

Geog

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MOUNT RAINIER NATIONAL PARK



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WINONA BAILEY, Editor

H. A. FULLER, Business Manager

A. H. ALBERTSON

EFFIE L. CHAPMAN

HELEN GRACIE

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Mount Rainier National Park



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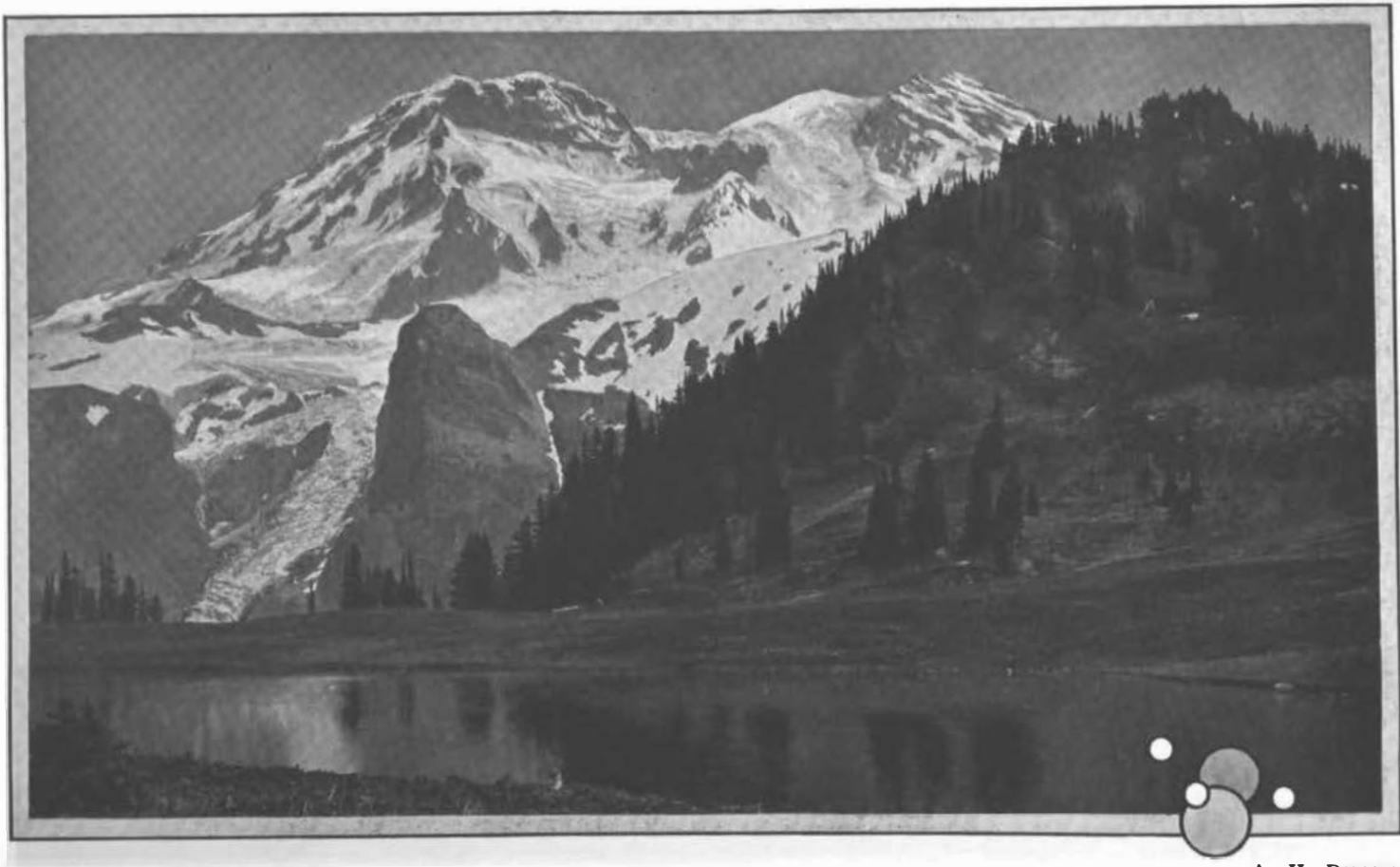
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A. H. Denman

**MOUNT RAINIER FROM
ST. ANDREW'S PARK**

The view from this little visited park on the west side of the mountain is one of the finest in the entire circuit. The Puyallup Glacier with its precipitous ice cascades split by enormous ice buttresses is particularly impressive.

GREETINGS

ACROSS the width of the continent I stretch out my hand in greeting to you, Mountaineers, who are privileged to dwell within sight of the snow-crowned monarch of Puget Sound, and to feel daily the ennobling influence of his sublime presence. As I roam through the breadth of this land of ours and behold so many good people living their lives amid uninspiring surroundings, in cities of man-made sordidness, I feel impelled to tell them of that glorious vision upon which ever and anon you rest your eyes. More than once in the past few months has it been my pleasure to bid my friends in imagination to the flowering parks and crevassed ice fields and the mist-wrapped heights of Mount Rainier. More than once have I felt the revelation of it dawn upon them and awaken the desire to behold once, just once, though it take the savings of a life-time, that which you see every day. ¶ To be envied indeed you are for your wonderful source of inspiration: were it but possible for all other people to share it with you! No doubt the time will come when a pilgrimage to Mount Rainier shall be esteemed among the most precious joys, the most coveted privileges which a citizen of this country may hope to realize for himself or for his fellows.

Francis S. Matthews

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The Mountaineer

Volume Eight

Seattle, Washington

December, 1915



PACK TRAIN
ENTERING SPRAY PARK

H. B. Hinman

AROUND MOUNT RAINIER WITH THE MOUNTAINEERS, 1915

PHILIP F. ROGERS

*"It's a long way around the mountain
It's a long way to go"—but—
"Keep a hikin' along"—*



WELL, that's what we did, and we got there, too, on schedule time, without accident or mishap of any kind and everybody in better condition at the end of the journey than at its beginning. It was a wonderful trip, on a wonderful mountain, with wonderful weather, a wonderful commissary, and with leaders whose equals would be hard to find. Too much cannot be said in praise of the splendid work of Messrs. Weer, Gorton, and Hazlehurst in planning and preparing for the outing and then in carrying it through to the last detail, or of the valuable assistance rendered by Mr. Nelson in scouting out and conducting the main climb. It was a remarkable group of people, too, that made the circuit of the big snow king. Though many of them were strangers to one another at the beginning, they were quickly welded together into one big family, with no cliques or divisions, no laggards, no critics; each doing gladly the share of the daily tasks assigned to him, and all working toward the accomplishment of the purpose of the outing with unflagging interest and enthusiasm. And so it has come about that the grand old mountain has been circled for the first time by any considerable party, unfre-

quented valleys and ridges have been explored, many magnificent views and vistas, heretofore known only to a few, have been enjoyed to the full by a hundred people, and a trail has been opened up—partly by the work of The Mountaineers themselves—which, it is to be hoped, many similar parties will follow in the future.

A joyous crowd gathered in the depot at Seattle at seven o'clock on the morning of July 31, 1915, a big jolly, jostling, bustling, and bubbling crowd, dressed *cap-a-pic* for the mountain, boots hobbled and calked, dunnage bags stuffed fat and round—too fat in some cases, as the cold-hearted scales showed—alpenstocks in hand and spirits high in anticipation of the happy, care-free days to come. A strange and incongruous sight, was it, this Robin Hood crew, looking as though it might have been transported bodily from far-away Sherwood Forest and plumped down suddenly in a metropolitan railway station, and the few ordinary travelers abroad at that early hour rubbed their eyes and stared in mild wonderment as the tripod was erected and the dunnage weighed. It might have been thought to be some queer ceremonial performance but for the laughter and hilarity it provoked when some unlucky wight found his bag was overweight. Jests and jibes were exchanged, greetings shouted and backs were slapped with resounding whacks as friends and comrades of former hikes met for another glorious outing.

The weighing finished, dunnage bags were piled high on the car platform, "All aboard!" was called and the hikers trooped into their cars and were off. At Tacoma the contingent from that city joined us and there were more greetings and hilarity, and in a twinkling it seemed, so quickly passed the time, we were at Ashford. Here the smooth working of the management's machinery began to manifest itself, for the big auto busses, each labeled with a number on a picnic plate, were all lined up to receive us, and each member of the party delivered his bag and took his seat promptly in the machine to which he had already been assigned. Bags were strapped on behind and piled high from fender to fender over the engine, and an exhilarating run through the cool forest over the splendid government road all too soon ate up that shortest of fourteen-mile journeys and landed us at the Inn just at dinner time. After a short stop for our last table luncheon for three weeks, we were whirled away again a few miles farther up the road, where we disembarked, and after being posed and then bombarded by several photographers, started on our long pioneering hike around the mountain.

Taking the pony trail, we soon reached the foot of old Nisqually, from which point we followed the steep glacier trail up and up through mists and cloud till we found ourselves panting and perspiring about half a mile below Reese's Camp in Paradise Valley. Quarters were designated for the women on one side of a low ridge, and for the men



**MOUNT RAINIER
FROM VAN TRUMP PARK**

Chas. S. Gleason

Elevation 5,000 feet. View due north from this easily accessible park seldom visited by the tourist, showing Mildred Point in the middle distance, with Pyramid and Kautz glaciers on the left, Van Trump Glacier on the right and Peak Success rising above the clouds.

on the other, each with a little brooklet gurgling through on its way to join the torrent flowing from the tip of the glacier. Individual reservations were staked by jabbing alpenstocks into any particular spots which looked inviting, and then, to help dispel the pall of thick mist and to cheer up the tired cohorts while waiting for the packtrain to arrive with dunnage, a rousing bonfire was built. Dunnage and commissary arriving at last, a busy scene followed, Cook Tom and his assistants putting up shelter for the stoves, roping off the kitchen, and starting the preparation of supper, and every member of the party working like a beaver putting his happy home in order. Straightway Number One Camp came into existence, and when the shrill whistle announced grub, there was a grand rush of the hungry hordes to get into the line. To one unaccustomed to the life it was all cause for wonderment, the quickness and ease with which things were done, the indifference to minor discomforts and annoyances, the universal gay good nature and good fellowship—and then the luxury of the menu! Whoever heard of baking powder biscuits so delicate that they would melt in your mouth, made and baked in a trice away out in a damp, dripping forest? Before the journey ended though, this tenderfoot learned that Tom, Fred, and company are wizards, past masters in the art of turning out under any and all kinds of handicaps in the deepest and wildest forest menus that would tickle the palate of the most fastidious patron of a metropolitan hotel.

As the subject of camp fires is to be treated in a separate article, this narrative of the days' doings will naturally end with the sunset, and there wasn't any sunset that first day. We went to our downies decidedly under a cloud. The cloud lifted during the night, however, and we rose to greet a glorious new day and to get our first view of His Majesty, the Mountain. It seemed so near and looked so inviting in its beautiful white mantle, one felt tempted to run up to the summit before breakfast just to work up an appetite, but on second thought one realized there wasn't time for that, and by the time one got into his clothes and washed his face, breakfast was ready, and so was the appetite.

This was Sunday, August first, and a trip up Pinnacle Peak was the order of the day. It was "follow the leader" down the valley to Paradise River, across this and up the steep ridge on the other side, then down again to Reflection Lake. Here, after a rest, companies were formed, and captains were appointed and for the rest of the climb it was company formation. Lunch was taken beside the cascades of Pinnacle Creek a little below the glacier, and I never knew before how good a lunch could be made of hardtack and cheese, nuts and raisins, with fresh-laid glacier water to wash it down. After a good rest—which I confess some of us chechakos welcomed—we resumed the ascent, in due time reaching the saddle by way of the glacier. Here some of the party remained, while the rest of us, thirty-seven in number, pushed on

along the trail on the south side of the peak and finally up the steep rocks to the tip top. The atmosphere was fairly clear, Adams and St. Helens stood out beautifully but Hood was obscured. It was an inspiring panorama and made one wish to linger and feast his eyes on it, but after a brief stop and an inspection of the government bench mark, 6,562 feet, we wrote our names in the club's register and descended.

It was a stiff tryout, that first day's climb, and a tired crowd that straggled into camp that evening, but the next morning found everyone rested and refreshed and ready for the work of the new day, which was to land us in Van Trump Park. We were whistled out of our warm nests at the ghostly hour of four, dunnage was packed, breakfast served, and we strolled leisurely up to Reese's Camp, where we were objects of curiosity to the sleepy guests of that hostelry as they tumbled out to see the invaders. A mile or so above here on the high bank of the glacier the line formed in companies and the descent was begun for the crossing of the Nisqually. This to many of us was a novel experience, and although on account of the very numerous crevasses it occupied over three hours, it was most interesting. The scouts were kept busy hunting a way out through the sometimes intricate tangle of crevasses, and sweaters and extra wraps were called into use during the long waits. The crossing was safely accomplished at last, and a halt for lunch was called part way up a steep ice slope on the opposite bank beside the usual dashing torrent. From here we were led up to well over 7,000 feet, at which altitude we crossed the Van Trump Glacier, now in sunshine, and now in swirling masses of cloud. Numerous signs of goats were seen, tracks in the snow and wisps of wool on the bushes lower down, but the wily creatures themselves kept well out of sight.

The long descent into Van Trump Park took us deeper and deeper into the mist, and on our arrival there one could see no mountain and no park. The pack train was not all in and commissary was short, but Tom managed to deal out to each a cup of hot clam broth, hardtack, a small slab of pressed beef and a cup of tea, and no seven-course banquet ever tasted finer. By nine o'clock dunnage arrived, Camp Two was soon completed, and after a jolly time around the big fire, the warmth of which was much appreciated, we turned in. The roar of the creek close by was so loud that one of the men wakened with a start during the night and thought an avalanche was descending upon us.

The sky line course to Indian Henry's had been planned for the next day, but owing to the prevailing dense fog it was decided to take the valley trail through the forest, and the go-as-you-please was started soon after breakfast. We arrived at Camp Three beside Mirror Lake in brilliant sunshine, and the most magnificent view yet seen was spread before us. The Hunting Ground itself was charming, and a ptarmigan and chicks seen by some of us gave significance to the name. An abysmal gorge, at the unseen bottom of which the roaring Tahoma



**CROSSING
NISQUALLY GLACIER**

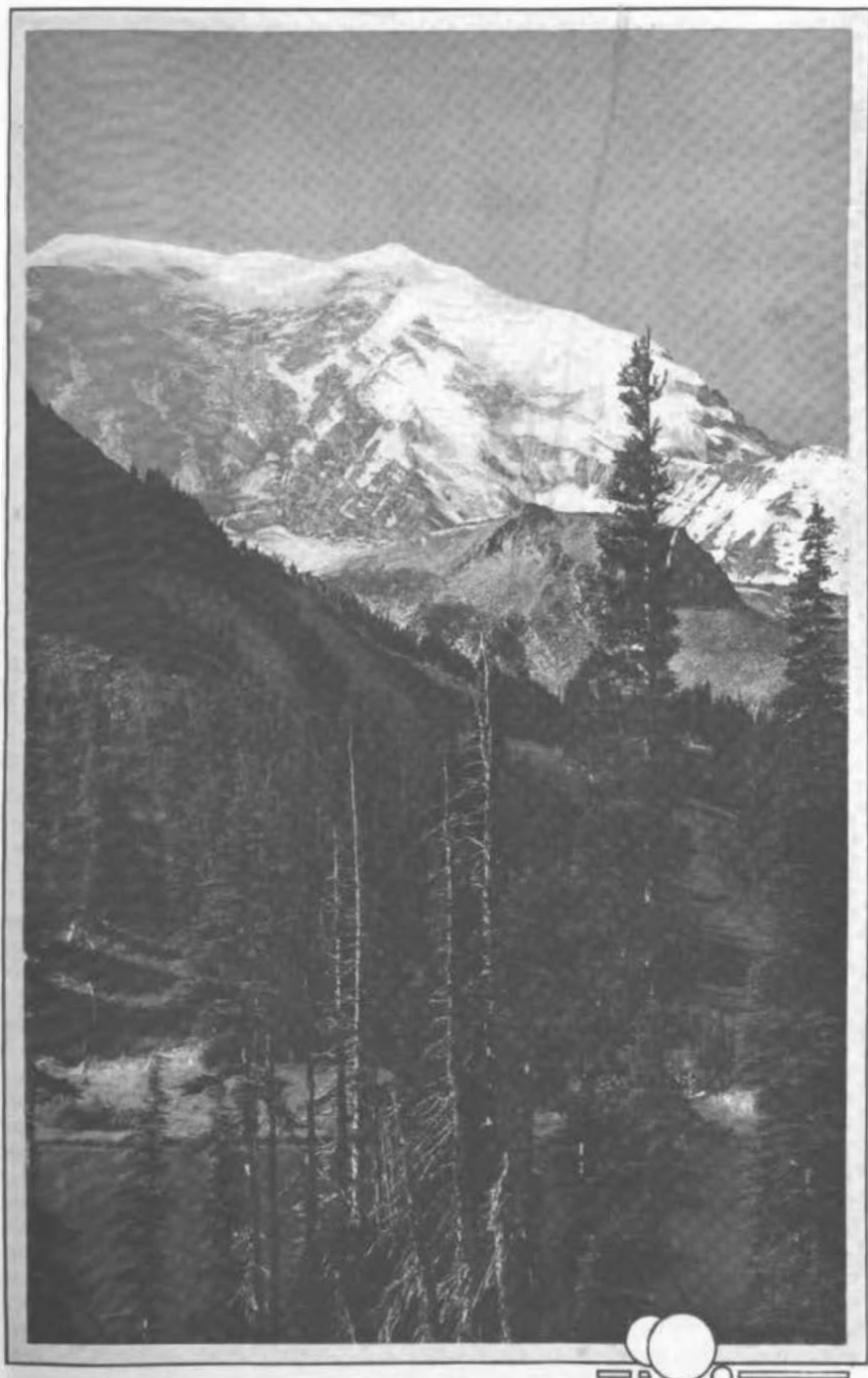
**WAUHAUKAUPAUKEN
FALLS**

C. R. Corey
The glacier was about a mile wide at this point (elevation 6,200 feet) and badly crevassed toward the western side, necessitating great care by the party.

T. C. Smith
The first of a series of many beautiful falls in the Ohanapecosh below Indian Bar.

could be heard, separated the park from the dome which was so near, however, that as one sat on the brink and attempted to write a letter the cold emanating from the vast glacier field opposite benumbed the fingers, while the afternoon sun roasted the back. From here one looked across to the great rock mass of Glacier Island rising high above the immense fields of ice surrounding it, which it splits into the South Tahoma and the larger Tahoma Glacier proper. To the right was Pyramid Peak and reaching up toward the summit from it the rugged rocky Success Cleaver, terminating far aloft in the snowy Peak Success, while to the left, as far as one could see, stretched the abyss. Some of the more ambitious ones climbed the Pyramid during the afternoon, and a few, Mount Ararat in addition, but most of us were content to be lazy and we slept, wrote letters, and basked in the warm sunshine while drinking in the marvelous views.

On Wednesday, August 4, rising call sounded at 4:30 and we awoke to find ice in our drinking cups, and sleeping bags white and stiff with frost but across the valley was a fairy scene, long to be remembered, a most charmingly beautiful moonlight illumination of the mountains. The day soon warmed. A forest trail led to St. Andrews Park, twelve miles (so the leaders said, though it seemed nearer twenty before we finished it), first down and down to the bottom of the bottomless gorge, across Tahoma Creek on a huge fallen tree, then up and up and up on the switchbacks, past the three lovely falls of St. Andrews Creek to the snake trail leading into the park. This faintly marked way we followed for a couple of miles when we were halted to wait for news of the pack train. A refreshing swim in the ice cold creek, a big fire and songs whiled away an hour or two delightfully. Then came orders to retreat a mile to meet the pack train which was delayed and would not be able to get into the park that night. Camp Four was made in the forest primeval and the softest of beds were found on the thick moss in the hollows between fallen trees. This was a two-night camp so that most of the party took the opportunity the following day to visit St. Andrews Park proper. The lower bench of this park is a beautiful meadow with deep grass, alpine firs, and a crystal stream. The upper bench is filled by a little lake which later in the day made a fine swimming pool. Its outlet is subterranean by way of a big hole under a log into which the discharging waters rush with a deep throaty roar. Climbing the great cleaver between the Tahoma and Puyallup glaciers, the stupendous west side view was before us, Tahoma and Glacier Island on the right, the Puyallup glacier with its spouting serpent's tongue tip hanging far down the cliff into the vast and rugged gorge to the left, and over all, that marvelous dome! It was a sight to make one gasp and gaze in silent awe and wonder. The might, the magnificence, the splendor, the titanic proportions of it all must be seen to be appreciated.



A. H. Denman

**WILLIS WALL
FROM MYSTIC LAKE**

This wall of rock rising above the head of the Carbon Glacier is over 4,000 feet high. The vertical cliff of névé snow at the top is about 200 feet high. From time to time beautiful avalanches are seen breaking away.

August 6, a fourteen-mile jaunt over the recently completed government trail brought us to Camp Five at Elbow Lake in Sunset Park, a beautiful amphitheatre dotted with the usual tall conical fir trees and partly surrounded by a high forested rocky ridge—the lower portion of the cleaver separating the Puyallup and South Mowich glaciers. This was a fine camping ground with several small lakes. Here another two-night camp was made, and on Saturday a large party climbed the cleaver to its apex where the government bench mark, 6,965 feet, was found, but owing to a dense fog which prevailed no views were obtained. A roster of the climbers was cached here in a celluloid tooth brush holder, the only weather-proof receptacle found in the party, and the rest of the day after returning to camp was spent in loafing.

Camp Six was at Crater Lake which was reached the following day after a rather strenuous sixteen-mile grind, involving the loss of several thousand feet of elevation which had to be made up—and then some. A one-night stay here and then a short hike past the lovely Spray Falls brought us to Camp Seven in the upper part of Spray Park, with Hessong Rock on one side of us and Ptarmigan Ridge on the other. Here again small lakes provided opportunities for swimming, and after lunch one small party climbed Hessong Rock and another Echo and Observation rocks, but most of us loafed and did our washing. Messrs. Gorton and Hazlehurst left us here to go ahead and do some scouting for the big climb, the time for which was approaching. From Spray Park on, for several days, we were glad to leave the trail to the pack train, while we took to the rocky steeps, the snow banks, and glaciers. August 10 took us across the great Carbon Glacier, with its monstrous load of rock and gravel dumped upon it by the frequent avalanches which plunge from Willis Wall, through Moraine Park, and down into the lovely little valley of Mystic Lake where we made Camp Eight. It was here we began to get on intimate terms with the festive and seductive huckleberry, which from that time on for the rest of our journey proved a serious obstacle to anything like steady and soldierly marching. Here Mr. Gorton returned and reported that Mr. Nelson and Mr. Albertson had come into Glacier Basin and would make the preliminary climb the next day with Mr. Hazlehurst.

A second day was spent at Mystic Lake but no trip could be made on account of dense cloud. Boots and packs were made ready for the summit climb and the whole camp began to take on a certain tenseness of atmosphere in anticipation of the coming ascent. This was increased in the evening when Hazlehurst, Nelson, and Albertson came down from the heights and reported all sunshine above so that they had been able to scout a good route to the saddle, 13,500 feet. Above that it had not been necessary to go because the rest of the way is almost all bare ground. Had August 12 been a clear day it would have marked the beginning of the big climb but it dawned dark and threatening, so it

was deemed unwise by the leaders to attempt it, and the whole party went over into Glacier Basin via Winthrop Glacier and St. Elmo Pass. The Winthrop was most interesting with its huge crevasses and seracs and its lateral loads of rock derived from Russell Cliff on one side and Steamboat Prow on the other. The clouds cleared away and a magnificent view was obtained from the pass. Camp Nine was well down in the Basin, a clear drop of 1,500 feet from the pass which would have to be made up next day and added to 1,500 feet more in reaching Camp Curtis, from which point the ascent was to be made.

Friday, the thirteenth, was a lucky day. The climbing party, fifty-seven in all, after an early lunch loaded up their packs, and in strict company formation started up the Basin for Camp Curtis at twelve-thirty, going part way up the pass trail and then on the Inter Glacier. The Basin was sizzling hot and the packs felt like ton weights, but little by little, with short stretches and frequent breathing spells we gained the glacier, and from that on it was more comfortable. Camp Curtis, a mere barren ridge of rock at 9,000 feet elevation separating the Inter Glacier from the great Emmons, was reached in the very fair time of three and one-half hours. Soon a strange spectacle presented itself; the women were assigned quarters on the lower part of the ridge and the men higher up, and forthwith every mother's son and daughter was working like a beaver, literally scratching gravel to find a soft spot to sleep on. Dug down to a reasonably fine grade of gravel, the areas were leveled and buttressed and surrounded with boulder walls to keep out the keen wind that blew over the ridge from the glaciers close by, and in the course of an hour one might have thought he stood in the midst of an ancient cliff dweller's settlement. Apartments, single, double, and multiple, sprang up like magic, and some of the more enterprising builders began to advertise apartments to rent. Meanwhile Tom and company had built and covered a kitchen, and presently announced supper, which consisted of a cup of hot soup, made on a diminutive oil stove, one spoonful of beans immersed in the soup, and two pieces of hardtack. It was powerful good and tasted like more, but that was the limit. After supper a half grown goat wandered up to the edge of the camp and secured a good deal of attention, especially from the photographers. Good views were obtained at about one hundred feet, and then the pretty creature scampered over the rocks and disappeared across the glacier. Taps was sounded at seven, and every one, having first donned all the clothing he had with him, crawled into his sleeping bag and rested as well as he could on his stony mattress.

Rising whistle sounded at four and everyone was up in a trice. Some delay was experienced owing to difficulty in getting the water to boil, but it was finally accomplished, and after a cup of hot tea and a bite of zwieback, the line formed and we were on the march at five, descending immediately to the Emmons Glacier, on which practically



J. M. Gould

CLIMBING MOUNT RAINIER

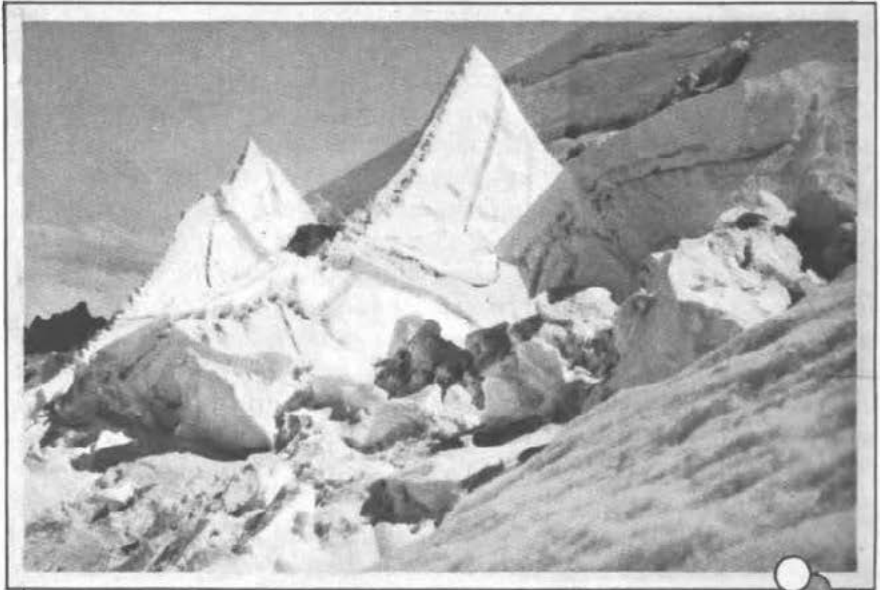
The men ahead are kicking steps in the snow to make traveling easier and safer for every one in the line. The Mountaineers do not rope members of the party together, but in dangerous places a lifeline is stretched, anchored at intervals with alpenstocks. Used as a hand hold this gives sufficient aid and protection.

the entire ascent was made. Scouts and step kickers went ahead. Dr. Hinman set the pace, and the rear guard looked out that there were no stragglers. It was a wonderful climb, painstakingly planned, masterfully paced, and doggedly put through by everyone in the line with cheerful patience and unflagging determination. The sunrise was gorgeous and so was the ever widening horizon of scenery in spite of a faint haze that filled the air. Much might be said of this and of the fantastic, weirdly beautiful snow and ice formations with which we met, but lack of space prevents. Suffice it to say that with frequent brief breathing spells and two longer stops for rest and lunch, our zigzag line of march at length took us over the saddle, up the loose rock and pumice side of the old volcanic cone to the edge of the crater, and at last, after nine hours and forty minutes, at 2:40 p. m. we stood on the top of Columbia Crest.

