

John Muir Writings

Picturesque California

and the Region West of the Rocky Mountains, from Alaska to Mexico

(1888-1890)

Edited by John Muir

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Chapter 1

The Peaks and Glaciers of the High Sierra

Looking across the broad, level plain of the Sacramento and San Joaquin from the summit of the Coast Range opposite San Francisco, after the sky has been washed by the winter rains, the lofty Sierra may be seen throughout nearly its whole extent, stretching in simple grandeur along the edge of the plain, like an immense wall, four hundred miles long and two and a half miles high, colored in four horizontal bands; the lowest rose-purple of exquisite beauty of tone, the next higher dark purple, the next blue, and the highest pearl-white—all delicately interblending with each other and with the pale luminous sky and the golden yellow of the plain, and varying in tone with the time of day and the advance of the season.

The thousand landscapes of the Sierra are thus beheld in one view, massed into one sublime picture, and such is the marvelous purity of the atmosphere it seems as near and clear as a painting hung on a parlor wall. But nothing can you see or hear of all the happy life it holds, or of its lakes and meadows and lavish abundance of white falling water. The majestic range with all its treasures hidden stretches still and silent as the sunshine that covers it.

The rose-purple zone rising smoothly out of the yellow plain is the torrid foothill region, comprehending far the greater portion of the gold-bearing rocks of the range, and the towns mills, and ditches of the miners—a waving stretch of comparatively low, rounded hills and ridges, cut into sections by the main river canyons, roughened here and there with outcropping masses of red and grey slates, and rocky gold gulches rugged and riddled; the whole faintly shaded by a sparse growth of oaks, and patches of scrubby ceanothus and manzanita chaparral. Specks of cultivation are scattered from end to end of the zone in fertile flats and hollows far apart—rose embowered cottages, small glossy orange groves, vineyards and orchards, and sweet-scented hay fields, mostly out of sight, and making scarce any appreciable mark on the landscape in wide general views; a paradise of flowers and bees and bland purple skies during the spring months—dusty, sunbeaten, parched and bare all the rest of the year. The dark-purple and blue zones are the region of the giant pines and sequoia and silver-firs, forming the noblest coniferous forests on the face of the globe. They are everywhere vocal with running water and drenched with delightful sunshine. Miles of tangled bushes are blooming beneath them, and lily gardens, and meadows, and damp ferny glens in endless variety of color and richness, compelling the admiration of every beholder. Sweeping on over the ridges and valleys they extend a continuous belt from end to end of the range, only slightly interrupted at intervals of fifteen and twenty miles by tremendous canyons 3,000 to 5,000 feet in depth. Into these main river-canyons innumerable side-canyons and gorges open, occupied by bouncing, dancing, rejoicing cascades, making haste to join the rivers, which, grey with foam, are beating their way with resistless energy to the lowlands and the sea. All these waters sounding together give glorious animation to the onlooking forests, and to the stem, rocky grandeur of the canyon-walls. There too, almost directly opposite our point of view, is the farfamed Yosemite Valley and to right and left on the same zone many other valleys of the same type, some of them, though but little known as yet, not a whit less interesting, either in regard to the sublimity of their architecture, or the grandeur and beauty of their falling waters.

Above the upper edge of the silver-fir zone, the forest is maintained by smaller pines and spruces, that sweep on higher around lakes and meadows, and over smooth waves of outspread moraines, until, dwarfed and storm-bent, the utmost limit of tree growth is reached at a height of from 10,000 to 12,000 feet. While far above the bravest climbers of them all, rises the lofty, snow-laden, icy Sierra, composed of a vast wilderness of peaks, and crests, and splintered spires, swept by torrents and avalanches, and separated by deep gorges and notches and wide amphitheatres, the treasures of the snow and fountain-heads of the rivers, holding in their dark mysterious recesses all that is left of the grand system of glaciers that once covered the entire range. During many years of faithful explorations in the Sierra, sixty-five glaciers have been discovered and studied, and it is not likely that many more will be found. Over two-thirds of the entire number lie between Lat. 36° 30' and 39°, sheltered from the wasting sunshine on the northern slopes of the highest peaks, where the snowfall on which they depend is most concentrated and abundant.

Nothing was known of the existence of active glaciers in the Sierra until October, 1871, when I made the discovery of Black Mountain Glacier and measured its movements. It lies near the head of a wide shadowy basin between Red and Black Mountains, two of the dominating summits of the Merced Group. This group consists of the highest portion of a spur that straggles out from the main axis of the chain near Mount Ritter, in the direction of Yosemite Valley. Its western slopes are drained by Illilouette Creek, a tributary of the Merced, which pours its waters into Yosemite in a fine fall bearing the same name as the stream.

No excursion can be made into the Sierra that may not prove an enduring blessing. Notwithstanding the great height of the summits, and the ice and the snow, and the gorges and canyons and sheer giddy precipices, no mountain chain on the globe is more kindly and approachable. Visions of ineffable beauty and harmony, health and exhilaration of body and soul, and grand foundation lessons in Nature's eternal love are the sure reward of every earnest looker in this glorious wilderness.

The Yosemite Valley is a fine hall of entrance to one or the highest and most interesting portions of the Sierra the head or the Merced, Tuolumne, San Joaquin, and Owens rivers. The necessary outfit may be procured here, in the way of pack animals, provisions, etc., and trails lead from the valley towards Mounts Dana, Lyell, and Ritter, and the Mono Pass; and also into the lower portion of the Illilouette Basin.

Going to the Black Mountain Glacier, only a few days' provision is required, and a pair of blankets, if you are not accustomed to sleeping by a camp-fire without them.

Leaving the valley by the trail leading past the Vernal and Nevada falls, you cross the lower end of Little Yosemite Valley, and climb the Starr King Ridge, from which you obtain a fine general view of the Illilouette Basin, with its grand array of peaks and domes and dark spirey forests—all on a grand scale of magnitude, yet keenly fine in finish and beauty. Forming one of the most interesting of the basins that lie round about Yosemite Valley, they pour their tribute of songful water into it, swelling the anthems ever sounding there.

The glacier is not visible from this standpoint, but the two mountains between which it lies make a faithful mark, and you can hardly go wrong, however inexperienced in mountain ways.

Going down into the heart of the basin, through beds of zauchneria, and manzanita chaparral, where the bears love to feed, you follow the main stream past a series of cascades and falls until you find yourself between the two lateral moraines that come sweeping down in curves from the shoulders of Red and Black mountains. These henceforth will be your guide, for they belonged to the grand old glacier, of which Black Mountain Glacier is a remnant, one that has endured until now the change of climate which has transformed a wilderness of ice and snow into a wilderness of warm exuberant life. Pushing on over this glacial highway you pass lake after lake set

in solid basins of granite, and many a well-watered meadow where the deer with their young love to hide; now clanking over smooth shining rock where not a leaf tries to grow, now wading plushy bogs knee deep in yellow and purple sphagnum, or brushing through luxuriant garden patches among larkspurs eight feet high and lilies with thirty flowers on a single stalk. The lateral moraines bounding the view on either side are like artificial embankments, and are covered with a superb growth of silver-firs and pines, many specimens attaining a height of 200 feet or more.

But this garden and forest luxuriance is soon left behind. The trees are dwarfed, the gardens become exclusively alpine, patches of the heath-like bryanthus and cassiope begin to appear, and arctic willows pressed into flat close carpets by the weight of the winter snow. The lakes, which a few miles down the valley are so deeply embedded in the tall woods, or embroidered with flowery meadows, have here, at an elevation of 10,000 feet above sea level, only thin mats of carex, leaving bare glaciated rock bosses around more than half their shores. Yet amid all this alpine suppression, the sturdy brown-barked mountain pine is seen tossing his storm-beaten branches on edges and buttresses of Red Mountain, some specimens over a hundred feet high and twenty-four feet in circumference, seemingly as fresh and vigorous as if made wholly of sunshine and snow. If you have walked well and have not lingered among the beauties of the way, evening will be coming on as you enter the grand fountain amphitheater in which the glacier lies. It is about a mile wide in the middle, and rather less than two miles long. Crumbling spurs and battlements of Red Mountain bound it on the north, the sombre rudely sculptured precipices of Black Mountain on the south, and a hacked and splintered col curves around from mountain to mountain at the head, shutting it in on the east.

You will find a good campground on the brink of a glacier lake, where a thicket of Williamson spruce affords shelter from the night wind, and wood for your fire.

As the night advances the mighty rocks looming darkly about you seem to come nearer, and the starry sky stretches across from wall to wall, fitting closely down into all the spiky irregularities of the summits in most impressive grandeur. Then, as you lie by your fireside, gazing into this strange weird beauty, you fall into the clear, death-like sleep that comes to the tired mountaineer.

In the early morning the mountain voices are hushed, the night wind dies away, and scarce a leaf stirs in the groves. The birds that dwell here, and the marmots, are still crouching in their nests. The stream, cascading from pool to pool, seems alone to be awake and doing. But the spirit of the opening, blooming day calls to action. The sunbeams stream gloriously through jagged openings of the eastern wall, glancing on ice-burnished pavements, and lighting the mirror surface of the lake, while every sunward rock and pinnacle bums white on the edges like melting iron in a furnace.

Passing round the northern shore of the lake, and tracing the stream that feeds it back into its upper recesses, you are led past a chain of small lakes set on bare granite benches and connected by cascades and falls. Here the scenery becomes more rigidly arctic. The last dwarf pine is left far below, and the streams are bordered with icicles. The sun now with increasing warmth loosens rock masses on shattered portions of the wall that come bounding down gullies and couloirs in dusty, spattering avalanches, echoing wildly from crag to crag. The main lateral moraines, that stretch so formally from the huge jaws of the amphitheater into the middle of the basin, are continued along the upper walls in straggling masses wherever the declivity is sufficiently low to allow loose material to rest, while separate stones, thousands of tons in weight, are lying stranded here and there out in the middle of the channel. Here too you may observe well characterized frontal moraines ranged in regular order along the south wall of Black Mountain, the shape and size of each corresponding with the daily shadows cast by the wall above them.

Tracing the main stream back to the last of its chain of lakelets, you may notice that the stones on the bottom are covered with a deposit of fine grey mud, that has been ground from the rocks in the bed of the glacier and transported by its draining stream, which is seen issuing from the base of a raw, fresh looking moraine still in process of formation. Not a plant or weather-stain is visible on its rough unsettled surface. It is from 60 to more than 100 feet in height and plunges down in front at an angle of 38°, which is the steepest at which this form of moraine material will lie. Climbing it is therefore no easy undertaking. The slightest touch loosens ponderous blocks that go rumbling to the bottom, followed by a train of smaller stones and sand.

Cautiously picking your way, you at length gain the top, and there outspread in full view is the little giant glacier swooping down from the sombre precipices of Black Mountain in a finely graduated curve, fluent in all its lines, yet seemingly as rugged and immovable as the mountain against which it is leaning. The blue compact ice appears on all the lower portions of the glacier sprinkled with dirt and stones embedded in its surface. Higher, the ice disappears beneath coarsely granulated snow. The face is still further characterized by dirt bands and the outcropping edges of blue veins, that sweep across from side to side in beautiful concentric curves, showing the laminated structure of the mass; and at the head of the glacier where the névé joins the mountain it is traversed by a huge yawning bergschrund, in some places twelve to fourteen feet in width, and bridged at intervals by the remains of snow avalanches. Creeping along the lower edge holding on with benumbed fingers, clear sections are displayed where the bedded and ribbon structure of glaciers are beautifully illustrated. The surface snow, though everywhere sprinkled with stones shot down from the cliffs, is in some places almost pure white, gradually becoming crystalline, and changing to porous whitish ice of varying shades, and this again changing at a depth of 20 or 30 feet to blue, some of the ribbon-like bands of which are nearly pure and solid, and blend with the paler bands in the most gradual and exquisite manner imaginable, reminding one of the way that color bands come together in the rainbow.

Should you wish to descend into the weird ice-world of the 'schrund, you may find a way or make a way, by cutting steps with an axe. Its chambered hollows are hung with a multitude of clustered icicles, amidst which thin subdued light pulses and shimmers with ineffable loveliness. Water drips and tinkles among the icicles overhead, and from far below there come strange solemn murmurs from currents that are feeling their way in the darkness among veins and fissures on the bottom. Ice creations of this kind are perfectly enchanting, notwithstanding one feels strangely out of place in their cold fountain beauty. Dripping and shivering you are glad to seek the sunshine, though it is hard to turn away from the delicious music of the water, and the still more delicious beauty of the light in the crystal chambers. Coming again to the surface you may see stones of every size setting out on their downward journey with infinite deliberation, to be built into the terminal moraine. And now the noonday warmth gives birth to a network of sweet-voiced rills that run gracefully down the glacier, curling and swirling in their shining channels, and cutting clear sections in which the structure of the ice is beautifully revealed, their quick, gliding, glancing movements contrasting widely with the invisible flow of the glacier itself on whose back they are all riding. The series of frontal moraines noted further down, forming so striking a picture of the landscape, correspond in every particular with

those of this active glacier; and the cause of their distribution with reference to shadows, is now plainly unfolded. When those climatic changes came on that broke up the main glacier that once filled the amphitheater from wall to wall, a series of residual glaciers was left in the cliff shadows, under whose protection they lingered until the terminal moraines under consideration were formed. But as the seasons became yet warmer, or the snow supply less abundant, they wasted and vanished in succession, all excepting the one we have just seen; and the causes of its longer life are manifest in the greater extent of snow in its more perfect shelter from the action of the sun. How much longer this little glacier will last to enrich the landscape will of course depend upon climate and the changes slowly effected in the form and exposure of its basin.

But now these same shadows reaching quite across the main basin and up the slopes of Red Mountain, mark the time for returning to camp, and also hint the ascent of the mountain next day, from whose summit glorious views are to be seen far down over the darkening woods, and north and south over the basins of Nevada Creek, and San Joaquin, with their shining lakes and lace of silvery streams, and eastward to the snowy Sierras, marshaled along the sky near enough to be intensely impressive. This ascent will occupy most of your third day, and on the fourth, sweeping around the southern boundary of the Illilouette Basin, and over the Glacier Point Ridge, you may reach your headquarters in Yosemite by way of the Glacier Point trail, thus completing one of the most telling trips one can make into the icy Yosemite fountains.

The glaciers lying at the head of the Tuolumne and North fork of the San Joaquin may also be reached from Yosemite, as well as many of the most interesting of the mountains, Mounts Dana, Lyell, Ritter, and Mammoth Mountain—the Mono Pass also, and Mono Lake and volcanoes on the eastern flank of the range. For this grand general excursion into the heart of the High Sierra, good legs and nerves are required, and great caution, and a free number of weeks. Then you may feel reasonably safe among the loose crags of the peaks and crevasses of the glaciers, and return to the lowlands and its cares, rich forever in mountain wealth beyond your most extravagant expectations.

The best time to go to the High Sierra is about the end of September, when the leaf colors are ripe, and the snow is in great part melted from the glaciers, revealing the crevasses that are hidden earlier in the season. Setting out with a pack-animal by the way of Vernal and Nevada falls at the lower end of Little Yosemite Valley, you will strike the old Mariposa and Mono Trail, which will lead you along the base of Clouds Rest, past Cathedral Peak, and down through beautiful forests into the Big Tuolumne Meadows. There, leaving the trail which crosses the meadows and makes direct for the head of the Mono Pass, you turn to the right and follow on up the meadow to its head near the base of Mount Lyell, where a central camp should be established, from which short excursions may be made under comfortable auspices to the adjacent peaks and glaciers.

Throughout the journey to the central camp you will be delighted with the intense azure of the sky, the fine purplish-grey tones of the granite, the reds and browns of dry meadows and the translucent purple and crimson of huckleberry bogs, the flaming yellow of aspen groves, the silvery flashing of the streams in their rocky channels, and the bright green and blue of the glacier lakes. But the general expression of the scenery is savage and bewildering to the lover of the picturesque. Threading the forests from ridge to ridge, and scanning the landscapes from every outlook, foregrounds, middle-grounds, backgrounds, sublime in magnitude, yet seem all alike bare rock waves, woods, groves, diminutive flecks of meadow and strips of shining water, pictures without lines of beginning or ending.

Cathedral Peak, grandly sculptured, a temple hewn from the living rock, of noble proportions and profusely spired, is the first peak that concentrates the attention. Then come the Tuolumne Meadows, a wide roomy stretch lying at a height of about 8,500 feet above the sea, smooth and lawn-like, with the noble forms of Mounts Dana and Gibbs in the distance, and curiously sculptured peaks on either side. But it is only towards evening of the second day from the valley, that in approaching the upper end of the meadows you gain a view of a truly beautiful and well-balanced picture. It is composed of one lofty group of snow-laden peaks, of which Mount Lyell is the center, with pine-fringed, granite bosses braided around its base, the whole surging free into the sky from the head of a magnificent valley, whose lofty walls are beveled away on both sides so as to embrace it all without admitting anything not strictly belonging to it.

The foreground is now aflame with autumn colors, brown, and purple, and gold, ripe and luminous in the mellow sunshine, contrasting brightly with the deep cobalt-blue of the sky, and the black and grey, and pure spiritual white of the rocks and glaciers. Down through the heart of the picture the young Tuolumne River is seen pouring from its crystal fountains, now resting in glassy pools as if changing back again into ice, now leaping in white cascades as if turning to snow, gliding right and left between granite bosses, then sweeping on through the smooth meadow levels of the valley, swaying pensively from side to side, with calm, stately gestures, past dipping sedges and willows, and around groves of arrowy pine; and throughout its whole eventful course, flowing however fast or slow, singing loud or low, ever filling the landscape with delightful animation, and manifesting the grandeur of its sources in every movement and tone.

