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Glen Canyon is the part of the Colorado River with which this book is concerned. Since the gradient of flow is very slight throughout its whole length, it contains no rapids of any consequence. The river slips along serenely, disturbed only in the few places where it is confined for short distances to boulder filled narrows, or flows over coarse gravel shoals that during periods of low water threaten more hazard, if any, to boating by the shallowness of the water than by its swiftness. On this account, as well as to the spectacular scenery it offers, Glen Canyon has long been a favored section of the Colorado for river excursions. It is easily accessible at the ferry crossing at Hite, and exit from it, available at Lee's Ferry before construction of Glen Canyon dam began, can now be made at El Vado de los Padres at Kane Creek where Escalante, nearly two centuries ago, found a way back to Santa Fe after his abortive attempt to establish a route to California.

When I first went through Glen Canyon several years ago this is the trip I took. We rode the river in Army surplus landing rafts made of laminated rubber and fabric, which, even under

abrasion against the sharpest rocks, renders them practically indestructable. Five times I have floated through the canyon and each time was a more rewarding experience than the one before. To fully appreciate Glen Canyon requires familiarity with it. The first experience is too overwhelming to leave room for taking in more than the broadest features and boldest strokes. The eye is numbed by its vastness and magnificence and passes over the fine details, ignoring them, very likely, in a defense against surfeit.

The big features, the massive, towering walls, the shimmering vistas, and the enveloping ~~presence of~~ light hypnotise the consciousness at first, shutting off awareness of the particular. Later it becomes possible to ~~refocus~~ on smaller, more familiar, more comprehensible objects which when finally seen in the context of the whole are recognised to be endowed with a wonder no less than the total, and it is from them that the greatest rewards are gathered. Then it is possible to see for the first time the velvety lawns of young tamarisks sprouting on the wet sand bars just vacated by a retreating flood; or the swirling surface of the green, opaque river that converts light reflected from rocks and trees and sky into a moire of interlacing lines and coils of color; then is seen the festooned designs etched into the scaling walls by water and lichens, evoking in a free imagination images of new or forgotten experiences.

Rising hundreds of feet, in places straight from the water, the walls of Glen Canyon are most glorious attributes. The sediments through which the canyon was carved are monolithic sandstones of Jurassic origin. The Wingate formation at the upper end weathers through vertical cracks, extending down from the surface, into massive, burnt-red, columnar blocks and slabs. When

these break off and fall, shattering on the steep, narrow talus boardering the river, they strew the slope with upended, jagged fragments, there to weather ultimately into red sand while their faces and the face of the cliff above oxidize to a polished purple-black. This dark varnish, reflecting the sky, turns in the shade to deep metallic blue, but ~~as the sun strikes it near the top of the wall~~ⁱⁿ, shines a dazzling white. Further down the river the Wingate formation dips below the surface. Its place is taken by Navajo sandstone, and the character of the cliffs changes strikingly. Here, the plateau has been weathered into rounded domes ~~and~~ⁱⁿ mounds of rock, and the rim is less sharp. Water (running down over it in many places after a rain) has streaked the walls with dark stripes and ribbons of discoloration clinging like wet curtains to the face of the cliff. The black stains are caused by algae and lichens that manage to grow in the more persistent films of moisture, whereas the blueish-white bands are dried deposits of chemicals leached from the sandstone. More commonly than Wingate, the Navajo sandstone cleaves ~~along curved lines~~^{to c}, producing immense arches and bays and all manner of rippled and dish-like structures. (Imposed on these shapes, giving emphasis by contrast, oxidation has added to the yellow and orange stone a blue and purple cast; and lichens following the same pattern superimpose on north-facing walls a texture^{of} cloth and tapestry.) Slabs continually spalling off the cliffs, one layer after another, produce, where water seeps through cracks in the porous rock or where flowing springs flow, caves green with tangles of rank vegetation for which Glen Canyon was named. High on the face of the canyon walls in many places, like the pupil-less eyes of marble statues, huge lenticular depressions have flaked out of

the beginnings of caves, in which water oozing out along the fracture lines supports, when shaded, a heavy growth of maiden hair fern and mimulus.

