Part Four:

The Global Adventurer

Eskimos and Walrus

STEAMER CORWIN, PLOVER BAY, JUNE 15, 1881.

We left our anchorage in St. Lawrence Bay at four in the morning, June 7, and steered once more for Plover Bay. The norther that had been blowing so long gave place to a light southerly breeze, and a gentle dusting of snow was falling. In the afternoon the sea became smooth and glassy as a mountain lake, and the clouds lifted, gradually unveiling the Siberian coast up to the tops of the mountains. First the black bluffs, standing close to the water, came in sight; then the white slopes, and then one summit after another until a continuous range forty or fifty miles long could be seen from one point of view, forming a very beautiful landscape. Smooth, dull, dark water in the foreground; next, a broad belt of ice mostly white like snow, with numerous masses of blue and black shade among its jagged, uplifted blocks. Then a strip of comparatively low shore, black and gray; and back of that the pure white mountains, with only here and there dark spots, where the rock faces are too steep for snow to lie upon. Sharp peaks were seen, fluted by avalanches; glacier wombs, delicate in curve and outline as shells; rounded, overswept brows and domes, and long, withdrawing valleys leading back into the highest alpine groups, whence flowed noble glaciers in imposing ranks into what is now Bering Sea.

We had hoped the gale had broken and driven away the floe that barred our way on the fifth [of June], but while yet thirty miles from the entrance of the bay we were again stopped by an immense field of heavy ice that stretched from the shore southeastward as far as the eye could reach. We pushed slowly into the edge of it a few miles, looking for some opening, but the man in the crow's nest

reported it all solid ahead and no water in sight. We thereupon steamed out and steered across to St. Lawrence Island to bide our time.

While sailing amid the loose blocks of ice that form the edge of the pack, we saw a walrus, and soon afterward a second one with its young. The captain shot and killed the mother from the pilot-house, and the dinghy was lowered to tow it alongside. The eyes of our Indian passengers sparkled with delight in expectation of good meat after enduring poor fare aboard the ship. After floating for eight or ten minutes, she sank to the bottom and was lost—a sad fate and a luckless deed.

It was pitiful to see the young one swimming around its dying mother, heeding neither the ship nor the boat. They are said to be very affectionate and bold in the defense of one another against every enemy whatever. We have as yet seen but few, though in some places they are found in countless thousands. Many vessels are exclusively employed in killing them on the eastern Greenland coast, and along some portions of the coast of Asia. Here also, the whalers, when they have poor success in whaling, devote themselves to walrus hunting, both for the oil they yield and for the valuable ivory. The latter is worth from forty to seventy cents per pound in San Francisco, and a pair of large tusks weighs from eight to ten pounds.

Along all the coasts, both of Asia and of America, the natives hunt and kill this animal, which to them is hardly less important for food and other uses than the seals. A large walrus is said to weigh from one to two tons. Its tough hide is used for cordage, and to cover canoes. The flesh is excellent, while the ivory formerly was employed for spear heads and other uses, and is now an important article of trade for guns, ammunition, calico, bread, flour, molasses, etc. The natives now kill a good many whales, having obtained lances and harpoons from the whites. Bone, in good years, is more important than the ivory, and furs are traded, also, in considerable quantity. By all these means they obtain more of the white man's goods than is well used. They probably were better off before they were possessed of a single civilized blessing—so many are the evils accompanying them!

Our Chukchi passenger does not appear to entertain a very good opinion of the St. Lawrence natives. He advised the captain to keep a close watch of those he allowed to come aboard. We asked him today the Chukchi name of ice, which he gave as "eigleegle." When we said that another of his people called it "tingting," he replied that that was the way poor common people spoke the word, but that rich people, the upper aristocratic class to which he belonged, called it "eigleegle." His father, being a rich man, had three wives; most of his tribe, he said, have only one.

At nine o'clock in the evening we were still more than an hour's run from St. Lawrence Island, though according to reckoning we should have reached the northeast end of the island at eight o'clock. We had been carried north about sixteen miles, since leaving St. Lawrence Bay, by the current setting through the strait. The water, having been driven south by the north gale, was pouring north with greater velocity than ordinary. The sky was a mass of dark, grainless cloud, banded slightly near the northwest horizon; one band, a degree in breadth above the sun, was deep indigo, with a few short streaks of orange and red. We have not seen a star since leaving San Francisco, and have seen the sun perfectly cloudless only once! We came to anchor near the northwest end of the island about midnight.

The next day, the eighth of June, was calm and mild. A canoe with ten men and women came alongside this morning, just arrived from Plover Bay, on their way home. They made signs of weariness, having pulled hard against this heavy current. The distance is fifty miles. It is not easy to understand how they manage to find their way in thick weather, when it is difficult enough for seamen with charts and compass.

In trying to account for the observed similarity between the peoples of the opposite shores of Asia and America, and the faunas and floras, scientists have long been combating a difficulty that does not exist save in their own minds. They have suggested that canoes and ships from both shores either were wrecked and drifted from one to the other, or that natives crossed on the ice which every year fills Bering Strait. As today, so from time immemorial canoes have

crossed for trade or mere pleasure, steering by the swell of the sea when out of sight of land. As to crossing on the ice, the natives tell me that they frequently go with their dogsleds from the Siberian side to the Diomedes, those halfway houses along the route, but seldom or never from the Diomedes to the American side, on account of the movements of the ice. But, though both means of communication, assumed to account for distribution as it is found to exist today, were left out, land communication in any case undoubtedly existed, just previous to the glacial period, as far south as the Aleutian Islands, and northward beyond the mouth of the strait.

While groping in the dense fogs that hang over this region, sailors find their way at times by the flight of the innumerable seabirds that come and go from the sea to the shore. The direction, at least, of the land is indicated, which is very important in the case of small islands. How the birds find their way is a mystery.

This canoe alongside was "two sleeps" in making the passage. Time, I suppose, is reckoned by sleeps during summer, as there is no night and only one day. They at once began to trade eagerly, seeming to fear that they would be left unvisited, now that the whalers have all gone to the Arctic. In the forenoon, after the natives had left, we took advantage of the calm weather to go in search of the wrecked *Lolita*, which went ashore last fall a few miles to the north of here. On the way we passed through a good deal of ice in flat cakes that had been formed in a deep still bay, sheltered from floating ice which jams and packs it. This ice did not seem to be more than two or three feet thick, possibly the depth to which it froze last winter less the amount melted and evaporated since spring commenced.

Walruses, in groups numbering from two to fifty, were lying on cakes of ice. They were too shy, however, to be approached within shooting range, though many attempts were made. Some of the animals were as bulky, apparently, as oxen. They would awaken at the sound of the vessel crunching through the loose ice, lift their heads and rear as high as possible, then drop or plunge into the water. The ponderous fellows took headers in large groups; twenty pairs of flippers sometimes were in the air at once. They can stay under water five or six minutes, then come up to blow. If they are near the

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ship they dive again instantly, going down like porpoises, always exposing a large curving mass of their body while dropping their heads, and, lastly, their flippers are stretched aloft for an instant. Sometimes they show fight, make combined attacks on boats, and defend one another bravely. The cakes on which they congregate are of course very dirty, and show to a great distance. Since they soon sink when killed in the water, they are hunted mostly on the ice, and, when it is rough and hummocky, are easily approached.

We were not successful in finding the *Lolita*, so we steamed back to our anchorage in the lee of a high bluff near the Eskimo village. Soon three or four canoes came alongside, loaded with furs, ivory, and whalebone. Molasses, which they carry away in bladders and seal skins, is with them a favorite article of trade. Mixed with flour and blocks of "black skin," it is esteemed, by Eskimo palates, a dish fit for the gods. A group of listeners laughed heartily when I described a mixture that I thought would be to their taste. They smacked their lips, and shouted, "Yes! Yes!" One brought as a present to our Chukchi, the reindeer man's son, a chunk of "black skin" that, in color and odor, seemed to be more than a year old. He, no doubt, judged that our Chukchi, if not starving, was at least faring poorly on civilized trash.