The party at once posed itself, the United States flag and the Mountaineers' banner were unfurled, and the photographers got busy. Then the roster was signed by everyone and cached in the bronze record box among the rocks of the crater rim near the Crest,* Register Rock being too far away and the time too short to permit of depositing it there. Reluctantly the descent was begun at three o'clock, only twenty minutes being allowed on the summit, because on the east side of the mountain the upper slopes are early in shadow and the cold might make the downward journey difficult and even dangerous for tired climbers. An eager scanning of the horizon and survey of the summit, however, during those few moments served to print upon the memory a picture never to be forgotten. I was especially anxious to get an idea of the topography of the summit itself, and a rough sketch made in my note book at the time shows the huge truncated cone to lodge a double crater on its top, the two openings lying approximately east and west of one another, separated by a rock ridge and sloping away from one another like the two sides of a low-pitched roof. Each is nearly completely surrounded by a rock rim, and each holds a great concave field of snow in its lap. The eastern opening is about 1,600 feet across, and the western perhaps 1,000 or 1,200. On the north end of the separating ridge, converging air currents have piled a big mound of hard packed snow, several hundred feet wide and some fifty feet high, and this is Columbia Crest, the highest point on the mountain.

The descent was swift, many short cuts being taken, and Camp Curtis was reached in three hours. Here friends from the Basin camp greeted us and served hot bouillon and hardtack which was most welcome. After a brief rest packs were shouldered, and the return to the main

* Mr. Jasper M. Gould, who placed the record box, makes the following statement: "The location was on or near the rim of the crater on the highest point of ground, about 300 feet from where we lined up to have our pictures taken and sign the record. The chain of the record box was wrapped three times around a stake, or post, about 2½ inches in diameter and 2 feet high, around which was piled a heap of rock. I also covered the record with more rock but the post still sticks up through the rock at least 18 inches."—Ed.



**SNOW PYRAMIDS ON
THE EMMONS GLACIER**

LUNCH ON THE CLIMB

L. A. Nelson
Four of these pyramids formed by the action of the wind were found close together. They were symmetrical in form and very beautiful.

T. C. Smith
Little Tahoma (11,117 feet) to the right. Only three rests other than standing ones were taken on the climb.

camp was made in another hour and a half. Strange to say, by the time we reached it our weariness had largely disappeared, supper was dispatched with the usual eagerness, and most of us were ready for the camp fire fun. Thus ended a great day.

A third of the trip still remained, but while the days were as full of enjoyment and the scenery as magnificent as during the first two weeks it must all be touched upon briefly. Crossing the great Emmons and Frying Pan glaciers the day after the climb, we made camp in beautiful Summerland. Here an extra day was allowed for rest. Two climbing parties started out for short trips but were caught in a thunder storm—the only one of the entire outing—and had to return without reaching their objective points.

On the seventeenth we hit the sky line for Ohanapecosh Park, crossing another portion of the Frying Pan and taking the pack train with us. On one steep hill alongside the glacier, we had to make a long piece of trail for the horses. It was interesting work but the astonishing



MOUNT RAINIER FROM COWLITZ PARK

L. F. Curtis

thing was to see the pack animals make the climb and then cross the ice and snow-fields far above. Some very fine views were obtained and Camp Eleven was made in an imposing setting, deep in a valley surrounded by cliff, glacier, and forested ridge, torrents leaping from every side and joining to swell the wild boisterous Ohanapecosh River with its picturesque falls, Wauhaukaupauken, and the convenient rock bath tub a short distance below camp. And oh, the huckleberries!

Many declared that Ohanapecosh Park was the most attractive camp site on the trip, and the vote was practically unanimous that the extra day our time schedule allowed be taken here instead of in Paradise Park. This allowed a side trip up the south wall of the valley and over into the Cowlitz country where magnificent views of Cowlitz Glacier and part of its basaltic side walls were obtained from a ridge high above. Adams, St. Helens, the Tatoosh, and Gibraltar were reminders that we had nearly completed our circuit of the mountain. The same day two of the men made the difficult climb of Cowlitz Chimneys. Leaving

Ohanapecosh an old, deeply worn Indian trail led southward along the ridge of Cowlitz Divide, joining at last with a more modern trail that dropped down to Nickel Creek, where Camp Twelve was made in a deep somber forest, similar to the one in St. Andrews Park.

The trail of the next day took us across the wonderful rock gorge through which, two or three hundred feet below the surface roared the Muddy Fork of the Cowlitz River, then up the hot and dusty burn of Stevens Canyon, past Lake Louise to the top of Mazama Ridge, close beside Sluiskin Falls. This was Camp Thirteen, and reaching it, the circuit was really completed, as it took us back into Paradise where we had started. The views from here by daylight were magnificent and by night enchanting. The full moon to the south of the Tatoosh threw that rugged range into a weirdly beautiful silhouette, while it flooded the noble old dome of the mountain with the "light that never was on land or sea."

Saturday, the twenty-first, we hiked down to Longmire's following beautiful Paradise River, thence to Tahoma Fork near the park entrance. Here Camp Fourteen, the last, was made, once more in a Robin Hood forest amid the giant firs, and the next day we were whirled down to Ashford in the big autos, singing like mad to keep our spirits up, thence by a commonplace, prosaic old railroad train to Tacoma and Seattle, where we were promptly swallowed up in the surging crowds of ordinary mortals who know not the mountains, the glaciers, the big forests, the roaring cataracts, the thrilling climb, the soul-expanding view, and who never lived for three glorious weeks above the clouds.

ITINERARY OF THE 1915 OUTING

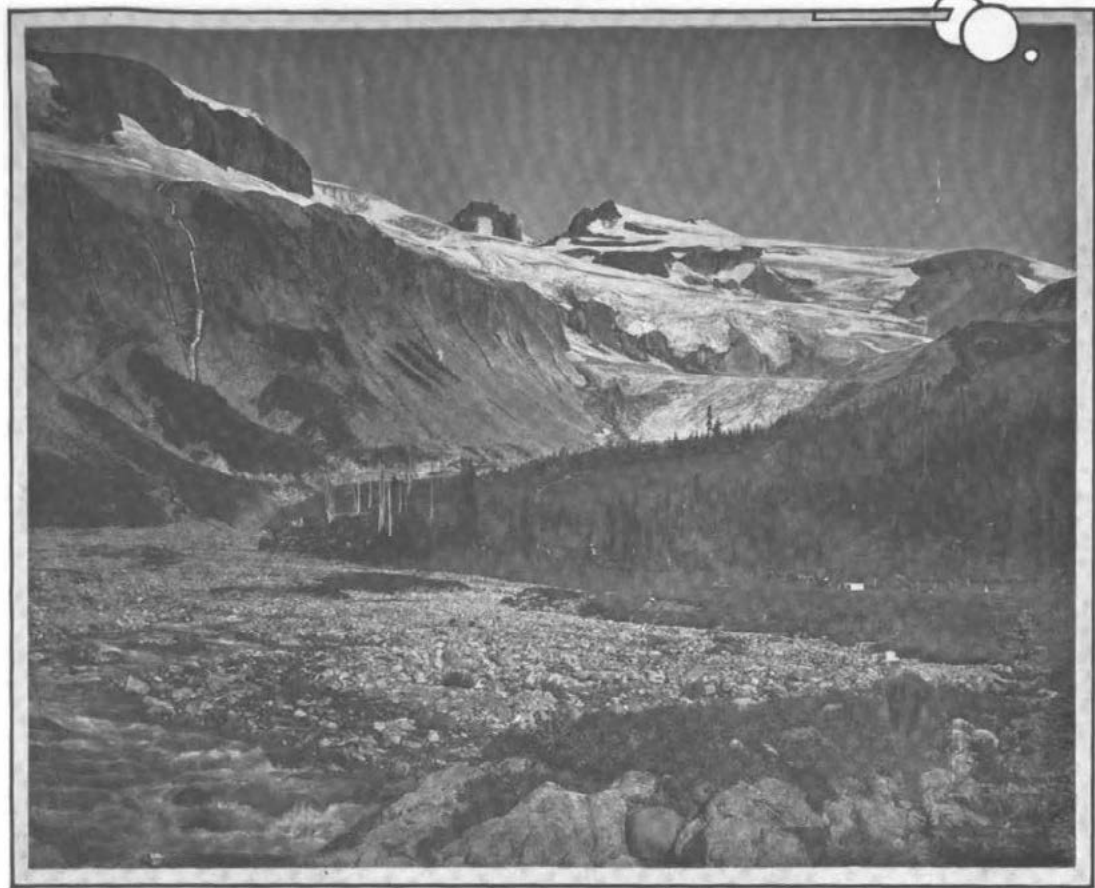
H. A. FULLER

- July 31. Seattle to Ashford via Chicago, Milwaukee & St. Paul Railway and Tacoma Eastern Railroad; automobile to about three miles above Longmire; Glacier trail to Paradise Park. Camp 1, 5,300 ft.
- Aug. 1. In camp. Climb of Pinnacle Peak, 6,562 ft., in Tatoosh Range. Record cylinder number 4 deposited at summit.
- Aug. 2. Across Nisqually and Van Trump glaciers to Van Trump Park. Camp 2, 5,400 ft.
- Aug. 3. Trail over Rampart Ridge to Henry's Hunting Ground and Mirror Lake. Camp 3, 5,400 ft. Climb of Pyramid Peak, 6,937 ft. Record cylinder number 5 deposited at summit. Climbs of Mount Ararat, 5,996 ft., Iron Mountain, 6,200 ft., and Crystal Mountain, 6,306 ft.
- Aug. 4. West Boundary trail via Tahoma Creek, Round Pass, and South Puyallup River to St. Andrews Creek. Camp 4, 3,800 ft.
- Aug. 5. In camp. Trail to St. Andrews Park and climb to ridge above, 6,838 ft.
- Aug. 6. West Boundary trail, crossing Klapatche Ridge and North Puyallup River to Elbow Lake, in Sunset Park. Camp 5, 5,300 ft.
- Aug. 7. In camp. Climb of ridge between North Puyallup and South Mowich rivers to B. M., 6,965 ft.

**INDIAN BAR
IN
OHANAPECOSH
PARK**

A. H. Denman

Ohanapecosh Glacier in the background to the right. Sixteen cascades were counted falling over the cliffs to the left from the snow fields above. This valley has been a favorite huckleberry ground of the Indians for centuries.



- Aug. 8. West Boundary trail by Golden Lakes, crossing South and North Mowich rivers to Mowich trail and Crater Lake. Camp 6, 4,929 ft.
- Aug. 9. Trail via Eagle Cliff to Spray Park. Camp 7, 5,800 ft. Climb of Fay Peak, 6,500 ft., and via Knapsack Pass and Mist Park to Spray Park. Climb of Hessong Rock, 6,149 ft. Climb of Echo Rock, 7,862 ft., and Observation Rock, 8,364 ft.
- Aug. 10. Through Seattle Park, across Carbon Glacier, and through upper Moraine Park to Mystic Lake. Camp 8, 5,700 ft.
- Aug. 11. In camp. Fog prevented any side trip.
- Aug. 12. Across Winthrop Glacier and over St. Elmo Pass to Glacier Basin. Camp 9, 5,900 feet.
- Aug. 13. Party of fifty-seven starting for ascent of mountain, with sleeping outfits and commissary supplies climbed Inter Glacier and remained one night at Camp Curtis, 9,000 ft. Others remained in camp at Glacier Basin.
- Aug. 14. Party at Camp Curtis climbed via Emmons and Winthrop glaciers to Columbia Crest, 14,408 ft., and returned to Glacier Basin. Record cylinder number 2 deposited in rocks of crater rim near Columbia Crest. A party of those who had remained in Glacier Basin climbed to Steamboat Prow, 9,702 ft. Another party climbed Skyscraper Mountain, 7,065 ft.
- Aug. 15. Across Emmons Glacier and part of Fryingpan Glacier to Summerland. Camp 10, 5,900 ft. Climb of Goat Island Mountain, 7,301 ft.
- Aug. 16. In camp. Climbs of Fryingpan Glacier and Little Tahoma discontinued on account of thunder storm.
- Aug. 17. Along east end of Fryingpan Glacier to a saddle in the dividing ridge between Fryingpan Glacier and headwaters of Boulder Creek, to Indian Bar in Ohanapecosh Park. Camp 11, 5,100 ft.
- Aug. 18. In camp. Climb to Cowlitz Park and a summit on Whitman Crest, 9,364 ft.
- Aug. 19. Trail along Cowlitz Divide to Ohanapecosh trail; west to Nickel Creek. Camp 12, 3,300 ft.
- Aug. 20. Ohanapecosh trail across Muddy Fork of Cowlitz River; up Stevens Canyon and past Louise Lake; north on Mazama Ridge to Sluiskin Falls. Camp 13, 6,100 ft.
- Aug. 21. Trail and road down Paradise Valley and Nisqually Valley to Tahoma Creek. Camp 14, 2,150 ft.
- Aug. 22. To Ashford by automobile; Tacoma Eastern Railroad to Tacoma; Puget Sound Electric Railway to Seattle.

Camp sites were marked by nailing to a tree a triangular aluminum plate inscribed "The Mountaineers, Camp No.,, 191....."

Distance walked not including climbs or side trips about 120 miles.

Note: Drawing to show route on Mount Rainier National Park topographic sheet done by Redick H. McKee from daily record kept by H. C. Belt.

MEMBERS OF THE 1915 OUTING

OUTING COMMITTEE

*J. H. Weer, chairman *F. Q. Gorton *Charles Hazlehurst

LEADER OF CLIMB

*L. A. Nelson

MEMBERS OF PARTY

*Acheson, Nelson H.	*Kratsch, Ida Rose
*Acheson, Thos. J.	*LaFollette, Frances
Alcott, Mary E.	Lytle, Mary
*Anderson, Wm. H.	*McBain, Mabel E.
*Bailey, Winona	MacFarland, Winifred
Baker, Mary N.	Martin, Harrison B.
*Belt, H. C.	Meacham, Alma
Bigelow, Alida J.	Meany, Edmond S.
*Bishop, Lottie G.	Mudgett, Mary
*Burroughs, Edna	*Nettleton, Lulle
*Cameron, Crissie	Noel, Blanche
Campbell, Margaret	*Olson, Karen M.
Clark, Mrs. Whit H.	Prettegiani, Mary J.
*Clark, Whit H.	*Pritchard, C. R.
*Collins, Winfield G.	*Quigley, Agnes E.
Corey, C. R.	*Reinoehl, F. L.
*Coursen, Edgar E.	*Reneau, Miss Geo.
*Curtis, Leslie F.	*Rogers, Dr. Philip F.
*Deiwert, Myron M.	*Scholes, Emma D.
Denman, A. H.	Scholes, Josephine T.
*Densmore, H. B.	*Schwedler, E.
*Dickerson, Elizabeth	Shelton, Mary E.
Dunmore, Blanche	Smith, Jessie B.
*Eckelman, E. O.	*Smith, O. J.
Engle, Lillian	*Smith, T. C.
*Evans, Alice	*Sorge, Wm. F.
*Firmin, Kate M.	Streeter, Agnes
Frake, Emily A.	Streeter, Lillian
*Frazeur, Mrs. Laurie	Tayler, Helen
Freeborn, Helen S.	*Todd, Luella
*Fuller, H. A.	*Tremper, Henry S.
*Furry, Mabel	Tuthill, Frank H.
Gillette, Cora M.	*Varley, J. A.
Greenleaf, Joseph T.	*Wagen, Alma D.
*Greiner, Dr. F. W.	Wall, Florence M.
Hanna, Ruth	*Wedel, J. J.
Harford, Fred L.	*Weer, Mrs. J. H.
*Hargrave, Margaret	Weer, Mrs. Natalee
*Hinman, Dr. H. B.	Wilson, Ruth K.
Hull, Lorena D.	Withington, Wilfred
Kidd, Jessie A.	Wynn, Inez
Kirkwood, Elizabeth	Yockey, Mildred
*Kool, Jan	

*Reached summit of Mount Rainier.

Members of The Mountaineers who joined the party for the climb:

- | | |
|-------------------|--------------------|
| *Bremerman, G. F. | *Marzolf, H. E. |
| *Marzolf, W. A. | *Wainwright, R. S. |

COMMISSARY DEPARTMENT

- | | |
|------------------|------------------|
| *Snively, Tom P. | McCullough, Jas. |
| Thorpe, W. Fred | *Gould, Jasper |
| Litch, Norris | *Paulson, John |

PACKERS

- | | |
|-------------------|-----------------|
| Anderson, John W. | Wright, Nip |
| Meloy, Joel | Sisk, Hobart |
| Goodwin, J. M. | Whitehouse, Art |
| Collier, Isham | |

*Reached summit of Mount Rainier.

OUTING PRELIMINARIES IN SCOUTING AND TRAIL WORK

J. H. WEER



AS early as 1909 and for several years thereafter, officers and members occasionally discussed the encircling of Mount Rainier and looked forward to it as a possible outing for The Mountaineers. In 1911 J. B. Flett and C. A. Barnes, Jr., encircled the mountain on a knapsack trip, travelling well above the timberline, crossing glaciers and descending into the timberline parks to camp at night. They repeated the trip in 1912, Calvin Philips, Jr., and J. H. Weer being added to their party for the second trip. It remained for Charles Albertson and H. B. Bennett to make an extensive encircling trip in the fall of 1913, covering not only the higher route, but exploring as well all the principal timberline parks, gaining first-hand information as to their respective attractions and merits as camping places, and making investigations as to the feasibility of people and horses traveling from park to park. Following this trip they made a report to the Trustees, which, after announcement of the intention of the Department of the Interior to construct a round-the-mountain trail, resulted in the Trustees selecting Mount Rainier National Park as the scene of the 1915 outing. This trip of Messrs. Albertson and Bennett, therefore, comprised the greater portion of the scouting for the 1915 outing.

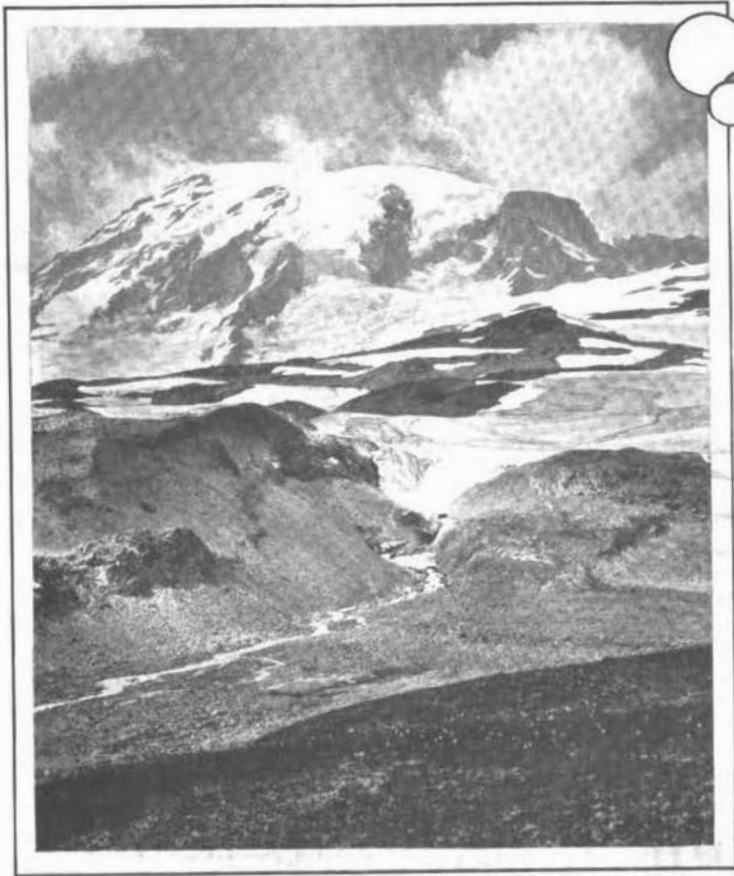
In the fall of 1914 Mr. Bennett again visited some of the remote portions of the park, in company with Chas. M. Farrer and completed the location of a feasible route for a trail over a difficult divide to

connect Summerland and Ohanapecosh parks. Much credit is due for the locating of this route, which played the most important part in making possible The Mountaineers' visit to Ohanapecosh Park and its surroundings.

Several trails had been in existence for years in the north and south portions of the park, but new trails in the eastern and western portions to connect the already existing trails, and repair of the latter, were essential for this outing. The route selected by the Department for the new work was for an outer-belt trail, principally in the forests of the park, which would be open for travel during a considerable portion of the year, branch trails to be constructed in later years to make accessible many portions of the park not yet open to travel. Construction work on the east and west side trails was begun by the Government crews, under Supervisor Ethan Allen, late in the year 1914, and continued with good progress until stopped by the approach of winter. Thus most of the scouting had been done and some of the new trail completed before January first, when the 1915 Outing Committee was appointed. The holding of the 1915 outing and construction of trails as proposed by the Department were closely allied, for while the new trails were for the use of the public, they were at the moment of chief interest to The Mountaineers, since that organization planned to be the first to use the encircling trail in its entirety.

Following the appointment of the 1915 Outing Committee frequent conferences were had with the Park Supervisor and correspondence was carried on with other Department officials, to keep in touch with plans for and progress of trail construction. Mr. Stephen T. Mather, Assistant to the Secretary of the Interior, who has jurisdiction over all National Parks and Mr. Mark Daniels, General Superintendent of National Parks, early showed hearty willingness to expedite the trail construction and repair work, so that it would be completed early enough for The Mountaineers' outing to be held at the desired time and without serious obstacles for their pack train. By these gentlemen, allotments of funds were made and authority given for pushing forward the trail work.

Work was hardly begun in the spring of 1915, under Supervisor J. J. Sheehan, when a change occurred in the office of Park Supervisor and all work was temporarily suspended. Mr. D. L. Reaburn succeeded to the position, and he immediately organized and placed in the field three efficient trail crews under the able direction of Messrs. Thos. E. O'Farrell, Ben Longmire, and Wm. Stafford, respectively, at the same time showing as much interest in executing the work as though it were his own enterprise, with the result that the end of July saw the trails ready for travel. At the special request of The Mountaineers, to whom the work was of great interest for this occasion, Mr. Reaburn also arranged for the construction of two additional stretches of trail for



**PARADISE GLACIER
FROM MAZAMA RIDGE**

In 1870 the Paradise Glacier came almost down to Sluiskin Falls in the Paradise River, just beyond the point shown in the lower left hand corner of the picture.

T. C. Smith



**THE OUTING
COMMITTEE**

The men who planned the outing and successfully conducted the first large party to completely encircle Mount Rainier. From left to right, Charles Haslehurst, J. H. Weer, F. Q. Gorton.

T. C. Smith

first use on this Outing and which will be enjoyed by many in years to come. The most important of these was the one heretofore mentioned, to connect Summerland and Ohanapecosh Parks, crossing, midway, the eastern extremity of Frying Pan Glacier. To travel over the outer-belt trail in the eastern portion of the park would have taken our party to a comparatively low level, in valleys far to the east of Summerland and Ohanapecosh Parks, making it difficult, if not impossible, to visit these two parks but for this high-line trail. The 1915 Outing party will long remember their interesting experience in building a steep switch-back trail with their hands and alpenstocks, for a short distance around the east edge of Frying Pan Glacier, to provide passage for the pack train on account of the unusual snow and ice conditions this year preventing the horses from crossing the glacier as intended. The other special piece of trail work was the opening of a temporary snake trail, leading from the main west side trail, up the valley of St. Andrews Creek to the meadows in lower St. Andrews Park. This trail will be very useful pending the building of a permanent trail at a higher level into upper St. Andrews Park.

Members of the Outing Committee during the spring and summer of 1915 made a number of short trips into the park, principally to select routes for the party to travel where trails were not to be followed and to locate the various camp sites.

ROCKS OF THE HILLS

Have you climbed among rocks in the mountains,
Great rocks in the rough sculptured hills;
Have you felt you were near the world's morning
Where order from chaos fulfils
One of God's primal laws of creation?
O, then may you learn of the hills.

Have you laughed when a wind swept the summit
And swirled around pinnacled rocks;
Have you sought a secure granite fortress
To brave all the gale's battle shocks
Until peace found the wings of a sunbeam?
O, then may you love the grim rocks.

Have you watched the wee folk of the boulders
Who scamper to rock sheltered home;
Have you thought that perhaps the Creator
Hung high in the heaven's blue dome
A star over each little household?
O, then may the hills be your home.

EDMOND S. MEANY.



H. B. Hinman

CRATER LAKE

The largest lake in Mount Rainier National Park. It occupies a horseshoe shaped basin formerly supposed to be of volcanic origin, but now known to have been formed by glacial erosion.

CAMP FIRE REFLECTIONS

RUTH HANNA

FROM the day years ago, when we first took our little tin pails and started for the woods to have a fire and make coffee, down to these weeks each summer when we go out with a hundred others to live over again some of the joys of primitive existence, the lure of the camp fire has grown stronger and stronger, increasing its hold with each succeeding summer. There is occasionally, the quiet, intimate companionship which centers around the tiny fire in the midst of the forest, where two or three congenial souls talk in subdued tones, or sit through long silences of mutual understanding; but a broader enjoyment comes when the huge fire is roaring in the high open spaces and the wide circle of eager hearts catches the contagious spirit of its leaders. This year, especially, a unity of feeling prevailed at all camp fires, making the singing heartier, the responsive laughter more immediate, and enhancing the pleasure one always takes in employing whatever talents he may possess for the amusement of the crowd. Who can possibly ever doubt, that "dese bones shall rise again," or sing the words, "Hurrah, hurrah, we'll bring the jubilee," without yielding to an unconquerable impulse to break into the haunting rhythm of "Turn around your own self?" The motion picture show in Summerland was developed on the spur of the moment in the midst of a dense fog, but in spite of this, the portrayals of scenes from camp life and grotesque situations were a great success. An entertainment which revealed unsuspected talent was the tragedy presented at Sunset Lake, a play replete with melodramatic situations. The first night in Ohanapecosh Park brought the vaudeville artists into prominence with songs, dancing, and stunts of all kinds, and the second night was the occasion of the floral pageant to celebrate the wedding

anniversary of our leader. The Jitney Press, published at Nickel Creek, furnished one of the most enjoyable camp fire gatherings. From the war news to Cynthia Grey, every article was full of clever hits, and neither dignity nor demureness availed to save any one from the searching wit of the editors (see Furry's cartoons).

These things may be taken as indicators of the high tide of hilarity and enthusiasm, but the evenings by the fire have received enduring value from Professor Meany's thoughtfully prepared accounts of experiences which brought renown to the men who lived them on the mountain, and from his delightfully appropriate verse often commemorative of these same men and their successes. It is for the purpose of preserving in available form for *The Mountaineers* the information related, frequently with dramatic touch, by Professor Meany regarding the early history of Mount Rainier and the naming of falls, canyons, glaciers, crags, and peaks that the following brief résumé is given of articles read and statements made at the camp fires of the 1915 outing.