Glen Canyon, despite its impressiveness in so many aspects, is an intimate canyon. It is not like Grand Canyon so vast, and, as people frequently remark with despair, beyond understanding that it dulls credulity. The feeling of intimacy comes partly from being able to travel through Glen Canyon by boat, affording close association with its physical attributes not obtainable in a river canyon seen only from above, or at most dipped into at a very few places. But equally is it owing to the calmness and congeniality of its waters and the closeness of its walls, which lack completely the menacing quality conveyed by either the Black Gorge of the Gunnison or Granite Gorge. ~~One feels safe and protected in Glen Canyon.~~ Life here along the green banks and sand bars is unhurried, and every bend offers a good camp site. Clear springs are not far apart, providing ⁱⁿ ~~and~~ a shaded setting of mossy, dripping rocks and wild flowers welcome respite from the heat of noon. At evening in the glow of burnished cliffs ~~across the river~~ a quiet peace settles on the boatmen gathered close to their camp fire, ~~muffling the sound of their subdued voices and accentuating the faint gurgling of the big river slipping past its banks.~~ With ⁱⁿ night spreading fast into ~~the far recesses of the canyon,~~ ^{and} stars appearing one by one in the diminished sky, ~~against which the canyon's undefined, walls are dimly silhouetted,~~ ^{walls give comfort and security.} ~~to elicit a comforting sensation of security.~~

More than its cliffs the quality of the light in Glen Canyon, filling all space between them, reflecting and re-reflecting, gives an enchanting ~~it a magical~~ quality. ~~Its first explorers, the members of the~~

Powell party, well appreciated ^{the Canyon's} its beauty and remarked on it
 often enough in their accounts to have established its reputation
 as a wonderland of the Colorado, a peaceful, uniquely beautiful stretch
 of the river where they felt relaxed and secure after the hardships
 and excitement of the cataracts behind them. Later visitors,
 who left many ephemeral marks in the canyon, perhaps did not see
 its finer aspects for they were lured there by greed. They came in
 barges with tools and dredges and machinery to extract the riches
 in gold from the river's sands and gravel benches, but they were
 frustrated by the river's obdurate implacability and returned with
 empty hands, even losing the wealth they had invested ~~and the~~
~~materials they had so hopefully dragged into the canyon bottom.~~
 They left their mark, however, in a more permanent form than the
 scratchings they made or the rusting machinery they left behind,
~~them.~~ They gave names to ^{the} places ~~they came to know, just as the~~
~~Mormons and the Indians did,~~ where they strived and lost their hearts
 and died. Their memory will remain in Smith and California Bar,
 Klondike and Dead Man Bar long after the crazily tilted, rusting
 dredge - still to be seen in midriver - is buried in the shifting sands.

But now another kind of invasion is taking place; one that
 will obliterate all the places that bear these nostalgic ~~and prove-~~
~~ative~~ names, wipe them out for all foreseeable time, and thus
 with nothing tangeable ~~by which~~ to recall the past, even the
 memory of the ^{river's} history of the river will be destroyed. This last
 and final act of obliteration is, as it was with the gold seekers
 fifty years ago, materially motivated. The wealth of the Colorado
 this time is its power, ostensibly at least, although there are
 those who see a less forthright purpose - ^{ambition of a} ~~the need of a semi-~~
~~autonomous~~ federal bureau to maintain, ~~for its very survival,~~ its
 build an empire out of river development

With sincere regard⁶, no doubt, for the kind of public welfare.

~~power and influence through an endless series of vast engineering projects.~~ The huge dam being constructed across the lower reaches of Glen Canyon is an exemplification of this need. Self-justifying in the minds of many by its imposing magnitude alone, it cannot serve all the beneficial functions attributed to it as an apology ~~ex~~ in the process of obtaining legislative support, or