A study of the different Eskimo faces, while important trades were pending, was very interesting. They are better behaved than white men, not half so greedy, shameless, or dishonest. I made a few sketches of marked faces. One, who received a fathom of calico more than was agreed upon, seemed extravagantly delighted and grateful. He was lost in admiration of the captain, whose hand he shook heartily.

We continued at anchor here the following day, June 9. It was snowing and the decks were sloppy. Several canoe loads of Eskimos came aboard, and there was a brisk trade in furs, mostly reindeer hides and parkas for winter use; also fox [skins] and some whalebone and walrus ivory. Flour and molasses were the articles most in demand. Some of the women, heedless of the weather, brought their boys, girls, and babies. One little thing that the proud mother held up for our admiration smiled delightfully, exposing her two precious new teeth. No happier baby could be found in warm parlors,

where loving attendants anticipate every want and the looms of the world afford their best in the way of soft fabrics. She looked gaily out at the strange colors about her from her bit of a fur bag, and when she fell asleep, her mother laid her upon three oars that were set side by side across the canoe. The snowflakes fell on her face, yet she slept soundly for hours while I watched her, and she never cried. All the youngsters had to be furnished with a little bread which both fathers and mothers begged for them, saying, "He *little* fellow, *little* fellow."

Four walrus heads were brought aboard and the ivory sold, while the natives, men and women, sat down to dine on them with butcher knives. They cut off the flesh and ate it raw, apparently with good relish. As usual, each mouthful was cut off while held between the teeth. To our surprise they never cut themselves. They seemed to enjoy selecting tidbits from different parts of the head, turning it over frequently and examining pieces here and there, like a family leisurely finishing the wrecked hull of a last day's dinner turkey.

These people interest me greatly, and it is worth coming far to know them, however slightly. The smile, or, rather, broad grin of that Eskimo baby went directly to my heart, and I shall remember it as long as I live. When its features had subsided into perfect repose, the laugh gone from its dark eyes, and the lips closed over its two teeth, I could make its sweet smile bloom out again as often as I nodded and chirruped to it. Heaven bless it! Some of the boys, too, lads from eight to twelve years of age, were well behaved, bashful, and usually laughed and turned away their faces when looked at. But there was a response in their eyes which made you feel that they are your very brothers.

Stickeen vs. the Glacier

Stickeen seemed able for anything. Doubtless we could have weathered the storm for one night, dancing on a flat spot to keep from freezing, and I faced the threat without feeling anything like despair; but we were hungry and wet, and the wind from the mountains was still thick with snow and bitterly cold, so of course that night would have seemed a very long one. I could not see far enough through the blurring snow to judge in which general direction the least dangerous route lay, while the few dim, momentary glimpses I caught of mountains through rifts in the flying clouds were far from encouraging either as weather signs or as guides. I had simply to grope my way from crevasse to crevasse, holding a general direction by the ice structure, which was not to be seen everywhere, and partly by the wind. Again and again I was put to my mettle, but Stickeen followed easily, his nerve apparently growing more unflinching as the danger increased. So it always is with mountaineers when hard beset. Running hard and jumping, holding every minute of the remaining daylight, poor as it was, precious, we doggedly persevered and tried to hope that every difficult crevasse we overcame would prove to be the last of its kind. But on the contrary, as we advanced they became more deadly trying.

At length our way was barred by a very wide and straight crevasse, which I traced rapidly northward a mile or so without finding a crossing or hope of one; then down the glacier about as far, to where it united with another uncrossable crevasse. In all this distance of perhaps two miles there was only one place where I could possibly jump it, but the width of this jump was the utmost I dared attempt, while the danger of slipping on the farther side was so great that I was loath to try it. Furthermore, the side I was

on was about a foot higher than the other, and even with this advantage the crevasse seemed dangerously wide. One is liable to underestimate the width of crevasses where the magnitudes in general are great. I therefore stared at this one mighty keenly, estimating its width and the shape of the edge on the farther side, until I thought that I could jump it if necessary, but that in case I should be compelled to jump back from the lower side I might fail. Now, a cautious mountaineer seldom takes a step on unknown ground which seems at all dangerous that he cannot retrace in case he should be stopped by unseen obstacles ahead. This is the rule of mountaineers who live long, and, though in haste, I compelled myself to sit down and calmly deliberate before I broke it.

Retracing my devious path in imagination as if it were drawn on a chart, I saw that I was recrossing the glacier a mile or two farther upstream than the course pursued in the morning, and that I was now entangled in a section I had not before seen. Should I risk this dangerous jump, or try to regain the woods on the west shore, make a fire, and have only hunger to endure while waiting for a new day? I had already crossed so broad a stretch of dangerous ice that I saw it would be difficult to get back to the woods through the storm before dark, and the attempt would most likely result in a dismal night-dance on the glacier; while just beyond the present barrier the surface seemed more promising, and the east shore was now perhaps about as near as the west. I was therefore eager to go on. But this wide jump was a dreadful obstacle.

At length, because of the dangers already behind me, I determined to venture against those that might be ahead, jumped and landed well, but with so little to spare that I more than ever dreaded being compelled to take that jump back from the lower side. Stickeen followed, making nothing of it, and we ran eagerly forward, hoping we were leaving all our troubles behind. But within the distance of a few hundred yards we were stopped by the widest crevasse yet encountered. Of course I made haste to explore it, hoping all might yet be remedied by finding a bridge or a way around either end. About three-fourths of a mile upstream I found that it united with the one we had just crossed, as I feared it would. Then, tracing it down, I found it joined the same crevasse at the lower end

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also, maintaining throughout its whole course a width of forty to fifty feet. Thus to my dismay I discovered that we were on a narrow island about two miles long, with two barely possible ways of escape: one back by the way we came, the other ahead by an almost inaccessible sliver-bridge that crossed the great crevasse from near the middle of it!

After this nerve-trying discovery I ran back to the sliver-bridge and cautiously examined it. Crevasses, caused by strains from variations in the rate of motion of different parts of the glacier and convexities in the channel, are mere cracks when they first open, so narrow as hardly to admit the blade of a pocketknife, and gradually widen according to the extent of the strain and the depth of the glacier. Now some of these cracks are interrupted, like the cracks in wood, and in opening, the strip of ice between overlapping ends is dragged out and may maintain a continuous connection between the sides, just as the two sides of a slivered crack in wood that is being split are connected. Some crevasses remain open for months or even years, and by the melting of their sides continue to increase in width long after the opening strain has ceased; while the sliver-bridges, level on top at first and perfectly safe, are at length melted to thin, vertical, knife-edged blades, the upper portion being most exposed to the weather; and since the exposure is greatest in the middle, they at length curve downward like the cables of suspension bridges. This one was evidently very old, for it had been weathered and wasted until it was the most dangerous and inaccessible that ever lay in my way. The width of the crevasse was here about fifty feet, and the sliver crossing diagonally was about seventy feet long; its thin knife-edge near the middle was depressed twenty-five or thirty feet below the level of the glacier, and the upcurving ends were attached to the sides eight or ten feet below the brink. Getting down the nearly vertical wall to the end of the sliver and up the other side were the main difficulties, and they seemed all but insurmountable. Of the many perils encountered in my years of wandering on mountains and glaciers none seemed so plain and stern and merciless as this. And it was presented when we were wet to the skin and hungry, the sky dark with quick driving snow, and the night near. But we were forced to face it. It was a tremendous necessity.