The earliest record of any approach to the immediate vicinity of the mountain is the diary of Dr. F. W. Tolmie. The fame of Rainier's flowers must have come to him, perhaps from the Indians, for he started in August, 1833, on a botanizing expedition which took him continually closer to the mountain's snow line. With five Indians he traveled one day on horse and two afoot over the prairie from Steilacoom and up the valley of the Puyallup. Their first camp was just such a lovely place as *The Mountaineers* have often chosen, "under the shade of a lovely pine in a grassy amphitheater, beautifully interspersed and surrounded with oaks, and through the gaps in the circle we see the broad plain extending down southward to the Nisqually. In a hollow immediately behind is a small lake whose surface is almost one sheet of water lilies about to flower." This glowing account is offset by a sentence or two written in the diary the next morning, which may be reminiscent to some of us of other first nights out. "Slept ill last night. A drizzling rain fell nearly all night. Got up at dawn finding thigh stiff and painful, and thought a stop put to the journey, but after moving about it felt better. The traveling afoot was much the same as any one has experienced who has left the trail and ascended and descended several steep cliffs and passed through dense and tangled thickets, twice crossing torrents on the unsteadfast footing of a log." Several of the notes jotted down along with the accounts of serious work accomplished give most vivid glimpses of this intimate camp life with the Indians. "After breakfast Quilliliash stuck the gills and sound of the salmon on a pointed stick, to indicate to other wanderers that fish might be caught there.—Had dried meat boiled in a cedar bark kettle for breakfast. Have supped on berries which when heated with

Huckleberries.



Helping the ladies



View on the climb.



View of Rainier from Van Trump Park.



Murry.

Mabel Furry

CARTOONS

A page from The Jitney Press, published at Nickel Creek, August 19, 1916, by members of the outing party.

stones in a kettle taste like lozenges.—Got rigged out with green blanket, Indian style, and trudged on through the woods.”

Finally Dr. Tolmie climbed to a snowy peak immediately under Rainier which appeared surprisingly magnificent from this vantage point. A peak in the northwest section of the park, answering closely to his own description of this one, has since been named for this intrepid explorer. It is interesting to notice here how lack of experience in snow mountains led Dr. Tolmie to underestimate the magnitude of all Rainier's greatest features. “A few small glaciers were seen on the conical portion; below that the mountain is composed of bare rock for a distance of about fifty feet down to the valley beneath. The Poyallipa was fenced in to the eastward by a wall or dyke which seemed about four feet high and four hundred feet in length.” That modest sentence with the words, “a few small glaciers,” marks Dr. Tolmie as the first white man who saw a great ice stream in the United States. The freshness of impression and the quaint humor of this brief journal well repay a leisurely perusal by those who know the mountain intimately.

For a quarter of a century after this, no one seems to have made any attempt to explore the valleys and hills around Rainier, for in 1857, when Lieutenant (later General) A. V. Kautz, yielding to his passion for going to the tops of high places, sought information as to the best approach to the mountain, he was told that no white man had ever been near it, and that the Indians were superstitious and afraid of it. His determined efforts finally gained from Leschi, the chief of the Nisquallies, the statement that the mountain was most accessible through the valley of the Nisqually, and that Wahpowety of his tribe would be an able guide. Under his leadership the party of eight climbed the ridge through which the Nisqually has cut its canyon, descended to the valley on the other side and after four disheartening days reached the foot of an immense glacier. Impressed by the muddy white torrent which poured from the icy cavern in the glacier's face, Kautz studied the valley thoroughly, and concluded that the water derived its color from the disintegration of the granite walls of the canyon, and that the Naches, Puyallup, and White rivers had similar sources in glaciers, since they were of the same character in the dry season. They attempted to travel over the surface of the glacier but found it too broken by crevasses, so decided to make camp on the hillside. They were amazed to find that after climbing up the moraine, they must climb down again to reach the mountain side! So many other things were inexplicable, the little creatures looking like lambs or kids, which had split hoofs, lived in burrows, and gave forth a sound like a whistle or scream; the exasperating way in which a summit moved farther away instead of coming nearer as one approached it! The dark, gloomy forest with

its terrible solitude and the proximity to perpetual snow oppressed them greatly.

Of the five who began the ascent on the clear day which followed, the Irishman, the Indian, and the Doctor soon gave out, leaving Kautz and a German to make the greater part of the climb alone. It was after five in the afternoon when the two men reached a point which they felt could be called the top, as the mountain spread out comparatively flat. Dogue was exhausted and Kautz believed it folly to attempt further exploration of the summit at that late hour. They made the descent to camp in three hours, a distance that had required ten to climb. It is uncertain how near these men came to reaching the actual summit, but theirs stood for twenty years as the only attempt ever made. In honor of the moving spirit of this expedition the name Kautz has been given to a glacier on the south side of the mountain and the name Wahpowety to the cleaver separating this glacier from the Van Trump.

"We are not likely," wrote Kautz, "to have any competitors in this attempt to explore the summit of Mount Rainier. When the locomotive is heard in this region some day, when American enterprise has established an ice cream saloon at the foot of the glacier, and sherry cobblers can be had at twenty-five cents half way up the mountain, attempts to climb that magnificent snow peak will be quite frequent. But many a long year will pass away before the roads are sufficiently good to induce any one to do what we did in the summer of 1857." Kautz was not vainly boasting, for the early attempts at exploration were separated by many years. In 1870 General Hazard Stevens and Mr. Philamon Beecher Van Trump gave proof of having stood on the mountain's top. Their trip, which had been anticipated for two years, was begun in August, 1870. With the help of Mr. James Longmire, they secured the services of Sluiskin, the only Indian left in a deserted camp. They finally reached what is now known as Mazama Ridge and pitched camp on a high knoll crowned by a grove of balsam firs, near a turbulent, glacial torrent which dashed over a ledge of rock and broke into a cascade, later named in honor of their guide, Sluiskin Falls. Here, on the very spot where *The Mountaineers* made camp, Sluiskin tried with all the force of his Chinook and broken English to dissuade the men from their rash attempt. Up to this time he had considered their intention of ascending the mountain as too absurd to deserve notice, but when he saw their final preparations made, he broke out into a solemn exhortation and warning. Those who heard the appeal of Sluiskin given in Chinook by Prof. Meany, near this camp of nearly fifty years ago, could not fail to be thrilled with the intensely picturesque and dramatic character of this Indian friend of the white man.

The climb of the next morning, August 17, 1870, led over the Gibraltar trail, the only one followed on the south side of the mountain

for years. The account of the climb over the névé is full of interest, with its excellent description of snow conditions, the remarkable size and coloring of the crevasses and the careful work required in effecting crossings. At five p. m., eleven hours of work had brought them to a narrow ridge which they named Peak Success. It was too late to descend the mountain in daylight and they found themselves obliged to spend the night on the summit without shelter. While crossing the snow in the crater of a higher mound, Van Trump discovered the steam caves where they passed the night uncomfortably, but safely. The brass plate inscribed with their names they deposited in a cleft of a large boulder on the east side of what they called Crater Peak. The third peak, which they could see only dimly through the mists, they called Peak Tahoma to perpetuate the Indian name of the mountain, but this has since been changed to Liberty Cap. Members of the summer trip need not be told that Van Trump has a suitable memorial in the glacier and park which bear his name. Although Stevens' name has not been given to one of the huge ice flows from the summit of the mountain, the eastern part of the Paradise Glacier has been called the Stevens. The stream of the same name, which flows from it, dashes its way down over Fairy Falls and through the magnificent canyon which worthily commemorates the achievement of Hazard Stevens.

The second ascent was made later the same year by Lieutenant Wilson and Lieutenant Emmons in whose honor the Wilson and Emmons glaciers were named.

The following list gives the origin of the names of other well known points in the Park:

Avalanche Camp was named during the 1909 outing of The Mountaineers. Its significance is evident to any one who has watched the snow slides on Willis Wall.

Camp Curtis was the title suggested by Professor Meany for the temporary camp of The Mountaineers on their outing in 1909, in honor of the leader, Asahel Curtis.

Camp of the Clouds was christened August 12, 1886, by Chas. Kahoe, Chas. Billings, and Geo. Talcott of Olympia, who were obliged to wait there two days for the clouds to lift.

Camp Muir was chosen in 1888 by John Muir as the best temporary camp site on the Gibraltar route. It was named by Major Ingraham.

Columbia's Crest is the name chosen by vote of the members of an Ingraham party in 1891.

Elysian Fields were originally part of Moraine Park, which Major Ingraham considered indubitably the realm of the blest, but the quarters have since been moved from the place he assigned them.

Fryingpan Glacier resembled so much that indispensable part of a camper's outfit that Prof. I. C. Russell named it accordingly.

Gibraltar was named in 1888 by Major Ingraham.

Hessong Rock was named in honor of a photographer of Kapowsin who made repeated trips to the mountain.

Indian Henry's Hunting Grounds received the title from a Cowlitz Indian who often went there in search of game. His native name, Sotolick, was so difficult for the English tongue that a mail carrier, Harry Windsor, gave him what he called a real name.

Ingraham Glacier was named in 1890 by Prof. I. C. Russell who had been hospitably received by Major Ingraham after an exhausting night spent in the crater.

Inter Glacier was discovered by Ingraham in 1886 while making an attempt to reach the summit from the northeast side.

Moraine Park was named by Professor Russell in 1890. is a succession of glacial moraines.

Observation Rock, climbed this year, is the highest point on the west side. was named by a Mr. Henderson who, in 1885, first stood on its top.

Paradise glacier, river, and valley all owe their names to the expressions of the first white women to go up into that region, Mrs. James Longmire and Mrs. Jameson. When they saw the profusion of flowers and the magnificent views they exclaimed together, "Oh, what a paradise!"

Russell Cliff was named by The Mountaineers in 1909 after I. C. Russell.

Sarvant glaciers were named for Henry M. Sarvant, who made frequent explorations on the mountain in the early 90's.

Willis Wall is in honor of Bailey Willis, long a member of the U. S. Geological Survey, now in the Department of Geology and Mining at Stanford University. He carried on explorations, especially in Geology, on the mountain many years ago.

SOURCES:

- Dr. F. W. Tolmie's diary, quoted by Clarence B. Bagley in *In the Beginning*, pp. 11-15.
- Ascent of Mt. Rainier*, A. V. Kantz (Overland Monthly, May, 1875).
- The Ascent of Tahoma*, Hazard Stevens (Atlantic Monthly, November, 1876).
- The Ascent of Mt. Rainier*, Edward S. Ingraham (Puget Sound Magazine, October, 1888).
- Origin of Some Mt. Rainier Names* (MS.). Interview with Edward S. Ingraham by Victor J. Farrar, July 27, 1915.

THE MOUNTAIN ENCIRCLED

Edmond S. Meany

I.

The gulls from port and steamer track have fled
 To build scant nests on wilder shore;
 Young quail, mere flecks of striped down,
 Are quick to every fancied danger's thrill,
 And ptarmigans have donned their dusky brown
 For work; no feathered kith or kin are still
 When summer swings the golden-hinged door
 And each by sheerest love of life is led
 Out to the sun; so I feel drawn by beck'ning breeze
 And go this joyous hour to neighbor with the trees.

II.

There lies a friendly forest path I know
 Where lofty needled boughs salute the sun
 And mossy mounds lift jewelled flowers
 To point anew the old and gladsome way,
 The upward way, to heights where all the hours
 Are morning and a world's new day
 Reveals the Alpine heather lately won
 From out the depths of slow receding snow.
 I rise and all the aging years are backward flung
 For soil up here and flower and even time are young.

III.

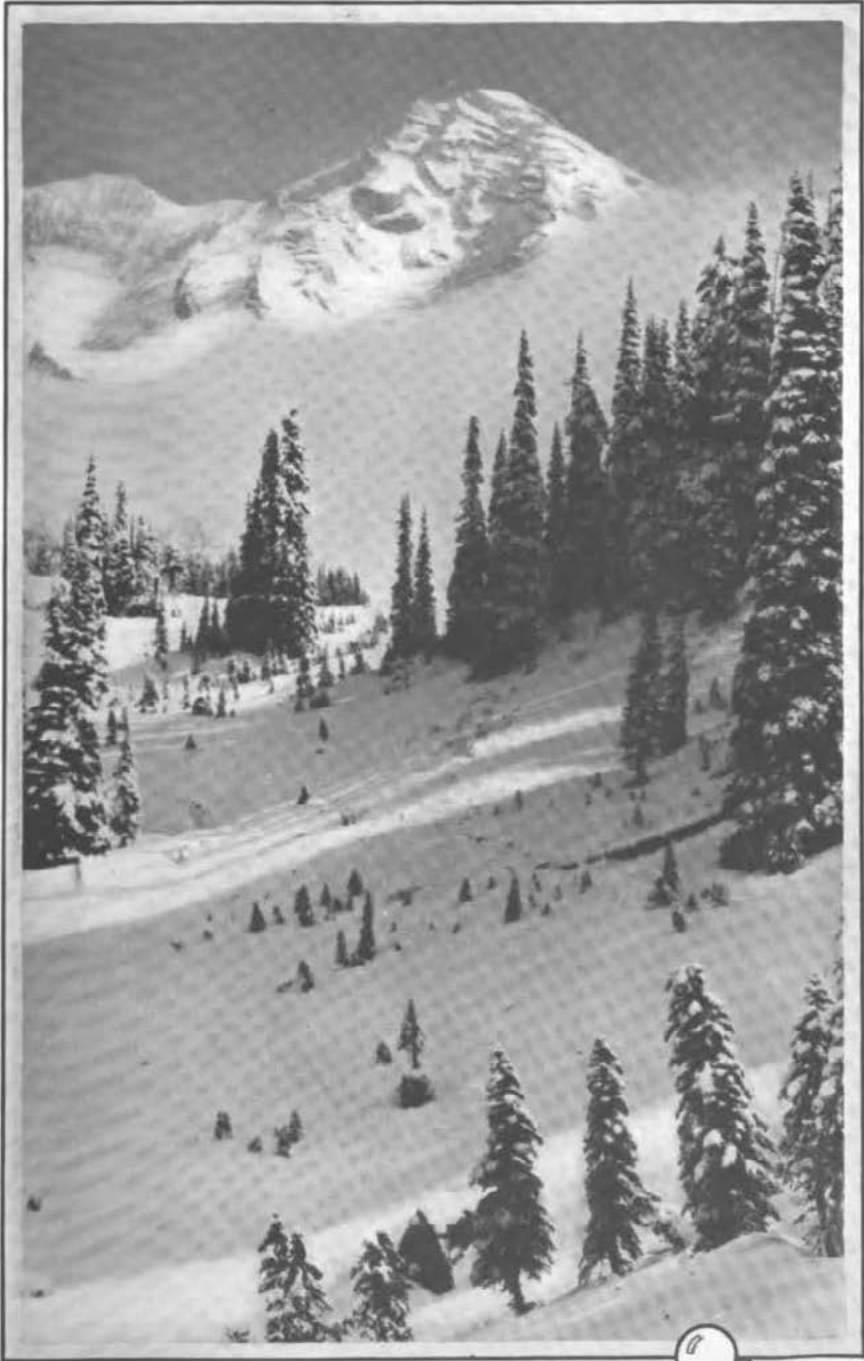
Some trees are bent and winter-tempest scars
 Proclaim the cruel stress of yesterday;
 Yet lily-gardens, aster-strewn, and lupine pearls,
 Between the snow and wind-scarped granite prongs,
 Awake, as round the peak a signal whirls.
 And Dawn, victorious, throws her lavish songs
 On winds that set the meadowed flowers at play
 Beneath the rosy blush of hiding stars.
 And now, O Mountain Dawn, I own thy magic art
 That stirs anew the youth, the youth still in my heart!

IV.

Above the flowers a thousand voices call,
 The upward lure of wide eternal snows,
 Where jagged cliffs look down on rivers swift
 In brawling race, tumultuous to'rd the sea.
 We climb o'er ice from rift to gleaming rift,
 To crest where star and earth in kinship free
 May touch the blue; transcendent glory glows
 And clasps the soul of man, ecstatic thrall!
 O, spare some strength of flesh and nerve, ye gnawing years,
 To meet the surging call my willing spirit hears!

V.

From park to park, the mountain splendor-chain,
 These precious links, embossed above the clouds
 With em'rald spire or cave of crystal ice
 Or silver sheen of amethystine lake,
 Give hints as of the gates of Paradise!
 Ah, nevermore can earthly visions take
 From me this wealth, though loud the jarring crowds
 May claim lean hours among their strivings vain.
 My inmost soul these mountain gems secure will hold
 And eyes half closed will see the summer-frames of gold.



INDIAN HENRY'S AFTER A FRESH FALL OF SNOW

F. E. Matthes

MESSAGES OF APPRECIATION

INTRODUCTION BY EDMOND S. MEANY

PRESIDENT OF THE MOUNTAINEERS

In the years to come when visitors to the great mountain are multiplied, the following group of letters will be even more highly prized than at the present time. They tell of the first ascent and of the earliest explorations. How precious would be such a sheaf of enthusiastic messages from those who first knew the charms of any great mountain Europe!

We are blessed with the continued presence of the pioneers. The mountain is a bond of true friendship between them and the youthful climbers of today. Every such youth who loves the mountain will seize the handclasps extended in the following remarkable series of messages.

To those who have written the messages The Mountaineers, from the newest member of the club to the oldest veteran, give expression to their gratitude for these greetings of the pioneers and to the joy of being permitted to pass on to others some of their enthusiasm for "The Great White Sentinel of God."

CHANGES



IN a recent visit to Mount Tahoma I was astonished to find such a magnificent road clear up to Camp of the Clouds and to learn that over 30,000 persons had visited that sublime monarch of mountains this season. When I made the ascent in 1870 it was a vast solitude. The sensations of exploring new fields were most exhilarating and when Van Trump and myself reached the summit and waved our flags and gave three cheers we felt that we had accomplished a great and gratifying success and so we named the southernmost peak, Peak Success.

I made the ascent again in 1905 and then, as likewise on my recent trip, I observed that the snow and glaciers had receded to a considerable degree since I first visited them. At that time Stevens Glacier came close up to Sluiskin Falls. Now it is several hundred feet farther from them. The small crater on the summit in which we slept in 1870 was then filled with solid ice but in 1905 it had nearly all melted out. It may be that a succession of wet seasons will restore these glaciers to their former limits.

HAZARD STEVENS.

MOUNT RAINIER'S THREE HISTORIC NATIVE GUIDES

Wapowety, Sluiskin, Sotolick—these are the names of a notable trio of native mountain guides, and the periods at which their activities were utilized constitute three notable epochs in the mountain's history. Wa-pow-e-ty was the guide of Lieutenant Kautz in 1857, Sluiskin guided General Stevens and his companion to the snowline in

1870, when the first successful ascent was accomplished, and So-to-lick, commonly known as Indian Henry, guided the George B. Bayley party in 1883, when the second successful ascent was made. Henry was employed because he declared he could take the party on horseback to the permanent snowline, a feat never previously performed by white men. Henry verified his statement to the very letter and even took our pack horse and blankets almost to the Cowlitz Cleaver, his *Ultima Thule* of climbing. Inasmuch as it has been deemed appropriate to apply human appellations to features of Mount Rainier, it is to be regretted that Wapowety's name was not given to some point on it.* Sluisin and Indian Henry were thus honored, and their names will be associated with the mountain as long as its literature exists. The red man, original owner of the mountain, is a surely, if slowly, vanishing entity and the time is coming when he will be known to the existing white race only by the names and legends he will have left behind him.

P. B. VAN TRUMP.

EXPLORATIONS IN THE EARLY EIGHTIES

The first white man who is known to have ascended to the snowline of Mount Rainier was Dr. Tolmie, the Hudson Bay factor at South Prairie, along about 1830. In 1833 he ascended through the forests above Wilkeson and climbing one of the northwest spurs of the mountain spent a day in exploring the snow fields that lie between the Carbon and South Puyallup rivers. Dr. Tolmie was still living fifty years later, and I have a letter from him, written in 1883, describing his ascent of the mountain. Following his description, I reached the point now known as Tolmie's lake and there found in the heather beside the lake, deeply buried among the roots, the remains of some old baskets. From this I inferred that I was camping on the spot where he also had camped fifty years before, and gave the name of its first explorer to both the lake and the peak.

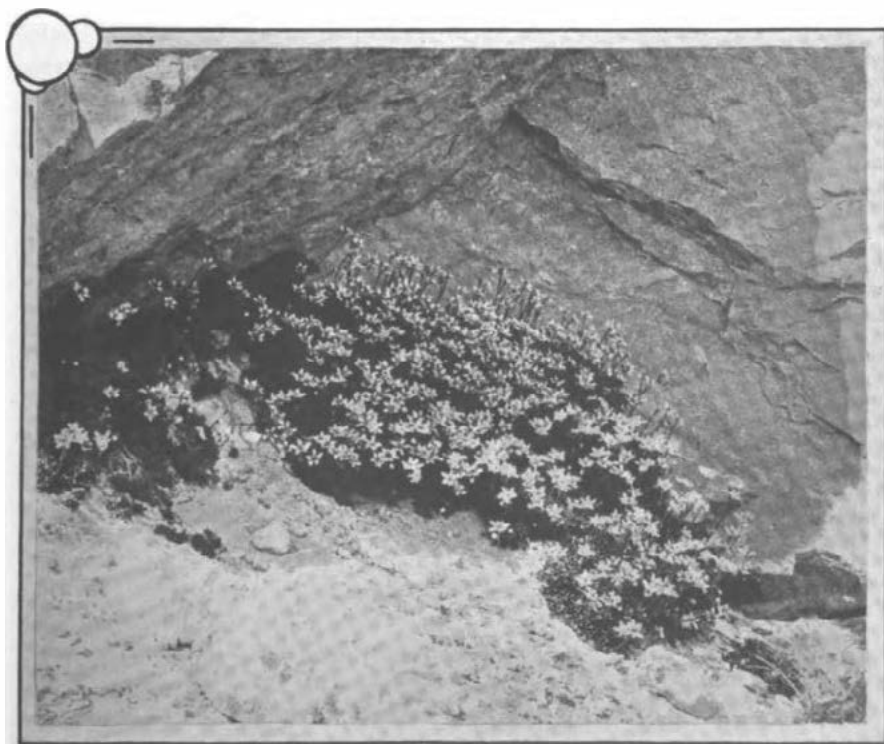
My own first approach to the mountain was in April, 1882. The snow still lay deep on its flanks and in the valley of the Carbon River, and it was with difficulty that we made our way to the foot of the Carbon Glacier and ascended the peak immediately north of the lower end of it. The whole region was then a virgin forest and wilderness. Wilkeson was a little mining village beyond which prospectors' trails extended two or three miles into the forest, but the great trees had neither been burned nor cut and under them the luxuriant vegetation formed a dense thicket, through which it was difficult to make one's way. It was a day's trip, with your pack on your back, to reach the Carbon River at the point where Fairfax is and beyond that, between the Carbon River and the Nisqually, all was an unknown trackless wilderness. In the succeeding

*The new map of Mount Rainier National Park by the U. S. Geographical Survey gives the name Wapowety to the cleaver between the Kautz and Van Trump glaciers.—Ed.

years, from 1882 to 1884, we explored and prospected that country for coal and built the trail from Wilkeson to Busy Wild Creek. Our object, of course, was to explore the coal fields, but we also had in view the opening up of the mountain to tourists, and the trail we built was one designed for tourists' use.

My companion in the exploration of the region was an Irishman named Billy Driver. He was short, athletic, quick, and merry. I remember we were lost once and ran out of grub, on the headwaters of Mishall Creek. We had with us a man of rather melancholy temperament, whose spirits were depressed by the fact that he was lost. The forest shut us in; we were wet and hungry. Our melancholy companion threw himself down in despair, but Billy danced a jig in front of him, laughing and saying: "Ah, me biy, ye'll niver see yur mither agin, niver, niver!" Today, the automobile road passes not far from the place where we were lost.

The most notable of the early visits to Mountain Rainier was made in 1883, by members of the Villard party, which celebrated the completion of the Northern Pacific Railway. Seven of the visiting foreigners



T. C. Smith

TOLMIE'S SAXIFRAGE
(*Saxifraga tolmiei*)

Named for Dr. W. F. Tolmie, physician and botanist, the earliest explorer of Mount Rainier. It grows as a low mat on otherwise barren soil close to the snow line in the Cascade and Olympic mountains.

detached themselves from the company at Portland and accompanied me to Wilkeson. Thence we rode over the Willis trail to the Palace camp on the Puyallup River. After spending the night there in the great 30 by 40-foot log cabin, which was afterwards burned by timber rangers, we ascended over the trail along the spur that leads to Tolmie's peak and went up over the snow slopes of the mountain between the Guardians to the high heads of the glaciers under the great cliff. Among the party were James Bryce, who had climbed Mount Ararat and has since been British ambassador to Washington, and Baron Von Bunsen, a distinguished adviser of the Emperor William. Bryce, I remember, was much put out because we could not reach the summit and was eager to remain to climb the southern side. The party wrote a memorial to Mr. Villard in which they recommended the setting aside of the mountain and its surrounding forests as a national park, and this was, I believe, the first suggestion of that idea.

Having left Washington in 1884, I did not again return to the old mountain until 1896, when I visited it with I. C. Russell, Professor Landes of the University of Washington, and George Otis Smith. It was on that trip that some of us climbed the eastern slope of the mountain, starting from the cleaver, just above the peak of Little Tahoma, about 8 a. m. and reaching the summit about 4:30 p. m. In the ascent, two of the party lost their footing and went over the edge of a crevasse. We were roped together and I, being next in line, was immediately doubled up and buried in the snow where I served as a sufficient ice-anchor. Otis Smith and Russell were above me and like myself were seated awaiting the ascent of our comrades. They did not get much of the jerk, but Russell was unwilling to continue among the ice-cliffs with men who could not stand up and he wanted to return. We, however, over-bore him and finished the ascent to the crater. It was too late to descend the mountain after we had reached the summit, and we spent the night in the caves on the side of the crater, alternately thawing and freezing one side or the other between the icy wind and the hot steam. The next day we descended to Paradise Park and completed the eastern circuit of the mountain by passing again over the cleaver above Little Tahoma.

The inspiration gathered in these early days of exploration about the great snow fields and glaciers, and beneath the towering peaks that crown the superb scenery of the Cascades has never left me and is still a source of joy as I recall the wonderful beauty of the virgin forest and the fascination of the ice-world. I have seen the glories of Switzerland, the grandeur of the Andes, and the grace of the beautiful cone of Fujiyama, but among the most renowned scenery of the world, I know of nothing more majestic or more inspiring than the grandeur of my own old camping ground, Mount Rainier.

BAILEY WILLIS.

A PIONEER FAMILY

My grandfather, James Longmire, was one of a party who made the second ascent of Mount Rainier August 16, 1883. On their return they camped in a little valley at the foot of the mountain, and while exploring the valley grandfather found the springs now known as Longmire Springs. He lived there fourteen years, until his death, September 17, 1897. In 1902 my father, Elcaine Longmire, took charge of the place and lived there summers until June 21, 1915, when he passed away.

My first trip to the mountain was in 1887 and I have been on top of every little hill around the mountain hunting for cougars, wild cats, and game of all kinds. In 1911 Edward S. Hall, the Park Supervisor, put me in as Park hunter. Perhaps he was afraid I might kill something that was branded U. S. and took that way to protect the game. In 1912 I was made a ranger and filled the position the best I could.

Mount Ararat I named because I found there some long slabs of wood that had turned to stone and I thought they might have been part of old Noah's boat. I also found a stump with a ring around it as if his rope might have been tied there. It was all stone. I named Martha Falls after my mother. I never named anything after a girl. Bill Stafford named some falls, Sylvia Falls, after his sweetheart and she has not spoken to him since. I named Ethonian Falls after the Supervisor of the Park in 1914, and Denman Falls after the Mountaineer.

BEN LONGMIRE.