The excursion to the top of Mount Lyell, 13,000 feet high, will take you through the midst of this alpine grandeur, and one day is all the time required. From your camp on the bank of the river you bear off up the right wall of the canyon and on direct to the glacier, keeping towards its western margin, so as to reach the west side of the extreme summit of the mountain where the ascent is least dangerous. The surface of the glacier is shattered with crevasses in some places; these, however, are easily avoided, but the sharp wave-like blades of granular snow covering a great part of the upper slopes during most of the season are exceedingly fatiguing, and are likely to stop any but the most determined climbers willing to stagger, stumble, and wriggle onward against every difficulty. The view from the summit overlooks the wilderness of peaks towards Mount Ritter, with their bright array of snow, and ice, and lakes; and northward Mount Dana, Castle Peak, Mammoth Mountain, and many others; westward, sweeping sheets of meadow, and heaving swells of ice-polished granite, and dark lines of forest and shadowy canyons towards Yosemite; while to eastward the view fades dimly among the sunbeaten deserts and ranges of the Great Basin. These grand mountain scriptures laid impressively open will make all your labor light, and you will return to camp braced and strengthened for yet grander things to come.

The excursion to Mount Ritter will take about three days from the Tuolumne Camp, some provision therefore will have to be carried, but no one will chafe under slight inconveniences while seeking so noble a mark. Ritter is king of all the giant summits hereabouts. Its height is about 13,300 feet, and it is guarded by steeply inclined glaciers, and canyons and gorges of tremendous depth and ruggedness, rendering it comparatively inaccessible. But difficulties of this kind only exhilarate the mountaineer.

Setting out from the Tuolumne, carrying bread, and an axe to cut steps in the glaciers, you go about a mile down the valley to the foot of a cascade that beats its way through a rugged gorge in the canyon wall from a height of about 900 feet, and pours its foaming waters

into the river. Along the edge of this cascade you will find a charming way to the summit. Thence you cross the axis of the range and make your way southward along the eastern flank to the northern slopes of Ritter, conforming to the topography as best you can, for to push on directly through the peaks along the summit is impossible.

Climbing along the dashing border of the cascade, bathed from time to time in waftings of irised spray, you are not likely to feel much weariness, and all too soon you find yourself beyond its highest fountains. Climbing higher, new beauty comes streaming on the sight—autumn-painted meadows, late-blooming goldenrods, peaks of rare architecture, bright crystal lakes, and glimpses of the forested lowlands seen far in the west.

Over the divide the Mono Desert comes full into view, lying dreaming silent in thick purple light—a desert of heavy sun-glare, beheld from a foreground of ice-burnished granite. Here the mountain waters separate, flowing east to vanish in the volcanic sands and dry sky of the Great Basin, west to pass through the Golden Gate to the sea.

Passing a little way down over the summit until an elevation of about ten thousand feet is reached, you then push on southward dealing instinctively with every obstacle as it presents itself. Massive spurs, alternating with deep gorges and canyons, plunge abruptly from the shoulders of the snowy peaks and plant their feet in the warm desert. These are everywhere marked with characteristic sculptures of the ancient glaciers that swept over this entire region like one vast ice-wind, and the polished surfaces produced by the ponderous flood are still so perfectly preserved that in many places you will find them about as trying to the eyes as sheets of snow. But even on the barest of these ice pavements, in sheltered hollows countersunk beneath the general surface into which a few rods of well-ground moraine chips have been dumped, there are groves of spruce and pine thirty to forty feet high, trimmed around the edges with willow and huckleberry bushes; and sometimes still further with an outer ring of grasses bright with lupines, larkspurs, and showy columbines. All the streams, too, and the pools at this elevation, are furnished with little gardens, which, though making scarce any show at a distance, constitute charming surprises to the appreciative mountaineer in their midst. In these bits of leafiness a few birds find grateful homes, and having no acquaintance with man they fear no ill and flock curiously around the stranger, almost allowing themselves to be taken in hand. In so wild and so beautiful a region your first day will be spent, every sight and sound novel and inspiring, and leading you far from yourself. Wearied with enjoyment and the crossing of many canyons you will be glad to camp while yet far from Mount Ritter. With the approach of evening long, blue, spiky-edged shadows creep out over the snowfields, while a rosy glow, at first scarce discernible, gradually deepens, suffusing every peak and flushing the glaciers and the harsh crags above them. This is the alpenglow, the most impressive of all the terrestrial manifestations of God. At the touch of this divine light the mountains seem to kindle to a rapt religious consciousness, and stand hushed like worshippers waiting to be blessed. Then suddenly comes darkness and the stars.

On my first visit to Ritter I found a good campground on the rim of a glacier basin about 11,000 feet above the sea. A small lake nestles in the bottom of it, from which I got water for my tea, and a storm-beaten thicket nearby furnished abundance of firewood. Sombre peaks, hacked and shattered, circle half way round the horizon, wearing a most solemn aspect in the gloaming, and a waterfall chanted in deep base tones across the lake on its way down from the foot of a glacier. The fall and the lake and the glacier are almost equally bare, while the pines anchored in the fissures of the rocks are so dwarfed and shorn by storm-winds you may walk over the tops of them as if on a shaggy rug. The scene was one of the most desolate in tone I ever beheld. But the darkest scriptures of the mountains are illumined with bright passages of Nature's eternal love and they never fail to manifest themselves when one is alone. I made my bed in a nook of the pine thicket where the branches were pressed and crinkled overhead like a roof, and bent down on the sides. These are the best bed-chambers the Sierra affords, snug as squirrel-nests, well-ventilated, full of spicy odors, and with plenty of wind-played needles to sing one asleep. I little expected company in such a place, but creeping in through a low opening I found five or six small birds nestling among the tassels. The night wind begins to blow soon after dark, at first only a gentle breathing, but increasing toward midnight to a gale in strength, that fell on my leafy roof in rugged surges like a cascade, while the waterfall sang in chorus, filling the old ice-fountain with its solemn roar, and seeming to increase in power as the night advanced—fit voice for such a landscape. How glorious a greeting the sun gives the mountains! To behold this alone is worth the pains of any excursion a thousand times over. The highest peaks bum like islands in a sea of liquid shade. Then the lower peaks and spires catch the glow, and the long lances of light streaming through many a notch and pass, fall thick on the frosty meadows. The whole mountain world awakes. Frozen rills begin to flow. The marmots come out of their nests beneath the boulders and climb sunny rocks to bask. The lakes seen from every ridge-top shimmer with white spangles like the glossy needles of the low tasselled pines. The rocks, too, seem responsive to the vital sun-heat, rock-crystals and snow-crystals throbbing alike. Thrilled and exhilarated one strides onward in the crisp bracing air as if never more to feel fatigue, limbs moving without effort, every sense unfolding and alert like the thawing flowers to take part in the new day harmony.

All along your course thus far, excepting while crossing the canyons, the landscapes are open and expansive. On your left the purple plains of Mono repose dreamy and warm. On your right and in front, the near Alps spring keenly into the thin sky with more and more impressive sublimity.

But these larger views are at length lost. Rugged spurs and moraines and huge projecting buttresses begin to shut you in, until arriving at the summit of the dividing ridge between the head waters of Rush Creek and the northmost tributaries of the San Joaquin, a picture of pure wildness is disclosed, far surpassing every other you have yet seen.

There, immediately in front, looms the majestic mass of Mt. Ritter, with a glacier swooping down its face nearly to your feet, then curving, westward and pouring its frozen flood into a blue-green lake whose shores are bound with precipices of crystalline snow, while a deep chasm drawn between the divide and the glacier separates the sublime picture from everything else. Only the one huge mountain in sight, the one glacier, and one lake; the whole veiled with one blue shadow—rock, ice, and water, without a single leaf. After gazing spell-bound you begin instinctively to scrutinize every notch and gorge and weathered buttress of the mountain with reference to making the ascent. The entire front above the glacier appears as one tremendous precipice, slightly receding at the top and bristling with comparatively short spires and pinnacles set above one another in formidable array. Massive lichen-stained battlements stand forward, here and there hacked at the top with angular notches and separated by frosty gullies and recesses that have been veiled in shadow ever since their creation, while to right and left, far as the eye can reach, are huge crumbling buttresses offering no invitation to the climber. The head of the glacier sends up a few fingerlike branches through couloirs, but these are too steep and short to be available, and numerous narrow-throated gullies down which stones and snow are avalanched seem hopelessly steep, besides being interrupted

by vertical cliffs past which no side way is visible. The whole is rendered still more terribly forbidding by the chill shadow, and the gloomy blackness of the rocks, and the dead silence relieved only by the murmur of small rills among the crevasses of the glacier, and ever and anon the rattling report of falling stones. Nevertheless the mountain may be climbed from this side, but only tried mountaineers should think of making the attempt.

Near the eastern extremity of the glacier you may discover the mouth of an avalanche gully, whose general course lies oblique to the plane of the front, and the metamorphic slates of which the mountain is built are cut by cleavage planes in such a way that they weather off in angular blocks, giving rise to irregular steps that greatly facilitate climbing on the steepest places. Thus you make your way into a wilderness of crumbling spires and battlements built together in bewildering combinations, and glazed in many places with a thin coating of ice, which must be removed from your steps; while so steep is the entire ascent one would inevitably fall to the glacier in case a single slip should be made.

Towards the summit the face of the mountain is still more savagely hacked and torn. It is a maze of yawning chasms and gullies, in the angles of which rise beetling crags and piles of detached boulders, made ready, apparently, to be launched below. The climbing is, however, less dangerous here, and after hours of strained, nerve-trying climbing, you at length stand on the topmost crag, out of the shadow in the blessed light. How truly glorious the landscape circled this noble summit! Giant mountains, innumerable valleys, glaciers, and meadows, rivers and lakes, with the dark blue sky bent tenderly over them all.

Looking southward along the axis of the range, the eye is first caught by a row of exceedingly sharp and slender spires, which rise openly to a height of about a thousand feet from a series of short glaciers that lean back against their bases, their fantastic sculpture and the unrelieved sharpness with which they spring out of the ice rendering them peculiarly wild and striking. These are the Minarets. Beyond them you behold the highest mountains of the range, their snowy summits crowded together in lavish abundance, peak beyond peak, aspiring higher, and higher as they sweep on southward, until the culminating point is reached in Mount Whitney near the head of the Kern River, at an elevation of nearly 15,000 feet above the level of the sea.

Westward the general flank of the range is seen flowing grandly away in smooth undulations, a sea of grey granite waves, dotted with lakes and meadows, and fluted with stupendous canyons that grow steadily deeper as they recede in the distance.

Below this grey region lie the dark forests, broken here and there by upswelling ridges and domes; and yet beyond is a yellow, hazy belt marking the broad plain of the San Joaquin, bounded on its farther side by the blue mountains of the coast. Turning now to the northward, there in the immediate foreground is the Sierra Crown, with Cathedral Peak a few degrees to the left, the grey, massive form of Mammoth Mountain to the right, 13,000 feet high, and Mounts Ord, Gibbs, Dana, Conness, Tower Peak, Castle Peak, and Silver Mountain, stretching away in the distance, with a host of noble companions that are as yet nameless.

To the eastward the whole region seems a land of pure desolation covered with beautiful light. The hot volcanic basin of Mono, with its lake fourteen miles long, Owens Valley, and the wide table land at its head dotted with craters, and the Inyo Mountains; these are spread map-like beneath you, with many of the short ranges of the Great Basin passing and overlapping each other and fading on the glowing horizon.

At a distance of less than 3,000 feet below the summit you see the tributaries of the San Joaquin and Owens Rivers bursting forth from their sure fountains of ice, while a little to the north of here are found the highest affluents of the Tuolumne and Merced. Thus the fountain heads of four of the principal rivers of California are seen to lie within a radius of four or five miles.

Lakes, the eyes of the wilderness, are seen gleaming in every direction round, or square, or oval like very mirrors; others narrow and sinuous, drawn close about the peaks like silver girdles; the highest reflecting only rock and snow and sky. But neither these nor the glaciers, nor yet the brown bits of meadow and moorland that occur here and there, are large enough to make any marked impression upon the mighty host of peaks. The eye roves around the vast expanse rejoicing in so grand a freedom, yet returns again and again to the fountain mountains. Perhaps some one of the multitude excites special attention, some gigantic castle with turret and battlement, or gothic cathedral more lavishly spired than any ever chiselled by art. But generally, when looking for the first time from an all-embracing standpoint like this, the inexperienced observer is oppressed by the incomprehensible grandeur of the peaks crowded about him, and it is only after they have been studied long and lovingly that their far-reaching harmonies begin to appear. Then penetrate the wilderness where you may, the main telling features to which all the topography is subordinate are quickly perceived, and the most chaotic alp-clusters stand revealed and regularly fashioned and grouped in accordance with law, eloquent monuments of the ancient glaciers that brought them into relief. The grand canyons likewise are recognized as the necessary results of causes following one another in melodious sequence—Nature's poems carved on tables of stone, the simplest and most emphatic of her glacial compositions.

Had we been here to look during the glacial period we would have found a wrinkled ocean of ice continuous as that now covering North Greenland and the lands about the South Pole, filling every valley and canyon, flowing deep above every ridge, leaving only the tops of the peaks rising darkly above the rock-encumbered waves, like foam-streaked islets in the midst of a stormy sea—these islets the only hints of the glorious landscapes now lying warm and fruitful beneath the sun. Now all the work of creation seems done. In the deep, brooding silence all appears motionless. But in the midst of this outer steadfastness we know there is incessant motion. Ever and anon avalanches are falling from yonder peaks. These cliff-bound glaciers seemingly wedged fast and immovable, are flowing like water and grinding the rocks beneath them. The lakes are lapping their granite shores, and wearing them away, and every one of these young rivers is fretting the air into music, and carrying the mountains to the plains. Here are the roots of the life of the lowlands with all their wealth of vineyard and grove, and here more simply than elsewhere is the eternal flux of nature manifested.

But in the thick of these fine lessons you must remember that the sun is wheeling far to the west, and you have many a weary and nerve-trying step to make ere you can reach the timber-line where you may lie warm through the night. But with keen caution and instinct and the guidance of your guardian angel you may pass every danger in safety, and in another delightful day win your way back again to your camp to rest on the beautiful Tuolumne River.

The Passes of the High Sierra

The roads that Nature has opened through the heart of the High Sierra are hard to travel. So the sedate plodder of the lowlands would say, whether accustomed to trace the level furrows of fields, or the paved streets of cities. But as people oftentimes build better than they know, so also do they walk and climb and wander better than they know, and so it comes, that urged onward by a mysterious love of wild beauty and adventure, we find ourselves far from the beaten ways of life, toiling through these rugged mountain passes without thinking of a reason for embracing with such ungovernable enthusiasm so much stem privation and hardship.

“Try not the pass” may sound in our ears, but despite the solemn warning, come from whom it may, the passes will be tried until the end of time, in the face of every danger of rock, avalanche, and blinding storm. And whatever the immediate motive may be that starts us on our travels—wild landscapes, or adventures, or mere love of gain, the passes themselves will in the end be found better than anything to which they directly lead; calling every faculty into vigorous action, rousing from soul-wasting apathy and ease, and opening windows into the best regions of both earth and heaven.

The glaciers were the pass makers of the Sierra, and by them the ways of all mountaineers have been determined. A short geological time before the coming on of that winter of winters, called “The Glacial Period,” a vast deluge of molten rocks poured from many a chasm and crater on the flanks and summit of the range, obliterating every distinction of peak and pass throughout its northern portions, filling the lake basins, flooding ridge and valley alike, and effacing nearly every feature of the pre-glacial landscapes.

Then, after these all-destroying fire-floods ceased to flow, but while the great volcanic cones built up along the axis of the range, still burned and smoked, the whole Sierra passed under the domain of ice and snow. Over the bald, featureless, fire-blackened mountains glaciers crawled, covering them all from summit to base with a mantle of ice; and thus with infinite deliberation the work was begun of sculpturing the range anew. Those mighty agents of erosion, halting never through unnumbered centuries, ground and crushed the flinty lavas and granites beneath their crystal folds. Particle by particle, chip by chip, block by block the work went on, wasting and building, until in the fullness of time the mountains were born again, the passes and the summits between them, ridges and canyons, and all the main features of the range coming to the light nearly as we behold them today.

Looking into the passes near the summits, they seem singularly gloomy and bare, like raw quarries of dead, unfertilized stone—gashes in the cold rock-bones of the mountains above the region of life, empty as when they first emerged from beneath the folds of the ice-mantle. Faint indeed are the marks of any kind of life, and at first sight they may not be seen at all. Nevertheless birds sing and flowers bloom in the highest of them all, and in no part of the range, north or south, is there any break in the chain of life, however much it may be wasted and turned aside by snow and ice, and flawless granite.

Compared with the well-known passes of Switzerland, those of the south half of the Sierra are somewhat higher, but they contain less ice and snow, and enjoy a better summer climate, making them, upon the whole, more open and approachable. A carriage-road has been constructed through the Sonora Pass, the summit of which is 10,150 feet above the level of the sea—878 feet higher than the highest carriage-pass in Switzerland—the Stelvio Pass.

In a distance of 140 miles between lat. 36° degrees 20' and 38° degrees the lowest pass I have yet discovered exceeds 9,000 feet, and the average height of all above sea-level is perhaps not far from 11,000 feet.

Substantial carriage-roads lead through the Carson and Johnson Passes near the head of Lake Tahoe, over which immense quantities of freight were hauled from California to the mining regions of Nevada prior to the construction of the Central Pacific Railroad through the Donner Pass. Miles of mules and ponderous wagons might then be seen slowly crawling beneath a cloud of dust through the majestic forest aisles, the drivers shouting in every language, and making a din and disorder strangely out of keeping with the solemn grandeur of the mountains about them.

To the northward of the memorable Donner Pass, 7,056 feet in height, a number of lower passes occur, through whose rugged defiles long emigrant trains, with footsore cattle and sun-cracked wagons a hundred times mended, wearily toiled during the early years of the Gold Period. Coming from far, through a thousand dangers, making a way over trackless wastes, the snowy Sierra at length loomed in sight, to them the eastern wall of the Land of Gold. And as they gazed through the tremulous haze of the desert, with what joy must they have descried the gateway through which they were so soon to pass to the better land of all their golden hopes and dreams!