When the gates close the waters impounded by this plug of artificial stone will spread back through Glen Canyon over its entire one hundred and forty mile length, inundating the sparkling river, swallowing its luminous cliffs and tapestried walls, and extinguishing far into the long, dim, distant future its fiery iridescence. As the waters creep into the side canyons enveloping one by one their mirroring pools, drowning their bright flowers, backing up their clear, sweet springs with stale flood water, a fine opaque silt settles over all, covering rocks and trees alike, rotting vegetation and limp discolored leaves, with a gray slimy ooze. A darkness pervades the canyons where all is lost in the thickening, umbrageous gloom and death takes over where not long since life and shimmering light were their glory. Except for those who hold a cosmic view of nature there is little solace in the knowledge that though man may conquer nature he will never conquer the forces that mold the earth. The river, tamed for a while but responding to the heavings of the crust, will irresistably, in the end, cut through the paltry obstacles erected in its path by man. Eons from now this waterway will still be here, walled in stone yet unborn, but this dam with its hydroelectric establishment will have vanished as completely as the men who built it.

The tributaries of Glen Canyon exhibit the most exceptional examples of erosion found any where in the world. They are a

unique natural museum of the particular kind of phenomenal geology that has led to their formation. Their shapes and sculptured forms are not alone responsible for the wonder they excite; the realization of the speed in geological terms with which they must have been produced adds to it. But most of all the phenomena of light, even into the farthest depths of the narrowest canyon, evoke the ultimate in awe.

The majority of the most spectacular side canyons are quite short; many no more than a mile in length and some not even that long. From the identity of their ground plans it appears that the same forces were at work molding them all. Their courses are all in the shape of S curves twisting back for many turns into the sandstone of the Colorado Plateau. Some straighten out as they advance, but others continue back for miles, like Twilight Canyon, which my youngest son followed for fifty seven turns without coming to an end or detecting a lessening of the height of its walls. The shortest ones snake back only two or three turns before ending abruptly in a circular chamber surrounding a pool, above which, through a slit in the cliff, the flood waters from the plateau are dumped in times of rain. (From the point of view of flow, side canyons should be considered as progressing in the other direction towards the parent canyon, this being the way their excavation can be understood, but because they are invariably entered from the river they are usually described from this end.) It is impossible to describe all the variations existing in the numerous canyons branching from both sides of the mother canyon. They are all carved by intermittent floods burdened with sand, each grain of which is a chisel able to liberate an imprisoned grain from the ancient sandstone walls. The narrowness of some, whose sides are

hundreds of feet high and less than six feet apart at the bottom, is dramatic evidence of the rapidity of erosion. A few evidently started as tight meanders in the surface rock, in which fast corrosion deepened the channels into wide passages beneath, interlocking walls. ~~excavating chambers with sides that come together and actually~~ One would be drowned if caught here ~~interlock at the top. For the rapidity of these narrow canyons~~ in a flash flood ~~would be fatal~~, but since they seldom occur and then only during local storms the hazard is not great. Other, wider canyons hold slowly evaporating pools on their rounded floors - pools that never become dry because they are fed by seeping water, and replenished from time to time by storm-born floods.

In clear weather, in somber, rocky caverns of purple and ochre stone into which the sun rarely strikes, shallow pools glitter brassily reflecting the yellow sunlit cliffs away over head. And everywhere, in wet and weeping clefts maiden hair fern, scarlet lobelia, and white columbine are ~~now~~ rooted. Turning to a dusky cyan-green in the blue shadows, the drooping leaves impart a gloomy, almost funeral, atmosphere to the scene. ~~Some~~ canyons are dry and dead; nothing grows among heaped up boulders; no water trickles and no flowers spring from their barren walls. But most, even those carrying no permanent stream, are green with luxuriant plants ~~nurished~~ by rich fluvial deposits. Thick grasses, tall canes, creeping vines of poison ivy and woodbine cover the sand banks at the bends. Oaks grow impenetrably in the sunniest spots and redbud fills the shady corners.

fig 16
The porous sandstone walling in Glen Canyon is like worm-eaten wood on an enormous scale, riddled with the tunnels of long dead larvae. The smooth bores of their unroofed, twisting