Beginning, not immediately above the sunken end of the bridge, but a little to one side, I cut a deep hollow on the brink for my knees to rest in. Then, leaning over, with my short-handled ax, I cut a step sixteen or eighteen inches below, which on account of the sheerness of the wall was necessarily shallow. That step, however, was well made; its floor sloped slightly inward and formed a good hold for my heels. Then, slipping cautiously upon it, and crouching as low as possible, with my left side toward the wall I steadied myself against the wind with my left hand in a slight notch, while with the right I cut other similar steps and notches in succession, guarding against losing balance by glinting of the ax, or by wind gusts, for life and death were in every stroke and in the niceness of finish of every foothold.

After the end of the bridge was reached I chipped it down until I had made a level platform six or eight inches wide, and it was a trying thing to poise on this little slippery platform while bending over to get safely astride of the sliver. Crossing was then comparatively easy by chipping off the sharp edge with short, careful strokes, and hitching forward an inch or two at a time, keeping my balance with my knees pressed against the sides. The tremendous abyss on either hand I studiously ignored. To me the edge of that blue sliver was then all the world. But the most trying part of the adventure, after working my way across inch by inch and chipping another small platform, was to rise from the safe position astride and to cut a stepladder in the nearly vertical face of the wall—chipping, climbing, holding on with feet and fingers in mere notches. At such times one's whole body is eye, and common skill and fortitude are replaced by power beyond our call or knowledge. Never before had I been so long under deadly strain. How I got up that cliff I could never tell. The thing seemed to have been done by somebody else. I never have held death in contempt, though in the course of my explorations I have oftentimes felt that to meet one's fate on a noble mountain, or in the heart of a glacier, would be blessed as compared with death from disease, or from some shabby lowland accident. But the best death, quick and crystal-pure, set so glaringly open before us, is hard enough to face, even though we

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But poor Stickeen, the wee, hairy, sleekit beastie, think of him! When I had decided to dare the bridge, and while I was on my knees chipping a hollow on the rounded brow above it, he came behind me, pushed his head past my shoulder, looked down and across, scanned the sliver and its approaches with his mysterious eyes, then looked me in the face with a startled air of surprise and concern, and began to mutter and whine, saying as plainly as if speaking with words, "Surely, you are not going into that awful place." This was the first time I had seen him gaze deliberately into a crevasse, or into my face with an eager, speaking, troubled look. That he should have recognized and appreciated the danger at the first glance showed wonderful sagacity. Never before had the daring midget seemed to know that ice was slippery or that there was any such thing as danger anywhere. His looks and tones of voice when he began to complain and speak his fears were so human that I unconsciously talked to him in sympathy as I would to a frightened boy, and in trying to calm his fears perhaps in some measure moderated my own. "Hush your fears, my boy," I said, "we will get across safe, though it is not going to be easy. No right way is easy in this rough world. We must risk our lives to save them. At the worst we can only slip, and then how grand a grave we will have, and by and by our nice bones will do good in the terminal moraine."

But my sermon was far from reassuring him: he began to cry, and after taking another piercing look at the tremendous gulf, ran away in desperate excitement, seeking some other crossing. By the time he got back, baffled of course, I had made a step or two. I dared not look back, but he made himself heard, and when he saw that I was certainly bent on crossing he cried aloud in despair. The danger was enough to daunt anybody, but it seems wonderful that he should have been able to weigh and appreciate it so justly. No mountaineer could have seen it more quickly or judged it more wisely, discriminating between real and apparent peril.

When I gained the other side, he screamed louder than ever, and after running back and forth in vain search for a way of escape, he

would return to the brink of the crevasse above the bridge, moaning and wailing as if in the bitterness of death. Could this be the silent, philosophic Stickeen? I shouted encouragement, telling him the bridge was not as bad as it looked, that I had left it flat and safe for his feet, and he could walk it easily. But he was afraid to try. Strange so small an animal should be capable of such big, wise fears. I called again and again in a reassuring tone to come on and fear nothing; that he could come if he would only try. He would hush for a moment, look down again at the bridge, and shout his unshakable conviction that he could never, never come that way; then lie back in despair, as if howling, "O-o-oh! What a place! No-o-o, I can never go-o-o down there!" His natural composure and courage had vanished utterly in a tumultuous storm of fear. Had the danger been less, his distress would have seemed ridiculous. But in this dismal, merciless abyss lay the shadow of death, and his heartrending cries might well have called Heaven to his help. Perhaps they did. So hidden before, he was now transparent, and one could see the workings of his heart and mind like the movements of a clock out of its case. His voice and gestures, hopes and fears, were so perfectly human that none could mistake them, while he seemed to understand every word of mine. I was troubled at the thought of having to leave him out all night, and of the danger of not finding him in the morning. It seemed impossible to get him to venture. To compel him to try through fear of being abandoned, I started off as if leaving him to his fate, and disappeared back of a hummock, but this did no good; he only lay down and moaned in utter hopeless misery. So, after hiding a few minutes, I went back to the brink of the crevasse, and in a severe tone of voice shouted across to him that now I must certainly leave him, I could wait no longer, and that, if he would not come, all I could promise was that I would return to seek him next day. I warned him that if he went back to the woods the wolves would kill him, and finished by urging him once more by words and gestures to come on, come on.

He knew very well what I meant, and at last, with the courage of despair, hushed and breathless, he crouched down on the brink in the hollow I had made for my knees, pressed his body against the ice as if trying to get the advantage of the friction of every hair,

gazed into the first step, put his little feet together and slid them slowly, slowly over the edge and down into it, bunching all four in it and almost standing on his head. Then, without lifting his feet, as well as I could see through the snow, he slowly worked them over the edge of the step and down into the next and the next in succession in the same way, and gained the end of the bridge. Then, lifting his feet with the regularity and slowness of the vibrations of a seconds pendulum, as if counting and measuring *one-two-three*, holding himself steady against the gusty wind, and giving separate attention to each little step, he gained the foot of the cliff, while I was on my knees leaning over to give him a lift should he succeed in getting within reach of my arm. Here he halted in dead silence, and it was here I feared he might fail, for dogs are poor climbers. I had no cord. If I had had one, I would have dropped a noose over his head and hauled him up. But while I was thinking whether an available cord might be made out of clothing, he was looking keenly into the series of notched steps and finger-holds I had made, as if counting them, and fixing the position of each one of them in his mind. Then suddenly up he came in a springy rush, hooking his paws into the steps and notches so quickly that I could not see how it was done, and whizzed past my head, safe at last!

And now came a scene! "Well done, well done, little boy! Brave boy!" I cried, trying to catch and caress him, but he would not be caught. Never before or since have I seen anything like so passionate a revulsion from the depths of despair to exultant, triumphant, uncontrollable joy. He flashed and darted hither and thither as if fairly demented, screaming and shouting, swirling round and round in giddy loops and circles like a leaf in a whirlwind; lying down, and rolling over and over, sidewise and heels over head, and pouring forth a tumultuous flood of hysterical cries and sobs and gasping mutterings. When I ran up to him to shake him, fearing he might die of joy, he flashed off two or three hundred yards, his feet in a mist of motion; then, turning suddenly, came back in a wild rush and launched himself at my face, almost knocking me down, all the time screeching and screaming and shouting as if saying, "Saved! saved! saved!" Then away again, dropping suddenly at times with his feet in the air, trembling and fairly sobbing. Such

passionate emotion was enough to kill him. Moses' stately song of triumph after escaping the Egyptians and the Red Sea was nothing to it. Who could have guessed the capacity of the dull, enduring little fellow for all that most stirs this mortal frame? Nobody could have helped crying with him!

But there is nothing like work for toning down excessive fear or joy. So I ran ahead, calling him in as gruff a voice as I could command to come on and stop his nonsense, for we had far to go and it would soon be dark.