DENMAN FALLS H. B. Hinman

THEN AND NOW

Having been defeated by weather conditions in my attempts to reach the summit via the northeast slope of Mount Rainier in 1886 and 1887, in the summer of 1888 I decided to organize a party to try the ascent from the south side. About the time I had completed my arrangements, John Muir and William Keith arrived at Seattle on a tour to get subject-matter and pictures for Mr. Muir's "Picturesque Pacific Coast." Mr. Muir expressed a desire to join the party, very much to my delight. We proceeded to Yelm, the nearest railroad station to the mountain at that time. There we met Mr. P. B. Van Trump, who helped us complete our outfitting. We obtained pack ponies from Mr. Longmire, who placed Joe Stamfler, a lad of fourteen, in charge of the cayuses. We spent the first day in Yelm. Before night the microbes that bring on the mountain fever had taken such hold of Van Trump that he expressed a desire to join our party, so when the pack train started from his store the next morning, Van, with his blankets strapped on his black pony, was with us. Following a trail winding over Yelm Prairie and into the forest, we reached the home of Indian Henry by night. The third day we followed a forest trail past the site of the present town of Eatonville, over the Machel Mountain to Succotash Valley and spent the night at Mr. Carnahan's. At the end of the fourth day we entered a little clearing and were welcomed to the Springs by Mr. and Mrs. Longmire with true backwoods hospitality. During the fifth day we ascended to Camp of the Clouds and made our permanent camp. At that time there were but few local names: Paradise Valley, Sluiskin Falls, Camp of the Clouds, Tatoosh Range, and Bear Prairie were about all. Gibraltar was thought of as an immense cliff that we had to skirt in our ascent. It received its christening by my party the next year.

In our ascent we established a custom that was followed by climbers until professional guides came into existence: we climbed to Muir Camp the first day, spent the night there, made an early start in the morning, reached the summit by noon, and returned during the afternoon.

After resting a couple of days at Camp of the Clouds, I decided to return via the east and north slopes. I induced Charles Piper and Norman Booth to accompany me. The first day we swung around to a beautiful park on the east slope, which I called Summerland. The second day we crossed the Emmons, Winthrop, and Carbon glaciers, making camp just after crossing the Carbon. The end of the third day found us in camp on Meadow Creek about two miles below the meadows. It required another day and a half to reach Seattle.

Then it took nine days to go and come from Paradise Park, excluding the stay there. Van Trump, who left the main party at Camp of the Clouds to return ahead, lost his way and had to return to camp to take bearings.

Now late one Saturday afternoon in August of this year, my wife, a friend, and myself left Seattle in our auto, reached Canyada at early candle light, spent the night there, and at ten o'clock the next morning greeted friends at Camp of the Clouds. After spending several days there, we turned our machine homeward and at the end of seven hours' delightful ride arrived in Seattle. But the old way for me!

E. S. INGRAHAM.

A CAMPING EXPERIENCE ON TOLMIE PEAK

In October, 1894, C. B. Talbot and I had a somewhat unusual experience while in camp just below the summit of Tolmie Peak in the Rainier National Park. We had made the ascent of the peak on the seventeenth in order to secure some photographs of the northwest side of the mountain, but finding it too cloudy had made a camp there. The eighteenth was still cloudy, and towards evening a cold dense fog settled down upon us, so that when the time came, we were glad to turn in. About midnight I was awakened by Talbot who had gone out of the tent to replenish the fire. He told me to come outside, which I did, and found the night a real winter night. The air was clear and cold, the stars very bright, and a nearly full moon shone over the west shoulder of the big mountain, making the night almost as light as day. But to our surprise the entire landscape was as white as if covered with snow. Upon examining the nearby shrubbery we found that it was covered with frost crystals. It seems that the fog of the evening before had condensed on everything it had come in contact with, then had frozen and formed the crystals, completely covering every object to the depth of three quarters of an inch. In order to see more of it, we climbed the ridge back of our tent and went along it toward Crater Lake for some distance, finding the same condition on both sides of the ridge. It apparently extended over a large area. We returned to camp about three in the morning planning to photograph it later, but by the time daylight came it had entirely disappeared.

The morning of the nineteenth was still cloudy, with a few scattering snow flakes which by the middle of the afternoon developed into a real snow storm that continued through the night, all the next day, and part of the following night, giving us a total fall of twenty inches. This, of course, stopped all thoughts of farther travel, other than to go to the top of Tolmie for a view of the lower country, which we did, and found that while the snow had not reached the bottom of the Carbon Canyon, it had extended to the Sound which was plainly visible and of a dark color. The prairies south of Tacoma were white and the intervening timbered country a little darker than the prairies.

In the afternoon we broke camp, passed through Ipsut Pass, a mere cleft in the ridge with a well defined game trail leading through it, and followed a stream leading down into the Carbon Canyon. The

next day we reached the Carbon River and traveled down it over the gravel bars to the trail at the point where Fairfax is now located.

H. M. SARVANT.

MY FIRST TRIP TO THE MOUNTAIN

In the latter part of July, 1894, a party was formed to visit the mountain by W. L. Malone. The following were the members: W. L. Malone, Rev. J. H. Woodley, Ogle Stevenson, H. H. Garretson, and J. B. Flett. Eatonville was reached the first day, Hershey's place the second, and Longmire's the third about 2 p. m. The roads were narrow and exceedingly rough. We had to help the horses in several places. The fourth day we reached Paradise Valley early in the afternoon. We took the only trail there was at that time, namely, the glacier trail. This was followed to within a quarter of a mile of the glacier. The river was forded at this point and the old switch-back followed up the steep hill through beautiful forest where now stand the unsightly ghost trees.

We watched the old pioneer, James Longmire, tie the diamond hitch and explain its virtues. In ascending this hill we were sandwiched in among the ponies. Each man grabbed a pony by the tail and was jerked over the ground at a merry pace. I looked up and saw the top near at hand and looked down and saw my companions strung out along the trail. They had let go, with one exception, and I joined them, bidding the ponies a fond farewell. We did not see them again until we reached the Camp of the Clouds.

A cold fog settled on the valley soon after our arrival. This discouraged three members who left for home. Two of us remained with ample grub for two or three weeks. The weather changed the day that the other members started for home and remained beautiful during our stay. We climbed to Camp Misery.

I never saw a finer array of deer tongues than on the present site of Reese's camp. The sight of the flower beds remained with me all winter and I can still see them as they appeared then.

J. B. FLETT.

A NARROW ESCAPE

I suppose my most vivid recollection of Mount Rainier is the exceedingly narrow escape which I had from falling into the great crevasse near the summit of the mountain. If this had happened I would be on the mountain yet. On the return of our party from the summit Mr. John Muir and I had for some reason lingered behind. When we came to the ice bridge over which the party had crossed the crevasse we were decidedly suspicious of its strength, and after consulting a moment over the matter I decided to put my alpenstock part way on the bridge and jump so as to clear the crevasse. The attempt was perfectly successful so far as I was concerned, but my alpenstock and the whole ice bridge fell into the crevasse. I have often wondered what would have happened

if I had attempted to go across the bridge in the ordinary way, as the man who had crossed it shortly before I reached it told me afterwards that he felt the bridge crack under him. It is possible of course that if I had gone across the bridge carefully it would have held all right, and that the breaking was due to the suddenness of the weight put upon it.

It was proposed to lower me in the crevasse with a rope to attempt to recover the alpenstock, but we could see down the crevasse for sixty feet and then there was a sudden bend in the crevasse, which was six feet wide even at that depth, so I respectfully declined to take the chance. No great difficulty was experienced in descending the mountain, even without an alpenstock, but on the very bad slopes a rope was used to lower me.

C. V. PIPEL.

FOREST TYPES IN THE RAINIER NATIONAL PARK

G. F. ALLEN

SUPERVISOR RAINIER NATIONAL FOREST



THE forests of the Mount Rainier National Park contain few deciduous trees, but are remarkable for the variety and beauty of their conifers. The great number of species and their adaptation to the varying environment make the Park a region of peculiar interest to the botanist. The attraction of the landscape is in the main its high and bold relief as contrasted with the softer outlines of more familiar scenes about our cities and farms, but the charm is heightened by the beauty of the forest and its harmony with the topography.

The distribution of species and their mode of growth, the size of the trees and the density of the stand are determined primarily by the altitude. As the elevation increases the growing season shortens and the depth of snow and the intensity of the winter cold increase. Soil moisture, which is a factor favorable to tree growth, depends mainly upon topography, although it increases to some extent with the annual precipitation which is greater at high elevations. Generally it is insufficient to balance the increased severity of the climate, and the forest types fall naturally into altitudinal zones. The extent of the belts is modified by slope and exposure and the lines which separate them are not level or sharply defined. Trees whose natural habitat is at a low elevation ascend somewhat higher on the ridges than in the valleys, and the subalpine species descend much lower along the streams than on the ridges, which are warmed by the upward air current. The successive forest belts blend and overlap where they come together, but are

distinctive in their central areas. The composition of the evergreen forest of the Park, divided into the zones within which the species reach their best development, is as follows:

LOWER BELT

Common Name.	Botanical Name.	Distribution.
Douglas Fir.....	<i>Pseudotsuga taxifolia</i> , Britton	Abundant to 3,500 feet.
Western Red Cedar.....	<i>Thuja plicata</i> , Donn.....	Common up to 3,500 feet and is found up to 4,000 feet.
Western Hemlock.....	<i>Tsuga heterophylla</i> , Sargent	Abundant to 4,500 feet and occurs up to 5,000 feet.
Western White Pine.....	<i>Pinus monticola</i> , Douglas.....	Occurs occasionally up to 4,000 feet reaching its best development between 3,000 and 3,500.
Grand Fir.....	<i>Abies grandis</i> , Lindley.....	Common up to 4,000 feet.
Western Yew	<i>Taxus brevifolia</i> , Nuttall	Found up to 4,000 feet.

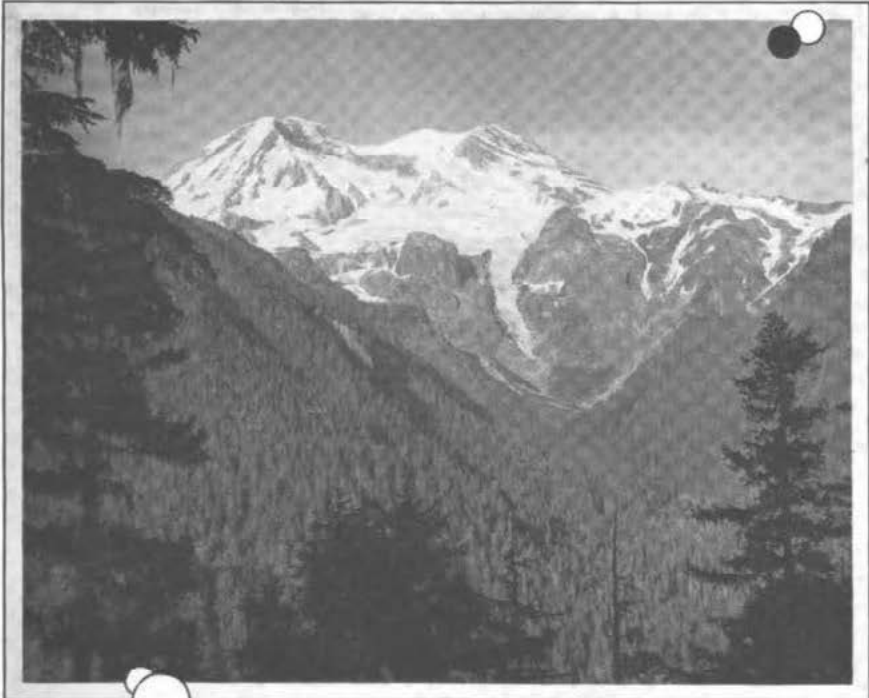
MIDDLE BELT

Lovely Fir	<i>Abies amabilis</i> , Forbes.....	Abundant from 2,500 to 5,000 feet.
Noble Fir.....	<i>Abies nobilis</i> , Lindley.....	Abundant from 3,500 to 5,000 feet.
Engelmann Spruce	<i>Picea Engelmanni</i> , Engelmann	Common on the eastern and northeastern slopes of Mount Rainier from 3,500 to 6,000 feet.
Lodgepole Pine.....	<i>Pinus contorta</i> , Loudon.....	Occasionally found up to 5,000 feet.

UPPER BELT

Mountain Hemlock.....	<i>Tsuga mertensiana</i> , Sargent	Abundant from 3,500 to 7,500 feet.
Alpine Fir	<i>Abies lasiocarpa</i> , Nuttall.....	Abundant from 4,500 to 7,500 feet.
White-bark Pine.....	<i>Pinus albicaulis</i> , Engelmann	Occasionally found from 5,000 to 7,500 feet.
Alaska Cedar.....	<i>Chamaecyparis</i> <i>nootkatensis</i> , Lamb.....	Common from 3,000 to 7,000 feet.

The dense evergreen forests characteristic of the lower western slopes of the Cascades extend into the Park in the valleys of the main and West Fork of White River, the Carbon, the Mowich, the Nisqually and the Ohanapecosh. Favored by the warm and equable temperatures and the moist, well-drained soil of the river bottoms, and protected from the wind by the enclosing ridges, the trees are perfectly proportioned and grow to a great height. The stand is close set and the tops of the mature trees form a close and continuous cover. The young growth



**NORTH PUYALLUP VALLEY
FROM REABURN POINT**

A. H. Denman
One of the deep forested valleys cut from the flanks of the mountain by glacial action. Puyallup Glacier shown at the head of the valley.

**WHERE SUMMER SUN SIFTS
THROUGH INTERLACING BOUGHS**

T. C. Smith
This group of giant firs on the government road near the Tahoma Fork is familiar to all park visitors.

in the sapling stage is abundant and vigorous. As it pushes upward the weaker individuals are crowded out in the struggle for room and light, and the stronger grow slowly with slender trunks and small crowns until a place is made for them by the decay and fall of their older brethren. Thus the forest growing naturally and untouched by fire, is of all ages, from the seedling concealed in the undergrowth to the veteran four to eight feet in diameter and perhaps four hundred years old, whose trunk, weakened by decay and age, still bravely upholds its spreading crown to the sunlight. From the lumberman's point of view, and contrasted with the vigorous and even aged stands where the trees have grown up together after a fire, the forest is over-ripe and decadent, yet it is the natural and primitive forest where decay is balanced by growth and the young take the place of the old.

The soil in these river bottoms is overlaid to a depth of three to four inches or more with humus, rotten wood, twigs, and fir needles. This covering, saturated with water in the winter time, remains moist until late in summer. By the middle of August it is usually quite dry and forms a mass of combustible material to which the half-extinguished fires of careless campers often spread and smoulder slowly until fanned into flames by the rising wind. The dampness of the soil, protected by its mulch of decayed vegetation, is favorable to the growth of shrubs and perennial herbs. Salmonberry bushes grow in thickets along the streams. Vine maple, yew, willow, dogwood, elder, huckleberry, and currant bushes form a dense undergrowth which, together with the fallen timber, make travel off the trails slow and difficult. Mr. W. H. Thorn in his field notes of the survey of the Park boundary describes the timber on the west line:

"The entire line is covered with heavy forest, very large and tall, a great many trees being 6 and 8 feet in diameter, hemlock and red fir. It is difficult to get through the country on account of the fallen logs and dense brush. The forest was so thick that I could only get two angles on the main mountain."

Up to 3,000 feet the forests about Mount Rainier are composed of species common throughout the western parts of British Columbia, Washington, Oregon, and Northern California. The dominant trees are the western hemlock and the Douglas fir. The stand is usually mixed. In many places the hemlock, which germinates readily in rotten wood and humus, and is tolerant of shade, appears to be slowly supplanting the fir. It is not uncommon to see a good-sized hemlock which, having made its first growth in the decayed moss on a fallen fir, has extended its roots on either side of it into the ground in an attitude of victory over a species less fitted to survive in the struggle for existence in the mature forest. The Douglas fir not infrequently grows to a height of 250 to 270 feet. Its associate, the western hemlock, is nearly as tall. The larger hemlocks are often hollow hearted and the old firs



THE LONE SURVIVOR

A. H. Denman

"Thy scars of winter tempest
 On trunk and shattered limb
 Proclaim thy brave companion
 Of mountain's cragged rim."
 —Edmond S. Meany.

ALASKA CEDARS

T. C. Smith

Two unusually large specimens
 found in lower Ohanapicosh
 Park.



are nearly all unsound although they bear little outward sign of defect. Western red cedar grows in groups along the river banks and in moist situations. It is a good-sized tree in the Park although by no means as large as at lower elevations. The grand fir, or, as it is more commonly called, the white fir, is a common tree in the bottom lands although

it forms no considerable part of the forest. It is a handsome tree distinguished by its white bark and pyramidal crown of bright shining green foliage, which give it a cheerful aspect as contrasted with the darker trunks and deep green leaves of the hemlock and Douglas fir. While these trees compose the type peculiar to the bottom lands they are not confined to it but extend to the ridges and continue to be the prevailing species up to 3,000 feet. The stand on the mountain slopes is, however, lighter and more open and the trees are smaller. Huckleberry bushes and other shrubs adapted to the drier soil of the foothills, Oregon grape, and salal take the place of the tall and dense undergrowth of the bottom lands, and the amount of fallen timber is noticeably less.

The forests of the lower elevations of the Park are of a type familiar enough to anyone who has traveled through the Pacific Northwest, but sufficiently impressive to people who see it for the first time. The rapid progress of lumbering operations indicates that not many decades will elapse before it will exist in few places which are easily accessible outside of the Park.

Between the elevations of 3,000 and 4,500 feet the general character of the forest is intermediate between that of the lowland type and the subalpine growth of the high mountains. The forest is continuous except where broken by extremely steep slopes and rocky crests where sufficient soil has not accumulated to support arborescent growth. In general there is little undergrowth. The stand is fairly close on flats, benches, and moderate slopes, and more open on exposed situations and wind-swept ridges. The prevailing trees are the amabilis and noble fir. They sometimes grow separately in pure stands, but more often are associated. At the lower limits of this type they are mixed with the Douglas fir and hemlock, while subalpine species appear at the upper limits.

The high ridges receive a heavy annual precipitation in the form of snow. The run off under the continued action of warm Chinook winds and spring rains is correspondingly rapid. The streams are the headwaters of rivers which are important sources of waterpower. Apart from their aesthetic value, the forests of the middle slopes of Mount Rainier have a direct use to the community in the protection they give to the watershed and in regulating the flow of the streams. The deep and wide-spreading root system gives stability to the loose pumice slopes and protects them from erosion while the forest and ground cover retards the surface flow so that it is absorbed by the soil and discharged gradually through the channels of the streams.

A large part of the area above the 4,500-foot contour consists of open grassy parks, rocky and barren summits, snow fields, and glaciers. Tracts of dense subalpine forest occur in sheltered locations, but they are nowhere very extensive and their continuity is broken by open swamp glades and meadows and small bodies of standing water. The steep

upper slopes of the spurs diverging from the main ridges are frequently covered with a stunted scraggy growth of low trees firmly rooted in the crevices between the rocks. The most beautiful of the alpine trees are about the mountain parks. Growing in scattered groves and standing in groups or singly in the open grass land and on the margin of the lakes, they produce a peculiarly pleasing landscape effect which agreeably relieves the traveler from the extended outlook to the snow-fields of the mountain and broken ridges about it.

At the lower levels of the subalpine forest the average height of the largest trees is from 50 to 60 feet. The size diminishes rapidly as the elevation increases. The trees are dwarfed by the cold and their trunks are bent and twisted by the wind. Small patches of low, weather-beaten, and stunted mountain hemlock, Alpine fir, and white-bark pine occur up to 7,000 feet. A few diminutive mountain hemlocks grow above this elevation. The trunks are quite prostrate and the crowns are flattened mats of branches lying close to the ground. The extreme limit of tree growth on Mount Rainier is about 7,600 feet. There is no distinct timber line.

In the subalpine forest the species about the base of the mountain are replaced by others better adapted to withstand the pressure of the snow and the violence of the storms, and which are found only at a considerable elevation above sea level or in high northern latitudes. The trees, adapted to withstand the pressure of the snow and the violence of the winter storms, are short with rapidly tapering trunks and heavy branches which, where they stand in the open, often reach to the ground. The mountain hemlock, relying on the strength of its short, thick, and unyielding limbs, opposes them to the full force of the winter wind and the crushing weight of the frozen snow. Its trunk is often bent and twisted and the top broken, but it is successful in holding its own in the most exposed situations. The Engelmann spruce and the amabilis and alpine fir bear pyramidal crowns broad at the base and contracting toward the top where they become slender spires which terminate in pointed tops. The branches, which in summer turn downward and outward in long graceful curves, bend under the weight of the snow, are compressed toward the trunk and supported by it and by each other. The flexible tops are bent down, but spring up when the snow melts.

At an elevation of over 4,500 feet trees grow very slowly and the reproduction is deficient. There have been no large recent burns, but many of the beautiful Alpine groves have been destroyed by fires started by the early visitors to the mountains over twenty years ago. There has been little change in these burns. The dead trees are still standing and even the smaller limbs seem still sound and strong. The bark has fallen and the trunks and branches are bare and white. Only a few very small trees have sprung up.

There are several large burns on the middle slopes of the mountain which date back to the time when they were the hunting groves

of the Indians. Most of the fire-killed timber has fallen and is in all stages of decay. The second growth has sprung up in places, and in damp sections the young trees are twelve to fourteen inches in diameter. The hillsides have probably burned over repeatedly and the ground is covered with a vigorous growth of huckleberry brush, grasses, and flowering plants. The fire season in the high mountains of the Park is much shorter than in forests at low elevations and the risk is reduced to a minimum by the watchfulness of the Park rangers. Still a serious fire may occur any year. The ground cover becomes quite dry in August and the subalpine forest is in one way peculiarly exposed to fire. The resin pockets in the bark at the base of the trees blaze fiercely when kindled by a ground fire and the flames springing into the drooping branches start crown fires which sweep from tree to tree and are very difficult to control.

There are few species of deciduous trees in the Park. They are most abundant in moist situations. The red alder is common near the banks of the streams. The black cottonwood occurs associated with cedar and hemlock in alluvial bottoms, or forms little groves on sandy river bars. The leaves twinkle and turn in the lightest winds, exposing alternately the deep lustrous green of the upper surface and the silvery white of the under side. The vine maple forms a large part of the undergrowth in the valleys. The broad-leaf maple in the Park is a low short-stemmed branching tree which occurs sparingly at elevations under 3,000 feet. In number and volume the broad-leaved trees are a negligible component of the forest. Yet they are common enough to diversify and lighten the somewhat monotonous and somber effect of the conifers. They are most noticeable on clear days in the winter when the sun, elsewhere shaded by the evergreens, shines upon the snow through the leafless branches, and in the autumn when the foliage of the cottonwoods is brown and yellow and the vine maple bushes are scarlet.



H. B. Hinman

CAMP ROBBER

THE SURVEY OF MOUNT RAINIER*

F. E. MATTHES

U. S. GEOLOGICAL SURVEY



OW that the new topographic map of the Mount Rainier National Park, recently published by the U. S. Geological Survey, has had its first testing at the hands of The Mountaineers, who last summer encircled the peak, it may be apropos to describe in a few words how that map was made and, incidentally, how the height of Mount Rainier itself was measured. The more desirable does it seem to do so, as to the layman modern topographic methods are still largely enshrouded in mystery, so that he has little whereby to judge of the merits of a map or of the reliability of an altitude determination. Several figures have been announced within the last two decades for the elevation of Mount Rainier, no two of them in accord. It may be well, therefore, to show why this new figure, for which finality has been claimed, is more trustworthy than the others.

Like all other topographic maps now being made in the United States, that of Mount Rainier was constructed wholly "on the ground." Time was—not very long ago either—when "accurate" maps were based upon transit-and-chain surveys, the notes of which were laboriously reduced and plotted—in an office, perhaps 2,000 or 3,000 miles away. The real drawing of such maps often was not begun until after the field work had been completed; and, as errors and omissions cropped up occasionally in the notes and sketches (for even the most conscientious mind will err), it happened now and then that the draftsmen were obliged to eke out facts with ingenious fiction. It is possible that the layman's inborn distrust of the veracity of maps dates from those good old days. The modern topographer lays no claim to sheer perfection, but he at least enjoys the inestimable advantage of working with a method that leaves no very good excuse for mistakes or slips, and really no excuse whatever for straight omissions. The philosophy of this system is that the map shall be drafted in the field, as fast as the measurements are available, and that the features of the landscape shall be sketched in then and there. When the field work is finished, accordingly, the map is finished too—in pencil—and needs only to be inked and engraved.

The instrument which makes this field mapping practicable is known as the plane table, by which cryptical appellation is meant a simple drawing board mounted on a tripod and so fitted that it can

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be leveled, turned at any angle and clamped rigidly in any position. On this table, securely fastened by thumb-screws, is a stiff sheet of double-mounted paper, upon which the manuscript map grows inch by inch, as slowly as an intricate piece of embroidery. The same sheet may be in use an entire field season, or perhaps several seasons (one of the Rainier sheets saw service three different years). It is worked on almost every day, yet, incredible though it may sound, that sheet will reach the office bright enough to be called white. Some people experience difficulty in keeping a drawing reasonably clean for a single week indoors. Of course, the plane table sheet is carefully protected by



SUMMIT OF
PINNACLE PEAK

A plane table party taking vertical angles with the alidade to points on the flanks of Mount Rainier, four to six miles distant.

stout manilla paper, only a tiny patch being exposed for the work in hand, and it is transported in a water-proof leather case.

On the plane table, resting directly on the map, is the alidade, the map maker's instrument par excellence, which takes the place of the surveyor's traditional transit. It has a telescope, level and vertical arc, besides various attachments devised to expedite its use. At its base is a flat ruler, about 18 inches long, which permits lines being drawn upon the map parallel to the line of sight. The laborious reading and subsequent plotting of deflection angles is done away with. The topographer simply sets the alidade with its ruler on the point occupied by him (marked by a fine needle hole in the paper), sights the object to be located, and draws a sharp line with a hard, chisel-pointed pencil (7H to 9H, according to the humidity of the air and the paper). The

method is both shorter, and more accurate in its results, than the old-fashioned process.

Chain and tape are also dispensed with. In the telescope are fitted, besides the customary cross hairs, two horizontal stadia hairs, which are so spaced that on a rod held at a distance of 100 feet they subtend one foot, at 200 feet, two feet, and so on. To measure the distance to a given point the topographer need but send his rodman there, and count the number of feet and fractions of a foot included between the stadia hairs, and multiply his reading by 100. Whether the point to be located lie on the other side of a canyon or of a lake, makes no difference—so long as his rodman can reach it, a single peep through the instrument will give him the desired distance. At the same time he can determine the elevation of that point. The vertical arc shows him the angle which the telescope makes with the horizontal, and with this angle and the distance determined, he computes the difference in elevation between the point sought and his instrument. Special attachments reduce the arithmetical work involved to a few simple figures. Thus the topographer is able to work swiftly, locating points to right and left, as far as a thousand feet or more, plotting them forthwith and drawing the contours in accordance with the elevations.

Not all points needed, however, are accessible to a rodman. On the rugged flanks of a high peak such as Rainier, or of a range such as the Sluiskin Mountains, there are many points the location of which is essential for the support of the numerous contour lines, yet which it is manifestly impracticable to reach by stadia. Such points the topographer locates by intersection, that is, by sighting them with his alidade from at least two stations already plotted. The lines of sight drawn from the stations cross or intersect each other, and thus determine with accuracy the position of each point. Above timber line there is no lack of suitable targets—rock spires, cliff corners, spurs and reentrants, rock islands in the midst of glaciers, as well as the edges and broken cascades of the ice masses themselves (the movement of which is too slow to produce changes in the course of a few days that would be perceptible on a scale of one mile to the inch). It is wonderful, with good weather conditions, at what distances such topographic details can be intersected with the aid of a telescopic alidade. Thus, practically the entire southern side of Mount Rainier, from Little Tahoma west to Peak Success and down to the 7,000-foot level, was mapped by intersections from Pinnacle Peak and other stations on the Tatoosh Range. Considerably over 500 points lay within this area (which embraced about 12 square miles) the great majority of them, between 5 and 6 miles distant from the stations occupied. Vertical angles were read to all of them, and thus some 500 elevations were made available for the drawing of the contour lines. There were more than 70 of these lines,

the total relief amounting to considerably over 7,000 feet. Needless to say, it required more than one day to complete the task; each station was occupied several days in succession. Even then the result was attained far more expeditiously than would have been possible with the old-fashioned transit-and-notebook method.