Between the Sonora Pass and the southern extremity of the High Sierra, a distance of a 160 miles, there is not a single carriage-road conducting from one side of the range to the other, and only five passes with trails of the roughest description. These are barely practicable for animals, a pass in this region meaning simply any notch with its connecting canyon and ridges through which one may, by the exercise of unlimited patience, make out to lead a surefooted mule or mustang, one that can not only step well among loose stones, but also jump well down rugged stairways, and slide with limbs firmly braced down smooth inclines of rock and snow.

Only three of the five may be said to be in use—the Kearsarge, Mono, and Virginia Creek passes—the tracks leading through the others being only obscure Indian trails not graded in the least, and scarce at all traceable by white men. Much of the way lies over solid pavements where the unshod ponies of the Indians leave no appreciable sign, and across loose taluses where only a slight displacement is visible here and there, and through thickets of weeds and bushes, leaving marks that only skilled mountaineers can follow, while a general knowledge of the topography must be looked to as the main guide.

One of these Indian trails leads through a nameless pass between the head waters of the south and middle forks of the San Joaquin, another between the north and middle forks of the same river, to the south of the Minarets, this last being about 9,000 feet high, and the lowest of the five.

The Kearsarge is the highest. It crosses the summit of the range near the head of the south fork of Kings River, about eight miles to the north of Mount Tyndall, through the midst of the grandest scenery. The highest point on the trail is upward of 12,000 feet above the sea. Nevertheless it is one of the safest of the five, and is traveled every summer from July to October or November by hunters, prospectors, and stock-owners, and also to some extent by enterprising pleasure-seekers. For besides the surpassing grandeur of the scenery about the

summit, the trail in ascending the western flank of the range leads through a forest of the giant Sequoias, and through the magnificent Kings River Valley, that rivals Yosemite in the varied beauty and grandeur of its granite masonry and falling waters. This, as far as I know, is probably the highest traveled pass on the American continent.

The Mono Pass lies to the east of Yosemite Valley, at the head of one of the tributaries of the South Fork of the Tuolumne, and is the best known of all the High Sierra passes. A rough trail, invisible mostly, was made through it about the time of the Mono and Aurora gold excitements, in the year 1858, and it has been in use ever since by mountaineers of every description. Though more than a thousand feet lower than the Kearsarge it is scarcely inferior in sublimity of rock-scenery, while in snowy, loud-sounding water it far surpasses the Kearsarge.

The Virginia Creek Pass, situated a few miles to the northward, at the head of the southmost tributary of Walker River, is somewhat lower, but less traveled than the Mono. It is used chiefly by "Sheep-men" who drive their flocks through it on the way to Nevada, and roaming bands of Pah Ute Indians, who may be seen occasionally in long straggling files, strangely attired, making their way to the hunting grounds of the western slope, or returning laden with game of startling variety.

These are all the traveled passes of the high portion of the range of which I have any knowledge. But leaving wheels and pack-animals out of the question, the free mountaineer, carrying only a little light dry food strapped firmly on his shoulders, and an axe for ice-work, can make his way across the Sierra almost everywhere, and at any time of year when the weather is calm. To him nearly every notch between the peaks is a pass, though much patient step-cuffing is in some cases required up and down steeply inclined glaciers and ice-walls, and cautious scrambling over precipices that at first sight appear hopelessly inaccessible to the inexperienced lowlander. All the passes make their steepest ascents on the east flank of the range, where the average rise is nearly a thousand feet to the mile, while on the west it is about two hundred feet. Another marked difference between the east and west portions of the passes is that the former begin between high moraine embankments at the very foot of the range, and follow the canyons, while the latter can hardly be said to begin until an elevation of from seven to ten thousand feet or more is reached by following the ridges, the canyons on the west slope being accessible only to the birds and the roaring falling rivers. Approaching the range from the grey levels of Mono and Owens Valley the steep short passes are in full view between the peaks, their feet in hot sand, their heads in snow, the courses of the more direct being disclosed nearly all the way from top to bottom. But from the west side one sees nothing of the pass sought for until nearing the summit, after spending days in threading the forests on the main dividing ridges between the canyons of the rivers, most of the way even the highest peaks being hidden.

The more rugged and inaccessible the general character of the topography of any particular region, the more surely will the trails of white men, Indians, bears, deer, wild sheep, etc., converge into the best passes. The Indians of the west slope venture cautiously across the range in settled weather to attend dances and obtain loads of pine-nuts and the larvae of a small fly that breeds in Mono and Owens lakes, while the desert Indians cross to the west for acorns and to hunt, fight, etc. The women carry the heavy burdens with marvelous endurance over the sharpest stones barefooted, while the men stride on erect a little in advance, stooping occasionally to pile up stepping-stones for them against steep rock-fronts, just as they would prepare the way in difficult places for their ponies. Sometimes, delaying their journeys until too late in the season, they are overtaken by heavy snowstorms and perish miserably, not all their skill in mountain-craft being sufficient to save them under the fierce onsets of the most violent of autumn storms when caught unprepared. Bears evince great sagacity as mountaineers, but they seldom cross the range. I have several times tracked them through the Mono Pass, but only in late years, after cattle and sheep had passed that way, when they doubtless were following to feed on the stragglers and those that had fallen over the precipices. Even the wild sheep, the best mountaineers of all, choose regular passes in crossing the summits on their way to their summer or winter pastures. Deer seldom cross over from one side of the range to the other. I have never seen the Mule-deer of the Great Basin west of the summit, and rarely the Black-tailed species on the eastern slopes, notwithstanding many of the latter ascend the range nearly to the head of the canyons among the peaks every summer to hide and feed in the wild gardens, and bring forth their young.

Having thus indicated in a general way the height, geographical position, and leading features of the main passes, we will now endeavor to see the Mono Pass more in detail, since it may, I think, be regarded as a good example of the higher passes accessible to the ordinary traveler in search of exhilarating scenery and adventure. The greater portion of it is formed by Bloody Canyon, which heads on the summit of the range, and extends in a general east-northeasterly direction to the edge of the Mono Plain. Long before its discovery by the whites, this wonderful canyon was known as a pass by the Indians of the neighborhood, as is shown by their many old trails leading into it from every direction. But little have they marked the grand canyon itself, hardly more than the birds have in flying through its shadows. No stone tells a word of wild foray or raid. Storm-winds and avalanches keep it swept fresh and clean.

The first white men that forced a way through its sombre depths with pack-animals were companies of eager adventurous miners, men who would build a trail down the throat of the darkest inferno on their way to gold. The name Bloody Canyon may have been derived from the red color of the metamorphic slates in which it is in great part eroded, or more probably from the blood stains made by the unfortunate animals that were compelled to slide and shuffle awkwardly over the rough cutting edges of the rocks, in which case it is too well named, for I have never known mules or horses, however sure-footed, to make their way either up or down the canyon, without leaving a trail more or less marked with blood. Occasionally one is killed outright by falling over some precipice like a boulder. But such instances are less common than the appearance of the place would lead one to expect, the more experienced, when driven loose, picking their way with wonderful sagacity.

During the exciting times that followed the discovery of gold near Mono Lake it frequently became a matter of considerable pecuniary importance to force a way through the canyon with pack trains early in the spring, while it was yet heavily choked with winter snow. Then, though the way was smooth, it was steep and slippery, and the footing of the animals giving way, they sometimes rolled over sidewise with their loads, or end over end, compelling the use of ropes in sliding them down the steepest slopes where it was impossible to walk.

A good bridle-path leads from Yosemite through the Big Tuolumne Meadows to the head of the canyon. Here the scenery shows a sudden and startling condensation. Mountains red, black, and grey rise close at hand on the right, white in the shadows with banks of enduring snow. On the left swells the huge red mass of Mt. Gibbs, while in front the eye wanders down the tremendous gorge, and out on the warm plain of Mono, where the lake is seen in its setting of grey light like a burnished disc of metal, volcanic cones to the south of it, and the smooth mountain ranges of Nevada beyond fading in the purple distance.

Entering the mountain gateway the sombre rocks seem to come close about us, as if conscious of our presence. Happily the ouzel and old familiar robin are here to sing us welcome, and azure daisies beaming with sympathy, enabling us to feel something of Nature's love even here, beneath the gaze of her coldest rocks. The peculiar impressiveness of the huge rocks is enhanced by the quiet aspect of the wide Alpine meadows through which the trail meanders just before entering the narrow pass. The forests in which they lie, and the mountaintops rising beyond them, seem hushed and tranquil. Yielding to their soothing influences, we saunter on among flowers and bees scarce conscious of any definite thought; then suddenly we find ourselves in the huge, dark jaws of the canyon, closeted with nature in one of her wildest strongholds.

After the first bewildering impression begins to wear off, and we become reassured by the glad birds and flowers, a chain of small lakes is seen, extending from the very summit of the pass, linked together by a silvery stream, that seems to lead the way and invite us on. Those near the summit are set in bleak rough rock-bowls, scantily fringed with sedges. Winter storms drive snow through the canyon in blinding drifts, and avalanches shoot from the heights rushing and booming like waterfalls. Then are these sparkling tams filled and buried leaving no sign of their existence. In June and July they begin to blink and thaw out like sleepy eyes; sedges thrust up their short brown spikes about their shores, the daisies bloom in turn, and the most profoundly snow-buried of them all is at length warmed and dressed as if winter were only the dream of a night. Red Lake is the lowest of the chain and also the largest. It seems rather dull and forbidding, at first sight, lying motionless in its deep, dark bed, seldom stirred during the day by any wind strong enough to make a wave.

The canyon wall rises sheer from the water's edge on the south, but on the opposite side there is sufficient space and sunshine for a fine garden. Daisies star the sod about the margin of it, and the center is lighted with tall lilies, castilleias, larkspurs and columbines, while leafy willows make a fine protecting hedge; the whole forming a joyful outburst of warm, rosy plantlife keenly emphasized by the raw, flinty baldness of the onlooking cliffs.

After resting in the lake the happy stream sets forth again on its travels warbling and trilling like an ouzel, ever delightfully confiding, no matter how rough the way; leaping, gliding, hither, thither, foaming or clear, and displaying the beauty of its virgin wildness at every bound.

One of its most beautiful developments is the Diamond Cascade, situated a short distance below Red Lake. The crisp water is first dashed into coarse granular spray that sheds off the light in quick flashing lances, mixed farther down with loose dusty foam; then it is divided into a diamond pattern by tracing the diagonal cleavage joints that intersect the face of the precipice over which it pours. Viewed in front, it resembles a wide sheet of embroidery of definite pattern, with an outer covering of fine mist, the whole varying with the temperature and the volume of water. Scarce a flower may be seen along its snowy border. A few bent pines took on from a distance, and small fringes of cassiope and rock-ferns grow in fissures near the head, but these are so lowly and undemonstrative only the attentive observer will be likely to notice them.

A little below the Diamond Cascade, on the north wall of the canyon, there is a long, narrow fall about two thousand feet in height that makes a fine, telling show of itself in contrast with the dull, red rocks over which it hangs. A ragged talus curves up against the cliff in front of it, overgrown with a tangle of snow-pressed willows, in which it disappears with many a surge, and swirl, and plashing leap, and finally wins its way, still grey with foam, to a confluence with the main canyon stream.

Below this point the climate is no longer arctic. Butterflies become more abundant, grasses with showy purple panicles wave above your shoulders, and the deep summery drone of the bumble-bee thickens the air. *Pinus Albicaulis*, the tree mountaineer that climbs highest and braves the coldest blasts, is found in dwarfed, wind-bent clumps throughout the upper half of the canyon, gradually becoming more erect, until it is joined by the two-leafed pine, which again is succeeded by the taller yellow and mountain pines. These, with the burly juniper and trembling aspen, rapidly grow larger as they descend into the richer sunshine, forming groves that block the view; or they stand more apart in picturesque groups here and there, making beautiful and obvious harmony with each other, and with the rocks. Blooming underbrush also becomes abundant,—azalea, spiraea, and dogwood weaving rich fringes for the stream, and shaggy rugs for the stem unflinching rock-bosses, adding beauty to their strength, and fragrance to the winds and the breath of the waterfalls. Through this blessed wilderness the canyon stream roams free, without any restraining channel, stirring the bushes like a rustling breeze, throbbing and wavering in wide swirls and zigzags, now in the sunshine, now in the shade; dancing, falling, flashing from side to side beneath the lofty walls in weariless exuberance of energy.

A glorious milky way of cascades is thus developed whose individual beauties might well call forth volumes of description. Bower Cascade is among the smallest, yet it is perhaps the most beautiful of them all. It is situated in the lower region of the pass where the sunshine begins to mellow between the cold and warm climates. Here the glad stream, grown strong with tribute gathered from many a snowy fountain, sings richer strains, and becomes more human and lovable at every step. Now you may see the rose and homely yarrow by its side, and bits of meadow with clover, and bees. At the head of a low-browed rock, luxuriant cornel and willow bushes arch over from side to side, embowering the stream with their leafy branches; and waving plumes, kept in motion by the current, make a graceful fringe in front.

From so fine a bower as this, after all its dashing among bare rocks on the heights, the stream leaps out into the light in a fluted curve, thick-sown with sparkling crystals, and falls into a pool among brown boulders, out of which it creeps grey with foam, and disappears beneath a roof of verdure like that from which it came. Hence to the foot of the canyon the metamorphic slates give place to granite, whose nobler sculpture calls forth corresponding expressions of beauty from the stream in passing over it—bright trills of rapids, booming notes of falls, and the solemn hushing tones of smooth gliding sheets, all chanting and blending in pure wild harmony. And when at length its impetuous alpine life is done, it slips through a meadow at the foot of the canyon, and rests in Moraine Lake. This lake, about a mile long, lying between massive moraines piled up centuries ago by the grand old canyon glacier, is the last of the beautiful beds of the stream. Tall silver firs wave soothingly about its shores, and the breath of flowers, borne by the winds from the mountains, drifts over it like incense. Henceforth the stream, now grow stately and tranquil, glides through meadows full of gentians, and groves of rustling aspen, to its confluence with Rush Creek, with which it flows across the desert and falls into the Dead Sea.

At Moraine Lake the canyon terminates, although apparently continued by two lateral moraines of imposing dimensions and regularity of structure. They extend out into the plain about five miles, with a height, toward their upper ends, of nearly three hundred feet. Their cool, shady sides are evenly forested with silver-firs, while the sides facing the sun are planted with showy flowers, a square rod containing

five to six profusely flowered eriogonums of several species, about the same number of bahias and linosyris, and a few poppies, phloxes, gillias and grasses, each species planted trimly apart with bare soil between as if cultivated artificially.

My first visit to Bloody Canyon was made in the summer of 1869, under circumstances well calculated to heighten the impressions that are the peculiar offspring of mountains. I came from the blooming tangles of Florida, and waded out into the plant-gold of the great Central plain of California while its unrivaled flora was as yet untrodden. Never before had I beheld congregations of social flowers half so extensive, or half so glorious. Golden compositae covered all the ground from the Coast Range to the Sierra like a stratum of denser sunshine, in which I reveled for weeks, then gave myself up to be home forward on the crest of the summer plant-wave that sweeps annually up the Sierra flank, and spends itself on its snowy summits. At the Big Tuolumne Meadows I remained more than a month, sketching, botanizing, and climbing among the surrounding mountains ere the fame of Bloody Canyon had reached me.

The mountaineer with whom I camped was one of those remarkable men so frequently found in California, the bold angles of whose character have been brought into relief by the grinding effects of the gold-period, like the features of glacier landscapes. But at this late day my friend's activities had subsided, and his craving for rest had caused him to become a gentle shepherd, and literally to lie down with a lamb, on the smoothest meadows he could find. Recognizing my Scotch Highland instincts, he threw out some hints about Bloody Canyon, and advised me to explore it. "I have never seen it myself," he said, "for I never was so unfortunate as to pass that way; but I have heard many a strange story about it; and I warrant you will find it wild enough."

Next day I made up a package of bread, tied my notebook to my belt, and strode away in the bracing air, every nerve and muscle tingling with eager indefinite hope, and ready to give welcome to all the wilderness might offer. The plushy lawns staffed with blue gentians and daisies soothed my morning haste, and made me linger; they were all so fresh, so sweet, so peaceful.

Climbing higher, as the day passed away, I traced the paths of the ancient glaciers over many a shining pavement, and marked the lanes in the upper forests that told the power of the winter avalanches. Still higher, I noted the gradual dwarfing of the pines in compliance with climate, and on the summit discovered creeping mats of the arctic willow, low as the lowliest grasses; and patches of dwarf vaccinium, with its round pink bells sprinkled over the sod as if they had fallen from the sky like hail; while in every direction the landscape stretched sublimely away in fresh wildness, a manuscript written by the hand of Nature alone.

At length, entering the gate of the pass, the huge rocks began to close around me in all their mysterious impressiveness; and as I gazed awe-stricken down the shadowy gulf, a drove of grey, hairy creatures came suddenly into view, lumbering towards me with a kind of boneless wallowing motion like bears. However, grim and startling as they appeared, they proved to be nothing more formidable than Mono Indians dressed in a loose, shapeless way in the skins of sage rabbits sewed together into square robes. Both the men and women begged persistently for whiskey and tobacco, and seemed so accustomed to denials, that it was impossible to convince them that I had none to give. Excepting the names of these two luxuries, they spoke no English, but I afterwards learned that they were on their way to Yosemite Valley to feast awhile on fish and flour, and procure a load of acorns to carry back through the pass to their huts on the shore of Mono Lake.

A good countenance may now and then be discovered among the Monos, but these, the first specimens I have seen, were mostly ugly, or altogether hideous. The dirt on their faces was fairly stratified in the hollows, and seemed so ancient and undisturbed as almost to possess a geological significance. The older faces were, moreover, strangely blurred and divided into sections by furrows that looked like some of the cleavage joints of rocks, suggesting exposure in a castaway condition for ages. They seemed to have no right place in the landscape, and I was glad to see them fading down the pass out of sight.

Then came evening, and the sombre cliffs were inspired with the ineffable beauty of the alpenglow. A solemn calm fell upon every feature of the scene. All the lower depths of the canyon were in the gloaming shadow, and one by one the mighty rock fronts forming the walls grew dim and vanished in the thickening darkness. Soon the night-wind began to flow and pour in torrents among the jagged peaks, mingling its strange tones with those of the waterfalls sounding far below. And as I lay by my camp-fire in a little hollow near one of the upper lakes listening to the wild sounds, the great full moon looked down over the verge of the canyon wall, her face seemingly filled with intense concern, and apparently so near as to produce a startling effect, as if she had entered one's bedroom, forsaking all the world besides to concentrate on me alone.