A trip through Glen Canyon in August is hot - it is hot even in October - but in August the heat has a special quality lacking the tempering of autumn. It is not simply a matter of temperature, which may be as high later, it has to do with more subtle properties: heat capacity, the day to night differential, the angle of the sun, and even perhaps with the knowledge that it is still summer. In August the sun is still in its summer ascendancy. It beats down straighter and is above the line of the cliffs longer; its radiation is reflected on to you more powerfully intensely from

rock and sand and water. In summer the heat of the sun is absorbed to a greater depth, is more uniformly distributed, and takes longer to dissipate. The situation is similar to the difference between an over-heated room and a bonfire out doors. In the former the heat becomes insufferable although the temperature may be quite moderate, as compared to summer temperatures; but the bonfire in winter, which heats your face to a higher degree, is comfortable because your back is cold. Floating down the river in August past a sunlighted cliff is like passing the open ~~mouth~~ door of a huge furnace. In fall, even on the hottest days, the heat is welcome. However hot it may become in August there is always the river beside you for relief. You can dangle your feet in it or tie a wet handkerchief around your head and you will immediately feel much cooler; or better still soak your shirt in its tepid waters and you will instantly be reduced to a state of shivering. The river is the creator, the life giver, and the moderator of Glen Canyon. Without it there would remain only a pile of dead and burning rocks.

The Glen Canyon trench is a microcosm separated from the world in depth as well as in breadth. Its vegetation has been reproducing for centuries, the main contact with the outside being the highway of the river. Its animals too are isolated, a few having developed their own races in the flow of evolutionary processes within their restricted environment. And its winds as well are its own, ~~interlocking~~ arising from the temperatures and convections within its rocky confines. They come puffing up the canyon stirring up the sand into smoky plumes and graying the water. Progress against them even with the help of a motor is slowed to a snail's pace. Spray flies and the heat of the day is tempered to such a remarkable degree that when possible you seek the sunny side of the river. Then around the next bend all

is quiet and still again and the heat settles down as before.

All places where plants grow have their compliment of animal life and Glen Canyon is no exception. And also, as is true of so many environments, its birds are its most conspicuous animals. It is the very nature of birds to live conspicuous lives - they fly - and the majority are not nocturnal, as are most of the rodents, nor furtive during the day, except near their nests, like the foxes, weasels, and coyotes. They advertise their presence too by song even when they seem to be skulking in the thickets. In the spring the willow and tamarisk jungles topping river-side sandbars ring with the cheerful sibilance of yellow warblers, while from among the broken rocks of dry talus comes the bright chant of the rock wren, or echoing from higher up the cliff-side the canyon wren's deliberate down-scale notes. Added to these sweet songs, ~~some~~ most unmelodious, comic sounds issue as frequently from the riverside thickets. They are the harsh clucking, cawing, and whistling of the yellow-breasted chat that lurks mostly unseen in the densest underbrush, but occasionally exhibits himself by bursting from the top of a bush in awkward, wing-clapping, nuptial flight.

Great blue herons leave evidence of their participation in the community life along the muddy edge of the river. Together with the numerous beaver, whose characteristic webbed tracks ^{with} a dragging tail ~~between~~ and the parallel scratches ^{seen all up and down the} river, of willow branches pulled down to the water, these long-legged birds mark with their four-toed prints (three in front and one behind) the soft mud banks bordering lagoons and every shallow backwash. They stand motionless watching for small fish or frogs which they seize with a sharp ~~unkinking~~ jabs, unkinking their spring-like necks. When approached too closely they rise smoothly, legs dangling,

powerful wings beating slowly, and flap in unhurried flight down the river.

In the side canyons, along the narrow water courses of deep pools carved in rock, where the flow is clear and constant, lives a small, plump, gray bird, who sports a ridiculously stumpy tail. A favorite haunt is the Narrows in Bridge Canyon on the trail to Rainbow Bridge. The only representative of his family on the continent, he is a truly aquatic creature, as convincingly, once his acquaintance is made, as the pelagic petrels that roam the oceans. He is not web-footed; but he is as much at home in the water as a duck - perhaps more so - but unlike that phlegmatic fowl his demeanor is one of sparkling gaiety. He makes his living in the flowing streams and cascades of the high country and the canyons of the west; in truth he cannot live without them, and he never departs far from them. He loves water so much that he builds his roofed nest and rears his young in the spray of waterfalls. He is the Dipper or Water Ouzel and when first encountered will in all probability be bobbing on a stone in mid-stream. The uninitiated, to his astonishment, may see him suddenly plunge into the foaming water. It is ^a strange sight ~~at first as it would be to see a robin go for a swim~~, for this bird is a land bird who has only recently learned the merits of a subaqueous existence and the art of conducting himself under the surface. He goes about it in a most professional manner as though it were the usual sort of behavior for a bird of his kind. Over a rather somber dark gray ^{skin} ~~suit~~ he instantly slips into a resplendent jacket of shiny silver bubbles and in this outfit walks about on the bottom picking up aquatic larvae here and there with as little concern as he would show on dry land. In a moment he pops out again, leaving his bright diving suit behind, and as dry as before he dove in,