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Voyage to East Africa

JAN. 16

Fine weather. Left for Victoria Falls about 12:30 p.m. Fine ride along sand flat at base of mountains, gradually rising. At 5:15 at Worsuster. Beautiful town, in long beautiful, level, boulder-strewn glacier valley, in some places several miles wide, perhaps a hundred miles long or more. Finely sculptured mountain range on both sides. Water rather scarce, small streams. Like valleys in S. California. Small vineyards here and there. Grapes ripe. Grain harvested.

At the head of this long mountain-walled valley, our heavy train of a dozen coaches, drawn and pushed by two powerful engines, climbed on wonderful grades (7 or 8%) and curves out upon a vast plateau like those of Arizona in flora bounded by level-topped buttes and peaks. Saw small black monkey walking slowly and indignantly away from the passing train near the head of the pass. Not a cloud in the sky until near sundown when beautiful crimson horizontal plumes decorated the lower sky all around. A most glorious day in every way. The stars shone bright as we sped on over the apparently boundless plain.

JAN. 17

Glorious sunrise. Cloudless. All day on great plateau. Soil red and tawny. Ant nest, dome-shaped, narrow, eighteen inches high. Saw man on horseback driving a flock of ostriches. A remarkable sight to me. Crossed only one river by a fine steel bridge. The Orange River, I suppose. Arrived at Kimberly about 7:20 p.m. Marvelous city, of enormous gray dumps of material hoisted from the

diamond beds. Left Kimberly and the diamond pits at 8:30 p.m. Dry desert, seemingly endless.

JAN. 18

Wonderful change. All the broad plain or plateau green and even flowery here and there, and dotted with bushes and small trees. Mimosa, etc. Some of them in flower. Gradually increasing in size and number until they darkened the landscape in the distance like forests. Only a few rounding hills or low mountains visible in the vast expanse. At 10:00 a.m. ran suddenly into a region of rounded glaciated hills of metamorphic slate out of which we emerged in about an hour to a wide plain, green and flowery with dark forested mountains in the distance. Ground near the track densely covered with bushes, mostly with yellow-green foliage. Here the first trees were found, twenty to thirty feet high, eighteen inches in diameter, with lavish undergrowth of bushes. This plain, with its low forest, extends with great regularity for one hundred and fifty miles or more. The train had been running through it at twenty miles speed over six and a half hours, and now, at sundown, there is no sign of reaching the limit of this strange forest and plain, a smooth sandstone plain, apparently boundless. Only a small group of peaks to the westward, seen about 6:00 p.m. A red sandstone in rounded moutonnée masses and ridgy pavements show here and there through the almost continuous tufted sod of grasses like Buffalo grass.

JAN. 19

Cloudy and cool. Magnificent sunrise. Huge compound wing-shaped masses of clouds, changing to deep velvety maroon and magenta. A truly glorious spectacle. The same nearly level plateau. Green, lightly forested, stretching on and on with no boundary in sight save the sky. No mountains visible. A sea of verdure. Arrived Bulwayo about 7:00 a.m. Scrawny breakfast at station. Walked through the town. Forest becoming more varied. Tall palms common, and the low, pale green dwarf species. The ground hillocky.

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JAN. 20 Arrive at Victoria Falls station at 7:00 a.m. and have enjoyed a wonderful day, wonderful in many ways; one of the greatest of the great tree days of my lucky life. Inquiring at the hotel if there were any baobabs in the neighborhood, the manager said that he had never heard of a baobab. I explained that it was a large tree, one of the largest of the great trees of the world, and that I had heard that some of them grew at no great distance from here.

After many anxious inquiries I found a bright Negro boy guide who led me direct to the long-dreamed-of African *Adansonia digitata*. I found a large number at a distance of only about a mile or a mile and a half from the head of the Falls, and not over half a mile back from the bank of the river. I discovered specimens showing their different forms, varying from twelve to twenty-four feet in diameter. Most of them about seventy-five to ninety feet high and very wide-spreading, the main branches large, often four to six feet in diameter, gradually dividing into comparatively slender branchlets; many of them drooping, and well-clad with rather pale green five to seven or even nine-fingered leaves. I found a few of the fruits that had fallen on the ground and also some of the wilted flowers. The flowers are white, circular, and about six inches in diameter. This grand tree was first discovered by Michael Adanson of the West Coast near Sierra Leone. It also extends considerably to the north at the head of the Senegal River. I afterwards found it in great abundance at Mozambique, Zanzibar, Desersalaan, Panga, and Mombasa on the East Coast. A red-flowered species *A. madagascariensis* is found on the island of that name. A third species has been found in Australia, *A. gregorii*. It is often called monkey-bread tree. Also cream of tartar tree, from the pleasantly acid juice of the fruit furnishing a refreshing drink. This wonderful tree belongs to the malvaceae. The timber is so soft and spongy that it has no merchantable use, though I was informed that large rain-water tanks were sometimes dug in the broad body of the living tree. It grows scattered here and there among other trees in the general forest, and is easily recognized by its remarkably smooth skin-like bark, and its

massive trunk and branches. Altogether I measured and sketched about a dozen specimens. The fruit is green, about six inches long and three in diameter, hanging straight down, and very conspicuous. The leaves are thin, delicate, and smooth. About three to four or five inches long and wide. The bark is gray in color, wonderfully smooth, shining, wrinkled here and there, and slightly corrugated horizontally, but with no furrow like the bark of most other trees. It looks like leather, or the skin of the hippopotamus. On my return trip I noticed a good many in the woods from the car window seventy miles or more to the southward of the falls. On the return trip to Bulwayo I enjoyed the company of Captain Murray, who has charge of the mounted police through a large part of Rhodesia north and south from the Victoria Falls. He kindly promised to send me photographs of the most telling of the Rhodesian trees. Took me to his headquarters at Bulwayo and arranged for my journey to Beira.

JAN. 21

Arrived Bulwayo at 7:00 this morning, having left the Falls at 12:20 p.m. yesterday. Enjoyed view of part of the forest that I had passed through at night on my way North. The baobab is the most interesting feature of the forest for seventy miles south of Victoria Falls. Went to Grand Hotel, Bulwayo. The town is spread over a large level area. The buildings sparsely sprinkled. Will take long to form continuous streets. At hotel all day, resting after wild baobab and Zambesi joy. Strange tree. In bark like skin of elephant. Corrugated and wrinkled like skin of hippopotamus. Very smooth and glossy. Gray, whitish some places. Beautiful five to seven-parted leaves. Huge limbs but well clothed with leaves. So striking in size and form it is easily recognized at a distance of several miles.

The Falls too are grand and novel, and are already drawing large numbers of tourists from all parts of the world. Smoke-like spray is ever ascending, watering the woods in the neighborhood with constant drizzling showers. Large area near the Falls called the "Rainy Woods."

Among the other notable trees of the baobab forest is the Mopani, a fine, large leguminous tree with hard, valuable wood. The Maruba, another large tree, the fruit of which is edible. *Erythima tomentosa*, something like the baobab at a distance, also leguminous. Kigelia has fruit shaped like sausage two feet in length. This large tree is also seen at Victoria Falls. Common in equatorial Africa. It has a sturdy trunk with rough furrowed bark like an oak. Purple tulip-like blossoms. Also three species of palms.

FEB. 7

Start at noon for Antebbe, Uganda. Heavy rain in the morning. Baobabs common along the railroad for twenty or thirty miles, but smaller as the coast is left, though the soil is good. Why is this? Hills grassy, trees and shrubs scattered, fire-scourged. Glacier features. Mountains blue in the distance. Had good fortune as usual in finding two pleasant traveling companions, one a Swiss, who kindly shared his fine luncheon with me, as there is no dining car on the train. At night he gave me one of his rugs as there was no bedding on the train. This friend is a professional hunter with headquarters at Nairobi. The other is Arch-Deacon Binns. Two others joined us in our compartment in the middle of the night. Scotch. One who had often been in Dunbar and knew my friends there. Heard him pronounce "John" and knew him for a Scotchman in the dark, though I was half asleep.