The night was full of strange weird sounds, and I gladly welcomed the morning. Breakfast was soon done, and I set forth in the exhilarating freshness of the new day, rejoicing in the abundance of pure wildness so closely pressed about me. The stupendous rock walls, like two separate mountain ranges, stood forward in the thin, bright light, hacked and scarred by centuries of storms, while down in the bottom of the canyon, grooved and polished bosses heaved and glistened like swelling sea-waves, telling a grand old story of the ancient glacier that once poured its crushing floods above them.

Here for the first time I met the Arctic daisies in all their perfection of pure spirituality—gentle mountaineers, face to face with the frosty sky, kept safe and warm, by a thousand miracles. I leaped lightly from rock to rock, glorying in the eternal freshness and sufficiency of nature, and in the rugged tenderness with which she nurtures her mountain darlings in the very homes and fountains of storms.

Fresh beauty appeared at every step, delicate rock-ferns, and tufts of the fairest flowers. Now another lake came to view, now a waterfall. Never fell light in brighter spangles, never fell water in whiter foam. I seemed to float through the canyon enchanted, feeling nothing of its roughness, and was out in the glaring Mono levels ere I was aware.

Looking back from the shore of Moraine Lake, my morning ramble seemed all a dream. There curved Bloody Canyon, a mere glacier furrow two thousand and three thousand feet deep, with *moutonnée* rocks advancing from the sides, and braided together in the middle like rounded, swelling muscles. Here the lilies were higher than my head, and the sunshine was warm enough for palms. Yet the snow around the Arctic willows on the summit was plainly visible, only a few miles away, and between lay narrow specimen belts of all the principal climates of the globe.

About five miles below the foot of Moraine Lake, where the lateral moraines terminate in the plain, there was a field of wild rye, growing in magnificent waving bunches six to eight feet high, and bearing heads from six to twelve inches long. Indian women were gathering the grain in baskets, bending down large handfuls of the ears, beating them with sticks, and fanning out the rye in the wind. They formed

striking and picturesque groups as one caught glimpses of them here and there in winding lanes and openings with splendid tufts arching overhead, while their incessant chat and laughter proclaimed their careless joy.

I found the so-called Mono Desert, like the rye-field, in a high state of natural cultivation with the wild rose and the delicate pink-flowered arbronia; and innumerable erigerons, gillias, phloxes, poppies and bush-compositae, growing not only along stream-banks, but out in the hot sand and ashes in openings among the sage-brush, and even in the craters of the highest volcanoes, cheering the grey wilderness with their rosy bloom, and literally giving beauty for ashes.

Beyond the moraines the trail turns to the left toward Mono Lake, now in sight around the spurs of the mountains, and touches its western shore at a distance from the foot of the pass of about six miles. Skirting the lake, you make your way over low bluffs and moraine piles, and through many a tangle of snow-crinkled aspens and berry bushes, growing on the banks of fine, dashing streams that come from the snows of the summits.

Here are the favorite camping grounds of the Indians, littered with piles of pine-burrs from which the seeds have been beaten. Many of their fragile willow huts are broken and abandoned; others arch airily over family groups that are seen lying at ease, pictures of thoughtless contentment, their wild, animal eyes glowering at you as you pass, their black shocks of hair perchance bedecked with red castilleias and their bent, bulky stomachs filled with no white man knows what. Some of these mountain streams pouring into the lake have deep and swift currents at the fording places, and their channels are so roughly paved with boulders that crossing them at the time of high water is rather dangerous. That Mono Lake should have no outlet, while so many perennial streams flow into it, seems strange at first sight, before the immense waste by evaporation in so dry an atmosphere is recognized. Most of its shores being low, any considerable rise of its waters greatly enlarges its area, followed of course by a corresponding increase of evaporation, which tends towards constancy of level within comparatively narrow limit. Nevertheless, on the flanks of the mountains, drawn in well-marked lines, you may see several ancient beaches that mark the successive levels at which the lake stood toward the close of the glacial period, the highest more than six hundred feet above the present level. Then, under a climate as marked by coolness and excessive moisture as the present by devouring drought, the dimensions of the lake must have been vastly greater. Indeed, a study of the whole plateau region, named by Fremont "the Great Basin," extending from the Sierra to the Wahsatch mountains, a distance of 400 miles, shows that it was covered by inland seas of fresh water that were only partially separated by the innumerable hills and mountain ranges of the region, which then existed as islands, forming an archipelago of unrivaled grandeur.

The lake water is as clear as the snow-streams that feed it, but intensely acrid and nauseating from the excessive quantities of salts accumulated by evaporation beneath a burning sun. Of course no fish can live in it, but large flocks of geese, ducks, and swans come from beyond the mountains at certain seasons, and gulls also in great numbers, to breed on a group of volcanic islands that rise near the center of the lake, thus making the dead, bitter sea lively and cheerful while they stay. The eggs of the gulls used to be gathered for food by the Indians, who floated to the islands on rafts made of willows; but since the occurrence of a great storm on the lake a few years ago, that overtook them on their way back from the islands, they have not ventured from the shore. Their rafts were broken up and many were drowned. This disaster, which some still living have good cause to remember, together with certain superstitious fears concerning evil spirits supposed to dwell in the lake and rule its waves, make them content with the safer and far more important product of the shores, chief of which is the larvae of a small fly that breeds in the slimy froth in the shallows. When the worms are ripe, and the waves have collected them and driven them up the beach in rich oily windrows, then old and young make haste to the curious harvest, and gather the living grain in baskets and buckets of every description. After being washed and dried in the sun it is stored for winter. Raw or cooked, it is regarded as a fine luxury, and delicious dressing for other kinds of food acorn-mush, clover-salad, grass-seed-pudding, etc. So important is this small worm to the neighboring tribes, it forms a subject of dispute about as complicated and perennial as the Newfoundland cod. After waging worm-wars until everybody is weary and hungry, the belligerents mark off boundary lines, assigning stated sections of the shores to each tribe, where the harvest may be gathered in peace until fresh quarrels have time to grow. Tribes too feeble to establish rights must needs procure their worm supply from their more fortunate neighbors, giving nuts, acorns or ponies in exchange.

This "diet of worms" is further enriched by a large, fat caterpillar, a species of silk-worm found on the yellow pines to the south of the lake; and as they also gather the seeds of this pine, they get a double crop from it—meat and bread from the same tree.

Forbidding as this grey, ashy wilderness is to the dweller in green fields, to the red man it is a paradise full of all the good things of life. A Yosemite Indian with whom I was acquainted while living in the valley, went over the mountains to Mono every year on a pleasure trip, and when I asked what could induce him to go to so poor a country when, as a hotel servant, he enjoyed all the white man's good things in abundance, he replied, that Mono had better things to eat than anything to be found in the hotel—plenty deer, plenty wild sheep, plenty antelope, plenty worm, plenty berry, plenty sagehen, plenty rabbit—drawing a picture of royal abundance that from his point of view surpassed everything else the world had to offer.

A sail on the lake develops many a fine picture—the natives along the curving shores seen against so grand a mountain background; water birds stirring the glassy surface into white dancing spangles; the islands, black, pink and grey, rising into a cloud of white wings of gulls; volcanoes dotting the hazy plain; and, grandest of all overshadowing all, the mighty barrier wall of the Sierra, heaving into the sky from the water's edge, and stretching away to north and south with its marvelous wealth of peaks and crests and deep-cutting notches keenly defined, or fading away in the soft purple distance; cumulus clouds swelling over all in huge mountain bosses of pearl, building a mountain range of cloud upon a range of rock, the one as firmly sculptured, and as grand and showy and substantial as the other.

The magnificent cluster of volcanoes to the south of the lake may easily be visited from the foot of Bloody Canyon, the distance being only about six miles. The highest of the group rises about 2,700 feet above the lake. They are all post-glacial in age, having been erupted from what was once the bottom of the south end of the lake, through stratified glacial drift. During their numerous periods of activity they have scattered showers of ashes and cinders over all the adjacent plains and mountains within a radius of twenty to thirty miles.

Nowhere within the bounds of our wonder-filled land are the antagonistic forces of fire and ice brought more closely and contrastingly together. So striking are the volcanic phenomena, we seem to be among the very hearths and firesides of nature. Then turning to the mountains while standing in drifting ashes, we behold huge moraines issuing from the cool jaws of the great canyons, marking the pathways of glaciers that crawled down the mountain sides laden with debris and pushed their frozen floods into the deep waters of the

lake in thundering icebergs, as they are now descending into the inland waters of Alaska, not a single Arctic character being wanting, where now the traveler is blinded in a glare of tropical light.

Americans are little aware as yet of the grandeur of their own land, as is too often manifested by going on foreign excursions, while the wonders of our unrivaled plains and mountains are left unseen. We have Laplands and Labradors of our own, and streams from glacier-caves—rivers of mercy sacred as the Himalaya-born Ganges. We have our Shasta Vesuvius also, and bay, with its Golden Gate, beautiful as the Bay of Naples. And here among our inland plains are African Saharas, dead seas, and deserts, dotted with oases, where congregate the travelers, coming in long caravans—the trader with his goods and gold, and the Indian with his weapons—the Bedouin of the California desert.

Chapter 4

The Yosemite Valley

The far-famed Yosemite Valley lies well back on the western slope of the Sierra, about a hundred and fifty miles to the eastward of San Francisco. It is about seven miles long, from half a mile to a mile wide, and nearly a mile deep, carved in the solid granite flank of the range. Its majestic walls are sculptured into a bewildering variety of forms—domes and gables, towers and battlements, and sheer massive cliffs, separated by grooves and furrows and deep, shadowy canyons, and adorned with evergreen trees. The bottom is level and park-like, finely diversified with meadows and groves, and bright, sunny gardens; the River of Mercy [Merced], clear as crystal, sweeping in tranquil beauty through the midst, while the whole valley resounds with the music of its unrivaled waterfalls.

It is a place compactly filled with wild mountain beauty and grandeur floods of sunshine, floods of snowy water, beautiful trees of many species, thickets of flowering shrubs, beds of flowers of every color, from the blue and white violets on the meadows, to the crimson pillars of the snow-flowers glowing among the brown needles beneath the firs. Ferns and mosses find grateful homes in a thousand moist nooks among the rocks, humming-birds are seen glinting about among the showy flowers, small singers enliven the under-brush, and wide-winged hawks and eagles float in the calm depths between the mighty walls; squirrels in the trees, bears in the canyons; all find peaceful homes, beautiful life of every form, things frail and fleeting and types of enduring strength meeting and blending, as if into this grand mountain mansion nature had gathered her choicest treasures, whether great or small.

Three good carriage roads enter the valley by way of Big Oak Flat, Coulterville, and Raymond, the greater part of the journey from San Francisco being made by rail. Each of the three roads, according to the measurements of rival agents, is the shortest, least dusty, and leads through the finest scenery. No one, however, possesses any great advantage over the others. All are dusty and, to most people, monotonous throughout their lower courses in the foothills, and all necessarily pass through belts of the noblest coniferous trees to be found in the world so that a journey to Yosemite by any possible route, even with Yosemite left out, would still be worth the exertion it costs a thousand times over.

In May, when the travel to Yosemite begins, the snow is still deep in the upper forest through which the roads pass, but the foothill region is already dry and forbidding. The whole country, soil, plants, and sky seems kiln dried, most of the vegetation crumbles to dust beneath the foot, the ground is cracked, and the sky is hot, withered, dim, and desolate though glowing, and we gaze through the white, hazy glare towards the snowy mountains and streams of cold eager longing, but not one is in sight. Lizards glide about on the burning rocks, enjoying a constitution that no drought can dry, and small ants in amazing numbers seem to be going everywhere in haste, their tiny sparks of life only burning the brighter with the sun-fire however intense. Rattlesnakes lie coiled in out-of-the-way places, and are seldom seen. The noisy magpies, jays, and ravens gather beneath the best shade trees on the ground, with wings drooped and bills wide open, scarce a sound coming from any one of them during the midday hours. These curious groups, friends in distress, are frequently joined by the large buzzard, or California condor as it is sometimes called, while the quail also seeks the shade about the tepid alkaline water-holes in the channels of the larger streams, now nearly dry. Rabbits scurry from shade to shade beneath the ceanothus bushes, and the long-eared hare may be seen now and then as he canters gracefully across the wider openings where there is a sparse growth of oaks. The nights are about as dry as the days, dewless and calm, but a thousand voices proclaim the abundance of life, notwithstanding the desolating effects of the fierce drought. Birds, crickets, hylas, etc., make a pleasant stir in the darkness, and coyotes, the small despised dogs of the wilderness, looking like rusty bunches of hair, bark in chorus, filling the air with their keen, lancing notes and making it hot and peppery, as if filled with exploding fire crackers. On the upper edge of this torrid foothill region the curious Sabine pine is found, the first of the mountain conifers met by the traveler in ascending the range. Nobody at first sight would take it to be a pine or conifer of any kind, it is so loose and widespread in habit, and its foliage is so thin and grey. The sunbeams sift through even the leafiest trees with scarce any interruption, and the weary, heated traveler finds but little protection in their shade. It grows only on the dry foothills, seeming to enjoy the most ardent sunshine like a palm, springing up here and there singly or in scattered groups among scrubby white-oaks and thickets of ceanothus and manzanita.

The generous crop of sweet, nutritious nuts it yields renders it a favorite with the Indians and bears. Indians gathering the ripe nuts make a striking picture. The men climb the trees and beat off the magnificent cones with sticks, while the squaws gather them in heaps, and roast them until the scales open and allow the hard-shelled seeds to be beaten out. Then, in the cool evenings, men, women, and children, smeared with resin, form circles around their campfires on the bank of some stream, and lie in easy independence, cracking nuts, and laughing and chatting as heedless of the future as bears and squirrels.

Fifteen to twenty miles farther on, at the height of from 2,000 to 3,000 feet above the sea, you reach the lower edge of the main forest belt, composed of the gigantic sugar-pine, yellow pine, incense-cedar, Douglas spruce, silver-fir, and sequoia. However dense and sombre the woods may appear in general views, neither on the rocky heights or down in leafiest hollows will you see any crowded growth to remind you of the dark malarial selvas of the Amazon and Orinoco with their boundless contiguity of shade, nor of the monotonous uniformity of the Deodar forests of the Himalaya, or of the pine woods of the Atlantic States. These giant conifers wave in the open sunshine, rising above one another on the mountain benches in most imposing array, each species giving forth the utmost expression of

its own peculiar beauty and grandeur with inexhaustible variety and harmony. All the different species stand more or less apart in groves or small irregular groups, through which the roads meander, making delightful ways along sunny colonnades and across openings that have a smooth surface strewn with brown needles and cones. Now you cross a wild garden, now a ferny, willow stream, and ever and anon you emerge from all the groves and gardens upon some granite pavement or high bare ridge commanding glorious views above the waving sea of evergreens far and near.

The sugar-pine surpasses all the other pines in the world, not only in size, but also in kingly majesty and beauty. It towers sublimely from every ridge and canyon of the range at an elevation of from three to seven thousand feet above the sea, attaining most perfect development at a height of about five thousand feet. Full-grown specimens are commonly about two hundred and twenty feet high, and from six to eight feet in diameter near the ground, though some grand old patriarch is occasionally met that has enjoyed five or six centuries of storms and attained a thickness of ten or even twelve feet, living on undecayed, sweet and sound in every fiber. The trunk is a smooth, round delicately tapered shaft, mostly without limbs to a height of one hundred feet. At the top of this magnificent bole the long, curved branches sweep gracefully outward and downward, sometimes forming a palm-like crown sixty feet in diameter, or even more, around the rim of which the magnificent cones are hung. When ripe, in September and October, the cones are commonly from fifteen to eighteen inches long, and three in diameter, green, shaded with purple on their sunward sides, but changing to a warm, yellowish brown after the seeds are discharged. Then their diameter is nearly doubled by the spreading of the scales, and they remain pendant on the ends of the branches, producing a fine ornamental effect all winter. The wood is fine-grained, fragrant, and is considered the most valuable of all the Sierra pine.

From the heartwood, where wounds have been made, the sugar, from which the common name is derived, exudes in crisp, candy-like masses. When fresh, it is white and delicious, but inasmuch as most of the wounds on which it is found have been made by fire, the exuding sap is stained on the charred surface, and the hardened sugar becomes brown. The Indians are fond of it, but because of its laxative properties only small quantities may be eaten.

The most constant companion of this species is the yellow-pine, and a worthy companion it is. The Douglas spruce, libocedrus, sequoia, and the silver-firs are also more or less associated with it, but on many deep-soiled mountain sides, about five thousand feet above the sea, it forms the bulk of the forest. The majestic crowns approaching each other in bold curves make a lofty canopy through which the tempered sunbeams pour, silvering the needles, and gilding the boles and flowery ground into a scene of enchantment. On the warmest slopes the chamaebatia, a small shrub belonging to the rose family, is spread in a continuous growth like a carpet, brightened in the spring with the crimson *sarcodes*, or snow plant, and the wild rose. On the northern slopes the boles are more slender, and the ground is mostly occupied by an under-brush of hazel, ceanothus, and flowering dogwood, but never so dense as to prevent the traveler from sauntering where he will.

The yellow or silver-pine (*P. ponderosa*) ranks second among the Sierra pines as a lumber tree, and almost rivals the sugar-pine in size and nobleness of port. Seen in winter laden with snow, or in summer when its brown staminate clusters hang thick among the shimmering needles, and its large purple cones are ripening in the mellow light it forms a magnificent spectacle. But it is during cloudless wind-storms that these colossal pines are most impressively beautiful. Then they bow like willows, their leaves streaming forward all in one direction, and when the sun shines on them at the required angle they glow as if every needle were burnished silver. The fall of sunlight on the royal crown of a palm as it breaks upon the glossy leaves in long lance-like rays, is a truly glorious spectacle, like a mountain stream breaking upon boulders. But still more impressively beautiful is the fall of the light on these lofty silver-pines; it seems beaten to the finest dust, and is shed off in myriads of minute, glinting sparkles that hide all the green foliage and make one glowing mass of white radiance.