It was from the Tatoosh Range also that angles were taken for the determination of the altitude of Mount Rainier. It is the rule of the U. S. Geological Survey to establish important altitudes by accurate lines of spirit leveling, beginning at sea-level or an already established base. Mount Whitney (14,501), the highest summit in the United States, was measured by that method, and so was Pike's Peak (14,110). But in the case of Mount Rainier, leveling was found wholly out of the question, not only because of the precipitousness of the snow chute up Gibraltar Rock, but because any attempt to carry accurate spirit levels over extensive snow slopes, such as must inevitably be traversed in the

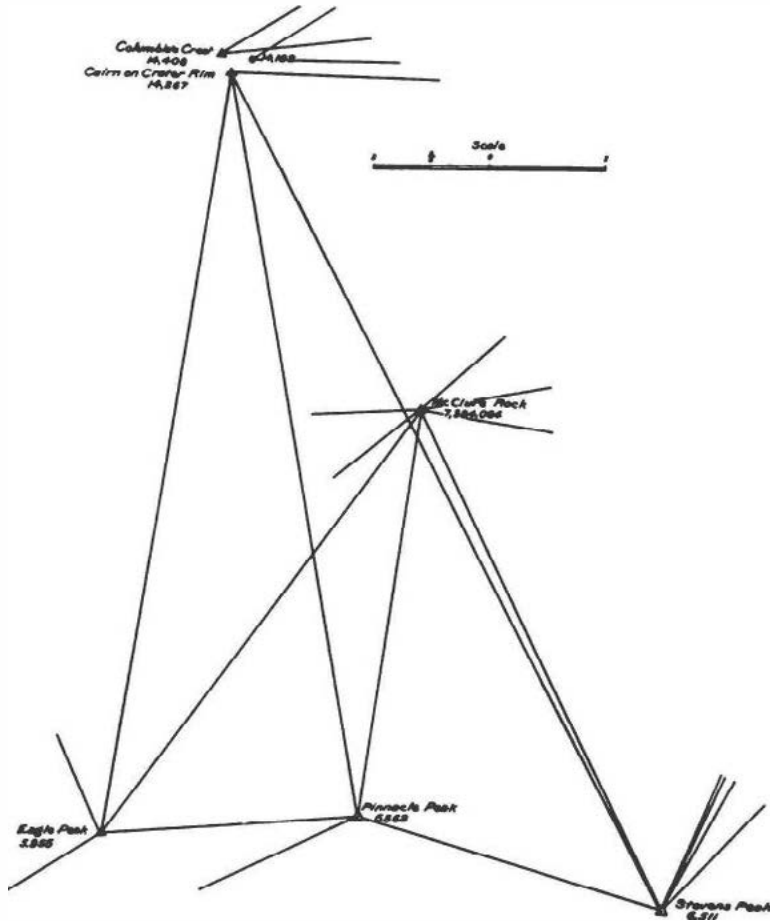


Fig. 1—Scheme of triangulation connecting McClure Rock with the Tatoosh Range, and the latter with the cairn on the summit of Mount Rainier.

ascent of Mount Rainier, is fraught with difficulties innumerable. It was deemed more expedient, therefore, to measure the mountain's height by means of carefully checked vertical angles from neighboring peaks. The plan which suggested itself to the writer, and which was actually carried out, was first to determine the altitude of Pinnacle Peak as a "stepping stone" to the top of Rainier itself. To run levels up Pinnacle Peak, however, would have been almost as difficult as up Gibraltar Rock. It was decided, therefore, to run levels to McClure Rock, which is readily reached by trail, and from that point to take vertical angles to Pinnacle Peak, as well as to Eagle Peak and Stevens Peak, by way of check. From all three of these peaks, again, angles were to be read to the summit of Rainier. In order to insure the accuracy of the result, all the points involved in this scheme, including McClure Rock, were to be bound together by triangulation, so that the distances between them

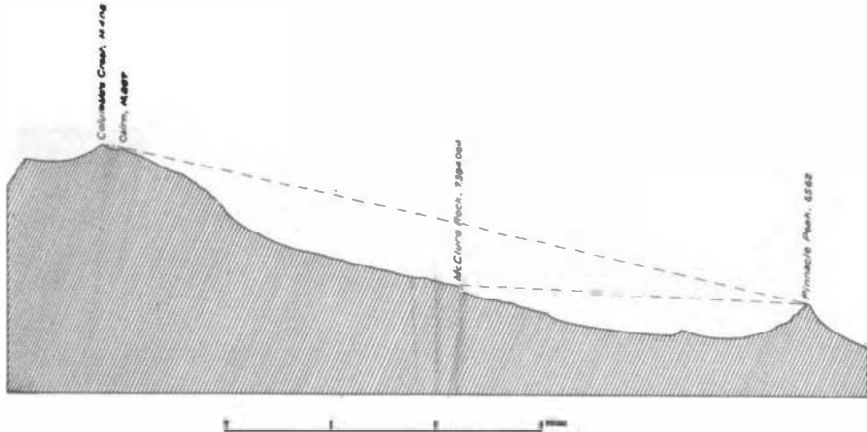


Fig. 2—Profile of Mount Rainier and the Tatoosh Range, showing the lines of sight from McClure Rock to Pinnacle Peak, and from the latter to the cairn on the summit of Mount Rainier. The vertical scale is not exaggerated.

could be computed to the nearest foot. The system of triangles is shown in Fig. 1. A curious feature of the scheme is that the initial point, McClure Rock, is considerably higher than any of the peaks of the Tatoosh Range, so that the first step was really a step downward (Fig. 2).

Unfortunately, the highest point on Mount Rainier—Columbia's Crest—is not visible from the Tatoosh Range, owing to the width of the summit crater. It was necessary, therefore, to select an auxiliary point on the crater rim that could be seen from the Tatoosh Range and from Columbia's Crest. This the writer did on his first ascent, August 18, 1910, in company with the late Charles D. Walcott, Jr., and the guide, Joe Stampfer. Sudden snow squalls compelled the party to beat a hasty retreat, but they managed, nevertheless, to erect a rock cairn 8 feet high to serve as a target for the triangulator.

On September 3 of the same year the writer made a second ascent, accompanied by Fred Owens of Tacoma, and carrying a light plane table outfit in order to determine the position and height of Columbia's Crest from the cairn, and to map the summit itself. The weather, however, turned out worse than the first time, a fierce gale arising, against which it was impossible to stand. Crawling to the shelter of the cairn, the writer managed to take two angles to Columbia's Crest, Owens throwing his weight upon the plane table to keep it from blowing away; but the exact position of the snow dome remained undetermined.

In 1911 the projected triangulation was executed, but it was not until 1913 that the position and altitude of Columbia's Crest were definitely ascertained. The honor of completing the task belongs to Topographer C. H. Birdseye, who, with his companions C. B. Harmon and Frank Krogh all but perished in a blizzard on the summit. The story of their night's vigil in a steam cave of the crater, pounding and rubbing each other to ward off a fatal sleep, has been described elsewhere. From this first unsuccessful attempt they returned with ears, fingers, and feet badly frosted; but, nothing daunted, they essayed the ascent again, four days later (August 20) when the sky had cleared. That time the weather conditions were ideal, and in the space of five hours they succeeded in taking the necessary angles to the Tatoosh Range, in locating Columbia's Crest, and in mapping the entire summit platform.

Thus was completed the survey of Mount Rainier, which has resulted in placing the peak near the top of the list of high summits in the United States. The figure announced by the U. S. Geological Survey is 14,408 feet. The manifold repetition of each angle measured, the checks afforded by back readings, and the compactness of the triangulation scheme all combine to give this figure a degree of accuracy second only to one obtainable by spirit levels—a mode of measurement impracticable on the flanks of an ice-clad peak.



MOUNTAIN GOATS

Chas. S. Gleason

Photograph taken August 9, 1915, in Panhandle Gap on the east slope of Mount Rainier at an elevation of 7,000 feet.

THE GEOLOGICAL STORY OF MOUNT RAINIER

EDWIN J. SAUNDERS

PROFESSOR OF GEOLOGY, UNIVERSITY OF WASHINGTON



OUR majestic mountain, once a very symmetrical cone, and still quite young as mountain history goes, bears on its flanks deep scars of the never ending conflict between the forces of nature. For centuries the grinding glaciers have been working to level the immense mass of lava and ash piled up by a series of eruptions in recent geological time. They have accomplished only a small part of their task, but have added greatly to the beauty and interest of a trip to the mountain. The grand view we get of Mount Rainier from Puget Sound points is due to the fact that it is situated about eleven miles from the summit of the range, on the westward sloping surface of an uplifted peneplain, which has been deeply sculptured by erosional agencies to form the innumerable ridges, peaks, and valleys of the Cascade Mountains. It thus stands by itself, as does Mount Baker, far surpassing in height the surrounding peaks.

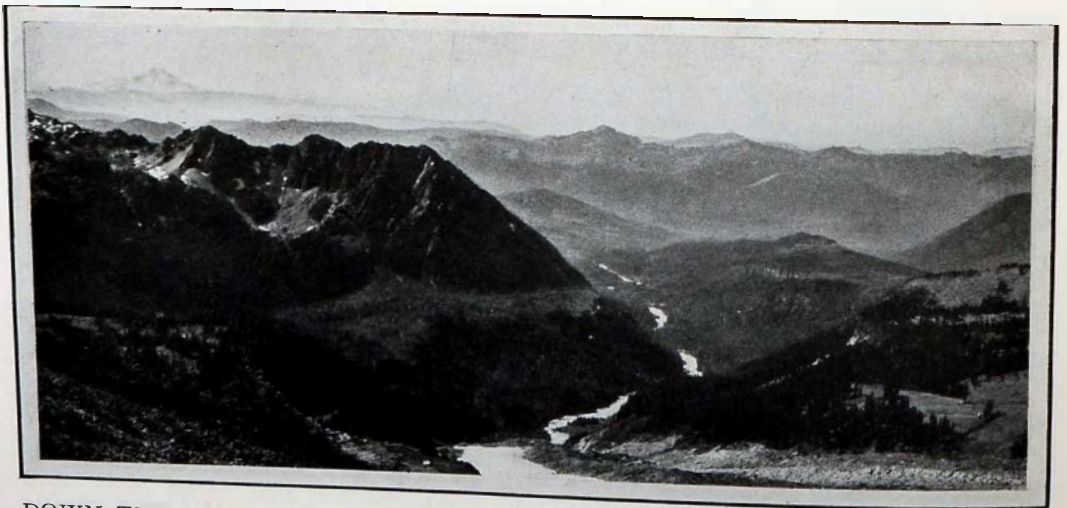
A glance at the eroded edges of the glacial trenches in the mountain and a study of the summit craters with their numerous steam and gas jets, still quite warm, proves beyond any question its volcanic origin, and furnishes us an interesting page in the geological history of the State of Washington. To get the complete story it will be necessary to outline briefly the geological events preceding and during its growth. And as these events can only be stated in terms of geological eras and periods an outline of the divisions of the present geological era known as the Cenozoic is given below :

Cenozoic Era	}	Quaternary	Recent or Human period.
			Pleistocene or Glacial period.
	}	Tertiary	Pliocene period.
Miocene period.			
Eocene period.			

Little is known of the pre-Tertiary history of this section. At the beginning of the Tertiary, a range of low mountains, in the general region now occupied by the Cascades, furnished abundant sediment which was laid down in a large embayment occupying what is now known as Puget Sound basin. Volcanic activity was common throughout eastern and western Washington, and immense masses of lava were extruded and intruded through these older rocks. If any large volcanoes existed along the Cascades at this time they have been entirely destroyed.

After these Eocene and Miocene rocks were laid down, an uplift, with intense folding and crushing of the rocks, caused the ocean waters to drain out of the embayment, and large rivers began to erode the newly uplifted rock mass. Before the end of the Pliocene period the whole Cascade rock mass was reduced to base-level or a gently sloping surface near sea-level, known as a peneplain. This has been called the Pliocene peneplain. Over this surface the Columbia and other rivers flowed toward the Pacific Ocean.

The closing event of the Pliocene period was an uplift, with slight folding or warping, which caused the peneplain to be elevated to form the Olympic and Cascade plateaus, separated by the Puget Sound trough. The rivers were rejuvenated and immediately began anew their work of sculpturing the surface to the forms we now see in the Olympics and Cascades. The strain to which the rock mass was subjected by the uplift caused fractures through which the molten lavas forced and burned their way to the surface. Around the more active centers, or craters, volcanic cones were started, and Mount Rainier probably dates from this period. Continued eruptions of lava and immense volumes of ash, lapilli, and bombs gradually built up a very symmetrical cone towering 8,000 to 10,000 feet above the planed-off surface of granites, schists, and tertiary sediments. The light colored granite of this old platform may be seen at the end of Nisqually Glacier, in Carbon River valley, and in other localities where the glaciers have cut down through the overlying dark colored lavas of which the mountain is built. The view from Mount Rainier toward Mount Adams or Mount St. Helens shows very clearly, in the uniform elevation of the interfluvial ridges, the remnants of this old plateau surface. (Fig. 1.) In the region about



DOWN THE
NISQUALLY

Fig. 1. Showing even sky line of old peneplain as seen from Mount Rainier, looking toward Mount St. Helens. Lateral moraines show above surface of Nisqually Glacier in the foreground.

the mountain it is from 5,000 to 7,000 feet above sea level and slopes gently toward the west. As a proof of this notice the course of the headwaters of the White and Cowlitz rivers as they drain the eastern slope of Mount Rainier, and swing around toward the west when they strike the old peneplain surface.

The building of the mountain probably extended over many thousands of years. Numerous eruptions, the power of which can only be suggested by results, gradually built up around the crater an immense cone composed of many cubic miles of lava. Explosive eruptions gave rise to immense volumes of ash, lapilli, bombs, pumice, and the porous lavas one sees scattered for miles around the crater. Quiet flows of lava radiating from the crater served to bind together the loose materials by bands and layers of solid lava rock. One can almost imagine the rock just cooled from the molten state, the slaggy, scoriaceous surface representing the foaming surface of the lava streams. Different types of lava, as if from different sources, are found about the slopes, and various colors, due to difference in nature and weathering, break the otherwise



Fig. 2. Cross section to natural scale, through Success Cleaver, and the cleaver between Carbon and Winthrop glaciers, from Indian Henry's to Moraine Park. Dotted line indicates probable former height, and steep slopes of Willis Wall where eroded by Carbon Glacier.

monotonous appearance of the lava surface. The exact limits of these flows have not been carefully worked out, but the diameter of the cone at its base is about 20 miles. The interbedded lavas and loose ash materials are well shown in the eroded walls of the Wedge, Cathedral Rocks, Willis Wall, Gibraltar, or any of the various remnants above the surface of the glaciers.

The angle at which these strata appear in the different exposures indicates a cone at one time several thousand feet higher than the present summit, and much more symmetrical. This is shown very nicely in a cross section of the mountain through the Success Cleaver and the Cleaver below Willis Wall. (Fig. 2.)

After the cone was built and the crater probably plugged up by cool solid lava, it looks as if a violent eruption had blown 2,000 or 3,000 feet off the top, and left an immense crater, or platform, about three miles in diameter. Remnants of the old crater and slopes are seen in Peak Success, Liberty Cap, and Gibraltar.

Later eruptions then built up on this platform two small craters, the first about 1,000 feet in diameter, the rim of which has been partially

broken down, the most recent about 1,500 feet in diameter and still perfect. The rim of the latter shows above the snow which now almost fills it. Steam and gas are still issuing from crevices in the floor and about the walls of this recent crater. The heat is sufficient to melt large caverns in the snow cap, thus furnishing a welcome protection from the strong cold winds, for belated mountaineers who stay over night at the summit. Mr. Russell describes the cave in which he stayed as 60 feet long and 40 feet wide with a great arched ceiling 20 feet high and numerous branching caverns.

Shortly after the elevation of the Cascade Mountains, culminating in the building of Mount Rainier and other volcanic cones in Washington, the whole country was gradually covered with a thick blanket of snow and ice. Mount Rainier, because of its elevation, was subject to very strong glacial erosion. Glaciers, radiating from the vast snow cap at the summit, followed the valleys already eroded by rivers, and began their work of tearing down the cone built by a long series of eruptions. The great amount of loose materials, the strong frost action on the solid lavas, and the melting and refreezing of the snow and ice made the work of destruction comparatively easy, and the glaciers have thus been able to carve out very deep but narrow trenches in the lower slopes of the mountain. That the glaciers were larger and therefore more active than at present, is shown by the numerous lateral moraines along the valleys above the glaciers (Fig. 1), and the immense piles of morainal debris scattered about the park below the ends of the glaciers. At present although the ice is constantly moving down the valleys, the melting at the lower end is greater than the ice supply, and the glaciers are said to be receding. They are also shrinking in their valleys, and the polished, striated surfaces of large rock knobs once covered are now visible above the surface of the ice.

The rivers flowing from the glaciers are so heavily loaded with coarse and fine debris that they have filled up the valleys, once much deeper, and have built broad level flats in which they meander irregularly. Thus stretches of the river in which the valley is narrow and deep with falls and rapids will be separated by stretches in which the valley is broad and rather flat. In many places the rivers flowing near the steep valley walls have undermined them, causing landslides to block the river temporarily, thus giving rise to a series of rapids and cascades. The many falls on the main streams throughout the park are due to irregularities of erosion by the larger glaciers once occupying the valleys. These are similar to the ice cascade in Nisqually Glacier or the breaks in the Paradise and Stevens glaciers where the ice now falls over irregularities in the valley floor. Due to the overdeepening of the main valleys by stronger glacial erosion, many falls occur where the tributary streams join the main streams over the steep valley walls.

The glaciers are the never-resting enemies of the higher mountains, and especially of a conical peak like Rainier. The work they have done

and are doing is well shown in the great amphitheatre, or cirque, at the head of Carbon Glacier, which is surmounted by Willis Wall, also in the steep front of Gibraltar at the head of Cowlitz Glacier, and in the Sunset amphitheatre seen from Indian Henry's at the head of Tahoma and Puyallup glaciers. (Fig. 3.) Almost perpendicular walls of interbedded lava and ash rise hundreds of feet above the ice mass which is constantly gnawing away the base of the cliffs and will finally destroy these remnants of the old crater. Where the glaciers move along the sides of the different wedges and cleavers they are gradually undermining them and carrying tons of debris down to lower levels, as evidenced by the immense piles of debris on the surface and in the ice mass.



TAHOMA GLACIER

Fig. 3. Cirques at head of Puyallup and Tahoma glaciers, showing their work in tearing down the mountain. Point Success to the right.

The mountain has already lost one-third of its bulk, and the work goes on slowly but surely. Imagine trying to reconstruct the mountain as it was in youth, by bringing the millions of tons of debris from all over western Washington and filling up the trenches and cirques until the whole surface would be even with the existing remnants. The amount of work done by rivers and glaciers is thus suggested.

As time goes on these great cirques will gradually work back toward the solid lava core near the center of the cone, and removing most of the loose materials and lava, will destroy the graceful slopes of the mountain. (Fig. 3.) The Matterhorn type of mountain with many pinnacles and

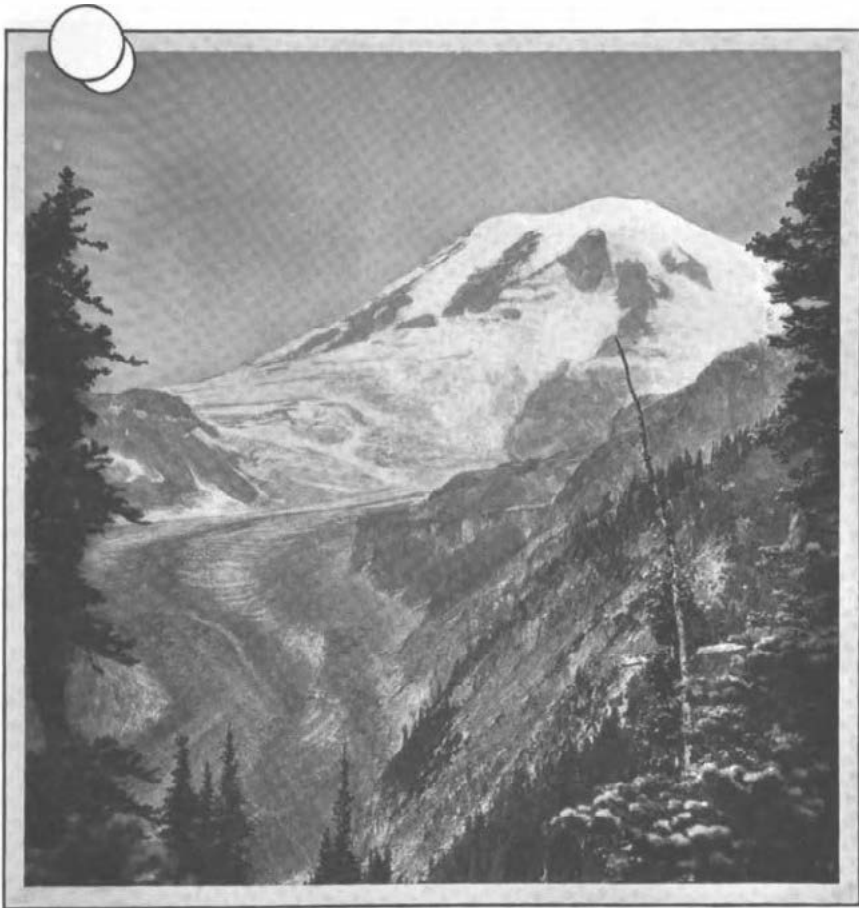
crests will be the result. Gradually the core or plug itself will weather and waste away, and Mount Rainier as we know it will be a page in the past history of the Cascade mountains. By this time the Cascade range itself will again be reduced to a peneplain similar to that existing before the uplift which caused Rainier to be built.

The circumference of the mountain at the 8,000-foot level is about 20 miles. Below this the slopes decrease rapidly and a series of natural parks or flat areas, separated by deep glacial trenches, surrounds the silver dome. They lie between 5,000 and 7,000 feet above sea level and are covered with a veneer of glacial debris either in the form of rough moraines or as a thin coating of fine soil deposited by water flowing from the glaciers. Many large boulders deposited by the ice are scattered about the parks. Even before the snow disappears in the spring, flowers begin to peep through their winter covering, and by the end of July the parks are a veritable flower garden. In the upper part of many of these parks are found the smaller interglaciers. The beauty and interest of the park region are greatly increased by the picturesque, deep, glacial trenches incised below the general surface, and the hundreds of cascades where the streams from the smaller glaciers tumble into the main streams.

Other interesting features of the mountain scenery are the many rugged ridges around and above the park region, like Tatoosh Range, Mother Mountain Range, and many others. These seem to be remnants of the more resistant rock mass that withstood erosion when the general mass was worn down to base level. Having since been subject to a long period of erosion they have become rugged saw-tooth ridges steep enough to task the energy of many a stalwart mountaineer. In some cases they contain mineral veins like the one that is being worked on the Paradise Valley trail near Longmire's Springs.

No less interesting are the many mineral and hot springs found at various points, usually below the parks in elevation. These have their source at some depth and reach the surface through fractures, joints, or porous beds in the rock. Coming from different sources or through different kinds of material they vary greatly in mineral content, the most common being sulphur, iron, and soda. The hot or warm springs no doubt have their source where more recent masses of heated lava may be near the conduit to furnish heat, and thus raise the temperature of the waters as they travel toward the surface.

Following many geological revolutions then, almost comparable in number to the late Mexican revolts, the Cascade Mountains have been maturely dissected in the present cycle and Mount Rainier is still quite a young volcanic cone. But the peculiarities of volcanism shown are characteristic of a volcano in its later quiescent, or dormant stages. Whether we can call it an extinct or dormant volcano, and whether or not it will ever again become active is a matter of pure conjecture.



COWLITZ GLACIER

T. C. Smith

THE GLACIERS OF MOUNT RAINIER

IN COMPARISON WITH OTHER WELL KNOWN SYSTEMS OF GLACIERS

R. H. McKEE



IT is often asked, what other glacial field in the United States compares with that of Mount Rainier, and also, whether any of the Swiss glaciers are larger. It is an interesting fact that the glacial system of Mount Rainier is the largest in the United States (exclusive of Alaska) and that it has glaciers longer than any others in this country. Also it is a fact that the Swiss glaciers are a more extensive system and individual glaciers there exceed in length and area the largest that Mount Rainier has to offer.

On Mount Rainier there is a continuous ice and snow-covered region, approximating the form of a circular disk about the summit, having an average diameter of 7.8 miles, equaling an area of about 48 square miles. The longest single glacier is the Emmons, on the

northeast side, with horizontal length of 5.9 miles, and varying in width from $1\frac{1}{2}$ to $\frac{1}{2}$ miles. This glacier is intimately connected with the Ingraham and the Cowlitz glaciers, and the horizontal length of the continuous ice flow, involving parts of these three glaciers, is 6.5 miles. The next longest glacier is the Carbon whose length (below the Willis Wall) is $5\frac{1}{4}$ miles, with varying width from 1 to $\frac{1}{2}$ mile.

On Mount Baker the total horizontal area of glaciers is about 31 square miles. The longest single glacier is the Deming with horizontal length from the summit of 4.3 miles. This is on the southwest side and is a tongue extending from the general ice and snow covering of the mountain.

In the Glacier National Park there are about 100 glaciers scattered over about 520 square miles of mountains, with a combined glacial area of about 22 square miles. The largest is the Blackfoot with an extreme length, as the ice flows, of 1.8 miles. Its average length along flow is $1\frac{1}{4}$ miles and its average width is 2.6 miles. Its area is $3\frac{1}{4}$ square miles. If we include with this, the adjacent glaciers of Harrison ($1\frac{1}{2}$ sq. m.), and Pumpelly (0.9 sq. m.), we have a practically continuous ice-covered area of 5.65 square miles. This is easily the largest continuous ice-covered area in Glacier National Park.

On Mount Hood the horizontal area of glaciers is about $6\frac{1}{2}$ square miles. The longest single glacier is the Eliot, on the northeast side, whose length from the summit is about 2.7 miles. For most of its length the width is about $\frac{1}{2}$ mile.

On Mount Shasta the horizontal area of glaciers is about $4\frac{3}{4}$ square miles. The longest one is the Wintun on the east side, with a length of 2 miles and a width varying from $\frac{1}{2}$ to $1/10$ mile. The glacier having the largest area is the Hotlum, on the northeast side, with an area of 2.34 square miles.

The above dimensions of glaciers are the horizontal measurements scaled on the United States topographic maps. As any one glacier has usually a steep slope, its actual length is greater than this scaled length.

In Switzerland, it is estimated there are about 470 glaciers with a combined area of about 710 square miles. This does not include many Alpine glaciers in Austria and other countries. Switzerland has the most extensive Alpine glaciers, and the largest one is the Aletsch, in the Bernese Alps, with a length of $16\frac{1}{2}$ miles and a width of more than a mile. The next one in length is the Unteraar, 10.4 miles. Two others follow, the Garner, in the Pennine Alps, and the Viesch, in the Bernese Alps, each with a length of 9.4 miles.

REFERENCES: Topographic Map of Mt. Rainier National Park, U. S. Geol. Survey, surveyed, 1910 to 1913, inclus.

Topographic Map of Glacier National Park, U. S. Geol. Survey, surveyed, 1900 to 1910, inclus.

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Mt. Hood Quadrangle, U. S. Geol. Survey, surveyed, 1907 and 1909-11.