FEB. 8

Country more and more distinctly glacial. See hundreds or thousands of hartbeests and other antelopes, some within stone's throw of the track. Large number of wild ostriches. Grassy plains. No trees or shrubs for miles and miles. Great hills and mountains in the distance. Lovely country. Glacial drift common. Arrived Nairobi at 11:15 a.m. Went to Norfolk Hotel.

FEB. 9

At Hotel. Fine scenery. Heavy rain. Great need of increased hotel accommodations. In rare weather conditions Kailimanjara visible

↳ LOL!

clear example of authentic journaling - w/ misspelling

one hundred and fifty miles distant from here. Rained for three days on most of way from Mombasa. Rainy season usually begins in March in this part of British East Africa.

FEB. 10

Left Nairobi for Port Florence at noon. Rainy until after dark. Never saw rain so early in the season in the last fourteen years, though only about a month earlier than usual. Railroad runs through beautiful mountain scenery, patches of forest with open grassy prairies, filled-up lake basins. Views of large main valley, very broad, fine in its main lines. Tawny in color from dry grass. Juniper common. Used for lumber, but splits too freely for some purposes, and as usual all the older trees are eaten with dry rot in the center. This is true of all the many species of juniper. Grand views of the great valley. Was kindly given a blanket and pillow by Mr. Rees, the night being very cold, although almost directly on the equator. The elevation at the highest point the railroad passed over during the night was about 8,000 feet above sea level.

FEB. 11

Arrived at Port Florence about 7:00 a.m. Went aboard the good little steamer *Clement Hill* and started for Antebbe at 10:00 a.m. Wonderful picturesque scenery. Low, green, half-forested hills with mountains in the distance. Not very high. Some perhaps about 6,000 feet above the sea. The Victoria Nyanza one of the largest in the world. Second in size only to Lake Superior. Hippopotamus common around the muddy and reedy shores. The lake is comparatively shallow, only about 240 feet at the deepest part. Anchored at dark.

FEB. 12

Started at daybreak. Arrived at Antebbe about 11:00 a.m. at head of a beautiful bay. Measured one tree about six feet in diameter a little way back from the shore. Many are three or four feet, with fine, wide-spreading head. One tree, of moderate size, had noble digitate leaves, fourteen or more, eighteen inches wide. Petioles two feet long. Mr. Rees took me to the Uganda Protectorate.

Spathodia nilotica, has very large flowers.

Canarium schweinfurthii, very large tree.
Thevetia nerriforia, red.
Bauhinia triandra, double leaf.
Randia dummetorium.
Solianum macaranthum.
Maesopsis berchemoides.
Pipledenia africana.
Monodora myristica.

Mr. Rees took me to the Botanical Gardens. Saw the Manager, who kindly ordered his head gardener to show me over the garden and give me specimens of all I wished. A bright, scholarly fellow, Singalese, from Ceylon. There is a species of mourning dove hereabouts which says "Too hot for anything." A lovely creeper going up straight on smooth-barked tree in regular zigzags.

FEB. 13

Started for Kompali at daylight. Arrived about 9:00 a.m. Ride in jinrikisha from port to village, a distance of about seven miles, through beautiful landscape. Extensive and thrifty banana orchards. The fruit red instead of yellow. Interesting swamps full of the famous papyrus growing here naturally. Charming red, blue and white water lilies in the harbor in glorious abundance. Arrived at Kompali in an hour and a half. Returned in one hour. My jinrikisha was hauled and pushed by three lusty Negroes, two pushing and the other in the shafts. Chanted all the way while trotting, the leader rapidly improvising a line, and the chorus sounded like "Harry *Trunk*! Harry *Trunk*!" The leader would say: "The white man is going to see our pretty town." "Harry Trunk. Harry Trunk." "He sees the black man's fine banana field." "Harry Trunk. Harry Trunk." "He is looking at the birds in the trees." "Harry Trunk. Harry Trunk." "The white man's far from his cold, cold home." "Harry Trunk. Harry Trunk." Etc.

FEB. 14

Started for Jinja at 5:00 a.m. Arrived at 11:30 a.m. From the village I went to see the Ripon Falls at the outlet of the great lake, the main

head fountain of the Nile, the distance from the port being only a little over a mile. The fall is only about fifteen or twenty feet over a bar of resisting rock. The fall is divided into three parts and makes a magnificent show of foam. Large numbers of alligators were sunning themselves on the farther bank at the head of the falls, while fishes in large numbers are constantly springing in wide curves in their attempts to ascend the cascade to enter the lake. The broad stream setting out in rapids on its 3,330 mile course is very impressive.

"In 1852 Sir Roderick Murchison advanced the hypothesis that Africa south of the Sahara Desert was a continent of great antiquity, and simplicity, which had maintained the form of a great basin ever since the age of the new red sandstone. He based his theory on the work of Bain, the pioneer of South African geology, summarized in a paper entitled 'On the Antiquity of the Physical Geography of Inner Africa' by R. Murchison, in which he claims that the country is of interest because it was geologically unique in the long conservation of ancient terrestrial conditions."

The famous Ngrurunga (water holes) from J. W. Gregory's book entitled *The Great Rift Valley.*

FEB. 15

Start for Port Florence at 4:00 a.m. Arrived at 5:00 p.m.

FEB. 16

Got aboard the train on the return journey to Mombasa at 7:30 a.m. From the Port a long level valley six to eight miles wide looks like a filled-in part of the Port Florence arm of the lake, extending twenty or thirty miles to the southward, bounded on the west by a range of bold bluffs, separated by wide cirques here and there; and on the east by smooth terraces, extending lakeward parallel to the bluffs. Native villages and fields along the valley. Water lilies at Port Florence, and papyrus. *Kigelia* trees in fruit here and magnificent figs. One near Port Florence, green with dark green foliage, had fruit a half inch in diameter. The trunk about eight feet in diameter, with a dense dome-shaped broad head something like the great banyan of India. Wild mountains after leaving the lake plains,

through which the railroad has been built at great cost. Twenty or thirty steel trestles over gorgeous and fluting ravines in close succession. Some of the passengers saw a lion by the roadside.

FEB. 17

Very cold night. Slept cold, with heavy underclothing, coat and vest, overcoat, and a thick blanket. Elevation of the region about 6,000 to 8,000 feet above the sea. Colder than the Tuolumne Meadows in the spring, though 3,000 feet higher than here. Passed through dense forests about noon, but the greater part of the way is through grassy hills with only detached patches of brush and trees. Extensive wheat fields here and there. Yesterday afternoon and this forenoon near Nivahsa Station and Lake. This remarkable lake is surrounded by a picturesque mountain and hills. Water said to be fresh, though without any visible outlet. Between Nivasha and Nairoba saw Mt. Kilimanjara and Kenia, and many antelopes and zebra, all within short distances of the railroad, and remarkably tame. The latter most at ease as the train rolled past. This afternoon soon after leaving Nairoba saw hundreds or thousands of antelopes, two droves of zebras, and a few ostriches. Some of the antelopes were lying down within a stone's throw of the track, a few of which lay still. Others rose and gazed at the train, and a few ran off to a distance of a quarter of a mile or so. These fine beasts were on a beautiful treeless shrubless plain or prairie. After coming to a plain dotted with small trees and bushes none of the animals were seen. Some parts of the prairie were roughened with moraine boulders, and some places weathered from the bedrock, which occurs here and there in large patches without any kind of soil, something like glacier pavements, with potholes here and there, weathered out by the rain and wind. Some beds of quartz pebbles with large boulders here and there. The stream channels very shallow. All signs point to glaciation no great geological time ago. Most of the animals seen today were on the Athi plain, and have learned that the nearer the railroad the safer they are from the attack of either men or lions. A strip along the track a mile in width had been reserved as a game refuge, which the animals have been quick to discover and flock

environmentalist/naturalist

MUIR IS MORE of a naturalist than environmentalist

into it, from all the adjacent region. Saw Kilimanjara again this afternoon. Only its broad base was visible. The head and main body cloud mantled. Saw also many baobabs two hundred and fifty miles or more from Mombasa. One stood near the Makinda Station within six feet or so from the railroad track.