The famous big tree, *sequoia gigantea*, extends from the well-known Calaveras Grove to the head of Deer Creek, near the big bend of Kern River, a distance of nearly two hundred miles, at an elevation of about five to eight thousand feet above the sea. From the Calaveras to the south fork of Kings River it occurs only in small, isolated groves among the pines and firs, and is so sparsely and irregularly distributed that this portion of the belt is not easily traced. Two gaps nearly forty miles wide occur in it between the Calaveras and Tuolumne groves, and between those of the Fresno and Kings rivers. From Kings River the belt extends across the broad, rugged basins of the Kaweah and Tule rivers to its southern limit on the head of Deer Creek, interrupted only by deep, rocky canyons, the width of this portion of the belt being from three to nearly eight miles, and the length seventy miles.

In the northern groves few young trees or saplings are found promising to take the places of the failing old ones, giving rise to the notion that the species is doomed to speedy extinction, as being only an expiring remnant of an ancient flora once far more widely distributed. But careful study has shown that the Big Tree has never formed a greater part of these post-glacial forests than it does at the present time, however widely it may have been distributed in the pre-glacial forests.

To the southward of Kings River no tree in the woods appears to be more firmly established in accordance with climate and soil. For many miles they occupy the surface almost exclusively, growing vigorously over all kinds of ground—on rocky ledges, along water-courses, and on moraines and avalanche detritus, coarse or fine, while a multitude of thrifty seedlings and saplings, and middle-aged trees are growing up about the old giants, ready to take their places and maintain the race in all its grandeur. But, unfortunately, fire and the axe are already busy on many of the more accessible portions of the belt, spreading sure destruction, and unless protective measures be speedily adopted and applied, in a few decades all that may be left of this noblest of trees will be a few hacked and scarred monuments.

There is something wonderfully telling and impressive about sequoia, even when beheld at a distance of several miles. Its dense foliage and smoothly rounded outlines enable us to recognize it in any company, and when one of the oldest patriarchs attains full stature on some commanding ridge it seems the very god of the woods. Full-grown specimens are about fifteen and twenty feet in diameter, measured above the swelling base, and about two hundred and fifty feet high. Trees twenty-five feet in diameter are not rare, and one is now and then found thirty feet in diameter, but very rarely any larger. The grandest specimen that I have measured is a stump about ninety feet high, which is thirty-five feet, eight inches in diameter, measured inside the bark, above the bulging base. The wood is dull purplish red in color, easily worked, and very enduring; lasting, even when exposed to the weather, for hundreds of years. Fortunate old trees that have passed their three thousandth birthday, without injury from lightning, present a mound-like summit of warm, yellow-green

foliage, and their colossal shafts are of a beautiful brown color, exquisitely tapered, and branchless to a height of a hundred and fifty feet. Younger trees have darker, bluish foliage, and shoot up with tops comparatively sharp.

The Calaveras Grove is the northmost, and was discovered first of all. It may be visited by tourists to the valley by way of Milton, Murphy's Camp, and Big Oak Flat, though it is not on any of the roads leading directly to Yosemite. The flowery leafiness of this grove is one of its most charming characteristics. Lilies, violets, and trientales cover the ground along the bottom of the glen, and carpets of the blooming chamoebatia are outspread where the light falls free, forming a beautiful ground of color for the brown sequoia trunks; while rubus, dogwood, hazel, maple, and several species of ceanothus make a shaggy underbrush in the cooler shadows.

Most of the larger trees have been slightly disfigured by names carved and painted on marble tablets and countersunk into the bark, and two have been killed; one of them by removing the bark in sections to be set up in the London exposition, the other felled because somebody wanted to dance upon the stump, and the noble monarch now lies a mass of ruins. With these exceptions, the grove has been well preserved, that is, let alone, the underbrush and smaller plants in particular retaining their primitive wildness unimpaired.

Travelers to the valley, by way of Big Oak Flat, pass through the small Tuolumne Grove of Big Trees on the dividing ridge between the waters of the Tuolumne and Merced rivers. Those who take the Raymond route may visit the Mariposa and Fresno groves, by stopping over a day at Clark's Station. While those who choose the Coulterville route will pass through the Big Tree Grove of the Merced. These groves on the different routes are not equally interesting to most people, but all contain giants that are worthy representatives of their race. The traveler, however, who would see *sequoia gigantea* in all its glory, must visit the forests of the Kaweah and Tule rivers.

From the Big Tree groves the roads conduct for a few hours through forests of sugar-pine and silver-fir which become yet more beautiful and interesting as you advance. Then, looking and admiring as best you can while being rapidly whirled onward through dust in a coach drawn by six horses, Yosemite Valley comes suddenly into view, and in an hour you are down the nerve-trying grade—out of the shadows from the noblest forest trees in the world, into the midst of the grandest rocks and waterfalls. Riding up the valley through stately groves, and around the margin of emerald meadows, the lofty walls on either hand looming into the sky with their marvelous wealth of architectural forms, bathed in the purple light of evening, and beating time to the tones of the falls, the whole seems a work of enchantment.

The first object to catch the eye on entering the valley is the Bridal Veil Fall, 900 feet in height—a soft, delicate-looking thing of beauty, as seen at a distance of a mile or two, pouring its snowy folds and irised spray with the utmost gentleness, while the wind sways it from side to side like a downy cloud. But on a near approach it manifests the speed and wild ungovernable energy of an avalanche.

On the other side of the valley, almost immediately opposite the Bridal Veil, there is another fine fall, considerably wider at times when the snow is melting, and more than a thousand feet in height from the brow of the cliff where it first leaps free into the air to the head of a rocky talus, where it strikes and is broken up into ragged cascades. It is called the Ribbon Fall or Virgin's Tears. During the spring floods it is a magnificent object, but the suffocating blasts of spray that fill the recess in the wall which it occupies prevent a near approach. In autumn however, when its feeble current falls in a shower it may then pass for tears with the sentimental onlooker fresh from a visit to the Bridal Veil. Just beyond these two falls are the grand outstanding masses of the Cathedral and El Capitan rocks, 2,700 and 3,300 feet in height, the latter making a most imposing display of sheer, enduring, unflinching granite, by many regarded as the most sublime feature of the valley. Then the Three Brothers present themselves—a vast mountain building of three gables, the highest 4,000 feet above the valley floor. On the south side, opposite the Brothers, the Sentinel Rock, 3,000 feet high, stands forward in bold relief like some special monument, gracefully adorned with a beautiful cascade on either side and fringed at its base with spruce and pine.

The general masses of the walls between the more prominent rocks thus far mentioned, are sculptured into a great variety of architectural forms, impossible to describe separately, each fitted to its place in this grand harmony.

Beyond the Three Brothers the Yosemite Fall is at length seen in one grand view throughout its entire length, pouring its floods of snowy rejoicing waters from a height of 2,600 feet down to the groves and green meadows of the valley, bathing the mighty cliffs with clouds of spray, and making them tremble with its deep, massy thunder-tones.

At the head of the valley, now clearly revealed, stands the Half Dome, the loftiest, most sublime and the most beautiful of all the rocks that guard this glorious temple. From a broad, sloping base planted on the level floor of the valley, it rises to a height of 4,750 feet in graceful flowing folds finely sculptured and poised in calm, deliberate majesty. Here the main valley sends out three branches, forming the Tenaya, Merced, and Illilouette canyons. Tracing the Tenaya Canyon from the valley up Tenaya Creek, you have the Half Dome on the right, and the Royal Arches, Washington Column, and the North Dome on the left. Half a mile beyond Washington Column you come to Mirror Lake, lying imbedded in beautiful trees at the foot of Half Dome. A mile beyond the lake the picturesque Tenaya Fall is seen gleaming through the rich leafy forest that fills this portion of the canyon, and to the left of the fall are the Dome Cascades, about a thousand feet in height, filling the canyon with their deep booming roar.

Just above the Tenaya Fall, on the left side, rises the grand projecting mass of Mt. Watkins, with a sheer front of solid granite like El Capitan, and on the right, the lofty wave-like ridge of Clouds Rest, a mile in height.

A little farther up the canyon, you come to the Tenaya Cascades, 700 feet in vertical descent gliding in a showy plume-like ribbon down a smooth incline of bare granite. Above the cascades you pass a succession of less showy cascades and falls, and many small filled-up lake-basins, with charming lily gardens, and groves of pine and silver-fir, set in the midst of waving folds of shining glacier-planed granite and rocks of every form, until, at a distance of about ten miles from the valley, the canyon opens into the beautiful basin of Lake Tenaya, and the noble Cathedral Peak, with its many spires on the east, towers above it.

The Illilouette Canyon, through which the beautiful Illilouette basin is drained, is about two miles long. From different standpoints in its rough, boulder-choked bottom, a series of most telling and strangely varied views of the head of the valley may be obtained. The Illilouette Fall, near the head of the canyon, is one of the most interesting in the valley. It is nearly 600 feet high, but is seldom visited on account of the roughness of the way leading to it over the rocks. The canyon of the main middle branch of the river extends back to the axis of the range in the Lyell Group, and contains so many waterfalls, cascades of every kind, lakes, and beautiful valleys with walls that are sculptured like those of Yosemite, that nothing like a complete description of it can be given here.

About a mile up the canyon from the main valley, along the margin of wild dashing rapids charmingly embowered, you come to the beautiful Vernal Fall, 400 feet in height. At the head of the fall lies the small Emerald Pool, and a mile beyond, the snowy Nevada Fall is seen, which, next to the Yosemite, is the grandest of all. It is about 600 feet in height, and on account of its waters being so tossed and beaten before reaching the brink of the precipice it is intensely white; while all the way down to the head of the Vernal Fall the river forms a continuous chain of cascades and rapids, hardly less interesting to most travelers than the falls. The majestic rock called, from its shape, the Liberty Cap, rises close alongside the Nevada, adding greatly to the grandeur of the view.

Tracing the river back from the head of the fall, you pass through the Little Yosemite Valley. It resembles the main Yosemite, though formed on a smaller scale. Then you find a long train of booming, dancing cascades, alternating with rapids and lakes and short, tranquil reaches, and a grand variety of smaller Yosemite valleys, garden patches and forests in hollows, here and there, where soil has been accumulated, until at length the icy fountains of the river are reached among the alpine peaks of the summit.

The Yosemite Valley was discovered in 1851, by Captain Boling, who then, with two Indians as guides, led a company of soldiers into it from Mariposa to punish a band of marauding Indians who occupied the valley as their home and stronghold.

The regular Yosemite pleasure travel began in 1856, and has gradually increased until the present time. Considering the remoteness of many of the fountains of this current of travel, its flow has been remarkably constant. The regular tourist, ever in motion, is one of the most characteristic productions of the present century; and however frivolous and inappreciative the poorer specimens may appear, viewed comprehensively they are a hopeful and significant sign of the times, indicating at least a beginning of our return to nature; for going to the mountains is going home. Perhaps nowhere else along the channels of pleasure travel may so striking and interesting a variety of people be found together as in this comparatively wild and remote Yosemite. Men, women, and children of every creed and color come here from every country under the sun; farmers, men of business, lawyers, doctors, and divines; scientists seeking causes, wealthy and elegant loafers trying to escape from themselves, the titled and obscure, all in some measure seeing and loving wild beauty, and traveling to better purpose than they know, borne onward by currents that they cannot understand, like ships at sea.

Arriving in the valley most parties keep together and fall into the hands of the local guides by whom they are led hastily from point to point along the beaten trails. Others separate more or less and follow their own ways. These are mostly members of Alpine Clubs, sturdy Englishmen and Germans, with now and then a cannie Scotchman, all anxious to improve their opportunities to the utmost. Besides rambling at will into odd corners of the valley, they climb about the canyons, and around the tops of the walls; or push out bravely over the adjacent mountains, radiating far into the High Sierra among the ice and snow. They thread the mazes of the glorious forests, and trace the wild young streams in their courses down from the glaciers through grandly sculptured canyons, past garden hollows and lake basins, and down glossy inclines, sharing in all their exhilarating rush and roar.

Gentle, contemplative grandmothers, and a few fine-grained specimens of fewer years, spend most of their time sauntering along the banks of the river, and sitting in the shade of the trees; admiring sky and cliff, and falling water, in a quiet way, enriching their lives far more than their neighbors who keep themselves in perpetual motion, following each other along dusty trails, painfully "doing" the valley by rule.

Little children are, of course, the most delightfully natural of all the visitors, flashing around the hotel verandahs, or out beneath the trees, glowing in rainbow-hued ruffles and ribbons like butterflies and scarlet tanagers. They consider the lilies and birds and bees, nor are they altogether unconscious of the glorious sublimities about them; for one may see them at times gazing silently with upturned faces at the mighty cliffs, and at the white water pouring out of the sky, their pure, natural wonderment offering a refreshing contrast to the mean complacency and blindness of the finished tourist, who has seen all, knows all, and is engulfed in eternal apathetic tranquillity.

The Yosemite Fall is partially separated into an upper and lower fall, with a series of smaller falls and cascades between them, but when viewed in front they appear as one, only slightly interrupted by striking on what seems to be a narrow ledge. First there is a sheer descent of about 1,600 feet; then a succession of cascades and smaller falls nearly a third of a mile long, and making altogether a descent of 600 feet; then a final sheer fall of about 400 feet is made to the bottom of the valley. So grandly does this magnificent fall display itself from the floor of the valley few visitors take the trouble to climb the wall to gain nearer views, unable to realize how vastly more impressive it becomes when closely approached, instead of being seen at a distance of from one to two miles.

The views developed in a walk up the zigzags of the trail leading to the upper fall are as varied and impressive and almost as extensive, as those on the well-known Glacier Point Trail. One rises as if on wings. The groves, meadows, fern-flats, and reaches of the river at once gain new interest, as if never seen before, and all become new over and over again as we go higher from point to point; the foreground also changes every few rods in the most surprising manner, although the bench on the face of the wall over which the trail passes is very monotonous and commonplace in appearance as seen from the bottom of the valley. Up we climb with glad exhilaration, through shaggy fringes of laurel and ceanothus, and glossy-leaved manzanita and live oak from shadow to shadow across bars of sunshine, the leafy openings making charming frames for the valley pictures beheld through them, and for the glimpses of the high alps that appear in the distance. The higher we go, the farther we seem to be from the summit of the vast carved wall up which we are creeping. Here we pass a huge projecting buttress whose grooved and rounded surface tells a wonderful story of the time when the valley now filled with sunshine was filled with ice, when a grand old glacier, flowing river-like from its many fountains on the snow-laden summits of the range, swept through the valley with its crushing, grinding floods, wearing its way ever deeper, and fashioning these sublime cliffs to the varied forms of beauty they now possess. Here a white, battered gully marks the pathway of an avalanche of rocks, now we cross the channel of an avalanche of snow. Farther on we come to a small stream clinging to the face of the cliff in lace-like strips, or leaping from ledge to ledge, too small and feeble to be called a fall, trickling, dripping, slipping, oozing, a pathless wanderer from the upland meadows, seeking a way century after century to the depths of the valley without having worn any appreciable channel. Constant dropping has not worn away these stones. Every morning, after a cool night, evaporation being checked, it gathers strength and sings like a bird, but as the day advances, and the sun strikes its thin currents outspread on the heated precipices, most of its waters vanish long ere the bottom of the valley is reached. Many a fine, hanging garden aloft on these breezy inaccessible heights owe to it their freshness and fullness of beauty; ferneries in shady nooks, filled with adiantum, woodwardia, woodsia, aspidium, pellaea, and cheilanthes; rosetted and tufted and ranged in lines, daintily overlapping, thatching the stupendous cliffs with softest beauty, the delicate fronds seeming to float on the warm, moist air, without any connection with rock or stream. And colored plants, too, in abundance, wherever they can find a place

to cling to; the showy cardinal mimulus, lilies and mints, and glowing cushions of the golden bahia, together with sedges and grasses growing in tufts, and the butterflies and bees and all the small, happy creatures that belong to them.

After the highest point on the lower division of the trail is gained it conducts along a level terrace on the face of the wall, around a shoulder, and into the deep recess occupied by the great Upper Yosemite Fall, the noblest display of falling water to be found in the valley, or, perhaps, in the world. When it first comes in sight, it seems almost within reach of one's hand, so great is its volume and velocity, yet it is still nearly a third of a mile away, and appears to recede as we advance. The sculpture of the walls about it is on a scale of grandeur, according nobly with the fall, plain and massive, though elaborately finished, like all the other cliffs about the valley.

In the afternoon an immense shadow is cast athwart the plateau in front of the fall, and far over the fields of chaparral that clothe the slopes and benches of the wall to the eastward, creeping upward upon the fall until it is wholly overcast, the contrast between the shaded and illuminated sections being very striking in near views.

Under this shadow, during the cool centuries immediately following the breaking up of the Glacial Period, dwelt a small residual glacier, one of the few that lingered on this sun-beaten side of the valley after the main trunk glacier had vanished. It sent down a long winding current through the narrow canyon on the west side of the fall, and must have formed a striking feature of the ancient scenery of the valley; the lofty fall of ice and fall of water side by side, yet separate and distinct.

The coolness of the afternoon shadow and the abundant dewy moisture from the spray of the fall make a fine climate for ferns and grasses on the plateau, and for the beautiful azalia, which grows here in profusion and blooms in September, long after the warmer thickets down the valley have withered and gone to seed. Even close to the fall, and behind it at the base of the cliff, a few venturesome plants may be found, undisturbed by the rockshaking torrent.

The basin at the foot of the fall into which the current directly pours when it is not swayed by the wind is about ten feet deep, and fifteen to twenty feet in diameter. That it is not much deeper is surprising, when the great height and force of the fall is considered. But the rock where the water strikes probably suffers much less erosion than it would were the descent less than half as great, since the current is outspread, and much of its force is spent ere it reaches the bottom; being received on the air as upon an elastic cushion, and borne outward and dissipated over a surface more than fifty yards wide.