New International Encyclopedia; Dodd, Mead & Co.

ENEMIES OF THE RHODODENDRON

J. W. HOTSON

PROFESSOR OF BOTANY, UNIVERSITY OF WASHINGTON



HE rhododendron, the Washington state floral emblem, grows abundantly in the Puget Sound region, especially in Kitsap, Mason, and Jefferson counties. Although there are nearly two hundred species known there is probably only the one native species in Washington, namely, *Rhododendron californicum*. There are, however, many cultivated varieties that have been imported for ornamental purposes.

Like most other plants the rhododendron, whether wild or culti-



J. B. Flett

RHODODENDRONS

The state flower of Washington. It grows as a tall shrub in great abundance in certain localities in Western Washington, particularly on the peninsula between Hood Canal and the main Sound. In May its great clusters of pink blossoms amid the rich green of the conifers make a spectacle of amazing splendor.

vated, has enemies with which it has to contend. Among these enemies there are several fungous diseases that are quite common. Some of those found on our native species are probably of long standing but others are being introduced by the imported cultivated varieties and these will, if they have not already, spread to the wild species.

The vegetative portion of a fungus is composed of numerous fine filaments such as are seen on moldy bread. These filaments usually gain entrance to the interior of the leaf through minute openings called stomates located on the underside of the leaf. When once inside they grow in between the cells or through them absorbing nutriment and water and eventually killing the cells. After they are killed and in the process of drying up they lose their green color and gradually become brownish. This change of color in the leaf is one of the first evidences that the plant is diseased. Later they appear a darker brown and become dry and crisp. This condition is due to the work of one of three different species of fungi. The vegetative condition (the mycelium) of all three is quite similar. They all attack the host (the rhododendron) in the same way but they differ from each other in the character of the fructification or in the mode of reproduction. In some cases the diseased surface of the leaf becomes lighter in color and divided off into definite areas with one or more black spots in the center. These black spots are the fruiting areas of the fungus producing the disease. It is in these bodies that the spores that spread the disease to other leaves of the same plant or to those of other plants are produced. These fruiting bodies may be of different shapes depending on the species of fungus that is present. Sometimes they are boat-shaped and at maturity slit lengthwise to allow the spores to escape. This fungus (*Lophodermium*) is of very general occurrence. Another form (*Phasidium*) produces a round or five-sided black fruiting body which at maturity splits from the center by five radiating slits, giving a more or less star-shaped appearance. A third species (*Ascochyta*) produces small round black spots about a millimeter in diameter. Not infrequently all three of these fruiting bodies appear on the same leaf. They may then be easily distinguished by their size and shape, the *Ascochyta* (*as-ko-ki-ta*) is much smaller than the others and nearly circular. Sometimes a fungus (*Coryneum*) produces large circular patches on the leaf. These are seen to be made up of a number of concentric circles with small raised pustules scattered over the surface.

Occasionally during June and later, yellow pustules appear on the under side of the green leaves. This is a rust (*Melampsora*). *Pestalozzia*, another parasite on rhododendrons, is not infrequently found on cultivated varieties in the parks and private grounds in and about Seattle. This fungus produces brown colored leaves similar to those just mentioned. The fruiting areas, however, are very minute black spots that can not be identified with certainty without a microscopic examination.

These are some of the diseases that the rhododendron is heir to, but they are not, by any means, all of them. They are, however, the commonest, and if diseases are found that do not seem to correspond to one or other of those given above, if samples are sent to the Botany

Department of the University at Seattle, an effort will be made to identify them.

As to treatment, little can be done on a large scale in the forest. In parks or around private dwellings, however, the troubles may be controlled. All affected leaves should be cut off and destroyed. If only a small portion of the leaf is affected cut off this portion with a pair of sharp scissors and then in the fall take off all infected leaves. During February or March before the leaves come out spray well with Bordeaux mixture of 5-5-50 strength. Repeat this again after the flowers have disappeared in the spring.

The summer strength of lime sulphur wash will also help to control these diseases but it is not as effective as the Bordeaux mixture.

LOCAL WALKS

SEATTLE LOCAL WALKS

J. N. BOWMAN



THE Seattle local walks for the past year may be classified as Saturday walks, moonlight walks, regular local walks, and special outings. The regular walks far outnumbered any of the others. The distance covered in each instance varied with the purpose of the outing. The moonlight walks were necessarily the shortest—for various reasons—averaging about three miles; the regular walks ranged from eight to thirteen miles; while the hikers found satisfaction in stretches from seventeen to twenty-eight miles; the Saturday walks, like the moonlight walks, were also necessarily short—but for other reasons—four miles.

The selection of the territory for the outings depended on the whims of the leaders, and to some degree on the newness of the trails to the Mountaineers. Like the leaders, the members themselves also have preferences for certain localities and for certain trails. The Rhododendron and Christmas walks invariably touch the Hidden Ranch or its locality, and these places are a constant source of pleasure to those who repeat the walks year after year. Two of the walks during the year were at some distance from the city: the Cedar Lake outing last October to inspect the city water and light supply, and the Whidby Island walk in June. The territory north of Seattle does not seem especially inviting either to the leaders or the members—only two walks during the year. South and east of the city the countryside was equally inviting—five walks each; of

these one to the east and two to the south were hikers' trips. The Sound country seems to be the most inviting of all—eight walks during the year.

Two joint outings were held during this year. With Tacoma, the Seattle branch joined in the Redondo-Dash Point walk last May; and with Everett the walk was made on Whidby Island last June. In both cases the trails were beyond the usual haunts of both branches and so a whole day was made of it. Supper was cooked and eaten on the beach and those interested, or rather those who were courageous enough, took a swim in the Sound waters.

The weather during the year, strange to say, was uniformly good for tramping purposes. Only a few of the walks were hot ones; on most of them the weather was mild, or cloudy, yet clear of mist; only on one occasion was there a typical Seattle day. The Cedar Lake outing was wet; members of the old guard observed that if it was not the wettest trip ever taken at least it had only one possible rival.

The predilection of the Mountaineers for trails is very marked. It seems never too far or too troublesome or too much out of the way to leave a perfectly good highway built at great expense in order to catch some stretch of trail winding along a stream, through a stretch of thick timber or along a bluff overlooking the Sound. The walks this year have been very free of highways and the members were fortunate in the many miles of good forest trails selected for them by the scouts.

One of the objects of the Mountaineer Club is the inculcation of a love for nature and a careful observation of her ways; yet it has been remarked that man has usurped the place of nature and become the center of interest. People are interesting at any time, but are especially interesting when thrown into contrast with the things and forces that man is trying to understand and control. Good common-feeling is produced by all reaching the end of a long trail, and by all taking a turn at the snow-slide; a closer human kinship is created by attempting to avoid the "squaw-fire" on the supper walks, and by the singing on the long Sound boat rides. This new form of socialization seems to take the place of nature unconsciously, and nature is used rather than enjoyed directly; the elemental habits of walking, eating, swimming, fire-building, singing, and the general outdoor life and resulting camaraderie are all added bonds that bind the members into closer acquaintance and friendship. That this is the case seems to be indicated by the hazy recollections of the trails traversed, by the constant mingling of all the members, by the solicitude evinced by all for guests and new members. Nature is a jealous lover and reluctantly shares herself with other interests.

During the year a new custom has been growing up among the walkers; eating supper in common on the return to the city. From four to thirty-three members have, on several occasions, enjoyed a cafeteria meal together with the usual after-dinner singing. The custom serves as a very practical as well as a very pleasant ending to the outing, and the



T. J. Acheson

Mountaineers climbing Red Mountain in the Cascades near Snoqualmie Pass.

T. J. Acheson

Jo Lake, at the head of Gold Creek in the Cascade Mountains. Visited on Decoration Day Outing.



H. W. Playter

Lunch at French Lake on a joint walk of Seattle and Tacoma Mountaineers.



VIEWS OF SEATTLE LOCAL WALKS AND SPECIAL OUTINGS

present indications are that the custom will become an established tradition.

Of the special outings conducted by the Local Walks Committee, two were three-day outings on the Sound. One of these was the San Juan Island trip, when Mount Constitution was climbed and the Moran home visited. The cruise through the islands passed by the historic spot where England and America almost came to blows two generations ago. The other outing was to Hood Canal on Labor Day. The Canal is a favorite haunt of the Mountaineers; there is something enticing in its hidden nooks and bays, the rushing streams and waterfalls on the Olympic slopes, the beckoning spirit of exploration and of adventure to enter the untraversed regions up toward Olympus.

Three of the special outings were mountain climbs: Squak Mountain, Red Mountain, and Alaska Mountain. The first and second were two-day trips, while the third covered three days. There is much in common in all the mountain climbs and yet much that makes each one stand alone in the memory. The night ride and walk, finding and making camp, the early rising, the climb, the rush for the train and back to the city—this tells the story of the various trips. Yet the lay of the land, the changing position of the moon in the tree-tops, the particular tree under which the camp is made, the peculiar note of the breakfast call, belated persons and their experiences with wrong trails, the special coloring in a certain place in the valleys, unique experiences in making the snow-slide, the division of the party for particular work, and bits of scenery that stick in the memory for some unknown reason, make each trip distinct from all others. Nature seems to get a deeper hold on the memory on these trips than on the one-day local walks; the reason, no doubt, being that there are fewer people in the outing, that there is a longer time spent with nature and the mind is more open to it; and that the outing is in scenery radically different from that to which all are fairly well accustomed in the city and its countryside. On a longer trip with fewer people the talked-out point is more quickly reached and the mind may be more fully opened to the environment.

The Washington's Birthday outing at the Lodge was one of pleasure and exercise. Snowshoeing on a twelve-mile hike over snow from twelve to twenty-five feet deep, in the cold, clear air, is an enviable experience. In the presence of mountains of snow, of trees turned into skeletons, with the details of nature blanketed and the great things thrown into relief in the stretches of space, one feels at one and the same time the meaning of the atom in the universe and the greatness of the human mind that can conceive the etherial void and dot it with solar systems.

The local walks accommodate more members than any of the other activities of The Mountaineers. The walks of this year have been eminently successful in giving the members a variety of scenery on all sides of the city, a variety of distances, and an opportunity for a variety of experiences. In the number of supper walks an opportunity was given

for all members to learn something more of camp life than they get in the usual walks or even in the longer trips. The selection of commissary and the packing of food-stuffs and cooking utensils, the selection of a place for the fire, the making of the fire and the cooking of the meal are delightful experiences—often delightful only to look back upon. A good friend stated that at the last Point-no-Point supper he counted forty-seven kinds of fires.



WASHINGTON'S BIRTHDAY OUTING AT THE LODGE

L. F. Curtis

EVERETT LOCAL WALKS

WALTER ERIKSEN

Everett Mountaineers are true Westerners in knowing that their own locality offers rare and abundant opportunity for the enjoyment of the out-of-doors. So rich is the region in enticing trails that it is impossible to cover them all in a single year's series of walks, or a whole year's walks in a single article.

The season opened on October 11, 1914, with a Whidby Island walk from Saratoga to Maple Cove. Fishing boats were much in evidence that morning and the event of the day was the opportunity to see from the boat a large salmon haul. But it is the trip of November 8 that will recall to some the most vivid and varied sensations of the year. This was the Club's first walk on Camano Island, and lay from Camano Head to Alger's Bay, a distance of eight miles. Immediately from the landing a very steep trail led to the top of a bluff about 250 feet high, which commanded a fine view of the Sound and the islands, Whidby and Gedney. For several miles the trail continued along the top of the bluff. A noticeable wind was blowing. After lunch the way led along the beach where agates abounded. The wind had become a gale, and it was thought best to start back sooner than scheduled, two miles below Alger's Bay. There being no dock, a rowboat and guide rope were necessary to get the party aboard. Medals were certainly due to all for conduct so cheerful and brave amid billows so dampening to one's external comfort and so disastrous to internal peace. The little

Island Flyer, struggling against a terrific gale, came at last into the shelter of Hat Island where a providential tugboat received the crowd and brought them safely into port. A second Camano Island walk on February 7 proved a far more peaceful experience. The crossing was made in the new steamer *Argos*.

Often one of the many pretty lakes within easy walking distance from Everett has been made the objective point of an enjoyable walk. On November 22 it was Lake Stevens. On December 6, Lake Cassidy was visited. An auto truck took the party of twenty-seven some miles out on the Marysville road, but there was still nine miles of tramping before the members reached home. The Mud Lake region was visited and explored on January 17 by means of trails since obliterated by fire, and logging operations. It was a beautiful day after a light snow fall. The Bulletin had advertised a short-cut. With some it is an open question who found it. At any rate the distance was nine miles and the expense of five cents surely netted ample returns on the investment. The Silver Lake region formed the starting point on February 21, March 21, and April 11, Members who have tried since to retrace these walks have failed because of the ramifications of new and old trails.

The 1915 New Year's outing was held at Berlin and included a walk up the Miller River. A snow fall of five inches added much to the interest of the trip.

Early in March a large crowd turned out for the boat trip to Birmingham and the walk through the Indian Reservation. The trail led by the south end of Lake Shoe Craft. The ten miles were not wearisome because so much of the way lay through magnificent silent forests. Unfortunately the Indians, patterning after their enlightened white brothers, have sold this to a logging concern. At the edge of the wood a long slender racing canoe in process of construction keenly interested all, as did also the Totem pole at Tulalip.

One of the most satisfactory one-day out-of-town trips, not so hard as either the Lake Isabel or Lake Serene trip, is that to Wallace Falls, four and one-half miles out of Gold Bar. Members are glad to see it scheduled every year. This year it occurred the last of April. The walk led first through logged-off land, then through large timber over a well defined and moderately steep trail. After lunch at the main falls the more ambitious went on up to the upper falls, less than a mile beyond. The others dropped down into the canyon to the lower falls to enjoy the picturesque views this place affords.

May 16, a jolly crowd boarded the 8:10 Milwaukee train for Monroe, where the journey to Lake Fontal was begun. Roads and trails, partly through heavy timber and along the high bluffs of the Skykomish River, afforded magnificent panoramic views of the valley and mountains beyond. Wallace Falls could be seen as a tiny streak about fifteen miles distant. Some of the more energetic made a side-trip to Lake Hannon,



Summit of Mount Lennox (5,700 feet).
Decoration Day outing, 1915.



West beach of Camano Island, near
Rocky Point.



Sunset at Maxwellton, Whidby Island, on a
joint walk with the Seattle club.



Wallace Falls in Wallace River, Gold Bar,
230 feet high.

possibly the prettier lake of the two, as it has a more open shore line. The weather was perfect.

The Rhododendron walk was earlier than usual, May 2, on account of the early spring. The first part was by boat to Holmes Harbor, Whidby Island, then through big timber, reaching the west beach in time for lunch. A three-mile walk along a gravelly beach brought the party to Fort Casey, where they were shown every courtesy. After taking an hour's time at the Fort looking at the big guns and mortars, the crowd wended their way to the fields of our state flower. Those who thought it best to take an auto at Fort Casey arrived at camp on the east beach earlier than the trampers. Here supper was served and the *Marguerite* brought the flower-laden party back to town somewhat later than scheduled time.

The Decoration Day outing began with a four-mile walk made with the aid of bugs from Berlin up Money Creek, over the Apex Mining Company's tramway. Putting up tents and clearing places for sleeping bags after 10 o'clock at night was a new experience for several. After an early breakfast a well-defined trail brought the party to Goat Basin, with its pretty Lake Crystal, and Mt. Lenox twenty-four hundred feet above. Sixteen of the thirty made the climb, which afforded most splendid views of mountains, valley, and lakes. Coasting on the snow was enjoyed on the descent, which was made on the opposite side of the lake. The next day the party followed the tramway up to the Apex mine, four miles above camp. Katherine Falls and Mineral Springs were features of interest on the return trip to the railroad station. This outing was unique in that it included the climb of a six thousand foot peak.

TACOMA LOCAL WALKS

STELLA SCHOLES

The territory surrounding Tacoma offers a wealth of opportunities for a perfect day in the open. The Tacoma Mountaineers appreciate their fortunate location, and are reaching out eagerly to make the most of it. There are still many roads unfamiliar, and many trails yet untrodden by hob-nails. But the schedule of walks arranged by an energetic local walks committee during this last season added much to our knowledge of the out-of-door pleasures that are ours with slight effort.

There is no lack of variety as we go in different directions. Turning outward from our home shore on board a small boat, we welcome the salt spray in our faces during a short run to one of the fascinating bays or islands near by. Scrambling ashore, we usually find a woodland trail opening to us, green and alluring. Sometimes the beach itself attracts. The wary clam in these parts betakes himself to his lair at the sound of "two whistles to go ahead," for Mountaineer appetite for chowder is



THE PRAIRIE NEAR TACOMA

A. H. Denman

Where the great white dome stands out in unsurpassed grandeur. The entire prairie stretching for miles southward from the city is like one vast park. Here the Tacoma Mountaineer loves best to roam.

famous. In this same region chicken dinner is provided at least once a year, lest there be chechakos for whom clam is too strong game. Strawberries too—nowadays no Mountaineer pretends to be an epicure who has not tested the flavor of strawberries a la Fox Island. But if for the moment we seem to be abandoning the pursuit of the aesthetic for the flesh-pots of Egypt, let me hasten to add that the real feasts that these marine walks afford are splendid panoramas of water and shore, often with the Olympics or the great mountain that “stands kingly and alone” superbly reflected.

Inland to the east are rivers. Farms prosper in their valleys and furnish a pastoral setting for many walks where fields are dotted with peaceful cattle. But the rivers lead back to the hills. Our hearts are in the highlands, and because we fain would be there too, trips to the vicinity of Mount Tacoma have been included in the schedule whenever feasible. Last October a party made an ascent of Eagle Peak, the southern buttress of the Tatoosh Range. It rises sheer to a height of 5,955 feet not far from Longmire's, and presents an interesting bit of rock-work to the climber. The party found quarters at the National Park Inn, where they were the sole occupants, tourists and all that pertained to them having long since departed. Early snow on top, autumn crispness in the air, autumn tints in the foliage, autumn spirit in everything, rewarded the venture. The Tacoma midwinter outing, highly successful in 1913, became impracticable last December because of the train schedule, and had to be given up, though not permanently it is hoped, for again in winter there are glad tidings for him who will go up into the mountains. “The winds will blow their own freshness into you, and the storms their energy.” Tree and rock and stream in their furry dress of snow will delight you in new character. Perhaps you can travel far among the silent places by the use of skis, a pastime you will relish keenly. Man and Nature have provided abundantly for your pleasure at this season at Longmire's. When early night drives you to shelter, there are the comforts of the Inn before you. Logs crackle in the great fireplace, while about the hearth you revel in camp-fire fun.

But in late spring, on Memorial Day, the sleeping-bag was comfort enough, when a party went to Beljika's summit, a foothill near Mesler's. This altitude affords a fine prospect over billowy blue mountains, where Adams and St. Helens stand guard in the distance. The triumph of Beljika, however, is its proximity to Mount Tacoma, which produces, across an impassable abyss, a never-to-be-forgotten impression of magnificence.

One cannot always respond in person to the “mountain's voices calling softly,” but the Tacoma Mountaineer finds splendid consolation on the prairie, where the great white dome stands out to view in unsurpassed grandeur. This prairie is his natural playground, a region

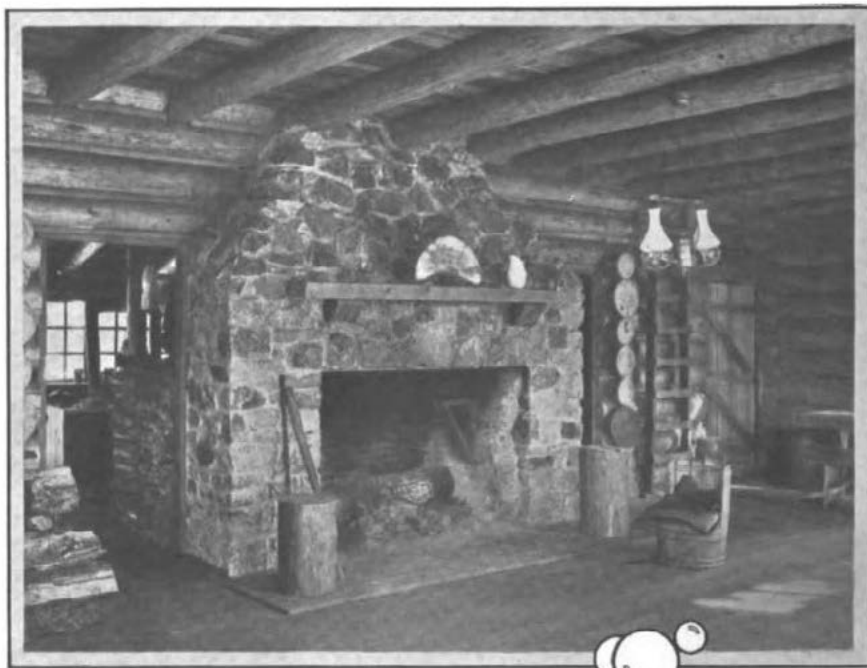
possessing great beauty and charm. The prairie-walk is the typical walk of the Tacoma Mountaineers, and is specially popular with Seattle and Everett guests. The entire prairie, stretching for miles southward from the city, is like one vast park. Short, thick grass, brown during the greater part of the year, carpets the undulating surface. Low cone-shaped evergreens, branching to the ground, are distributed irregularly, and screen delightful glades or hide from casual glance amazing flowery dells. Sturdy scrub oaks struggle for existence in a land where the pine family holds acknowledged sway, and contribute their own peculiar touch to the aspect of the whole. In the springtime the prairie is a fairy-land of flowers, now gleaming with the gold of buttercups, now blue with camas flowers, or purple with exquisite violets. It was here on the prairie that the bird-walk wound its devious course from South Tacoma to Parkland last April. Fifty-one different kinds of birds performed for our entertainment, in solo, in chorus, and in moving pictures in the natural colors.

A chain of picturesque small lakes some twelve miles away enhances the attractiveness of prairie walks. To encircle American Lake at violet time is a favorite tramp, which usually includes a short digression to Lake Sequelitchew. Here an inscription on a granite slab tells us we are on the spot where the first public Fourth of July celebration on the Pacific Coast occurred in 1841. A charming bit of roadway through scrub oaks between Spanaway and American lakes invites frequent returns, and even more inviting is the sunlit woodland about Lake Steilacoom, where dainty dog's-tooth violets in season bring to mind many a field of avalanche lilies higher up by the snows. Beyond the falls over which Chamber's Creek entices the waters of the lakes, an open stretch of prairie leads to historic Fort Steilacoom, and not far away, overlooking the salt sea, lies the quaint old village which bears the same name. It is here that we find Scotch broom rampant. Brought from its native land in the early days of the Hudson's Bay Company to gladden the hearts of exiles with its cheerful hue, the broom now runs riot at the edge of the prairie, and at blossom time makes a display of unrivaled gorgeoussness.

And so on this prairie the Tacoma Mountaineer loves best to roam. Often his motley costume adds a dash of gay color to the landscape. Often he may be seen sprawling along the top of a rail fence, or suspended by the back of the sweater from barbed wire, or crumpled up on the ground in an attempt to crawl under. For since the automobile has made the city resident covet the prairie's loveliness for his home, there are these barriers, which did not confront the Yakima Indian when he used to gallop his cayuse on the natural macadam about old Fort Nisqually, whither he came from across the mountains to barter. In spite of fences the old care-free spirit still lingers in the prairie, and it is good to breathe it in and feel one's self the child of Nature still.

SUMMARY LOCAL WALKS AND SPECIAL OUTINGS

No.	Date	Local Walks	Miles	Leader	Attendance	Cost
	1914-15	Route				
234	Oct. 4	85th St. and Greenwood Ave. to Ballard Beach.....	11	Mr. and Mrs. J. C. Young.....	63	\$.10
235	Oct. 18	Cedar Falls to Cedar Lake, Municipal Power Plant	10	Ben C. Mooers	44	1.65
236	Nov. 1	Manchester to Point Glover to Waterman.....	10	Glenn C. Beechler, Cornelius Barry	57	.50
237	Nov. 15	Renton to Panther Lake to Renton.....	9	P. M. McGregor.....	163	.25
238	Nov. 22	Kirkland to Cottage Lake to Bothell.....	17	C. G. Morrison	38	.60
239	Dec. 6	Houghton to Juanita	10	E. W. Harrison.....	98	.25
240	Dec. 20	Elwood to Hidden Ranch to Chico.....	7	Mary Paschall	180	.50
241	Jan. 10	Brownsville to Enetal.....	10	Norman Engle	95	.50
242	Jan. 17	Renton to Cedar Mountain to Renton.....	22	Mary Prettegianni	29	.35
243	Jan. 24	Esperance to Cowen Park.....	13	Leslie F. Curtis.....	157	.35
244	Feb. 14	Southworth to Olalla	9	Charles Hazlehurst	188	.50
245	Feb. 28	Mercer Island (Apple Cider Walk).....	7	Arthur Carkeek	172	.25
246	Mar. 14	Port Orchard to Waterman.....	10	Paul Dubuar	95	.50
247	Mar. 21	So. Colby, Long Lake and Fragaria (Chicken Din.)	8	Jan Kool	52	1.25
248	Mar. 28	Riverside to South Park.....	12	Ben C. Mooers.....	104	.10
249	Sept. 23	Fairview to Taylors Mill (Moonlight Walk).....	3	Sallie Shelton	38	
250	April 11	Kennydale to Lake Boren to Bellevue.....	11	G. A. Stanton, W. F. Sorge.....	93	.25
251	April 25	Keyport to Isl'd Lake to Silverdale (Mystery Wk.)	10	H. A. Fuller	115	.50
252	May 8	Northrup to Juanita (Sat. p. m. Bird Walk).....	4	Adelaide L. Pollock.....	29	.20
253	May 23	Portage to Vashon Heights.....	9	Edna Burroughs	75	.50
254	May 16	Redondo to French Lake to Dash Pt. (Joint Sup- per Walk, Tacoma).....	7	A. H. Brackett, Wm. A. Rueter.....	101	.50
255	May 9	Scandia to Scandia (Rhododendron Walk).....	8	Gertrude Inez Streator.....	150	.50
256	May 23	South Park to Tacoma.....	28	Lulle Nettleton	14	.45
257	June 6	Glendale to Maxwelton (Supper Walk, Everett)....	10	H. B. Hinman, Glen F. Bremerman	99	.50
258	June 12	Creosote to Port Blakeley to Pleasant Beach (Saturday p. m.).....	4	Glenn C. Beechler.....	8	.50
259	June 20	Miller Bay to Kingston.....	8	Frank G. Pugsley	95	.50
260	Sept. 12	Redondo to Dolloff Lake to Redondo.....	8	David Patten, A. S. Gist.....	76	.50
261	Sept. 26	Eglon to Point No Point (Supper Walk).....	8	Dr. and Mrs. J. N. Bowman.....	113	.50
262	Oct. 10	Navy Yard City to Dickinson Falls to Chico.....	8	Frank G. Pugsley.....	135	.50
263	Oct. 24	Cowen Park to Ravenna.....	9	G. I. Gavett.....	90	.10
		Special Outings				
19	Feb. 20-22	The Lodge. Winter Outing. Tramps and sports. Headwaters So. Fork Snoqualmie River.....	---	Local Walks Committee.....	68	4.65
20	April 17-18	Climb Squak Mt. (1,980 ft.).....	---	Charles Albertson, F. Q. Gorton.....	29	2.30
21	May 1-2	Climb Red Mt. (5,825 ft.) from The Lodge.....	---	Mary L. Hard.....	16	2.75
22	May 29-31	Gold Creek Basin. Climb Alaska Mt. (5,725 ft.) Jo Lake	---	Local Walks Committee.....	35	3.45
23	July 3-5	San Juan Islands. Rosario. Climb Mt. Constitu- tion (2,409 ft.), Point No Point.....	---	Local Walks Committee.....	87	3.00
24	Sept. 4-6	Dabop Bay, Hood Canal. Climb Mt. Walker (2,600 ft.), Point No Point.....	---	Local Walks Committee.....	46	3.50
Total attendance					3,047	



LIVING ROOM AT THE LODGE

C. M. Bixby

"May wood-fires glow
And perfect peace abide."