continues about his business without even so much as taking a deep breath. He is apparently pleased with his mode of life, showing his satisfaction by bursting into song most unexpectedly after emerging from one of his under-water foraging expeditions. He sings his ebullient, varied song throughout the year for no other ~~reason~~ assignable reason than the sheer joy of doing so. And his spirit is the only audience he requires when he sings unheard in the mist of a thundering cascade.

To the murmuring and chattering voices of the river is added now and then the harsh caw of a raven from a high ledge or from a point of suspension in a stream of air rising up the face of a canyon wall, where he has found a balance between the law of gravity and the laws of convection. There he hangs, rocking slightly as he drifts and soars, seeking out the current, his black profile a punctuation mark to his words and to the unarticulated words of all the past history of ^{his race} the story world in which he lives. The raven is a bird of parts; he is no show-off nor does he hide his talents under a bushel. He uses them ~~for~~ his own particular needs when the spirit moves him and without ostentation. He saves a particular quality in his voice, for instance, for special occasions which he does not reveal, and though he cannot sing in the usual ~~sense~~ ^{meaning} of the term, he is able to introduce a bell-like quality into his croak which adds a musical touch without melody. Like the ouzel, the raven does not just live but appears to ^{delight in} enjoy the process, especially when it involves exercising his greatest accomplishment - flight. One is on very unsafe ground to make anthropomorphic interpretations of animal behavior, as for example ravens sporting in an updraft over a ridge. Nevertheless such an interpretation sometimes seems justified. A small group may spend hours doing nothing more than playing in the air currents, soaring

effortlessly, chasing one another in an endless game ~~of tag~~ which includes all the tricks of aerial acrobatics at their command - diving, swooping, turning upside down in a wild, exuberant maylay. As the chase becomes ~~close~~ - wing on wing - excitement seems to develop to an unsupportable pitch, to the point at which a pursued bird racing past the face of a cliff, feeling desperately for the up-surge that will give him the advantage, utters a guttural cry releasing all his pent-up tension in the same way that children cry out involuntarily in the excitement of their play. Is this not an expression of joy?

When the first morning, at the first glow of dawn I wake and turn in my sleeping bag towards the east. A faint ~~paling~~ ^{light} of the sky is just perceptible. But soon the dim ^{it} light will give way to the waxing twilight of morning and the world will fill with color. This is a positive time, a time of expansion and increase and expectation. Unlike the waning, evening twilight when everything is closing down and in retreat, at dawn each moment is brighter than the preceding moment; the path into light, into activity, is full of hope and promise and renewed energy, and all things are seen through optimists' eyes.

The sun, still some way below the horizon and a long way beneath the rim of the canyon, routs the last stars down the brightening sky. They congregate, shining palely in the west, taking a final stand in the thinning shadow of the earth. Venus alone holds out, resisting the stampede, expressing thus her kinship with the earth. Directly overhead a flock of gray, fleecy clouds sails ^{from the northwest} across the space between the canyon walls. They preserve the order of their ranks while their shapes shift and flow in constant flux. Presently a tinge of pink spreads over them, changing gradually to salmon and then to yellow, when suddenly from a point on the horizon

out of sight behind the walls the sun bursts into this hemisphere. It flashes a beam of light onto the top of a butte across the river transforming it into a metallic crown. Slowly, the fiery color creeps down its sides copper plating them and enveloping the canyon in its warmth. The river still in shadow picks up the color, multiplying it, converting its gray stones along its muddy bank into uncut lapis lazuli embedded in molten bronze. Blue highlights thread the dry sand ripples as proof that day is near and that on the turning earth it will soon blaze into the canyon depths.