This surface, easily examined when the water is low, is intensely clean and fresh-looking. It is the raw, quick flesh of the mountain wholly untouched by the weather. In summer droughts, when the snowfall of the preceding winter has been light, the fall is reduced to a mere shower of separate drops without any obscuring spray. Then we may safely go to the back of the fall and view the crystal shower from beneath, which, when the sun is shining, is extremely beautiful, each drop wavering and pulsing as it makes its way through the air, and flashing off jets of colored light of ravishing beauty. But all this is invisible from the bottom of the valley, like a thousand other interesting things. One must labor for beauty as for bread here as elsewhere.

During the time of spring floods the best near view of the fall is obtained from a ledge on the east side above the blinding spray, at a height of about 400 feet from the base of the fall. A climb of about 1,400 feet from the valley has to be made, and there is no trail, but to anyone fond of climbing, and who is at all stirred by a love of adventure, this will make the ascent all the more delightful. The ledge runs out back of the fall on the sheer front of the cliff, so that the fall may be approached as closely as we wish. When the afternoon sunshine is streaming through the thronging masses of down-rushing waters the marvelous firmness and variety of their forms are beautifully revealed. The whole fall is a majestic column of foaming, snowy water, ever wasting, ever renewed. At the top it seems to burst forth from some grand, throbbing heart of the mountain in irregular pulses, comet-like spurts succeeding one another in sublime rhythm. Now and then one mighty throb sends forth a mass into the free air far beyond the others, which rushes alone to the bottom of the fall with long, streaming, tail-like, combed silk, illumined by the sun, while the others, descending in clusters, gradually mingle and lose their identity. They rush past with amazing velocity and display of power, though apparently drowsy and deliberate in their movements when observed from the bottom of the valley at a distance of a mile or two. The heads of these comet-like masses are composed of nearly solid water, and are dense white in color, like pressed snow, from the friction they suffer in rushing through the air, the portion worn off forming the tail, between the white lustrous threads and films of which, faint, greyish pencillings appear, while the outer, finer sprays of waste water-dust, whirling in sunny eddies, are pearl grey throughout.

At the bottom of the fall there is but little distinction of form visible. It is mostly a driving, boiling, upswirling mass of scud and spray, through which the light sifts in grey and purple tones, while at times, when the sun strikes at the required angle, the whole is changed to brilliant rainbow hues. The middle portion of the fall is the most openly beautiful; lower, the various forms into which the waters are wrought are more closely and voluminously veiled, while higher, towards the head, the current is more simple and compact. But even at the bottom, in the boiling clouds of spray, there is no confusion, while the rainbow light makes all divine, adding glorious beauty and peace to glorious power. The Upper Yosemite Fall has far the richest, as well as the most powerful voice of all the falls of the valley, its tones varying from the sharp hiss and rustle of the wind in the glossy leaves of the live oaks and the soft, sifting, hushing tones of the pines, to the loudest rush and roar of storm-winds and thunder among the crags of the summit peaks. The low bass, booming, reverberating tones, heard under favorable circumstances five or six miles away, are formed by the dashing and exploding of heavy masses of water and air upon two projecting ledges on the cliff, 400 and 600 feet above the base of the fall. The torrent of massive comets is continuous at time of high water, while the explosive, booming, notes are wildly intermittent, because, unless influenced by the wind, most of the heavier masses shoot out from the face of the precipice, and pass the ledges upon which at other times they are wrecked. Occasionally the whole fall is swayed away from the front of the cliff, then suddenly clashed flat against it, or vibrated from side to side like a pendulum, giving rise to endless variety of forms and sounds.

Once during a violent wind-storm, while I watched the fall from the shelter of a pine-tree, the whole ponderous column was suddenly arrested in its descent at a point about midway between the base and top, and was neither blown upward or turned aside, but simply held stationary in mid-air as if gravitation below that point had ceased to act. Thus it remained for more than a minute, resting in the arms of the stormwind, the usual quantity of water meanwhile coming over the brow of the cliff and accumulating in the air as if falling upon an invisible floor, swedging and widening. Then, as if commanded to go on, scores of arrowy water-comets shot forth from the base of the suspended fountain, and the grand anthem of the fall once more began to sound. After bathing so long in the spray of the fall it is natural to look above and beyond it and say: "Where does all this chanting water come from?" This is easily learned by going and seeing.

The Yosemite Creek is the most tranquil of all the larger streams that pour over the valley walls. The others, while yet a good way back from the verge of the valley, abound in loud-voiced falls and cascades or rushing rapids, but Yosemite Creek, as if husbanding its resources, after the descent of its main tributaries from the snowy heights of the Hoffman Range, flows quietly on through strips of level meadow and smooth hollows and flats, with only a few small cascades, showing nothing in all its course to suggest the grandeur of its unrivaled falls in the valley.

Its wide and shallow basin is so crowded with domes it seems paved with them. Some castellated piles adorn its western rim, while the great Tuolumne Canyon sweeps past it on the north, and the cool, shadow-covered precipices of the Hoffman Range bound it on the east and northeast. During winter and spring most of the waters of the basin are derived directly from snow, but in summer only two or three, and in the drier seasons only one of its many streams draws its source from perennial fountains of snow and ice. Then the main dependence of the many tributaries are moraines of the ancient glaciers, in which a part of the melting snows and rains are absorbed.

Issuing from their moraine fountains, each shining thread of water at once begins to sing, running gladly onward, over boulders, over rock-stairs, over dams of fallen trees; now groping in shadows, now gliding free in the light on glacier-planed pavements, not a leaf on their borders; diving under willows, fingering their red roots and low-dipping branches, then absorbed in green bogs; out again among mosaics of leaf, shadows and light, whirling in pools giddy and ruffled, then restful and calm, not a foambell in sight; whispering low, solemn in gestures as full grown rivers, slowly meandering through green velvet meadows, banks embossed with bryanthus and yet finer cassiope, white and blue violets blending with white and blue daisies in smooth, silky sods of the Alpine agrostis; out again on bare granite, flowing over gravel and sand mixed with mica and garnets and white crystal quartz, making tiny falls and cascades in rapid succession, until at length all the bright, rejoicing choir meet together to form the main stream which flows calmly down to its fate in the valley, sweeping over the tremendous verge beneath a mantle of diamond spray. Amid the varied foams and fine ground mists of the mountain streams that are ever rising from a thousand waterfalls, there is an affluence and variety of rainbows scarce at all known to the careworn visitor from the lowlands. Both day and night, winter and summer, this divine light may be seen wherever water is falling in spray and foam, a silent interpreter of the heart-peace of nature, amid the wildest displays of her power. In the bright spring mornings the black-walled recess at the foot of the Lower Yosemite Fall is lavishly filled with irised spray, which does not simply span the dashing foam, but the foam itself, the whole mass of it, seems to be colored, and drifts and wavers, mingling with the foliage of the adjacent trees, without suggesting any relationship to the ordinary rainbow. This is perhaps the largest and most reservoir-like accumulation of iris color to be found in the valley.

The lunar rainbows, or spraybows, are grandly developed in the spray of the Upper Fall. Their colors are as distinct as those of the sun, and as regularly and obviously banded, though less vivid. They may be seen any night when there is plenty of moonlight and spray.

Even the secondary bow is at times distinctly visible. The best point from which to observe them is on the upper ledge, 400 feet above the base of the fall on the east side. For some time after moonrise the arc is about 400 to 500 feet span, set upright, one end planted in the spray at the bottom, the other in the edge of the fall, creeping lower, of course, and becoming less upright as the moon rises higher. This grand arc of color, glowing with such invincible peacefulness and mild shapely beauty in so weird and dark a chamber of shadows, and amid the rush and roar and tumultuous dashing of this thunder-voiced fall, is one of the most impressive sights offered in all this wonder-filled valley.

Smaller bows may be seen in the gorge on the plateau between the upper and lower falls. Once toward midnight, after spending a few hours with the wild beauty of the upper fall, I sauntered along the edge of the gorge, looking in here and there, wherever the footing felt safe, to see what I could learn of the night aspects of the smaller falls that dwell there. And down in an exceedingly black, pit-like portion of the gorge, at the foot of the highest of the intermediate falls, while the moonbeams were pouring into it through a narrow opening, I saw a well-defined spraybow, beautifully distinct in colors, spanning across from side to side of the pit.

In the pool at the foot of the fall pure white foam waves were constantly springing up into the moonshine, beneath the beautiful bow, like a band of dancing ghosts.

The leaping waves so foamy white, amid rocks and shadows so weird and black, and the mystic circle of colored light, made a scene in the general gloom of the night marvelously vivid and wild. Another marvelous night scene, but not a safe one, is a view of the full moon through the edge of the Upper Fall, from the narrow ledge that extends back of it, 400 feet above its base. But the ledge is less than a foot wide on the face of the wall at one place, and though considerably wider behind the fall, it is rounded on the edge by the action of the water, and the fall is liable to be swayed against it even in calm nights; therefore one is in danger of being washed off. My own experiences one night back of the fall, when it was booming in all its glory, were such that I shall never venture there again. But the effect was enchanting; wild music above, beneath, around. The moon appeared to be in the very midst of the rushing waters and struggling to keep her place, on account of the ever-varying density and forms of the masses through which she was seen; now darkened by a rush of opaque comets, now flashing out through openings of gaudy tissue, suffering a rushing succession of eclipses that lasted but a moment—a rare astronomical phenomenon, a transit of a thousand comets across the disc of the moon.

A very telling excursion may be made to Glacier Point and Sentinel Dome, thence across the Illilouette and Little Yosemite Valley, and return to the valley past the Nevada and Vernal falls. On the trail leading up the craggy wall to Glacier Point, the main rocks and falls of the valley are seen in striking positions and combinations, developing marvelously grand and beautiful effects as you climb from point to point. At an elevation of about 500 feet, a wide sweeping view down the valley is obtained past the Sentinel, and between Cathedral Rock and El Capitan. At 1,500 feet the wide upper end of the valley comes in sight, bounded by the great Half Dome, that looms sublimely into the azure, overshadowing every other feature of the landscape.

From Glacier Point you look down over the edge of a sheer wall 3,000 feet high, upon soft green meadows and innumerable spires of the yellow pine, with the bright ribbon of the river curving through their midst. On the opposite side of the valley a fine general view is presented of the Royal Arches, North Dome, Indian Canyon, and Eagle Cliff, with Mt. Hoffman and the dome-paved basin of Yosemite Creek in the distance. To the eastward, Clouds Rest is seen beyond the Half Dome, and Mt. Starr King girdled with silver firs, the deeply sculptured peaks of the Merced Group, and about Mt. Lyell on the axis of the range, and broad swaths of forests growing on ancient moraines, while the Nevada, Vernal, and Yosemite falls, in full view, are as distinctly heard as if one were standing in their spray.

Here the attentive observer will not fail to perceive that all this glorious landscape is new, lately brought to light from beneath the universal icesheet of the Glacial Period, and that the loftiest domes have been overswept by it as boulders are overswept by a flood. Hence the most resisting parts of the landscape are the highest. Every dome, ridge, and mountain in the fore and middle grounds are seen to have rounded outlines, while those of the summit peaks are sharp, the former having been *overflowed* by the heavy grinding folds of the ice-sheet while the latter were *downflowed*, thus grinding them into sharp peaks and crests. Here you see the tributary valleys or canyons of the main Yosemite Valley branching far and wide into the fountains of perpetual ice and snow. Adown these wide polished valleys once poured the ancient glaciers that united here to form the main Yosemite Glacier that eroded the valley out of the solid [rock], wearing its channel gradually deeper, crawling on, unhalting, unresting, throughout the countless centuries of the Ice Period.

The distant views from the summit of Sentinel Dome are still more extensive and telling, and many charming Alpine plants—phlox, telinum, eriogonae, rock-ferns, etc. are found there.

On the way to Little Yosemite a view of the Illilouette Fall may be obtained from its head, though it is much inferior to the view obtained at the foot of the fall by scrambling up its rocky canyon from the valley. The fall in general appearance most resembles the Nevada. Before coming to the brink of the precipice its waters are severely dashed and tossed by steps and jutting angles on the bottom and sides of its channel, therefore it is a very white and finely textured fall. When in full play it is columnar and richly fluted from the partial division of its waters on the roughened lip of the precipice. It is not nearly so grand a fall as the Upper Yosemite, so symmetrical as the Vernal, or so nobly simple as the Bridal Veil; nor does it present so overwhelming an outgush of snowy magnificence as the Nevada, but in the richness and exquisite fineness of texture of its flowing folds it surpasses them all. After crossing the Illilouette Valley the trail descends into the Little Yosemite near the lower end, and thence down past the Nevada and Vernal falls to the main valley. But before returning, a visit should be made through the Little Yosemite. It is about four miles long, half a mile wide, and its walls are from 1,500 to 2,500 feet in height, bold and sheer and sculptured in true Yosemite style. And, since its rocks have not been so long exposed to post-glacial weathering, they are less blurred than those of the lower valley, large areas of the wall surfaces showing a beautiful glacial polishing that reflect the sunshine like glass.

The bottom of the valley is flat and covered with showy gardens, meadows, rose and azalia thickets, and beautiful groves of silver-fir and pine; while the river, charmingly embowered, flows through the midst of them, softly gliding over smooth, shining sands in peaceful, restful beauty. At the head of the valley there is a showy cascade where the river flows over a bar of granite so moderately inclined that one may enjoy a climb close alongside the glad dancing flood, with but little danger of being washed away.

This used to be a favorite hunting ground of the Indians, where they found abundance of game—mountain quail, grouse, deer, and the cinnamon bear—gathered together as if enclosed in a high-walled park with gates easily guarded. But the noisy, destructive methods of tourist sportsmen have driven most of the game away.

As the river approaches the Nevada Fall after its tranquil flow through the valley levels, its channel is roughened with projecting rock-ribs and elbows, the object of which seems to be to fret the stream into foam and fit it for its grand display. And with what eager enthusiasm it accepts its fate, dashing on side angles, surging against round, bossy knobs, swirling in pot holes, upglancing in shallow, curved basins, then bounding out over the brink and down the grand descent, more air than water, glowing like a sun beaten cloud. Into the heart of it all any one with good nerve and good conscience may gaze from the end of a granite slab that juts out over the giddy precipice and is brushed by the flood as it bounds over the brink.

Blinding drifts of scud and spray prevent a near approach from below until autumn. Then, its thunder hushed, the fall shrinks to a whispering web of embroidery clinging to the face of the cliff, more interesting and beautiful to most observers than the passionate flood-fall of spring.

The view down the canyon is one of the most wonderful about the valley—the river, gathering its shattered waters, rushing in wild exultation down the Emerald Pool and over the Vernal Fall; the sublime walls on either hand, with the stupendous mass of the Glacier Point Ridge blocking the view in front, forming an immense three sided, hopper-shaped basin 3,000 feet deep, resounding with the roar of winds and waters, as if it were some grand mill in which the mountains were being ground to dust. A short distance above the head of the fall the river gives off a small part of its waters, which, descending a narrow canyon to the north of the fall, along the base of the Liberty Cap, forms a beautiful cascade, and finally joins the main stream again a few yards below the fall. Sometime ago the officer in charge of the valley seemed to regard the cascades as so much waste water, inasmuch as they employed an enterprising and ingenious gentleman to “fix the falls,” as he said, by building a dam across the cascade stream where it leaves the river, so as to make all the water tumble and sing together. No great damage was done, however, by this dam or any other improvement. Mending the Yosemite waterfalls would seem to be about the last branch of industry that even unsentimental Yankees seeking new outlets for enterprise would be likely to engage in. As well whitewash the storm-stained face of El Capitan or gild the domes.

The Vernal Fall is a general favorite among the visitors to the valley, doubtless because it is better seen and heard than any of the others, on account of its being more accessible. A good stairway leads up the cliffs alongside of it, and the open level plateau over the edge of which it enables one to saunter in safety close to its brow and watch its falling waters as they gradually change from green to purplish grey and white, until broken into spray at the bottom. It is the most staid and orderly of all the great falls, and never shows any marked originality of form or behavior. After resting in Emerald Pool, the river glides calmly over the smooth lip of a perfectly plain and sheer precipice, and descends in a regular sheet about 80 feet wide, striking upon a rough talus with a steady, continuous roar that is but little influenced by the winds that sweep the cliffs. Thus it offers in every way a striking contrast to the impetuous Nevada, which so crowds and hurries its chafed and twisted waters over the verge, which seemingly are glad to escape, as they plunge free in the air, while their deep, booming tones go sounding far out over the listening landscape.

From the foot of the Vernal the river descends to its confluence with the Illilouette Creek in a tumultuous rush and roar of cascades, and emerges from its shadowy, boulder-choked canyon in a beautiful reach of rapids, stately spaces forming a wall on either side; while the flowering dogwood, rubus nutkanus, azalea, and tall, plummy ferns, well watered and cool, make beautiful borders. Through the open, sunny levels of the meadows it flows with a clear, foamless current, swelled by its Tenaya and Yosemite Creek tributaries, keeping calm and transparent until nearly opposite the Bridal Veil Fall, where it breaks into grey rapids in crossing a moraine dam. In taking leave of the valley, the river makes another magnificent stretch of cascades and rapids on its way down its lower canyon, a fine view

of which may be had from the Coulterville road that runs across the bottom of a rough talus close alongside the massy surging flood, and past the beautiful Cascade Fall.

Climbing the great Half Dome is fine Yosemite exercise. With the exception of a few minor spires and pinnacles, the Dome is the only rock about the valley that is strictly inaccessible without artificial means, and its inaccessibility is expressed in very severe and simple terms. But longing eyes were nonetheless fixed on its noble brow, until at length, in the year 1875, George Anderson, an indomitable Scotchman, succeeded in making a way to the summit. The side facing the Tenaya Canyon is an absolutely vertical precipice from the summit to a depth of about 1,600 feet, and on the opposite side it is nearly vertical for about as great a depth. The southwest side presents a very steep and finely drawn curve from the top down a thousand feet or more, while on the northeast where it is united with the Clouds Rest Ridge, one may easily reach the Saddle, within 700 feet of the summit, where it rises in a smooth, graceful curve a few degrees too steep for unaided climbing.