OUR LODGE IN THE HILLS

Small toll we ask, O forest,
Who love thy smallest flower,
Who plan no sordid plunder,
Nor flaunt an iron power;
 On Shelter Crest
 This mystic nest—
Our home for joy-filled hour!

When unchained wheels of winter
Through yonder canyons ride
And whirl their crystallized burden
Where terraced gardens hide,
 'Neath billowed snow
 May wood-fires glow
And perfect peace abide!

This mountain mothered refuge
Our love of earth fulfils:—
Who seeks will here find shelter,
A balm for storm-born ills.
 O may respect
 For these protect
Our lodge, Eternal Hills!

EDMOND S. MEANY.

Dedicated to
The Mountaineers
21 June, 1914.



Garda Fogg

SNOW TIME AT THE LODGE

When you have to pinch yourself to see if you are awake and not five years old and dreaming of Santa Claus' home in fairy land. Taken Christmas, 1914.

THE LODGE

CLAYTON CRAWFORD



As a week end or vacation home for members and their guests, winter or summer, and as a base for climbing trips of large and small parties of Mountaineers, the Lodge is fulfilling the expectations of those who dreamed of it and worked so long and faithfully to make the dream come true. Quiet visitors can loaf about the building or find inspiration and refreshment in the beauties of the park and lakes close by, while the more active can begin the day with an exhilarating swim in Big Lake and try their climbing ability on any of the splendid peaks visible from the Lodge. From Dedication Day, June 21, 1914, to October 17, 1915, 800 members and guests signed the book in which all visitors to the Lodge are required to register. This is a good showing, but the Lodge will be used increasingly as members become better aware of its charms and its appeal to sojourners in the Northwest. A Chicago girl wrote, after arriving home, that the week end spent at the Lodge in August was an unique experience and the most delightful portion of her long trip through the Far West.

Constructed of well-matched peeled fir logs and rough hewn cedar shakes, the building is striking in appearance and appropriate to its site. This is in the Snoqualmie National Forest on a knoll jutting out from the ridge of the Cascade mountains through which the Milwaukee tunneled to avoid the summit of the Snoqualmie Pass. By advice of the architect and other authorities, the committee in charge has tried to preserve the simple and rugged beauty of the Lodge, feeling that the log walls needed no decoration, that the pictures of forest and mountains framed by the five large windows of the living room should not be shut off by hangings and that the grounds should show man's intrusion as little as possible. The extinction of elk horn moss in the early days of lodge visits led to a rule against cutting or digging up flowers or plants on the ten acres covered by our lease.

A large portion of the construction was done by members, and there is still work to be done in improving the building and grounds. During the past year the log walls have been oiled, chinks filled with oakum and battened with wood strips inside and out, a large amount of brush and stumps left from clearing the site and cutting logs for the building has been cleared away, trails have been improved and extended, and, best of all, a pipe line has been laid for nearly 800 feet and now brings water to a faucet outside the kitchen door from a small rock walled basin on the mountain side 63 feet higher than the Lodge. This does away with the long pull up to the Lodge from the spring. It was a picturesque task to stride through the forest with an old-fashioned yoke on one's shoulders

and two pails of cold, delicious water dangling therefrom, when alone or with a small party, but irksome in bad weather or when many persons were at the Lodge and some one had to be running for water every few minutes. When finances will admit, water will be piped into the building for hot water tanks connected with fireplace and kitchen range, shower baths, etc. The pipe line was a big task for amateurs, but its difficulties were overcome by the energy and resourcefulness of Mr. Bremerman, committeeman in charge, with the advice and assistance of Messrs. McKee and Bowman, and the trench digging was joined in by many members and dubbed practice in modern warfare.

Labor worth hundreds of dollars has been given by members during vacations or week ends spent at the Lodge by individuals and small parties, and on two Helping Hand outings, October 24-25, 1914, and October 16-17, 1915, when all the members that could be taken care of applied themselves with energy and enthusiasm to various tasks. Most of the work was out of doors and the air is so vitalizing and the surroundings so inspiring that wonderful appetites, even for Mountaineers, assailed the commissary and no one seemed to get too tired to be proud and happy.

Every trip to the Lodge and every contribution of time, labor, or money seems to make the members fonder of it. At every visit one sees new beauties in the lake gemmed park, interesting plants or fungi unnoticed before, new glories in the mountain views, the cloud effects above, or the seas of fog in the pass below. It is hard to determine which is the best season: spring is delightful, flowers burst up as the snow melts and bees and humming birds astonish with their early appearance, frequent rains patter on the shake roof lullabies one would fain listen to but cannot resist; summer is not hot or dry enough to spoil the varied greens of the abundant undergrowth or make hiking and climbing uncomfortable, and berry bushes offer delicacies everywhere; autumn brings more rain but many delightful days and colors the mountain sides with richer hues; winter has most advocates—Big Lake freezes into a field for snowshoe races and other sports of winter outings, the landscapes are symphonies in white and dark green, moonlight turns the forest to fairy land, and the Lodge seems more inviting than at any other time of the year; the great fireplace, filled with logs that blaze defiance to the cold outside, warms the heart as well as the body, intensifies Mountaineer good-fellowship, invites the singers to do their best, the storytellers to be most brilliant and all to dream of happy Lodge days past and happier still to come.

PRELIMINARY ANNOUNCEMENT OF 1916 OUTING

THE MOUNT BAKER COUNTRY

The Outing Committee's scouts have made a general investigation of the 1916 outing territory and enthusiastically report that it offers possibilities for a wonderful outing. Mount Baker is nearer the salt sea than it is the Cascade divide. This aloofness and its rising sharply from so low a level makes it a prominent landmark in all Northwestern Washington and Southern British Columbia. It is mantled with the second largest ice cap in the United States, and has craters both active and extinct. The trip will nearly encircle the mountain and will make a tantalizing appeal to all who are thrilled by the lure of the new and untrod. Main camp can be of two weeks' duration, and one of great activity or great rest, as the individual member desires. Austin Pass is readily accessible, and with its park of unwordable beauty would be the ideal spot. It is perched at timber line, way up on the abutting flanks of Mount Baker and Mount Shuksan, almost between them, and with valleys of timbered grandeur steep and deep below. The glaciers, water falls, lakes, passes, precipices, talus slopes, and records of volcanic activity will afford many an interesting and instructive side trip. On the one hand is the defying and almost unknown Shuksan—rugged and mighty, peaked and pinnacled, terrific and wild—on the other the great white Baker, ready for hardy exploration from a new starting point. So again, after a lapse of eight years, the Mountaineers will stand on the summit of Baker, having tramped through and lived in much new country that carries with it the far-from-home feeling due to being in one of the world's great out-of-the-way places.

PROSPECTIVE IMPROVEMENTS IN THE PARK

As a result of the recent visit of Assistant Secretary Stephen T. Mather, who has special supervision of national parks, and through the efforts of the Seattle-Tacoma National Park Committee, the early extension of roads in the Mount Rainier National Park has been assured. Immediately after his trip in the park Mr. Mather authorized the survey of the Carbon Valley highway. This has already been made, both within the park boundary and outside through the forest reserve. The detailed account of the survey will be in the hands of the Washington authorities this winter and actual construction of the road will not long be delayed. A reconnaissance has been made for two other roads, one from the Carbon Valley highway along the western side of the mountain to connect with the Paradise Valley road at Tahoma Fork; the other to start from the Paradise Valley road at Narada Falls on the south side of the mountain, running eastward between the Tatoosh Range and Mount Rainier to Ohanapecosh Valley, thence northward, connecting with the Naches road from North Yakima. The west side road will be approximately forty miles in length, will encircle Crater Lake, with a branch into Spray Park, will pass all the prominent glaciers on the west of the mountain just below the ice, and will make practically every park on that side accessible by short trails from the road. Supervisor Reaburn has recommended the appropriation of a sum sufficient for a detailed survey for each of these roads. But Pierce County is seeking to raise a fund for carrying on the south and east side road survey at an earlier date. With this system of roads completed and the last gap of the McClellan Pass highway built, for which the State of Washington has already appropriated money, it will be possible to encircle the mountain

by automobile except for a portion of the north side, keeping most of the time at an elevation of 3,500 to 5,000 feet. A road was extended last summer by private mining interests up the White River into Glacier Basin.

An improvement which is to be ready for the season of 1916 is a new camp hotel near Camp of the Clouds in Paradise Park. It is proposed for the sake of efficiency to bring all hotel, transportation and other concessions in the park under one company, and at the present time such a company is being organized. The change does not contemplate a raise in prices, because all prices will be regulated by the government, which will be a sharer in net profits. The government is interested only in making possible for the largest number of people the enjoyment of its great national parks. The new hotel at Camp of the Clouds, for which much material is already on the ground, is to be so located and built as to give an unobstructed view of the mountain from its wide veranda, spacious lounging room, and dining room. The permanent building will be artistic in design, and appropriate to its location. It will be supplied with every convenience, including electric heat and light from its own plant, supplied with power from Paradise River. Surrounding the main building will be groups of tents of the most approved and convenient type.

A shelter hut at Camp Muir, for which Mr. Mather has authorized the allotment of \$700, is an improvement designed to give safety and comfort to many a climber of the great snow monarch. The building of such a hut has long been advocated by The Mountaineers and comes largely as a result of their efforts. Plans have been drawn by Carl F. Gould, a member of this organization.

ACTIVITIES OF OTHER MOUNTAIN CLUBS

ALPINE CLUB OF CANADA The Tenth Annual Camp of the Alpine Club of Canada was held from July 13 to 26 in Ptarmigan Lake Valley, some eight miles north of Lake Louise in the main range of the Canadian Rockies. Nearly seventy members of the Club are fighting for their country; one is a prisoner, some are wounded, but mercifully so far none have been killed; many have greatly distinguished themselves. Hence, the meeting was smaller than usual. A little over a hundred were under canvas and twenty-one graduated to active membership.

The site was a beautiful one, affording magnificent views of the mountains of the Bow Valley, some of which are known to those unfortunates who only pass through in trains. The first night the camp fire was lit on a projecting point backed by tall trees commanding this view in full splendour. Only those who know the mountains can appreciate the full glory of form and coloring. In the words of a master of English, "After you have once seen it, the remembrance remains with you like a tune from Mozart, which he seems to have caught out of heaven and which rings sweet harmony in your ears for ever after! It's a benefit for all after life! You have but to shut your eyes and think, and the delightful vision comes smiling back." It was never to be quite the same again. The next day the weather changed and a snow storm arrived which made things miserable for a little while and put the mountains out of condition for climbing. Then we had summer again and all was well.

A subsidiary camp was placed on a lake at the head waters of the Red Deer River, a beautiful and charming spot, though lacking the grandeur of the view from the main Camp. From this several ascents of the Black Douglas were made. The conditions of the mountain made the White Douglas im-

possible. From the main Camp many attractive climbs and expeditions were made. Among the more interesting were those of Pika Peak, Mts. Ptarmigan and Richardson and Mt. Redoubt. All commanded superb views. From Mt. Ptarmigan sixteen lakes were counted glimmering in the sun.

A unique feature of the Camp was the Patriotic Night held around the camp fire. Details were given of the ambulance which the Club had presented to the Canadian Red Cross Society which was subscribed to largely by the American as well as by the British members. Mrs. G. E. Vincent of Minneapolis gave a most interesting account of the work done in the United States for the relief of the unfortunate Belgians.

Many expeditions for original exploration in the Canadian mountains were organized during the season by members of the Club. Accounts of these will appear in the Canadian Alpine Journal in due course.

S. H. MITCHELL, Secretary-Treasurer.

APPALACHIAN MOUNTAIN CLUB The out-of-door activities of the Appalachian Mountain Club begin in January and end in December. In addition to the Saturday afternoon walks and occasional all-day excursions near Boston throughout the year, as well as similar walks by the New York section, there are several excursions to the mountains of New England and New York.

In January, 1915, a party of 37 spent two or three days in Fitzwilliam in southern New Hampshire, thirty of the party climbing to the top of Mt. Monadnock. The regular snow-shoe party spent two days in February at Jackson, N. H., in the heart of the White Mountains. There were 110 in the party altogether and a half dozen mountains, including Mount Washington, were climbed.

A party of about 40 spent a few days at Waterville, in the White Mountains, May 28 to June 2. The annual field meeting was held at Seal Harbor, Mt. Desert, Maine, from June 25 to July 6. Charles W. Elliot, President Emeritus of Harvard College, addressed the Club, calling attention to the beautiful trails and view points of the island, which he considered the best place on the Atlantic Coast for walkers.

The August camp, two weeks, was in the Dixville Notch country, a wild region about forty miles north of the White Mountains, far removed from ordinary lines of travel. The tents were pitched on the shores of a beautiful lake and every fair day was spent in hikes over the mountain trails. After breaking camp the chairman of the committee led a small walking party over some of the most interesting trails in the White Mountains, the nights being spent at the Club huts. A new stone hut near the Lakes of the Clouds on Mount Washington has been built this year.

The Club camp at Three Mile Island, Lake Winnepesaukee, was open from July 3 to September 8.

A party of 53 spent a few days at Jackson early in September.

The fall excursion, October 2 to 13, 50 members participating, made its headquarters at Interbrook Lodge, a fine climbing center in the heart of the Adirondack Mountains in New York. Mt. Marcy, the highest of these mountains, and many others, were climbed.

A Christmas excursion is announced to Wonalancet in the southern part of the White Mountains.

ALLEN H. BENT, Corresponding Secretary.

BRITISH COLUMBIA
MOUNTAINEERING CLUB

It has almost become proverbial that it rains in Vancouver on May 24. This, however, never prevents the undaunted camper from making elaborate preparations for an outing on that day, and certainly it did not prevent a party of the British Columbia Mountaineering Club from setting out on a trip to the mountains at the head waters of Lynn Creek.

On Saturday the party of three ladies and fourteen men, equipped with two and a half days' provisions, camped about eight miles up the creek. Rain fell during the night and on Sunday morning the atmosphere was damp and murky but the party shouldered their packs and started up the creek towards Cathedral Mountain, following a course up the southern side of Palisade Ridge. A stop was made for lunch on the crest. At this point Palisade Ridge presents some very interesting features. There is a curious flat patch of granite, about two acres in extent, which has been worn smooth and polished by glaciers. Huge blocks of granite which were left isolated on the flat surface of the bedrock give it the appearance of an ancient graveyard.

A most inspiring view is obtained from the ridge. On the east the huge grey buttress of White Mountain rises a thousand feet. To the north and fifteen hundred feet below lies Palisade Lake, a fine example of the cirque lakes found in the Coast Range. Beyond Palisade Lake the rugged walls of Cathedral Mountain, the object of the Club's excursion, towered upward to a height of fifty-nine hundred feet, dominating all the other peaks of the group. The sky was heavily clouded and patches of grey mist floated among the numerous crags and into the dark ravines, giving to the whole scene an appearance of profound gloom and savage grandeur.

After lunch the party set out over a long, steep snow slope which forms the northeast side of White Mountain. The ridge joining White and Cathedral mountains was reached and a camping place selected. Here the members left their packs and after giving vent to their relief in a rough-and-tumble snow fight, started the final climb. The last thousand feet became quite steep, and on one side at least, many of the snow slopes were found to terminate in wide bergschrunds which caused us troublesome and ticklish detours. The only really exciting climbing of the trip was near the top on an almost perpendicular snow bank, where it was necessary to cut steps. When we finally reached the top of the bank it was only to find that between it and the rock beyond there yawned an awesome bergschrund, over which the snow curled like the crest of a wave. Climbing down again being impossible we proceeded very gingerly along the top by digging toe holds. This was laboriously achieved, and after a few sighs of relief and mutual congratulations we made for the more gentle slopes, finally reaching the summit of the Cathedral at five-thirty p. m. The weather had now become disagreeable; rain was again falling and a chilling wind blowing over the summit. The party remained on top only a few minutes and then hurried down to the camp, satisfied that they had at least achieved their climb in spite of the discouraging elements.

Cathedral Mountain stands high and distinct above the surrounding peaks and gives an uninterrupted view of all the mountains for a distance of nearly forty miles to the north, east, and west. On the south, peaks in the Cascades and Olympics can be distinguished over a hundred miles away. The courses of the Seymour and Capilano rivers can be clearly traced to their sources far back in the range. On Monday morning the party started the descent, the rain falling in torrents by the time the lower timbered slopes were reached. Traveling through wet bush is somewhat akin to wading through a lake, but

a discomfort of this kind is seldom noticed when a party has successfully made the climb it set out for.

About two p. m. a halt was called at some cabins by the side of Lynn Creek; a big camp fire was lighted and a hearty meal eaten, and after drying out thoroughly (?) the party returned to town.

HOLLY E. COULTER, Assistant Secretary.

COLORADO MOUNTAIN CLUB The 1915 outing of the Colorado Mountain Club, which was held August 9 to 21, proved to be the most successful trip in the Club's history. Camp was made on the head waters of Clear Creek, in a beautiful valley about forty-five miles due west of Denver at a point where the Continental Divide describes an immense semicircle. From this central point three splendid groups of peaks were easily accessible. About fifty-five members of the club and several guests from other mountain clubs composed the party; but this number was frequently augmented by temporary visitors owing to the accessibility of the camp by auto from Denver. On the last Sunday of the outing seventy of the Club's members and friends were in camp. An excellent cook, an unlimited supply of pure water, and ideal weather conditions contributed materially to the success of the outing.

Daily trips to points of interest in the vicinity of camp were arranged under various leaders, including the ascent of seven peaks over thirteen thousand, and four peaks over fourteen thousand feet in altitude. Probably the most noteworthy feature of the outing was the ascent of four peaks in one day, each over fourteen thousand feet in altitude, in which twenty-nine persons participated.

Considerable headway was also made in the placing of the Club's mountain registers on the tops of the high peaks. These are bronze cylinders containing a register and pencil for recording the names, dates, etc., of persons climbing the peaks. The Club plans to place these registers on all the highest peaks in the State.

As a diversion from the strenuous daily tramps a Club Field Day was held which included races, tugs-of-war, field events and a baseball game, all of which was greatly enjoyed both by participants and spectators. Camp-fire talks, stories, historical and geographical sketches, and a male quartet enlivened the evenings and added much to the interest of the daily trips.

In addition to the annual outing a summer schedule of twenty-two week-end trips has been almost completed which for the most part have been generously patronized and very successful. Plans for the Club's two annual photographic contests have been completed and a very instructive and interesting series of illustrated lectures has been arranged for the coming winter.

ROBERT B. ROCKWELL,
Chairman Publicity Committee.

MAZAMAS For their annual outing this year, the Mazamas left Portland July 10, 1915, 7 p. m., by special train over the Southern Pacific for Sisson, California, arriving there at noon July 11. From Sisson, the Mazama party, comprising about sixty, made the hike of eight miles to the permanent camp on the southwestern slope of Mount Shasta, at an elevation of 7,500 feet, where camp had already been established by a corps of assistants who had preceded the party by one week.

The camp was located on a shoulder of the mountain which formed a delightful balcony overlooking the Sacramento Valley from above the head

waters, and including also a good view of Mount Lassen, which, by the aid of binoculars, we saw smoking one day, from our camp. In the two weeks' stay at this camp several successful ascents of the mountain were made, participated in by some fifty members. The percentage of failures in the ascent was very low, nearly every one who attempted it succeeding in reaching the summit, although it was a long arduous climb with an altitude to be reached of some 14,136 feet above sea level.

Little or no glacier study was indulged in during the outing. The glaciers being small with none at all on the south side, a visit to them involved an ascent almost to the top of the mountain. The 1915 outing, however, was an ideal excursion with ideal weather during the whole time, after which many continued on to San Francisco, where they wandered in groups amidst the beauties of the Exposition, making their headquarters in the Oregon Building.

LE ROY E. ANDERSON,

Chairman Outing Committee.

PRAIRIE CLUB The Western Outing of the Prairie Club of Chicago had for its main purpose a visit to the Cliff dwellings of Mesa Verde National Park in the southwestern part of Colorado.

After a two days' journey over a narrow gauge railroad, for the most part through the canyons of the mountains or over the fascinating desert, the Mesa Verde (8,153 feet) was seen from near Mancos, its northern face apparently rising with a sheer vertical wall of 2,000 feet above the Montezuma Valley. An auto road, however, succeeds in winding its way to the top from which a comprehensive view of the mesa is obtained as it slopes away to the south, and of the narrow canyons, a thousand feet deep with nearly vertical walls, looking as if the fingers of giant hands had clawed them out of the sandstone as easily as one might imitate them in a mound of wet sand. Hidden under the overhanging cliffs in these canyons are the cliff dwellings. In the clear air of the desert, mountains were seen in every direction, even 150 miles away, and, far away, Ship Rock, like a phantom ship with all its canvas spread, sailed in the sea of blue haze. The thirty-two mile drive to the camp on the edge of the canyon opposite Spruce Tree House is worth a journey of any length.

This summer by good fortune Dr. Fewkes of the Smithsonian Institute was superintending the excavation of a pueblo not far from the camp and with the greatest kindness and courtesy not only gave an evening's talk about the cliff dwellers and their homes, but accompanied the Club on its visit to Cliff Palace which was restored under his supervision some years ago. During the time scheduled for the park the party was able to visit all the principal dwellings within one day's walking distance of Spruce Tree Camp which is the only one established in the park and to make one trip to the Mancos River and realize to some slight degree what it means to cross the desert, tantalized by many springs of bitter water. Many of these dwelling are all but inaccessible, reached only by adventuresome climbing of the Moki trails, which are mere finger and toe-holds in the nearly perpendicular rock, placed out here and there by the trunk of an old cedar tree.

The prairie people could not go back without getting into the high mountains, so leaving the Mesa Verde with regret, they journeyed by rail to Silverton and from there by stage to Ouray, 24 miles over a mountain road which at its highest point reaches 11,000 feet, clinging to the mountain side over an abyss which furnished thrills enough even for the hardest. On a side trip from Ouray the party climbed Mt. Sneffles (14,143 feet). Some members

with a few more days at their command also took a five days' tramp in the other direction accompanied by a pack train and climbed Mt. Uncompaghe (14,306 feet). All returned via the Black Canyon of the Gunnison and the Royal Gorge.

SARAH M. FARLEY,
Member of Outing Committee.

ROCKY MOUNTAIN CLIMBERS' CLUB The Rocky Mountain Climbers' Club, with headquarters at the Colorado Chautauqua, Boulder, Colorado, has had a busy and successful season. Its schedule, including seventeen events, opened July 7 with a big membership rally and closed August 16—20 with a jaunt through the new Rocky Mountain National Park and an ascent of Long's Peak. Other important events were the annual climb to the top of Arapahoe Peaks with their famous glacier; the trips to the summits of Flagstaff, Camel Back, Sanitas, Green, and Boulder Mountains; the visits to Observation and Sunrise Peaks; the climb to beautiful Eldora Lake which lies on top of a mountain; the camp breakfast at Royal Arch; and several beef-steak fries and camp fires. The average attendance on these trips was almost one hundred. Before the season opened, the Club improved the Blue Bell Spring by the construction of a bubble fountain which has been much appreciated by thousands of picnickers who have flocked to the mountains.

The Club has under consideration two important changes in policy. The first is to increase the membership fee and thus provide a larger fund for carrying out its work, and the second is to outline a winter schedule of events. Heretofore the activities have been confined entirely to the summer vacation season.

F. A. BOGCESS, Corresponding Secretary.

SIERRA CLUB On July first the Sierra Club opened its permanent camp in the Tuolumne Meadows on the Soda Springs property owned by the Club since 1911. The camp was maintained until the end of September and more than seven hundred persons registered there during the summer. Side trips were organized frequently so that the more remote outlying districts within a radius of forty or fifty miles were made accessible to all who cared to visit them.

A noteworthy event of our stay was the opening of the Tioga road to motor travel. This old mining road, abandoned thirty years ago, was purchased by the government and in six months' time put in condition for travel. Its purchase and improvement represents a great step forward in the development of the Yosemite National Park as it makes Yosemite easily accessible to transcontinental motor travelers who may now visit Lake Tahoe, Mono Lake, the Tuolumne Meadows, the Tuolumne and Merced groves of sequoias, and Yosemite Valley on their way from Nevada to San Francisco.

Work was also begun on the John Muir trail that is to traverse the crest of the Sierra Nevada from Yosemite to Mount Whitney. The California Legislature appropriated ten thousand dollars for the construction of this magnificent trail in response to the popular demand that the great work done by John Muir for California's mountains should receive state-wide recognition.

During the summer, too, the Sierra Club erected the Parsons Memorial Lodge in Tuolumne Meadows. The building which is of stone and is 40 feet by 28 feet is placed on a knoll near the Soda Springs and is to be a library and high mountain headquarters. The Club hopes to maintain this Tuolumne

camp next summer in addition to its regular July outing in the southern Sierra. The experience of this summer convincingly shows that this is an ideal spot for a central camp, both by reason of the almost infinite number of trips that can be taken and the wonderful beauty of its setting.

Sierra Club ascents, July, August, September, 1915:

Ritter	13,156	Gibbs	12,700	Hoffman	10,921
Lyell	13,090	Dana	13,050	Parsons	12,121
Kolp	12,723	Conness	12,556	Rafferty	11,178
Kuna	12,951	North	12,256	Unicorn	10,848
Parker	12,850	Ragged	10,858	Echo	10,850
Wood	12,663	Cathedral	10,938		

MARION RANDALL PARSONS.

TRAIL AND MOUNTAIN CLUB

The Trail and Mountain Club conducted a number of Sunday autobus and walking trips on Oahu during the winter and spring of 1914-1915, and chartered boats for two week-end trips to the Islands of Maui and Kauai. Over New Year a party of one hundred went through the crater of Haleakala, Maui, camping over night in the crater (6,500 feet), where the reflection of the fires and the smoke of the eruption of Mauna Loa, ninety miles away, were seen. In February a hundred and thirty made the trip to the Island of Kauai, some making an over night camp at the head of Waimea Canyon while others took less strenuous side trips. The Club has done good work cutting trails and is now measuring and placing signs on the principal trails near Honolulu giving distances, elevations, water holes, etc.

OLIVE RAND.

BOOK REVIEWS

Edited by Lullie Nettleton.

Peaks and Precipices. By Guido Rey. Dodd, Mead & Company, New York. Illustrated.

Any lover of the mountains, whether he worship from the fireside or by pilgrimages to their shrine, will find a journey with Guido Rey in his "Peaks and Precipices" wonderfully fascinating. He is a true devotee of the mountains and his vivid diction gives to each peak a real personality. The ascent of the Grépon, the most difficult climb in the Alps, is a joy to a mountain climber, describing, as it does, the ascent of the famous Mummery Crack and later the clinging to sheer precipices where adequate hand and foot holds were almost impossible; where "the turning of a small block took half an hour and the conquest of a few meters required the efforts of four strong men." The author concludes the chapter, "A narrow rib and an abyss all around it—such is my constant recollection of the Grépon." There is a charming human touch in the older man's affection for the youth, Ugo de Amicis, the son of Rey's oldest friend, who had been intrusted to his care.

The volume closes with a glorious tribute to the mountains, which comes like a song from the heart of a truly great mountaineer. L. M. N.

The Conquest of Mount Cook. By Freda du Faur. Charles Scribner's Sons, New York. Illustrated from photographs by the author.