Part Five:

The Planet Steward

God's First Temples: How Shall We Preserve Our Forests?

RECORD-UNION:

The forests of coniferous trees growing on our mountain ranges are by far the most destructible of the natural resources of California. Our gold, and silver, and cinnabar are stored in the rocks, locked up in the safest of all banks, so that notwithstanding the world has been making a run upon them for the last twenty-five years, they still pay out steadily and will probably continue to do so centuries hence, like rivers pouring from perennial mountain fountains. The riches of our magnificent soil beds are also comparatively safe, because even the most barbarous methods of wildcat farming cannot effect complete destruction, and however great the impoverishment produced, full restoration of fertility is always possible to the enlightened farmer. But our forest belts are being burned and cut down and wasted like a field of unprotected grain, and once destroyed can never be wholly restored, even by centuries of persistent and painstaking cultivation.

The practical importance of the preservation of our forests is augmented by their relations to climate, soil, and streams. Strip off the woods with their underbrush from the mountain flanks, and the whole state, the lowlands as well as the highlands, would gradually change into a desert. During rainfalls, and when the winter snow was melting, every stream would become a destructive torrent, overflowing its banks, stripping off and carrying away the fertile soils, filling up the lower river channels, and overspreading the lowland fields with detritus to a vastly more destructive degree than all the washings from hydraulic mines concerning which we now hear so much. Dripping forests give rise to moist sheets and

currents of air, and the sod of grasses and underbrush thus fostered, together with the roots of trees themselves, absorb and hold back rains and melting snow, yet allowing them to ooze and percolate and flow gently in useful fertilizing streams. Indeed every pine needle and rootlet, as well as fallen trunks and large clasping roots, may be regarded as dams, hoarding the bounty of storm clouds and dispensing it as blessings all through the summer, instead of allowing it to gather and rush headlong in short-lived, devastating floods. Streams taking their rise in deep woods flow unfailingly as those derived from the eternal ice and snow of the Alps. So constant, indeed, and apparent is the relationship between forests and never-failing springs, that effect is frequently mistaken for cause, it being often asserted that line forests will grow only along streamsides where their roots are well watered, when in fact the forests themselves produce many of the streams flowing through them.

The main forest belt of the Sierra is restricted to the western flank, and extends unbrokenly from one end of the range to the other at an elevation of from three to eight thousand feet above sea level. The great master-existence of these noble woods is *Sequoia gigantea,* or big tree. Only two species of sequoia are known to exist in the world. Both belong to California, one being found only in the Sierra, the other (*Sequoia sempervirens*) in the Coast Ranges, although no less than five distinct fossil species have been discovered in the tertiary and cretaceous rocks of Greenland. I would like to call attention to this noble tree, with special reference to its preservation. The species extends from the well known Calaveras groves on the north, to the head of Deer Creek on the south, near the big bend of the Kern River, a distance of about two hundred miles, at an elevation above sea level of from about five to eight thousand feet. From the Calaveras to the south fork of King's River, it occurs only in small isolated groves, and so sparsely and irregularly distributed that two gaps occur nearly forty miles in width, the one between the Calaveras and Tuolumne groves, the other between those of the Fresno and King's rivers. From King's River the belt extends across the broad, rugged basins of the Kaweah and Tule rivers to its southern boundary on Deer Creek, interrupted only by deep, rocky canyons, the width of this portion of the belt being from three to ten miles.

In the northern groves few young trees or saplings are found ready to take the places of the failing old ones, and because these ancient, childless sequoias are the only ones known to botanists, the species has been generally regarded as doomed to speedy extinction, as being nothing more than an expiring remnant of an ancient flora, and that therefore there is no use trying to save it or to prolong its few dying days. This, however, is in the main a mistaken notion, for the Sierra as it now exists never had an ancient flora. All the species now growing on the range have been planted since the close of the glacial period, and the Big Tree has never formed a greater part of these postglacial forests than it does today, however widely it may have been distributed throughout preglacial forests.

In tracing the belt southward, all the phenomena bearing upon its history goes to show that the dominion of *Sequoia gigantea,* as king of California trees, is not yet passing away. No tree in the woods seems more firmly established, or more safely settled in accordance with climate and soil. They fill the woods and form the principal tree, growing heartily on solid ledges, along water courses, in the deep, moist soil of meadows, and upon avalanche and glacial debris, with a multitude of thrifty seedlings and saplings crowding around the aged, ready to take their places and rule the woods.

Nevertheless, Nature in her grandly deliberate way keeps up a rotation of forest crops. Species develop and die like individuals, animal as well as plant. Man himself will as surely become extinct as sequoia or mastodon, and be at length known only as a fossil. Changes of this kind are, however, exceedingly slow in their movements, and, as far as the lives of individuals are concerned, such changes have no appreciable effect. Sequoia seems scarcely further past prime as a species than its companion firs (*Picea amabilis* and *P. grandis*), and judging from its present condition and its ancient history, as far as I have been able to decipher it, our sequoia will live and flourish gloriously until A.D. 15,000 at least—probably for longer—that is, if it be allowed to remain in the hands of nature.

But waste and pure destruction are already taking place at a terrible rate, and unless protective measures be speedily invented and enforced, in a few years this noblest tree-species in the world will present only a few hacked and scarred remnants. The great

enemies of forests are fire and the ax. The destructive effects of these, as compared with those caused by the operations of nature, are instantaneous. Floods undermine and kill many a tree, storm winds bend and break, landslips and avalanches overwhelm whole groves, lightning shatters and burns, but the combined effects of all these amount only to a wholesome beauty-producing culture. Last summer I found some five sawmills located in or near the lower edge of the sequoia belt, all of which saw more or less of the big tree into lumber. One of these (Hyde's), situated on the north fork of the Kaweah, cut no less than two million feet of sequoia lumber last season. Most of the Fresno big trees are doomed to feed the mills recently erected near them, and a company has been formed by Chas. Converse to cut the noble forest on the south fork of King's River. In these milling operations, waste far exceeds use. After the choice young manageable trees have been felled, the woods are cleared of limbs and refuse by burning, and in these clearing fires, made with reference to further operations, all the young seedlings and saplings are destroyed, together with many valuable fallen trees and old trees, too large to be cut, thus effectually cutting off all hopes of a renewal of the forest.

These ravages, however, of mill-fires and mill-axes are small as compared with those of the "sheep men's" fires. Incredible numbers of sheep are driven to the mountain pastures every summer, and in order to make easy paths and to improve the pastures, running fires are set everywhere to burn off the old logs and underbrush. These fires are far more universal and destructive than would be guessed. They sweep through nearly the entire forest belt of the range from one extremity to the other, and in the dry weather, before the coming on of winter storms, are very destructive to all kinds of young trees, and especially to sequoia, whose loose, fibrous bark catches and burns at once. Excepting the Calaveras, I, last summer, examined every sequoia grove in the range, together with the main belt extending across the basins of Kaweah and Tule, and found everywhere the most deplorable waste from this cause. Indians burn off underbrush to facilitate deer hunting. Campers of all kinds often permit fires to run, so also do mill-men, but the fires of sheep men

probably form more than 90 percent of all destructive fires that sweep the woods.