A year or two before Anderson gained the summit, John Conway, a resident of the valley, and his son, excellent mountaineers, attempted to reach the top from the Saddle by climbing barefooted up the grand curve with a rope which they fastened at irregular intervals by means of eye-bolts driven into joints of the rock. But, finding that the upper portion of the curve would require laborious drilling, they abandoned the attempt, glad to escape from the dangerous position they had reached, some 300 feet above the Saddle.

Anderson began with Conway's old rope, which had been left in place, and resolutely drilled his way to the top inserting eye-bolts five to six feet apart, and making his rope fast to each in succession, resting his feet on the last bolt while he drilled a hole for the next above. Occasionally some irregularity in the curve or slight foothold, would enable him to climb a few feet without the rope, which he would pass and begin drilling again, and thus the whole work was accomplished in less than a week. Notwithstanding the enthusiastic eagerness of tourists to reach the crown of the Dome, the views of the valley from this lofty standpoint are far less striking than from many other points comparatively low, chiefly on account of the foreshortening effect produced by looking down from so great a height. The North Dome is dwarfed almost beyond recognition, the grand sculpture of the Royal Arches may not be noticed at all, and the whole range of the walls on both sides seem comparatively low and sunken, especially when the valley is flooded with noonday sunshine; while the Dome itself, the most sublime feature of all general views of Yosemite, is beneath one's feet. Little Yosemite Valley is well seen, but a better view of it may be obtained from the base of the Starr King cone. The summit landscapes, however, toward Mounts Ritter, Lyell, and Dana, are very effective and grand. My first view from the top of the Dome, in November, after the first winter snow had fallen on the mountains, was truly glorious. A massive cloud of pure pearl luster was arched across the valley, from wall to wall, one end resting on the grand abutment of El Capitan, the other on Cathedral Rock, apparently as fixed and calm as the brown meadow and groves in the shadow beneath it. Then, as I stood on the tremendous verge overlooking Mirror Lake, a flock of smaller clouds, white as snow came swiftly from the north, trailing over the dark forests and, arriving on the brink of the valley, descended with imposing gestures through Indian Canyon and over the Arches and North Dome. On they came with stately deliberation, nearer, nearer, gathering and massing beneath my feet, and filling the Tenaya abyss. Then the sun shone free, painting them with rainbow colors and making them bum on the edges with glorious brightness. It was one of those brooding, changeful days that come just between the Indian summer and winter, when the leaf colors begin to grow dim and the clouds come and go, moving about among the cliffs like living creatures; now hovering aloft in the tranquil sky, now caressing rugged rock-brows with infinite gentleness, or, wandering afar over the tops of the forests, touch the spires of fir and pine with their soft silken fringes as if telling the coming of the snow. Now and then the valley appeared all bright and cloudless, with its crystal river wavering and shimmering through meadow and grove, while to the eastward the white peaks rose in glorious array keenly outlined on the dark blue sky; then the clouds would gather again, wreathing the Dome and making a darkness like night.

On the crown of the Dome, notwithstanding its severely bare appearance, there are four clumps of pines representing three species; *Pinus albicaulis*, *P. contorta*, and *P. ponderosa*, var. *Jeffreyi*, all three repressed and stormbeaten. The alpine spiraea grows there also, and blooms freely with potentilla, ivesia, erigeron, solidago, pentstemon, eriogonum, and four or five species of grasses and sedges, like those of other granite summits of the same elevation.

When the all-embracing ice-mantle of the Glacial Period began to grow thin and form separate glaciers that flowed like rivers in the canyons, Half Dome was probably the first of the Yosemite rocks to emerge from the ice, burnished and glowing like a crystal. Centuries of storms have passed over it since first it came to light, but it still remains a telling monument of the glaciers that brought it into relief from the general mass of the range. Its flinty surface, scarcely at all wasted, is covered with glacial inscriptions from base to crown, and the meaning of these is the reward of all who devoutly study them.

The quick, smart visitor to the valley who buys his ticket early, determined to take the water-falls by the forelock, when their streaming manes are whitest, and when the flooded meadows are covered with mirrors, can have but dim conceptions of the beauties of the peaceful yellow autumn when these same Yosemite waters flow gently and calm in the thick golden haze of the Indian summer. The river then forms a series of pools united by gentle trickling currents that glide softly over brown pebbles and sand with scarce an audible murmur. In and out, in bay and promontory, their shore lines curve, giving to each pool the appearance of lake, with banks embossed with briar and azalea, sedge and grass; and above these, in all their glory of autumn colors, a mingled growth of alder and willow, dogwood, and balm of Gilead. Mellow sunshine overhead, mellow shadows beneath, flecked with dashes of free-falling light, the yellow sunbeams falling on the ripe leaves, streaming through their countless thousands of windows, makes an atmosphere of marvelous beauty over each glassy pool, the surface stirred gently in spots by bands of whirling water-beetles, or startled trout glancing from shelter to shelter beneath fallen trees or some overhanging portion of the bank. The falls, too, are quiet; no wind stirs; the whole valley floor is a finely blended mosaic of ripe, painted leaves, all in bloom every morning with crystals of hoar frost. Even the rocks seem strangely mellow and soft, as if they too had ripened, all their flinty strength hidden and held in abeyance.

In December comes the snow, or perhaps in November. The clouds descending clasp the mountain from base to summit. Then follows an interval of brooding stillness. Small flakes or single crystals at length appear, glinting gently in zigzags and spirals in the dull grey sky. As the storm progresses the thronging flakes darken the air, and soon the rush and roar, and deep muffled booming of avalanches are heard; but we try in vain to catch a glimpse of their noble currents until rifts occur in the clouds and the storm ceases. Then, standing in the middle of the valley, we may witness the descent of several of the largest size within a few minutes or hours, according to the

abundance and condition of the snow on the heights. When the mass first slips on the upper slopes of the mountain a dull, rumbling sound is heard, which increases with heavy deliberation, seeming to come nearer and nearer with appalling intensity of tone. Presently the grand flood is seen rushing with wild, outbounding energy over some precipitous portion of its channel, long, back-trailing streamers fringing the main body of the current like the spray and whirling folds of mist about a waterfall. Now it is partly hidden behind fringes of live-oak, now in full view, leaping from bench to bench, spreading and narrowing and throwing out long fringes of rockets airily draped with convolving gossamer tissue of snow-dust.

Compared with waterfalls, these snow-falls have none of the keen, kissing, clashing sounds so common in some portions of the currents of waterfalls, but the loud, booming thunder-tones, the pearly whiteness of the mass, with lovely grey tones in the half shadows, the arching leaps over precipices, the narrowing in gorges, the expansions into lace-like sheets upon smooth inclines, and the final dashing into upswirling clouds of spray at the bottom are the same in both.

In winter the thin outer folds and whirling spray of the great Yosemite Fall are frozen while passing through the air freely exposed, and are deposited around the base of the fall in the form of a hollow, truncated cone, which sometimes attains a height of more than 400 feet.

In the building of this cone, part of the frozen spray falls directly to its place in the form of minute particles like the dust of wind-beaten snow, but a considerable portion is frozen upon the face of the cliff along the edges of the fall, and attains a thickness of a foot or more during the night. When the sun strikes this ice-coating on the cliff it is cracked off in large masses and built into the walls of the cone, while in windy, frosty weather, when the fall is swayed from side to side, the whole surface is drenched, binding the whole mass of loose blocks and dust firmly together. While in process of formation the surface is smooth, and pure white, the outlines finely drawn, the whole presenting the appearance of a beautiful crystal hill wreathed with clouds of irised spray, with the fall descending into the heart of it with a tremendous roar, as if pouring down the throat of a crater. In spring, however, while wasting and breaking up, it is strewn with leaves, pine branches, stones, sand, etc., that have been carried over the fall, making it look like a heap of wasting avalanche detritus.

After being engulfed and churned in the stormy interior of the cone, the waters of the fall issue from arched openings at the base seemingly chafed and weary and glad to escape; while belching spray, spouted up out of the throat of the cone past the sides of the descending waters, is wafted away in irised drifts over the evergreen bushes and trees, making a most enchanting show when the sun is shining; the wet pines, warmly green, drenched with billows of rainbow dust, waving with noble gestures, as if devoutly bowing their acknowledgments of the marvelous blessing.

During wind-storms, when the fall is blown aslant, one may look down the throat of the cone from the ledge above. The mouth is then seen to be an irregular oval about 100 and 200 feet in diameter, with heavy, uneven, forbidding lips, white and glowing in contrast with the gloomy depth of the abyss.

Once I scaled the side of the cone and held my ear close down upon it while it sounded like a huge, bellowing, exploding drum; but falling ice from the wall, and choking drifts of spray, when the wind wavered, prevented my reaching the summit.

The best general view of the fall, and the ice-cone, and their grand surroundings, may be obtained without danger from a standpoint about 200 yards from the base of the cone. On bright days in March or February, when the sunshine is streaming into the grand amphitheater at the most favorable angle, the view from here is truly glorious. Out of the blue sky into the white crater the vast torrent pours, irised spray rising and falling steeping everything in rainbow colors—grey cliffs, wet black rock, the white hill of ice, trees, brush-fringes, and the surging, roaring torrents escaping down the gorge in front, glorifying all, and proclaiming the triumph of Peace and eternal invincible Harmony.

The summit peaks of the Sierra decorated with snow-banners was the most sublime winter phenomenon I ever witnessed, far surpassing the most imposing effects of the water-falls, floods, or avalanches.

Early one winter morning I was awakened by the fall of pine cones on the roof of my cabin. A noble storm-wind from the north filled the valley with its sea-like roar, arousing the pines to magnificent activity, swaying the most steadfast giants of them all like supple reeds, plucking off branches and plumes and strewing them on the clean smooth snow. The sky was garish white, without clouds, the strange glare being produced no doubt by fine snow dust diffused through the air. The wild swirling and bending of the pine-trees, the dazzling light, the roar of the wind sweeping around the grand domes and headlands and eddying in many a rugged canyon and hollow, made altogether a most exciting picture; but afar on the summits of the range the storm was expressing itself in yet grander terms.

The Upper Yosemite Fall was torn into gauzy strips and blown horizontally along the face of the cliff leaving the ice-cone dry.

While making my way to the top of the overlooking ledge on the east side of it to seize so favorable an opportunity of studying the structure of the cone, the peaks of the Merced Group appeared over the shoulder of the Half Dome, each waving a resplendent banner in the blue sky, as regular in form, and as firm and fine in texture as if made of silk. Each banner was at first curved upward from the narrow point of attachment, then continued in long, drawn out, lustrous sheets for a length of at least 3,000 feet, judging from the known height of the mountains and their distances apart.

Eager to gain a general view, I pushed my way up through the snow by Indian Canyon to a commanding ridge beyond the walls, about 8,000 feet in height, where the most glorious storm-view that I had ever beheld awaited me. Every alpine peak along the axis of the range as far as the view extended had its banner, from 2,000 to 600 feet in length, streaming out horizontally, free, and unconfused, slender at the point of attachment, then widening gradually as it extended from the peak until it was a thousand to fifteen hundred feet in breadth, each waving with a visible motion in the sun glow, and clearly outlined on the dark blue sky without a single cloud to mar their simple grandeur.

The tremendous currents of the north wind were sweeping the northern curves of the mountain peaks just as the glaciers they once nourished were swept down, a supply of wind-driven, wind-ground, mealy, frosty snow being incessantly spouted upward over the peaks in a close concentrated current, owing to the peculiar sculpture of their north sides. Thus, everwasting, ever-renewed, these glorious banners, a mile long, waved in the gale, constant in form, and apparently as definite and substantial as a silken streamer at a masthead.

The vast depth of the valley, and the sheerness of its walls and westerly trend, causes a great difference between the climates of the north and south sides, more so than exists between many countries hundreds of miles apart, because the south wall is constantly in shadow during the winter months, while the north is bathed in sunshine every clear day, which falls vertically or nearly so on a great portion of the beveled rocks, making mellow spring weather on one side of the valley, while winter rules the other.

Far up the northern cliffs, even where they seem perpendicular, many a sheltered nook may be found, closely embraced by warm, sunny rock-bosses, in which flowers bloom every month of the year. Butterflies too swarm in these high winter gardens, and may be seen any day except when storms are in progress, and for a few days after they have ceased. In January, near the head of the Lower Yosemite Fall, I found the ant-lions lying in wait in their warm sand-cups, rock-ferns being unrolled, club-mosses covered with fresh growing points, the flowers of the laurel nearly open, and the honeysuckle vines abounding there were rosetted with bright, young leaves, every plant telling of the spring and tingling with vital sunshine. All the winter birds resort to the warm shelters of the north side, and make out to pass the short days in comfort, seldom suffering when the snow is deepest.

Even on the shadow side of the valley the frost is never severe. The average temperature on 24 days in January at 9 a.m. and 3 p.m. was 32°F. minimum 22°, maximum 40° Another specimen of January weather gave three days rainy, three cloudy, two snowy, and ten clear sunshine.

The winter birds sweeten these shadowy days with their hopeful chatter and song. They are not many, but a cheerier set never sang in snow. First and best of all is the water-ouzel, a dainty, dusky little bird about the size of a robin, that sings a sweet fluty song all winter—all summer—in storm and calm sunshine and shade—haunting the wild rapids and water-falls with marvelous constancy, building his nest in the cleft of a rock bathed in spray. He is not web-footed, yet he dives fearlessly into foaming rapids, seeming to take the greater delight the more boisterous the stream, cheerful and calm as any linnet in a grove. All his gestures as he flits about amid the loud uproar of the falls bespeak the utmost simplicity and confidence—bird and stream one and inseparable. What a pair, yet well related. A yet finer bloom than the foambell in eddying pool is this little bird. Like some delicate flower growing on a tree of rugged strength, the little ouzel grows on the booming stream, showing savage power changed to terms of sweetest love, plain and easily understood to human hearts. We may miss the meaning of the loud resounding torrent, but the flute-like voice of this little bird—only love is in it. A few robins, belated on their way down from the upper meadows, linger in the valley and make out to spend the winter in comparative comfort, feeding on the mistletoe berries that grow on the oaks. In the depths of the mountain forests, in the severest solitudes, they seem as much at home as in the old apple orchards about the busy habitations of man. They ascend the Sierra as the snow melts, following the green footsteps of Spring, until in July or August the highest glacier meadows are reached on the summit of the range. Then, after the short summer is over, and their work in sweetening and cheering these lofty wilds is done, they gradually make their way down again in concord with the weather, keeping ahead of the snow, lingering here and there to feast on huckleberries and frost-nipped wild cherries growing on the upper slopes. Thence down to the vineyards and orchards of the lowlands to spend the winter, and about the Bay of San Francisco, and along the coast; entering the gardens of the great towns as well as parks and fields, where the blessed wanderers are too often slaughtered for food—surely a poor use for so fine a musical instrument: better make stove-wood of pianos to feed the kitchen fire.

The kingfisher winters in the valley, and the golden-winged woodpecker, likewise the species that lay up large stores of acorns in the bark of trees; wrens also; with a few brown and grey finches, and flocks of the arctic bluebird, which make lively pictures among the snow-laden mistleberries. About six species of ducks are found among the winter birds, as the river is never wholly frozen over. Among these are the mallard and beautiful wood duck, though now less abundant than formerly on account of being so often shot at.

Flocks of wandering geese usually visit the valley in March or April, driven down by hunger, or weariness, or stress of weather while on their way across the range. They come in by the river canyon, but oftentimes are sorely bewildered in trying to get out again. I have frequently seen them try to fly over the walls until tired out and compelled to re-alight. They would rise from the meadow or river, wheel around in a spiral until a height of 400 feet or thereabouts was reached, then form their ranks and fly straight toward the wall as if resolved to fly over it. But Yosemite magnitudes seem to be as deceptive to geese as to men, for they would suddenly find themselves in danger of dashing against the face of the cliff, much nearer the bottom than the top. Then turning in confusion, they would try again and again until exhausted. I have occasionally observed large flocks on their travels crossing the summits of the range at a height not less than 14,000 feet above the level of the sea, and even in so rare an atmosphere as this they seemed to be sustaining themselves without extra effort. Strong, however, as they are of wind and wing, they cannot fly over Yosemite walls, starting from the bottom.

Eagles hunt all winter along the northern cliffs and down the river canyon, and there are always plenty of owls for echoes.

Toward the end of March carex sprouts on the warmer portions of the meadows are about an inch high, the aments of the alders along the banks of the river are nearly ripe, the libocedrus is sowing its pollen, willows put forth their silky catkins, and a multitude of happy insects and swelling buds proclaim the promise of spring.

Wild strawberries are ripe in May; the early flowers are in bloom; the birds are busy in the groves, and frogs in the shallow meadow pools.

In June and July the Yosemite summer is in all its glory. It is the prime time of plant-bloom and water-bloom, and the lofty domes and battlements are then bathed in divine purple light.

August is the season of ripe nuts and berries—raspberries, blackberries, thimbleberries, gooseberries, shadberries, blackcurrants, puckery choke cherries, pine-nuts, etc., offering a royal feast to squirrels, bears, Indians, and birds of every feather. All the common orchard fruits as well as the cereal, grow well in the valley, and have been successfully cultivated there for many years by the old pioneer, Lamon, the first of all the Yosemite settlers who cordially and unreservedly adopted the valley as home. In the spring of 1859 he loaded an old horse with fruit-trees and a scant supply of provisions, and made his way into the valley from Mariposa, built himself a cabin beneath the shadow of the great Half Dome, cleared a fertile spot on the left bank of Tenaya Creek, and planted an orchard and garden; toiling faithfully as he was able, under hardships and discouragements not easily appreciated now that the valley has been opened to the world. His friends assured him that his trees would never bear fruit in that deep valley surrounded by snowy mountains, that he could raise nothing, sell nothing, and eventually starve. But year after year he held on undaunted, clearing and stirring the virgin soil, planting and pruning; remaining alone winter and summer with marvelous constancy. He was surprised to find the weather so sunful

and kindly. When storms were blowing he lay snug in his cabin, pushing out now and then to keep the snow from his door and to listen to the thunder of the avalanches.