All the bizarre morning colors
~~The yellow light fades~~ with day's swift advance. The
 Purple mud banks and blue sand dunes become common mud and sand,
 and all the ^{br}~~bizarre morning colors~~ revert to their normal daylight
~~hues~~. The river becomes muddy green, ^{and} the rocks turn ^{back} to brick
 and clay, and with the appearance ^{as} of the sun ^{climbs} above the canyon
 rim, ~~day is fully born~~.

We have had out breakfast of coffee and bacon and eggs, have packed our few possessions, and are ready to resume our journey. All that remains to do is to shove off into the current lapping at the loaded boats; but we linger, reluctant to leave our camp site. We check again the sands for forgotten objects, ~~postponing~~ postponing the final moment, loath to depart the little world which has become more than a night's stop - more than a temporary resting place - has become in one night the focus of our lives in an eternity of ~~the~~ timelessness of existence in this river world. We start at last, wading out knee deep in mud to gain the deeper water before climbing on board. The day is shimmering bright and still. No wind ruffles the river, which presents a surface of imperfect glass lined with swirling striae. They are produced by the current upwelling from bottom irregularities. The sandstone

cliffs imaged in it are distorted by these imperfections when viewed at a steep angle, but at near glancing incidence, down the reach of the river, are nearly perfectly reflected. In the winding canyon first one side and then the other is shaded by the perpendicular walls and thus one sees dark and light reflections ~~next~~ replacing one another in slow succession. Yet with the boats underway, the gentle wake they produce breaks up these images into curious wavering spots and patches. In the troughs ~~between~~ of the blue waves ~~curious~~ shapes represent a fragmented sky, which mixes with golden globules of sun-lighted rock, flickering and weaving in ever changing patterns of color.

Reflection imparts a magic essence to the waters of Glen Canyon and its tributaries. Every pool and rill, every sheet of flowing water, and every wet rock and seep mirrors with enamelled luster the world about. In narrow chasms flow streams of melted gems over purple sands past banks of verdant willows. Pools like lustrous eyes reflect ~~the~~ pink rocks that fuse with a cerulean sky. And nothing remains the same from hour to hour, from day to day, and from year to year. Erosion, weathering, shifting channels, drought and flood alter incessantly the finer details leaving, however, the grand plan - the overall fable quality - of the Colorado's master work unchanged.

The Striped Walls of

~~Far down~~ Glen Canyon ~~its striped cliffs~~, undercut by the river which has left no talus, not even a sand bank or bar, to separate them from the water, are sliced unexpectedly by narrow perpendicular slots. At high water the river deposits its mud in these clefts. The coarsest materials are dropped in the eddies at the entrances but the finer sediments precipitate in the quietest waters farthest from the agitating current. Back in the slots,

a hundred yards or more, ^{these} ~~the~~ fingers of the river blend into a bank of gray, jelly-like ooze which thickens without detectable discontinuity into a slippery bed of clay of uncertain depth extending from wall to wall. After the spring run-off has subsided ~~and~~ and the river withdrawn, these slots are left plugged to their mouths with mud and silt that dries slowly to a ~~hard~~ cracked, crusted surface which affords access to the canyon on foot. But the first local freshet washes it all out ~~again~~ and the mudding-up process does not begin again until the next high water.

These narrow slots, like the half-concealed passages into long forgotten tombs, give no hint of the unbelievably strange sights hidden behind their massive portals. Exploring them on our ~~the~~ last trip, we plunged ~~into~~ apprehensively into the mud and water. Sometimes it was waist deep, sometimes we had to swim. We struggled through the sucking, glue-like clay, one laborious step at a time, until having gained higher and harder ~~ground~~, we made our way unimpeded into their mysterious depths. In Mystery Canyon, after ^{gardens} traversing a winding corridor of tangled, woodbine-covered ~~bends~~, we found ourselves at last confronted in a circular arena by overhanging, inaccessible walls. Dark, viridescent lumps of moss dotted the surface and, trembling in a perpetual current of air, green fern tentacles grew around them from the slippery rock. Out of a V-shaped slot at a higher level a thin stream slid into a black and fathomless ~~pond~~ pond. The whole interior of this chill, tenebrous chamber, with blindly waving greenery lining its sides was like the ciliated cavity of a huge sea anemone.