Fire, then, is the arch destroyer of our forests, and sequoia forests suffer most of all. The young trees are most easily fire killed; the old are most easily burned, and the prostrate trunks, which never rot and would remain valuable until our tenth centennial, are reduced to ashes.

In European countries, especially in France, Germany, Italy, and Austria, the economies of forestry have been carefully studied under the auspices of government, with the most beneficial results. Whether our loose-jointed government is really able or willing to do anything in the matter remains to be seen. If our lawmakers were to discover and enforce any method tending to lessen even in a small degree the destruction going on, they would thus cover a multitude of legislative sins in the eyes of every tree lover. I am satisfied, however, that the question can be intelligently discussed only after a careful survey of our forests has been made, together with studies of the forces now acting upon them.

A law was constructed some years ago making the cutting down of sequoias over sixteen feet in diameter illegal. A more absurd and shortsighted piece of legislation could not be conceived. All the young trees might be cut and burned, and all the old ones might be burned but not cut.

Sacramento Daily Union
February 5, 1876

- Obviously much more formal than his journal entries
- But still has the in-dept descriptions of nature but in a more formal tone

The Wild Parks and Forest Reservations of the West

Keep not standing fix'd and rooted,
Briskly venture, briskly roam;
Head and hand, where'er thou foot it,
And stout heart are still at home.
In each land the sun does visit
We are gay, whate'er betide:
To give room for wandering is it
That the world was made so wide.

The tendency nowadays to wander in wildernesses is delightful to see. Thousands of tired, nerve-shaken, over-civilized people are beginning to find out that going to the mountains is going home; that wildness is a necessity; and that mountain parks and reservations are useful not only as fountains of timber and irrigating rivers, but as fountains of life. Awakening from the stupefying effects of the vice of over-industry and the deadly apathy of luxury, they are trying as best they can to mix and enrich their own little ongoings with those of nature, and to get rid of rust and disease. Briskly venturing and roaming, some are washing off sins and cobweb cares of the devil's spinning in all-day storms on mountains; sauntering in rosiny pine woods or in gentian meadows, brushing through chaparral, bending down and parting sweet, flowery sprays; tracing rivers to their sources, getting in touch with the nerves of Mother Earth; jumping from rock to rock, feeling the life of them, learning the songs of them, panting in whole-souled exercise, and rejoicing in deep, long-drawn breaths of pure wildness. This is fine and natural and full of promise. So also is the growing

interest in the care and preservation of forests and wild places in general, and in the half-wild parks and gardens of towns. Even the scenery habit in its most artificial forms, mixed with spectacles, silliness, and kodaks; its devotees arrayed more gorgeously than scarlet tanagers, frightening the wild game with red umbrellas—even this is encouraging, and may well be regarded as a hopeful sign of the times.

Muir compares them to Thoreau

important

All the western mountains are still rich in wildness, and by means of good roads are being brought nearer civilization every year. To the sane and free it will hardly seem necessary to cross the continent in search of wild beauty, however easy the way, for they find it in abundance wherever they chance to be. Like Thoreau they see forests in orchards and patches of huckleberry brush, and oceans in ponds and drops of dew. Few in these hot, dim, strenuous times are quite sane or free; choked with care like clocks full of dust, laboriously doing so much good and making so much money—or so little—they are no longer good for themselves.

When, like a merchant taking a list of his goods, we take stock of our wildness, we are glad to see how much of even the most destructible kind is still unspoiled. Looking at our continent as scenery when it was all wild, lying between beautiful seas, the starry sky above it, the starry rocks beneath it, to compare its sides, the East and the West, would be like comparing the sides of a rainbow. But it is no longer equally beautiful. The rainbows of today are, I suppose, as bright as those that first spanned the sky; and some of our landscapes are growing more beautiful from year to year, notwithstanding the clearing, trampling work of civilization. New plants and animals are enriching woods and gardens, and many landscapes wholly new, with divine sculpture and architecture, are just now coming to the light of day as the mantling folds of creative glaciers are being withdrawn, and life in a thousand cheerful, beautiful forms is pushing into them, and newborn rivers are beginning to sing and shine in them. The old rivers, too, are growing longer, like healthy trees, gaining new branches and lakes as the residual glaciers at their highest sources on the mountains recede, while the root-like branches in their flat deltas are at the same time spreading farther and wider into the seas and making new lands.

Under the control of the vast mysterious forces of the interior of the earth, all the continents and islands are slowly rising or sinking. Most of the mountains are diminishing in size under the wearing action of the weather, though a few are increasing in height and girth, especially the volcanic ones, as fresh floods of molten rocks are piled on their summits and spread in successive layers, like the wood-rings of trees, on their sides. New mountains, also, are being created from time to time as islands in lakes and seas, or as subordinate cones on the slopes of old ones, thus in some measure balancing the waste of old beauty with new. Man, too, is making many far-reaching changes. This most influential half animal, half angel is rapidly multiplying and spreading, covering the seas and lakes with ships, the land with huts, hotels, cathedrals, and clustered city shops and homes, so that soon, it would seem, we may have to go farther than Nansen to find a good sound solitude. None of nature's landscapes are ugly so long as they are wild; and much we can say comfortingly, must always be in great part wild, particularly the sea and the sky, the floods of light from the stars, and the warm, unspoilable heart of the earth, infinitely beautiful, though only dimly visible to the eye of imagination. The geysers, too, spouting from the hot underworld; the steady, long-lasting glaciers on the mountains, obedient only to the sun; Yosemite domes and the tremendous grandeur of rocky canyons and mountains in general—these must always be wild, for man can change them and mar them hardly more than can the butterflies that hover above them. But the continent's outer beauty is fast passing away, especially the plant part of it, the most destructible and most universally charming of all.

Only thirty years ago, the great Central Valley of California, five hundred miles long and fifty miles wide, was one bed of golden and purple flowers. Now it is ploughed and pastured out of existence, gone forever—scarce a memory of it left in fence corners and along the bluffs of the streams. The gardens of the Sierra, also, and the noble forests in both the reserved and unreserved portions are sadly hacked and trampled, notwithstanding the ruggedness of the topography—all excepting those of the parks guarded by a few soldiers. In the noblest forests of the world, the ground, once

divinely beautiful, is desolate and repulsive, like a face ravaged by disease. This is true also of many other Pacific Coast and Rocky Mountain valleys and forests. The same fate, sooner or later, is awaiting them all, unless awakening public opinion comes forward to stop it. Even the great deserts in Arizona, Nevada, Utah, and New Mexico, which offer so little to attract settlers, and which a few years ago pioneers were afraid of, as places of desolation and death, are now taken as pastures at the rate of one or two square miles per cow, and of course their plant treasures are passing away—the delicate *Abronias, Phloxes, Gilias,* etc. Only a few of the bitter, thorny, unbitable shrubs are left, and the sturdy cacti that defend themselves with bayonets and spears.

Most of the wild plant wealth of the East also has vanished—gone into dusty history. Only vestiges of its glorious prairie and woodland wealth remain to bless humanity in boggy, rocky, unploughable places. Fortunately, some of these are purely wild and go far to keep nature's love visible. White water lilies, with rootstocks deep and safe in mud, still send up every summer a Milky Way of starry, fragrant flowers around a thousand lakes, and many a tuft of wild grass waves its panicles on mossy rocks, beyond reach of trampling feet, in company with saxifrages, bluebells, and ferns. Even in the midst of farmers' fields, precious *Sphagnum* bogs, too soft for the feet of cattle, are preserved with their charming plants unchanged—*Chiogenes, Andromeda, Kalmia, Linnaea, Arethusa,* etc. *Calypso borealis* still hides in the arbor vitae swamps of Canada, and away to the southward there are a few unspoiled swamps, big ones, where miasma, snakes, and alligators, like guardian angels, defend their treasures and keep them as pure as paradise. And beside a' that and a' that, the East is blessed with good winters and blossoming clouds that shed white flowers over all the land, covering every scar and making the saddest landscape divine at least once a year.