Late in the autumn, while Lamon thus lived alone, three Indians, who were hunting deer on the headwaters of the Bridal Veil Creek, killed a man by the name of Gould, who was on his way from Mono to Mariposa, and hid the body in a dense part of the forest beneath leaves and bark. The division of the spoils—gun, blankets, and money—brought on a quarrel, and one of the Indians confessed the murder. Lamon being the only white man known to be in the Yosemite region, it was feared that he was the victim, and two men were immediately sent into the valley to seek him. This was in January, and the appearance of the two weary messengers coming up the valley in midwinter was a grand surprise. After learning their errand, he assured his friends that nowhere else had he ever felt so safe or so happy as in his lonely Yosemite home.

After the fame of Yosemite had spread far and wide, and he had acquired sufficient means to enjoy a long afternoon of life in easy affluence, he died. He was a fine, erect, whole-souled man more than six feet high. No stranger to hunger and weariness, he was quick to feel for others, and many there be, myself among the number, who knew his simple kindness that gained expression in a thousand small deeds. A block of Yosemite granite, chiselled and lettered, marks his grave, and some of his fruit trees still live, but his finest monument is in the hearts of his friends. He sleeps in a beautiful spot among trees and flowers near the foot of the Yosemite Fall, and every crystal pressing on his coffin vibrates in harmony with its sublime music.

Before the Sierra was explored, Yosemite was generally regarded as a solitary, unrelated wonder. But many other valleys like it have been discovered, which occupy the same relative positions on the flank of the range, were formed by the same forces in the same kind of granite, and have similar waterfalls, sculpture, and vegetation. One of these, called "Hetch Hetchy" by the Indians, lies in a north-westerly direction from Yosemite, at a distance of about eighteen miles, and is easily accessible by a trail that leaves the Big Oak Flat road at Bronson Meadows, a few miles below Crane Flat.

As the Merced River flows through Yosemite, so does the Tuolumne through Hetch Hetchy. The bottom of Yosemite is about 4,000 feet above the level of the sea, the bottom of Hetch Hetchy is about 3,800 feet, and in both the walls are of grey granite, and rise precipitously from a level bottom, with but little debris along their bases.

Standing boldly out from the south wall, near the lower end of the valley, is the rock Kolàna, considerably over 2,000 feet in height, and seeming still to bid defiance to the mighty glacier that once pressed over and around it. This is the most strikingly picturesque rock in the valley, forming the outermost of a group that corresponds with the Cathedral group of Yosemite. Facing Kolàna, on the opposite side of the valley, there is a rock 1,800 feet in height which presents a sheer massive front like El Capitan, and over its brow flows a stream that makes, without exception, the most graceful fall I have ever seen. Tuccoolala it is called by the Indians. From the brow of the cliff it leaps clear and free for a thousand feet, then breaks up into a ragged foaming sheet of cascades among the boulders of an earthquake talus. Towards the end of summer it shrinks and vanishes, since its fountain streams do not reach back to the lasting snows of the summits.

When I last saw it in June, 1872, it was indescribably beautiful. The only fall that I know of with which it may fairly be compared is the Yosemite Bridal Veil, but it excels even that fall in floating, swaying gracefulness, and tender repose. For if we attentively observe the Bridal Veil, even toward the end of summer when the wind blows aside the fine outer folds of spray, dense, comet-shaped masses may be seen shooting with tremendous energy, revealing the stem fixedness of purpose with which its waters seek the new world below. But from the top of the cliff all the way down the snowy form of the Hetch Hetchy Veil is in perfect repose, like a plume of white cloud becalmed in the depths of the sky. Moreover, the Bridal Veil inhabits a shadow-haunted recess, inaccessible to the main wind-currents of the valley, and has to depend for its principal wind gestures upon broken waves and whirlpools of air that oftentimes compel it to rock and bend in a somewhat fitful, teasing manner; but the Hetch Hetchy Veil, floating free in the open valley, is ever ready to offer graceful compliance to the demands and suggestions of calm or storm. Looking across the valley on a bright, calm day about the beginning of June, the view is surpassingly glorious. The Hetch Hetchy El Capitan is seen rising out of a dense growth of shining live oaks, glowing with sun-gold from its green grovy base to its brow in the blue air. At intervals along its dizzy edge a few venturesome pines are seen looking wistfully outward, and before its sunny face, immediately in front of you, Tuccoolala waves her silvery scarf, gloriously embroidered, and burning with white sun-fire in every fibre. In approaching the brink of the precipice her waters flow fast but confidently, and at their first arching leap into the air a little eagerness appears, but this eagerness is speedily hushed in divine repose, and their tranquil progress to the base of the cliff is like that of downy feathers in a still room. The various tissues into which her waters are woven, now that they are illumined by the streaming sunshine, are brought out with marvelous distinctness. They sift and float down the face of that grand grey rock in so leisurely and unconfused a manner, and with such exquisite gentleness, that you may examine their texture and patterns as you would a piece of embroidery held in the hand. Near the bottom the width of the fall has increased from 25 to about 100 feet. Here it is composed of yet finer tissue, more air than water, yet still without a trace of disorder. Air, water, and sunlight are woven into a cloth that spirits might wear.

On the same side of the valley thunders the great Hetch Hetchy Fall, called Wapama by the Indians. It is about 1,800 feet high, and is so near Tuccoolala, that both are in fall view from one standpoint. Seen immediately in front it appears nearly vertical, but viewed in profile from farther up the valley it is seen to be considerably inclined. Its location is similar to that of the Yosemite Fall, but its volume of water is much greater.

No two falls could be more unlike to make one perfect whole, like rock and cloud, sea and shore. Tuccoolala speaks low, like a summer breeze in the pines; Wapama, in downright thunder, descending with the weight and energy of an avalanche in its deep rocky gorge. Tuccoolala whispers, he dwells in peace; Wapama is the thunder of his chariot wheels in power.

This noble pair are the principal falls of the valley. A few other small streams come over the walls with bird-like song, leaping from crag to crag too small to be much noticed in company so imposing, though essential to the grand, general harmony. That portion of the north wall immediately above Wapama corresponds both in outline and details of sculpture with the same relative portion of the Yosemite wall. In Yosemite the steep face of the cliff is terraced with two conspicuous benches fringed with live-oak. Two benches, similarly situated, and fringed in the same way, occur on the same relative portion of the Hetch Hetchy wall, and on no other.

The floor of the valley is about three miles long, and from a fourth to half a mile wide. The lower portion is mostly level meadow, with the trees confined to the sides, and separated partially from the sandy, park-like upper portion by a low bar of glacier-polished granite, across which the river breaks in swift-gliding rapids. The principal tree of the valley is the great yellow-pine, attaining here a height of 200 feet. They occupy the dry sandy levels, growing well apart in small groves or singly, thus allowing each tree to be seen in all its beauty. The common pteris grows beneath them in rough green sheets, tufted here and there by ceanothus and manzanita, and brightened with mariposa tulips and golden-rods. Near the walls, on the earthquake taluses that occur in many places, the pines give place to the mountain live oak, which forms the shadiest and most extensive groves of the valley. Their glossy foliage, densely crowded at the top, forms a beautiful ceiling, containing a few irregular openings for the admission of sunbeams, while the bare grey bunks and branches, gnarled and twisted, are exceedingly picturesque. This sturdy oak, so well calculated for a mountaineer, not only covers the angular boulder slopes, but climbs along fissures, and up steep side-canyons, to the top of the walls and far beyond, dwarfing as it goes from a tree 30 to 40 feet high and 4 to 6 feet in diameter near the ground to a small shrub no thicker than one's finger.

The sugar-pine, sabine-pine, and two-leafed pine, also the Douglas spruce, incense-cedar, and the two silver-firs, grow here and there in the cool side-canyons and scattered among the yellow pines, while on the warmest spots fine groves of the black-oak occur, whose acorns form so important a part of the food of Indians and bears. Bees and hummingbirds find rich pasturage flowers—mints, clover, honeysuckle, lilies, orchids, etc.

On a stream that comes in from the northeast at the head of the valley there is a series of charming cascades that give glad animation to the glorious wilderness, broad plumes like that between the Vernal and Nevada of Yosemite, half sliding, half leaping down smooth open folds of the granite covered with crisp, clashing spray, into which the sunbeams pour with glorious effect. Others shoot edgewise through a deep narrow gorge chafing and laving beneath rainbow mists in endless variety of form and tone.

Following the river from the head of the valley, you enter the great Tuolumne Canyon. It is 20 miles long, 2,000-4,000 feet deep, and may be regarded as a Yosemite Valley from end to end, abounding in glorious cascades, falls, and rocks of sublime architecture. To the lover of pure wildness, a saunter up this mountain street is a grand indulgence, however rough the sidewalks and pavements which extend along the cool, rushing river.

The new Kings River Yosemite is larger, and in some respects more interesting, than either the Hetch Hetchy or the Yosemite of the Merced. It is situated on the south fork of Kings River, about 80 miles from Yosemite in a straight line, and 40 miles from Visalia, the nearest point on the Southern Pacific railroad. It is about nine miles long, half a mile wide at the bottom, and 5,000 feet above the level of the sea. The walls are quite as precipitous as those of Yosemite, 3,000 to 4,000 feet high, and sculptured in the same grand style so characteristic of all the valleys of this kind in the Sierra. As to water-falls, those of the new Yosemite are less striking in form and in the songs they sing, although the whole quantity of water pouring into the valley is greater, and comes from higher sources. The descent of the Kings Valley waters is made mostly in long, dashing cascades, and falls of moderate height, that are far less showy in general views than those of Yosemite.

My last visit to this magnificent valley was made with a small party in July, 1875, when the beauty of its wildness was still complete. We set out from Yosemite, pushing our way through the wilderness, past Clark's Station, through the Mariposa grove of big trees, and the luxuriant forests of upper Fresno, down to the dappled plain of the San Joaquin. Thence, skirting the margin of the foot hills, we crossed the stately current of Kings River near Centerville, and facing eastward, climbed again into the sugar-pine woods, and on through the grand Sequoia forests of the Kaweah. Here we heard the sound of axes, and soon came upon a group of men busily engaged in preparing a section of one of the big trees they had felled for the Centennial Exhibition. This tree was 25 feet in diameter at the base, and so fine was the taper of the trunk it still measured 10 feet in diameter at a height of 200 feet from the ground. According to the testimony of the annual wood-rings, it was upwards of 2,000 years of age.

Out of this solemn ancient forest we climbed yet higher into the cool realms of the Alpine pines, until at length we caught a long sweeping view of the glorious Yosemite we were so eagerly seeking. The trail by which we descended to the bottom of the valley enters at the lower or west end, zigzagging in a wild, independent fashion over the south lip of the valley, and corresponding both in position and direction with the old Mariposa trail of Yosemite, and like it, affording a series of grand views up the valley, over the groves and meadows between the massive granite walls. So fully were these views Yosemiteic in all their leading features it was hard to realize that we were not entering the old Yosemite by Inspiration Point.

In about two hours after beginning the descent we found ourselves among the sugar-pine groves at the lower end of the valley; and never did pines seem more noble and religious in gesture and tone.

The sun, pouring down mellow gold, seemed to be shining only for them, and the wind gave them voice; but the gestures of their outstretched arms appeared wholly independent of the wind, and impressed one with a solemn awe that overbore all our knowledge of causes, and brought us into the condition of being newly arrived from some other world. The ground was strewn with leaves and cones, making a fine surface for shadows; many a wide even bar from tapering trunk and column, and rich mosaic from leaf and branch; while ever and anon we came to small forest openings wholly filled with sunshine like lakes of light.

We made our first camp on the river bank, a mile or two up the valley, on the margin of a small circular meadow that was one of the most perfect flower gardens I have ever discovered in the Sierra. The trampling mules, whom I would gladly have kept out, fairly disappeared beneath the broad over-arching ferns that encircled it. The meadow was filled with lilies and orchids, larkspurs and columbines, daisies and asters and sun-loving golden-rods, violets and roses and purple geraniums, with a hundred others in prime of bloom, but whose names few would care to read, though all would enjoy fresh, wild beauty. One of the lilies that I measured was six feet long, and had eleven open flowers, five of them in their prime. The wind rocked this splendid panicle above the heads of the geraniums and briar-roses, forming a spectacle of pure beauty, exquisitely poised and harmonized in all its parts.

It was as if nature had fingered every leaf and petal that very day, readjusting every curving line and touching the colors of every corolla; and so, she had for not a leaf was misbent, and every plant was so placed with reference to every other, that the whole garden had seemingly been arranged like one tasteful bouquet. Here we lived a fine, unmeasured hour, considering the lilies, every individual flower radiating beauty as real and appreciable as sunbeams. Many other wild gardens occur along the river bank, and in many a cool side dell

where streams enter, but neither at this time nor on my first visit to the valley were any discovered so perfect as this one. Toward the upper end of the valley there is quite an extensive meadow stretching across from wall to wall. The river borders are made up chiefly of alder, poplar, and willow, with pines and silver-fir where the banks are dry, and the common fringe of underbrush and flowers, all combined with reference to the best beauty and the wants of the broad crystal river.

The first two miles of the walls, beginning at the lower end of the valley, are bevelled off at the top, and are so broken and soil-besprinkled that they support quite a growth of trees and shaggy bushes; but farther up, the granite speedily assumes Yosemiteic forms and dimensions, rising in stupendous cliffs, abrupt and sheer, from the level flats and meadows. On the north wall there is a rock like the El Capitan, and just above it a group like the Three Brothers. Further up, on the same side, there is an Indian Canyon, and North Dome, and Washington Column. On the south wall counterparts of the Cathedral and Sentinel Rocks occur in regular order, bearing the same relations to each other that they do in the old Yosemite. Our journey up the valley was perfectly enchanting, every bend of river presenting reaches of surpassing beauty, the sunbeams streaming through the border groves, or falling in broad masses upon white rapids or deep, calm pools. Here and there a dead pine, that had been swept down in floodtime, reached out over the current, its mosses and lichens contrasting with the crystal sheen of the water, and its gnarled roots forming shadowy caves for speckled trout, where the current eddies slowly, and protecting sedges and willows dip their leaves. Amid these varied and everchanging river views the appreciative artist may find studies for a lifetime. The deeply sculptured walls presented more and more exciting views, calling forth enthusiastic admiration. Bold, sheer brows, standing forth in a full blaze of light; deep, shadow-filled side canyons and gorges, inhabited by wild cascades, groups of gothic gables, glacier-polished domes coming in sight in ever changing combinations and with different foregrounds. Yet no rock in the valley equals El Capitan, or the great Half Dome; but, on the other hand, from no part of the Yosemite walls could a section five miles in length be selected equal in beauty and grandeur to five miles of the middle portion of the south wall of the new valley.

We camped for the night at the base of the new Washington Column, where ferns and lilies reached to our heads, the lavish exuberance of the vegetation about us contrasting with the bare, massive fronts of the walls. The summer day died in purple and gold, and we lay watching the fading sunshine and growing shadows among the heights. Each member of the party made his own bed, like birds building nests. Mine was made of overlapping fern fronds, with a few mint spikes in the pillow, combining luxurious softness and fragrance, and making the down beds of palaces and palace hotels seem poor and vulgar.

The full moon rose just after the night darkness was fairly established. Down the valley one rock after another caught the silvery glow, and stood out from the dusky shadows in long, imposing ranks like weird spirits, while the thickets and groves along the river were masses of solid darkness. The sky bloomed with stars like a meadow with flowers. It was too surpassingly beautiful a night for sleep, and we gazed long into the heart of the solemn, silent grandeur ere the weariness of enjoyment closed our eyes.

Next morning we continued on up the valley in the sunshine, following the north bank of the valley to where it forks at the head. The glacier-polished rocks glowed in the slant sunbeams in many places as if made of burnished metal. All the glacial phenomena of the new valley—the polished surfaces, *roches moutonnées*, and moraines are fresher, and therefore less changed, than those of the old. It is evidently a somewhat younger valley, a fact easily explained by its relations to the fountains of the ancient glaciers lying above it among the loftiest summits of the range. Like the old valley, this is a favorite resort of Indians because it produces acorns, and its waters abound in trout. They, doubtless, have names for all the principal rocks and cascades, and many grotesque and ornamental legends relating to them, though as yet I have not learned any of them.

This valley is already beginning to attract tourists from all parts of the world, and its fame may yet equal that of the old. It is quite accessible, the greater part of the distance from the railroad being by a good wagon-road, and all the necessary supplies may be obtained at Visalia. A good mountain trail conducts out of the valley at the head along the edge of the cascading river, and across the range by the Kearsarge Pass to Owens Valley, which we followed, and reached Independence on the east side of the Sierra in two days. From here we set out for the summit of Mt. Whitney. Then turning northward, we skirted the eastern flank of the range until we reached the Mono region. Thence crossing the range by the Bloody Canyon Pass, we entered the Yosemite Valley from above. Thus through the grand old forests, from mountain to mountain, from Yosemite to Yosemite we drifted free, making a round trip without wheels or tickets, that for grandeur and general interest cannot be surpassed in all the Sierra, or perhaps in any other mountain range in the world.

Chapter 10

Mount Shasta

Chapter 10 of *Picturesque California* was reprinted as chapters 3, 4, and 5 of *Steep Trails*:

- Chapter 3: Summer Days at Mount Shasta

Chapter 4: A Perilous Night on Shasta's Summit

Chapter 5: Shasta Rambles and Modoc Memories

Chapter 24

Washington and the Puget Sound

This chapter was reprinted as chapters 17, 18, 19, and 20 of *Steep Trails*:

- Chapter 17: Puget Sound

Chapter 18: The Forests of Washington

Chapter 19: People and Towns of Puget Sound

Chapter 20: An Ascent of Mount Rainier

Chapter 25

The Basin of the Columbia River

Chapter 25 of *Picturesque California* was reprinted as chapters 21, 22, and 23 of *Steep Trails*:

- Chapter 21: The Physical and Climatic Characteristics of Oregon

Chapter 22: The Forests of Oregon and their Inhabitants

Chapter 23: The Rivers of Oregon



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