In Cathedral Canyon, beyond a series of immense, vaulted bends, we came to a sudden closing in of the walls where the floor

disappeared into a water-filled trough no wider than a man's body. Swimming through it was a dream-like adventure. We glided along, seal-like, chin deep in the water through still depths into an inscrutable solitude. Only the hollow sound of our slight splashing reverberated along the contorted channel back into the stoney labarinth. We touched now and again, shivering with surprise, the mysterious bottom - a stone or a graveled ledge - rising to meet us. We climbed over wedged boulders from one ribbon pool to another in a journey reminiscent of Xanadu "through caverns measurless to man with walls and towers . . . girdled round." A sudden shaft of sun, giving a dimension of reality, penetrated the upper stories high above through an unseen window. It lighted a strip of wall a dazzling yellow and was reflected to our eyes at water level from the thin curved lips of the pool lapping the rock in gentle undulations: golden threads reaching ahead, delineating for a moment the wavering separation of water from stone. At last, at the end, a wisp of a waterfall from unseen heights overhead, slipped over a smooth and algaed chute into a slaty pool. Shivering, we retraced our way and were glad to emerge at last into the heat of the August sun.

Little Arch, a short canyon, ends in a similar waterfall, up which an earlier explorer cut shallow steps in the wet sandstone. By following these we were led through a tortured, narrow trough into a roofed room in the ochreous rock. Dry on one side where a sand bank was heaped up, the other side extended a few feet into an alcove giving egress to the free air of the plateau high overhead through a chimney leading straight up to the sky. The sides of the chimney had been ground into concave plaques lying one above the other like immense, elongated scales. An infernal light spread down this

tube and suffused through the chamber dying our faces and half naked bodies a dull furnace red. Our imaginations, turning simultaneously to the violent events that must periodically take place in this cavern, pictured the enveloping spray and heard the roar of water. Collected by many little channels in the rock surface from a cloud burst, it pours down the vent in a tumultuous, thundering rush. My feelings were exactly those of one caught in the trap of an enormous drain.

Not all weather in the canyon country is perfect. Storms sweep over it from the northwest - the out-riggers of wide-spread meteorological disturbances blowing down from Alaska and the Pacific. They may last for a day or a week enveloping the canyon in a gray shroud of mist and rain. More usually in summer bad weather originates locally and is consequently less extensive and shorter lived. Thunder showers develop over the bordering plateaus, the Kaiparowits and Paria, and over the adjacent mountains, the Abajos, the Henrys, and the mass of Navajo Mountain. The latter in particular is a manufacturer of bad weather. Rising out of barren, rocky defiles surrounding its western foundations hot air streams up / its wooded slopes sucking out the moisture they contain and forming a platform of cloud and condensation over its summit. This accumulation grows, darkening and spreading out over the encircling land until full blown thunderheads rumble their warning of rain. Down in the canyon abysses from which no view of the surrounding country is afforded - whence only the jagged sky between their walls is visible, these storms come upon you unexpectedly. The first warning may be a sudden ^{clap} grumble of thunder followed by a white-edged, black cloud rising above the canyon rim. Then comes a louder crash with a flicker of lightening and a spatter of ~~large drops~~ large drops that leave wet circles on the red sandstone. They evaporate quickly from

