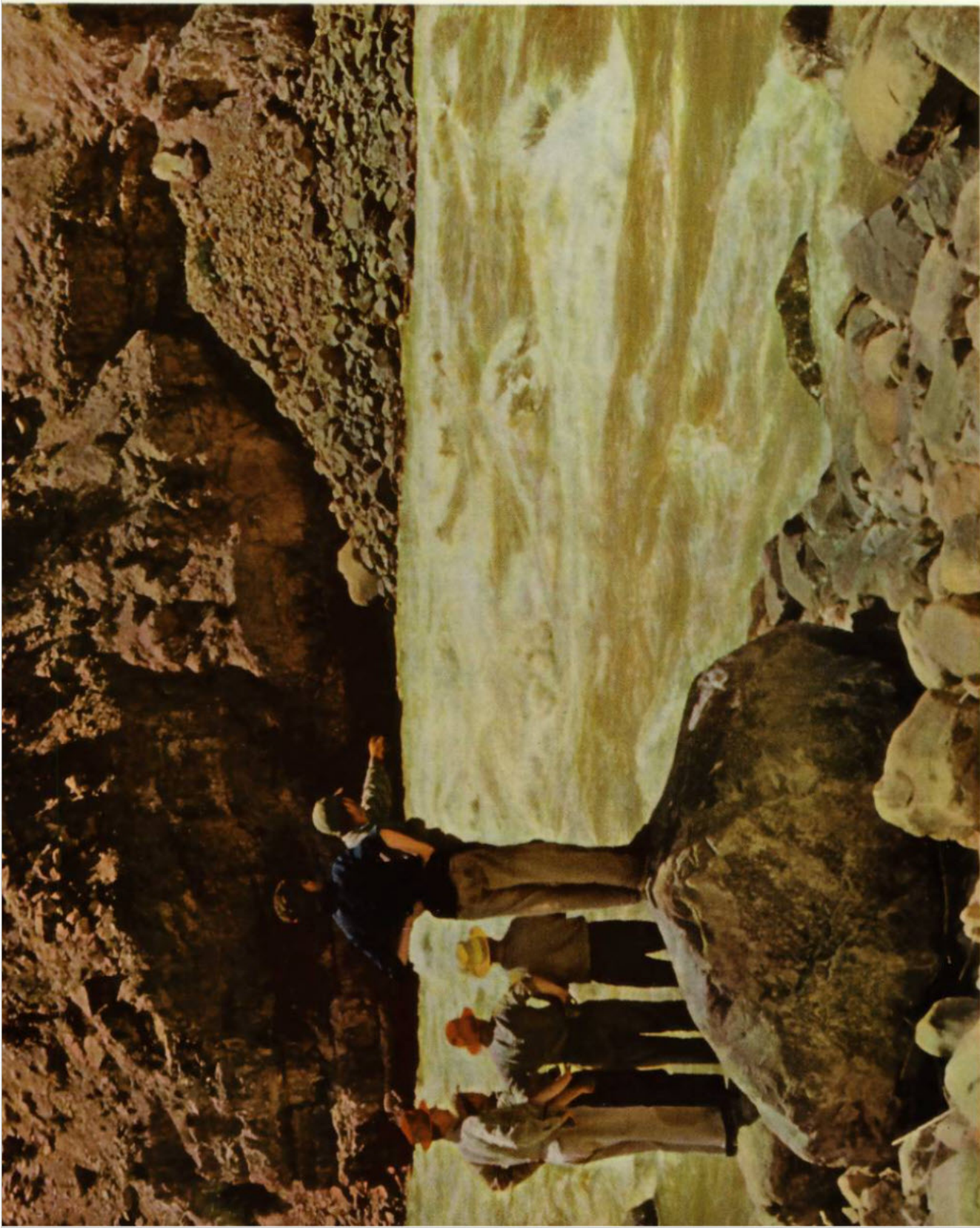
Here chief pilot Hatch points out a hidden hazard to his son Don. Everything else is forgotten; the world revolves around these rapids.

Tossing logs into the torrent, the Hatches watched them bounce against rocks and shore. After half an hour of study, father and son took the three rafts through in turn without mishap.

↓ Storm clouds threaten above Split Mountain Canyon. Boon MacKnight, who scorned the outboard motors used by the other boatmen, plies oars as his raft descends bow first.

This head-on view emphasizes the Navy rafts' breadth and low center of gravity. Where the going was roughest they buckled and slithered through in caterpillar fashion.

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Scrub Pine and Juniper Dot Split Mountain's Corrugated Wall

Gliding for the moment on smooth water, the voyagers have passed the mid-point of their last and riskiest day's run. Several swift rushes in Split Mountain's gorge lie ahead.