The most extensive, least spoiled, and most unspoilable of the gardens of the continent are the vast tundras of Alaska. In summer they extend smooth, even, undulating, continuous beds of flowers and leaves from about latitude 62 to the shores of the Arctic Ocean; and in winter sheets of snow flowers make all the country shine,

one mass of white radiance like a star. Nor are these Arctic plant people the pitiful frost-pinched unfortunates they are guessed to be by those who have never seen them. Though lowly in stature, keeping near the frozen ground as if loving it, they are bright and cheery, and speak nature's love as plainly as their big relatives of the South. Tenderly happed and tucked in beneath downy snow to sleep through the long, white winter, they make haste to bloom in the spring without trying to grow tall, though some rise high enough to ripple and wave in the wind, and display masses of color—yellow, purple, and blue—so rich that they look like beds of rainbows, and are visible miles and miles away.

As early as June one may find the showy *Geum glaciale* in flower, and the dwarf willows putting forth myriad fuzzy catkins, to be followed quickly, especially on the dryer ground, by *Mertensia, Eritrichium, Polemonium, Oxytropis, Astragalus, Lathyrus, Lupinus, Myosotis, Dodecatheon, Arnica, Chrysanthemum, Nardosmia, Saussurea, Senecio, Erigeron, Matrecaria, Caltha, Valeriana, Stellaria, Tofieldia, Polygonum, Papaver, Phlox, Lychnis, Cheiranthus, Linnaea,* and a host of *Drabas, Saxifrages,* and heathworts, with bright stars and bells in glorious profusion, particularly *Cassiope, Andromeda, Ledum, Pyrola,* and *Vaccinium*—*Cassiope* the most abundant and beautiful of them all. Many grasses also grow here, and wave fine purple spikes and panicles over the other flowers—*Poa, Aira, Calamagrostis, Alopecurus, Trisetum, Elymus, Festuca, Glyceria,* etc. Even ferns are found thus far north, carefully and comfortably unrolling their precious fronds—*Aspidium, Cystopteris,* and *Woodsia,* all growing on a sumptuous bed of mosses and lichens; not the scaly lichens seen on rails and trees and fallen logs to the southward, but massive, round-headed, finely colored plants like corals, wonderfully beautiful, worth going round the world to see. I should like to mention all the plant friends I found in a summer's wanderings in this cool reserve, but I fear few would care to read their names, although everybody, I am sure, would love them could they see them blooming and rejoicing at home.

On my last visit to the region about Kotzebue Sound, near the middle of September 1881, the weather was so fine and mellow

that it suggested the Indian summer of the eastern states. The winds were hushed, the tundra glowed in creamy golden sunshine, and the colors of the ripe foliage of the heathworts, willows, and birch—red, purple, and yellow, in pure bright tones—were enriched with those of berries which were scattered everywhere, as if they had been showered from the clouds like hail. When I was back a mile or two from the shore, reveling in this color-glory, and thinking how fine it would be could I cut a square of the tundra sod of conventional picture size, frame it, and hang it among the paintings on my study walls at home, saying to myself, "Such a nature painting taken at random from any part of the thousand-mile bog would make the other pictures look dim and coarse," I heard merry shouting, and, looking round, saw a band of Eskimos—men, women, and children, loose and hairy like wild animals—running toward me. I could not guess at first what they were seeking, for they seldom leave the shore; but soon they told me, as they threw themselves down, sprawling and laughing, on the mellow bog, and began to feast on the berries. A lively picture they made, and a pleasant one, as they frightened the whirring ptarmigans, and surprised their oily stomachs with the beautiful acid berries of many kinds, and filled sealskin bags with them to carry away for festive days in winter.

Nowhere else on my travels have I seen so much warm-blooded, rejoicing life as in this grand Arctic reservation, by so many regarded as desolate. Not only are there whales in abundance along the shores, and innumerable seals, walruses, and white bears, but on the tundras, great herds of fat reindeer and wild sheep, foxes, hares, mice, piping marmots, and birds. Perhaps more birds are born here than in any other region of equal extent on the continent. Not only do strong-winged hawks, eagles, and waterfowl, to whom the length of the continent is merely a pleasant excursion, come up here every summer in great numbers, but also many short-winged warblers, thrushes, and finches, repairing hither to rear their young in safety, reinforce the plant bloom with their plumage, and sweeten the wilderness with song; flying all the way, some of them, from Florida, Mexico, and Central America. In coming north they are

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coming home, for they were born here, and they go south only to spend the winter months, as New Englanders go to Florida. Sweet-voiced troubadours, they sing in orange groves and vine-clad magnolia woods in winter, in thickets of dwarf birch and alder in summer, and sing and chatter more or less all the way back and forth, keeping the whole country glad. Oftentimes, in New England, just as the last snow patches are melting and the sap in the maples begins to flow, the blessed wanderers may be heard about orchards and the edges of fields where they have stopped to glean a scanty meal, not tarrying long, knowing they have far to go. Tracing the footsteps of spring, they arrive in their tundra homes in June or July, and set out on their return journey in September, or as soon as their families are able to fly well.

This is nature's own reservation, and every lover of wildness will rejoice with me that by kindly frost it is so well defended. The discovery lately made that it is sprinkled with gold may cause some alarm; for the strangely exciting stuff makes the timid bold enough for anything, and the lazy destructively industrious. Thousands at least half insane are now pushing their way into it, some by the southern passes over the mountains, perchance the first mountains they have ever seen—sprawling, struggling, gasping for breath, as, laden with awkward, merciless burdens of provisions and tools, they climb over rough-angled boulders and cross thin miry bogs. Some are going by the mountains and rivers to the eastward through Canada, tracing the old romantic ways of the Hudson Bay traders; others by Bering Sea and the Yukon, sailing all the way, getting glimpses perhaps of the famous fur seals, the ice floes, and the innumerable islands and bars of the great Alaska river. In spite of frowning hardships and the frozen ground, the Klondike gold will increase the crusading crowds for years to come, but comparatively little harm will be done. Holes will be burned and dug into the hard ground here and there, and into the quartz-ribbed mountains and hills; ragged towns like beaver and muskrat villages will be built, and mills and locomotives will make rumbling, screeching, disenchanting noises; but the miner's pick will not be followed far by the plough, at least not until nature is ready to unlock the frozen soil

beds with her slow-turning climate key. On the other hand, the roads of the pioneer miners will lead many a lover of wildness into the heart of the reserve, who without them would never see it.

In the meantime, the wildest health and pleasure grounds accessible and available to tourists seeking escape from care and dust and early death are the parks and reservations of the West. There are four National Parks—the Yellowstone, Yosemite, General Grant, and Sequoia—all within easy reach, and thirty forest reservations, a magnificent realm of woods, most of which, by railroads and trails and open ridges, is also fairly accessible, not only to the determined traveler rejoicing in difficulties, but to those (may their tribe increase) who, not tired, not sick, just naturally take wing every summer in search of wildness. The forty million acres of these reserves are in the main unspoiled as yet, though sadly wasted and threatened on their more open margins by the ax and fire of the lumberman and prospector, and by hoofed locusts, which, like the winged ones, devour every leaf within reach, while the shepherds and owners set fires with the intention of making a blade of grass grow in the place of every tree, but with the result of killing both the grass and the trees.