the hot surface and are replaced by more as the shower gathers momentum. A dusty smell pervades the hot air. I look up at the cloud, feeling apprehensive, searching for a clue to the magnitude of the storm, but find none, only the rain curving into the canyon in gusts defined by the sun as bright points and streaks against the shaded cliffs. I am struck by the slowness of their fall; the drops float down on a drifting path which belies the force with which they strike my face. The sun disappears and the black cloud occupies the entire opening of sky. A cold, chilling wind sweeps through the canyon, which a few moments before was oppressively hot. Following a flash of lightening that brightens the increasing obscurity, thunder crashes again, much louder this time. The sound reverberates from higher terraces, rolling and rumbling up and down the gorge, and finally dying away in a remote cul de sac. The rain comes down hard now. I run for ~~under~~ the shelter of an overhanging rock. From this vantage point the opposite cliffs shine with wetness. They have lost all color, and glisten like new pennies rubbed with mercury. Through all the notches and dips in the rim and wherever the walls have been streaked with discoloration streams of water pour down. From small drainage areas thin streams, following the the stripes of oxidation, cling to the cliffs. But through larger notches that drain the biggest basins in the plateau torrents come spuming over, free-falling hundreds of feet with a deafening roar. Some of the waterfalls are white and clean, others are brown with sediments. The noise of falling water and the rush of the rising creek drowns out even the thunder. I wait for the downpour to pass; it retreats as quickly as it came. The waterfalls diminish to a trickle, then cease altogether and the sun

comes out again. The rocks dry off - a few puddles alone remaining to fill their hollows and cavities. Trees glitter and drip briefly, but the creek runs brown and full and is the last to return to its former peaceful pace.

One night a thunderstorm overtook us where we slept on a high grassy shelf overlooking the river with the cliff at our backs. The day preceeding had been stormy but towards evening the sky had cleared promising a good night without rain. I had been asleep for ~~several~~ ^a several hours when I was awakened by the distant rumble of thunder. It was two a. m. In the star light I saw a black mass edging up above the ~~buttes~~ ^{buttes} and cliffs on the other side of the river. Although I could not distinguish its outlines against the sky, the storm did not seem very near or very threatening. Which way it was moving was not immediately apparent, though presently ~~as I~~ ^{as I} became aware of the disappearance of stars. One by one and a few at a time they were being smuffed out. Silently, insidiously, a black curtain was ~~being drawn across the sky~~ eclipsing them. The character of the thunder also ~~was~~ ^{was} changing from far off rumbling to a nearer, more frequent, sharp cracking; and the lightening, no longer flickering on the horizon, flashed bright strokes that lighted up the landscape to register ~~persistently~~ ^{in the eye persistent} images. While watching the progress of the storm I thought, when first awake, surely it will pass harmlessly by; then as the lightening grew brighter and the thunder louder, I wishfully argued that although it was coming nearer, ~~it certainly would not pass so close~~ with all the space around to pass through, it certainly would miss our camp. By what remote chance, I reasoned, could it pass over this precise spot with all the ^a breadth of land around. The coincidence of this storm and our camp seemed much too improbable. But as the crashing and ripping

drew ever nearer and louder I realized that no wishful reasoning would preserve my comfort or keep me dry and that if I delayed much ~~in~~ longer in doing something to protect them both, I would soon be neither comfortable nor dry. I jumped up to secure a large tarpaulin which I drew over my sleeping bag tucking my clothes under its sides and propping on my duffle bag the end covering my head. Hardly were these preparations completed than the first drops came spattering down. The storm came on with a rush. I heard the swish of the initial downpour on the river below the bank before it hit our sandy shelf, and in the next instant it was upon us in full force. The crashing of thunder and the rattling of heavy rain on stiff canvass a few inches from my ears blended into a mixture of sounds that preoccupied all sensation. How the other campers fared I knew not, not a shout, not an outcry did I hear. It rained for a long time, more than an hour; I slept and waked again and it was still coming down hard. When at last it stopped the roar was still there in my ears; not a half deafened ringing, it was the roar of a ~~xx~~ waterfall from the top of the cliff. Two members of the party who had camped near its base had been inundated by the first burst of water. Their bags and clothes were soaked and they spent the last hours of the night huddled under a canvass boat cover, shivering with cold. before dawn we built a huge fire with dead oak logs ignited with ~~gasol~~ gasoline; and with the morning the sun rose in a clear sky. We ate an enormous breakfast in the soaking grass and sand and drank quarts of coffee. Before long the internal warmth produced by food and the external warmth produced by the sun exorcised all residues of misery. We moved on into the next day living as all good river travelers should in the present.