Full of interest to all out of door people is Freda du Faur's "Conquest of Mount Cook." Especially should women appreciate the splendid strength, endurance, and above all, the pluck of the woman and her guide, Peter

Graham, who tried and then tried again before she won the summit of the most coveted peak of New Zealand. Further than that the ascents of Mount Malte Brun, Mount Sealy, and Nun's Veil, Mount de la Beche, Silberhorn, and a triple ascent which included Mount Green, Mount Walter, and Mount Chudleigh, are of thrilling interest to mountain climbers. Miss du Faur's successful attempt upon a virgin peak north of the Footstool, and another north of Copland Pass and the first ascent of Sebastapol by the eastern face are intensely interesting accounts of first ascents.

In speaking of the fascination the mountains exercise for her the author says: "I believe the true mountaineer is born, not made. The details of their craft both of course must learn, but the overmastering love of mountains is something which wells up from within and cannot be denied."

L. M. N.

In the Oregon Country. By George Palmer Putnam. G. P. Putnam's Sons, New York and London. Illustrated.

Quite as refreshing as a western breeze comes George Palmer Putnam's "In the Oregon Country." The author shows a keen zest for the faraway places of the Northwest and takes the reader through the Valley of Contentment (the Willamette), into the Columbia Valley, up into the high mountain regions, and then on a thrilling canoe trip down the Deschutes. He tells the romance of the coming of the railroad, and quaint legends of the country. Of particular interest to Washington readers is the ascent of Mount Olympus, following as he did the same route as the Mountaineers in their two successful expeditions to Mount Olympus, camping in their camps, and having as a trail-mate the well-known guide, Grant Humes.

L. M. N.

Rocky Mountain Wonderland. Enos A. Mills. Houghton, Mifflin Co., Boston and New York. Illustrated from photographs by the author.

What John Muir was to the Sierra, Enos Mills is to the Rockies, and his last book, "The Rocky Mountain Wonderland," is filled with fascinating observations and recollections of outdoor experiences. The chapters upon mountain lakes, the Chinook wind, the wild folk of the mountains, are results of an intimate knowledge of his rugged surroundings. The stories of his mountain neighbors, the grizzly bear, the chipmunk callers, wild mountain sheep, and his mountain pony, Cricket, bespeak a sympathy and knowledge of his wild friends most unusual and delightful.

The Rocky Mountain National Park, which after a campaign of six years, led by Enos Mills, has recently been established, is described as "a rare combination of those characteristics which almost every one wants and which all tired people need, accessibility, rare scenery, and a friendly climate." The book cannot fail to win the attention it richly deserves.

L. M. N.

The Lake of the Sky—Lake Tahoe. George Wharton James. The Baker & Taylor Co., New York. Illustrated.

Lake Tahoe, the largest lake at its altitude (with one exception) in the world, has been most charmingly depicted by George Wharton James, the enthusiastic author of "The Lake of the Sky." The glorious coloring of Lake Tahoe, its attractions for sportsmen, be they fishermen, hunters, mountain climbers, or yachtsmen; its field for scientists; and its convenience of access and comfortable accommodations for tourists should insure a wide popularity for the book and greater interest in the already famous Californian lake.

L. M. N.

Alaska Days With John Muir. By S. Hall Young. Fleming H. Revell Co., New York, Chicago, Toronto, London, and Edinburgh. Illustrated.

"Alaska Days with John Muir," by S. Hall Young, is a record of an intimate friendship between two splendid men, tried and tested during hazardous expeditions among the glaciers of Alaska. The book should be especially pleasing to the many admirers of John Muir among the Mountaineers. The author was the owner of the dog, Stickeen, made famous by Muir's story of his prowess as a trail mate. The chapter, "The Man in Perspective," is an unusually fine appreciation of Muir.

L. M. N.

Field Book of Western Wild Flowers. By Margaret Armstrong. G. P. Putnam's Sons, Knickerbocker Press, New York and London. Illustrated

A distinct contribution to the very meager literature, either popular or technical, on flowers of the West is made by a 1915 publication of G. P. Putnam's Sons, in their Field Book series, "Field Book of Western Wild Flowers," by Margaret Armstrong in collaboration with J. J. Thorner, Professor of Botany in the University of Arizona. The book is fully illustrated with five hundred black and white sketches and forty-eight full page color plates, all drawn by the author from nature during several summers spent in the West. In covering as the work does as large an area as the seven states lying between the Rocky Mountains and the Pacific Ocean, where climatic and soil conditions are so diversified and where the total number of flowering plants numbers many thousands, it was plainly impossible to do more than select a limited number of representative flowers from each section, but the result of Miss Armstrong's visit to Mount Rainier, where the reviewer met her two years ago, is shown in at least one hundred and twenty-five flowers common in Western Washington. The illustrations are truly artistic, each one a little study by itself. The greatest value of the book lies in the fact that both in the descriptions and the illustrations each plant is presented as it appears to the eye of the ordinary flower lover, who sees beauty in infinite variety, but has little or no botanical training.

W. B.

Bibliography of Mount Rainier National Park.

A very complete bibliography of Mount Rainier National Park is published each year by the Department of the Interior in a little pamphlet under the title, The Mount Rainier National Park, General Information. In the issue for the season of 1915 see pp. 33-37.

REPORT OF SECRETARY OF THE MOUNTAINEERS

FOR YEAR ENDING NOVEMBER 1, 1915.

The past year has been a very successful one for The Mountaineers. It has witnessed the accomplishment of a number of things for which the club has long been striving, the pushing forward toward the fulfilment of still greater purposes, and the opening of new fields of endeavor.

Perhaps that accomplishment which is the most gratifying to members of the club, and which has attracted the greatest attention on the part of the public generally, is the complete encircling of Mount Rainier by the entire summer outing party of 89 people. Owing to a lack of trails through some of the wildest and most rugged country surrounding the mountain, such a feat has never been possible previous to this summer. Never before has any

woman gone completely around the mountain, and only a few men have been able to claim the honor. Largely through the efforts of The Mountaineers the federal government was induced to construct trails so that now all of the magnificent scenery around this grand mountain is easily accessible to any one.

A committee of which Mr. Redick H. McKee was chairman was appointed to investigate and make recommendations with reference to some kind of weather-proof record box to be placed on the tops of mountains. The result of the committee's efforts was the purchase of eighteen cast bronze cylinders, each $1\frac{3}{4}$ inches in diameter and 7 inches long (inside measurement), with a hinged flap top fastened down by a heavy brass wire ball, and having attached to it six feet of brass chain for anchoring to the rocks. Each cylinder has a number stamped on it, and in raised letters along one side is the word "Mountaineers." Inside of each is a book on which those who climb the mountain may record their names and addresses and the date. This form of cylinder and record book were designed by and first manufactured for the Colorado Mountain Club, and we are indebted to it for copies and for the use of its pattern in moulding our cylinders.

Another thing worthy of mention done during the past year is the placing of thirty markers, or pointers, on the tower in Volunteer Park at Seattle. This is one of the most scenic places in the city, and commands a splendid view of both the Cascade and Olympic ranges. Each marker points to a prominent peak or valley and gives its name. The altitude and distance from Seattle are also given for twenty-four of the mountains.

At the suggestion of The Mountaineers trout were planted by the government in Crater Lake and other non-glacial waters on the north and west sides of Mount Rainier. Plans are also being carried out for the introduction of mountain goats into the Olympic Mountains.

During the year The Mountaineers have completed their files of the magazines or annual publications of other mountain clubs of America so far as these are obtainable, and we now have entirely or nearly complete sets of "Appalachia," "Alpina Americana," "The Canadian Alpine Journal," "Mazama," and "Sierra Club Bulletin." We have also placed complete sets of "The Mountaineer" in the Library of Congress, the libraries of Williams College, Northwestern University, University of California, and the Everett Public Library. For our own records the historian has had a complete set of "The Mountaineer" splendidly bound in half leather. The subscription price for The Mountaineer publications including the annual has been fixed at \$1.25, and that for the annual alone at 60 cents, so that it is possible for one to subscribe for these publications without being a member of the organization.

The club is now the owner of a very complete and up-to-date McIntosh stereopticon lantern, with two sets of lenses and all necessary attachments and equipment, including a specially made padded trunk in which to keep and ship the same. The carrying and shipping of slides has been greatly facilitated and made safer by a felt and rubber padded case accommodating 150 slides. This case was a gift from Mr. A. H. Denman. The slides of the various outings have been in great demand during the year, the requests for them often coming from distant points. Photograph albums for all outings beginning with the Mt. Adams outing in 1911 have either been completed or are now being prepared. Another of our recent benefactors is Mr. John Best, a former active member now in Washington, D. C. Through his kindness we have been furnished with a complete set of topographical maps of all those quadrangles in the state of Washington for which such maps have been made.

The by-laws were amended to make the lodge committee one of the standing committees of the club, and prescribing its duties and powers; and the

Board of Trustees passed rules providing for the care and management of the lodge and grounds surrounding it.

By a resolution of the Board of Trustees that body now meets regularly on the Thursday preceding the regular monthly meeting of the club.

Early in the year at the request of Mr. Enos A. Mills and the Colorado Mountain Club telegrams and letters were sent to all our representatives in Congress urging the creation of a Rocky Mountain National Park, and a few days later we were gladdened with the news that the bill had passed. The following resolutions were also adopted by the Board of Trustees and sent to Mr. Mills to aid him in securing the objects therein mentioned:

"Resolved by The Mountaineers in regular meeting assembled, That we do hereby express ourselves as earnestly in favor of the creation of a Bureau of National Parks.

"Resolved, That it is the sense of The Mountaineers that the Olympus National Monument, with properly revised and corrected boundaries, be not abolished until such time as it can be converted into a permanent national park, which we believe to be its ultimate best use."

The Olympus National Monument has been reduced to nearly half its former size by the elimination of large areas of forest and agricultural lands. At a conference between Chief Forester Graves and representatives of The Mountaineers the former agreed to recommend appropriations for a complete system of trails through the monument. Mr. George E. Wright, the chairman of our legislative committee, was invited to be present at a meeting of national park superintendents and give his views concerning an Olympic National Park, but was unable to attend. The Women's Federated Clubs of Washington have recently started a movement for the creation of such a park, and The Mountaineers have been asked by them to participate in a conference with regard to the same. Through the efforts of our legislative committee an appropriation has been made for the construction of a shelter hut at Camp Muir on the south side of Mount Rainier. Plans for this hut were drawn by one of our members, Mr. Carl Gould.

The membership at the time of going to press, including pending applications, numbers 613, divided among the different branches as follows: Seattle 458, Tacoma 75, Everett 69, Monroe 11. While this would appear to indicate a slight decrease during the year, those who have joined during this time are more apt to remain permanently as members than many of those who joined during the previous year, the large increase in membership during the summer of 1914 being caused to some extent by a rule with reference to joining the summer outing which has since been abolished.

FRANK G. PUGSLEY, Assistant Secretary.

FINANCIAL STATEMENT OF THE 1915 OUTING

Received from members		\$3,856.25
Pack train	\$1,535.57	
Railway and stage	472.35	
Provisions	878.04	
Cooks and helpers	371.65	
Outfit	201.30	
Miscellaneous	343.42	3,802.33

§ 53.92

J. H. WEER, Chairman Outing Committee.

AUDITING COMMITTEE'S STATEMENT OF TREASURER'S REPORT

Year Ending October 31, 1915

GENERAL FUND

Receipts

Balance Nov. 1, 1914.....	\$ 110.34
Interest on bonds	71.00
Magazines sold	138.09
Pins and fobs	22.75
Dues	1,752.00
Advertising in Annual	117.00
Advertising in Bulletins	62.00
Advertising in Prospectus	74.00
Miscellaneous	1.15
	<u>\$2,348.33</u>

Disbursements

Bulletin, printing	\$ 200.25
Bulletin, mailing and postage.....	142.10
Prospectus, printing and mailing.....	105.30
Annual, 1914	641.80
Magazines bought	8.60
Annual, 1915	67.75
Refunds to branches.....	151.00
Miscellaneous	175.53
Assistant Secretary, salary.....	210.00
Pictures and slides.....	70.13
Albums for prints.....	20.00
Balance on markers in water tower.....	17.50
Bronze receptacles for records on mountain tops.....	56.10
Stereopticon and accessories.....	75.00
Membership in American Civic Federation.....	5.00
Premium Treasurer's bond.....	10.00
Aluminum camp markers.....	12.00
Loan to Lodge Fund.....	171.07
	<u>\$2,139.13</u>

Balance \$209.20

OUTING FUND

Receipts

Balance, Nov. 1, 1914.....	\$ 1.30
Glacier National Park Outing, 1914.....	41.72
Mount Rainier National Park Outing, 1915.....	3,975.35
	<u>\$4,018.37</u>

Disbursements

Mount Rainier National Park Outing, 1915.....	3,975.35
	<u>3,975.35</u>

Balance 43.02

TREASURER'S REPORT—Continued

LOCAL WALKS FUND

Receipts

Balance Nov, 1, 1914.....	\$ 50.00	
Local Walks Committee.....	50.00	
		\$100.00

Disbursements

None.....		
Balance		100.00

LODGE FUND

Receipts

Subscriptions	\$ 264.37	
Lodge fees, etc.....	167.50	
Loan from General Fund.....	171.07	
		\$602.94

Disbursements

Insurance three years.....	96.65	
Ground rent one year.....	5.05	
New construction, etc.....	501.24	
		602.94

Balance

PERMANENT FUND

Receipts

Balance Nov. 1, 1914.....	\$ 207.45	
Initiation fees new members.....	165.00	
Interest on deposit Bank for Savings.....	12.25	
Interest on \$200 bonds, L. I. D. No. 127, Olympia.....	14.00	
Interest on \$400 bonds, L. I. D. No. 845, Tacoma.....	28.00	
		426.70

Disbursements

None.....		
Balance		426.70

Total balances

\$778.92

CASH BALANCES

State Bank of Seattle.....	\$224.97	
Less outstanding checks Nos. 107, 108, 109 and 111..	43.00	
		181.97
Cash		170.25
Bank for Savings.....		426.70

\$778.92

ASSETS

General Fund—

Cash	\$209.20	
Bonds	1,108.00	
Loan to Lodge Fund.....	1,959.72	
		\$3,276.92

TREASURER'S REPORT—Continued
ASSETS

Permanent Fund—		
Cash	\$ 426.70	
Bonds	610.00	
		1,036.70
Outing Fund—		
Cash		43.02
Local Walks Fund—		
Cash		100.00
		\$4,456.64

LIABILITIES

Surplus	\$4,456.64	
		\$4,456.64

MONTHLY MEETINGS

December, 1914—November, 1915.

During the year several lectures and other entertainments of general interest have been given at the regular monthly meetings as follows:

- December 18, 1914. Mr. Charles B. Schabel, member of the Black Forest Association. Lecture, "The Huts Maintained by the Black Forest Association."
- January 15, 1915. Dr. George Burton Riggs, Assistant Professor of Botany, University of Washington. Lecture, "Soils."
- February 19, 1915. Dr. Will Otto Bell, Seattle. Illustrated lecture, "Rambles through England."
- March 19, 1915. Dr. H. B. Hinman, Everett, Washington. Illustrated lecture, "Everett Branch of the Mountaineers: Its Origin, Its Local Walks."
- April 14, 1915. In place of the regular monthly meeting, the Mountaineers joined with the College of Science of the University of Washington in arranging for an illustrated lecture, "Vancouver Island—Its Mountains, Glaciers, Parks, and Flowers," given by Mrs. Julia W. Henshaw of Vancouver, B. C., a fellow of the Royal Geographic Society of England and a well-known botanist.
- May 21, 1915. Mr. Courtney, Seattle. Pathesopic illustrated talk.
- June, July, August, 1915. No meetings.
- September 17, 1915. Business meeting. Nominations for the Board of Directors.
- October 15, 1915. Mr. Frank G. Pugsley, Seattle. Views of the Olympics, Mount Baker, and Mount Shuksan.
- November 19, 1915. Mr. J. H. Weer, Tacoma. Illustrated lecture, "Mount Rainier Outing, 1915."

GERTRUDE INEZ STREATOR, Historian.

REPORT OF LOCAL WALKS COMMITTEE

The Local Walks Committee submits the following report for the year ending October 31, 1915. There were held thirty walks and six special outings, as follows:

	Average attendance	Average mileage
24 short Sunday walks.....	108	9.25
3 long Sunday walks.....	27	22.3
3 Saturday p. m. and moonlight walks.....	25	3.66
Total attendance	3,047	

On the six special outings five ascents were made, Red Mountain (5,825 ft.) and Alaska Mountain (5,725 ft.) in the Cascade Mountains near the Lodge, and three of the lesser mountains dominating the Puget Sound country.

The Winter Outing held February 20-22 at the Lodge crowded the big building to the utmost; besides the snowshoe hikes, the races on snow-covered Big Lake proved an enjoyable feature.

Knapsackers to the number of 35 turned out for the Decoration Day Outing in Gold Creek Basin, 31 making the ascent of Alaska Mountain.

The less strenuous found enjoyment in the boat outings held July 3-5 in the San Juan Islands and September 4-6 near Quilcene on Hood Canal.

The increasing popularity of supper walks and special outings warrants their being held more often, the Lodge proving an especially good base for climbs and outings. Chartered boats were used on eighteen walks and outings.

FINANCIAL STATEMENT

RECEIPTS

October 1, 1914, balance on hand.....	\$ 48.43
Receipts to November 1, 1915.....	2,013.20
	<hr/> \$2,061.63

DISBURSEMENTS

Boat charter and fares.....	982.45
Railroad transportation	298.00
Coffee	40.21
Sugar	20.57
Milk	18.45
Meat	58.38
Groceries, fruits and vegetables.....	128.03
Cooks and helpers.....	93.30
Lodge fees	27.45
Packing, drayage, and freight.....	9.60
Telephone, postage, and printing.....	16.13
Outfit	30.10
Scouting	32.15
Committee expenses	88.40
Cider, chicken dinners.....	46.40
General fund	50.00
Reunions	24.23
Refunds to members.....	40.35
	<hr/>
Total	\$2,004.20
Balance on hand October 31, 1915.....	57.43
	<hr/> \$2,061.63

Audited November 3, 1915.

B. J. OTIS.

Respectfully submitted,

CHARLES HAZLEHURST, Chairman.

THE MOUNTAINEERS

OFFICERS AND TRUSTEES

Edmond S. Meany, president
George E. Wright, vice-president
Irving M. Clark, secretary
Frank G. Pugsley, assistant secretary
Horatio C. Belt, treasurer
Gertrude I. Streater, historian

Charles Albertson	P. M. McGregor
A. H. Denman	L. A. Nelson
Charles Hazlehurst	Lulle Nettleton
H. B. Hinman	J. H. Weer

STANDING COMMITTEES

Outing Committee

J. H. Weer, Chairman

Legislative Committee

George E. Wright, chairman

Local Walks Committee

E. Wilfred Harrison, chairman

Membership Committee

Redick H. McKee, chairman

Entertainment Committee

J. N. Bowman, chairman

Lodge Committee

Clayton Crawford, chairman

Auditing Committee

B. J. Otis, chairman

EDITORIAL STAFF

Winona Bailey, Editor

H. A. Fuller, Business Manager

A. H. Albertson	Effie L. Chapman	Helen Gracie
R. J. Hagman	Lulle Nettleton	

EVERETT BRANCH

Officers

H. B. Hinman, chairman Eva E. Jürgensohn, secretary
Harry W. Swan, treasurer
Local Walks Committee
L. F. Fairbrook, chairman

TACOMA BRANCH

Officers

J. H. Weer, president A. H. Bissett, vice-president
 Stella Scholes, secretary-treasurer
 A. H. Denman, member Board of Trustees
 Local Walks Committee
 C. A. Barnes, chairman
 Program Committee
 A. A. Tayler, chairman

MONROE BRANCH

Officers

E. T. Bascom, president H. C. Tooker, vice-president
 Whit H. Clark, secretary E. P. Walker, treasurer
 J. M. Tadlock, historian
 Local Walks Committee
 H. C. Tooker, chairman
 Entertainment Committee
 E. P. Walker, chairman

MEMBERS

November 1, 1915

(Place is Seattle unless otherwise stated.)

Abel, H. V., 2608 E. Spring St.	Balley, Winona, 1426 Warren Ave.
Abel, Mrs. H. V., 2608 E. Spring St.	Baker, B. W., 305 Lowman Bldg.
Acheson, Nelson H., 4724 21st Ave. N. E.	Baker, Mary Neikirk, Seattle Public Library
Acheson, Thomas J., 4724 21st Ave. N. E.	Baker, Mattie S., 1724 11th Ave.
Albertson, A. H., 727 Henry Bldg.	Ballinger, Harry, 533 Pioneer Bldg.
Albertson, Chas., 727 Henry Bldg.	Bardwell, Ralph S., 201 McGraw St.
Alexander, St. Clair, 12th and Broad- way, Fairfax Arms, Kansas City, Mo.	Barry, Cornelius, 4759 Brooklyn Ave.
Allen, E. W., Asst. Attorney General, Olympia, Wash.	Bauer, Lucy E., 1112 Cobb Bldg.
Allen, Zella E., 526 Broadway N.	Beaton, Jessie, 1505 16th Ave.
Allison, H. D., 311 Oriental Bldg.	Beauchamp, Lucette Bettie, 1412 8th Ave. W.
Allmond, Helen, 600 Harvard Ave. N.	Bebb, Mrs. Helen M. Hubbell, 1000 15th Ave. N.
Anderson, Crawford, 1520 7th Ave. W.	Beechler, Glenn C., 211 New York Blk.
Anderson, Helen D., 264 Colman Bldg.	Belford, Ana I., 300 N. 62nd St.
Anderson, Mrs. Hila B., 218 Harvard Ave.	Belt, Mrs. Fannie S., 414 16th Ave. N.
Anderson, Jennie L., 907 American Bk. Bldg.	Belt, H. C., 414 16th Ave. N.
Anderson, Nelson R., 1520 7th W.	Bennett, Edith Page, 3134 37th Place S.
Anderson, Wm. H., 4464 Fremont Ave.	Bennett, Prof. H. B., 5249 Univ. Blvd.
Andres, Mary H., 413 15th Ave. N.	Bennett, Mrs. H. B., 5249 Univ. Blvd.
Andrews, C. L., 1802 E. 73rd St.	Bigelow, Alida J., 1139 18th Ave. N.
Annesley, Inez M., 1723 Summit Ave.	Bishop, Lottie G., 174 Grand Ave., New Haven, Conn.
Auzias de Turenne, Ed. A., 1205 E. Prospect St.	Bixby, C. M., 1404 24th Ave.
Auzias de Turenne, R., 1205 E. Pros- pect St.	Bjerre, Ellen, 1007 W. Garfield St.
	Blackwood, Henry, care U. S. Customs
	Blake, J. Fred, 415 Pike St.
	Blanchard, J. A., Hotel Stevens
	Blough, Allie, 4713 14th Ave. N. E.

- Bohn, Herman, 906 N. 80th St.
 Bond, Eugene W., 4529 Thackeray Pl.
 Boothroyd, Philip D., 1402 E. 75th St.
 Boothroyd, Prof. S. L., 1402 E. 75th St.
 Boothroyd, Mrs. S. L., 1402 E. 75th St.
 Bowman, J. N., 2103 E. 52nd St.
 Bowman, Mrs. J. N., 2103 52nd St.
 Brackett, A. H., Terry and Denny Way
 Brackett, Bertha, 2005 Broadway N.
 Braden, Ruth H., 2009 L. C. Smith Bld.
 Brainerd, Lottie E., 1112 W. 62nd St.
 Bremerman, G. F., 5401 Meridian Ave.
 Brokaw, H. B., care Bremerton Lbr. Co., Bremerton, Wash.
 Brokaw, Mrs. H. B., 1421 15th Ave.
 Brown, Burton H., 206 Harvard Ave. N.
 Bryant, Mrs. Grace, 1703 12th Ave.
 Bryant, S. V., Broadway High School
 Buckley, Chas. H., 6226 27th Ave. N. E.
 Bullard, Marion Augusta, 3703 Densmore Ave.
 Burr, Mrs. Arthur S., 1106 Lakeview Blvd.
 Burroughs, Edna, 5269 Univ. Blvd.
 Bushnell, H. L., 424 New York Blk.
 Butler, Helen, Schwabacher Bros. & Co.
 Caldwell, Hugh M., 402 Burke Bldg.
 Calhoun, Annie H., 1004 1st Ave. W.
 Canfield, Herbert H., 606 Green Bldg.
 Carkeek, Arthur P., 427 E. Denny Way
 Chalk, Vara E., 805 20th Ave. S.
 Chapman, Effie L., Seattle Public Library
 Chestnut, Ross E., 90 University St.
 Chittick, V. L. O., 4727 Brooklyn Ave.
 Chittick, Mrs. V. L. O., 4727 Brooklyn Ave.
 Clark, DeWitt A., 1104 Am. Bk. Bldg.
 Clark, I. M., 900 Leary Bldg.
 Clark, Leland J., 900 Leary Bldg.
 Coe, Winnifred E., 4718 21st Ave. N. E.
 Coleman, Linda M., 1729 Boylston Ave.
 Corbet, D., 618 Mutual Life Bldg.
 Corey, C. R., 5800 15th Ave. N. E.
 Cottrell, Florence, 1812 12th Ave.
 Coursen, Edgar E., 658 Lovejoy St., Portland, Ore.
 Cox, Edward G., 4213½ 14th Ave. N. E.
 Crawford, Clayton, 1528 3rd Ave.
 Criswell, Helen, 920 White Bldg.
 Cruse, A. H., 606 Y. M. C. A.
 Culmer, Myrtle A., 718 Queen Anne Ave.
 Curtis, Leslie F., 5249 17th Ave. N. E.
 Cutter, Evelyn, 1106 E. Denny Way
 Cutter, Mary H., 1106 E. Denny Way
 Dabney, F., 1530 15th Ave.
 Dally, F. B., Arlington, Wash.
 Daniels, Rose L., 6903 46th Ave. S.
 David, C. W., 4511 18th Ave. N. E.
 Davidson, Dr. C. F., 755 Empire Bldg.
 Davis, Fidelia G., City Engineer's Office
 Dayton, Clara A., 1606 N. 54th St.
 Denison, Belle, Platteville, Wis.
 Depue, C. F., Jr., 513 Denny Bldg.
 Depue, Earl B., 914 13th Ave.
 Dickerson, Elizabeth, 619 13th Ave. N.
 Dimmitt, Beniah, 2914 14th Ave. S.
 Dishman, Dr. Robt. H., 1000 Cobb Bldg.
 Downs, M. Ross, care Henry Broderick, Hoge Bldg.
 Dubuar, P. S., 925 E. Marion St.
 Dunmore, Blanche, 1532 W. 61st St.
 Dunn, Martha A., 1729 Boylston Ave.
 Eastwood, Lulu E., 4751 Univ. Blvd.
 Eatough, Wm. C., Olympia, Wash.
 Eckelman, E. O., 3442 Cascade View Drive
 Egan, Dorothy, Anacortes, Wash.
 Ellert, W. H., 918 N. 40th St.
 Emerson, G. D., 15 Beacon St., Boston, Mass.
 England, Nellie, 416 Highland Drive
 Engle, Lillian, 1414 E. Harrison St.
 Entz, Ruby W., 5631 15th Ave. N. E.
 Epler, W. F., 333 1st Ave. W.
 Epler, Mrs. W. F., 333 1st Ave. W.
 Erickson, Lillian B., 1109 Lakeside Ave.
 Evans, Alice, University of Michigan, Ann Arbor, Mich.
 Everett, Frances S., 4751 Univ. Blvd.
 Farrar, Mayme, 1521 15th Ave.
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 Faxon, Henry D., 8th and Broadway, Kansas City, Mo.
 Firmin, Kate M., 203 W. Comstock St.
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 Folsie, Omer, Seattle Grocery Co.
 Foley, Julia A., 5002 Brooklyn Ave.
 Foley, Sarah B., 5002 Brooklyn Ave.
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 Frada, Anna, 426 30th Ave.
 Franck, Albert C., care Citrus Soap Co., Box 136, San Diego, Cal.
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 Frye, Prof. Theodore C., 4558 9th Ave. N. E.
 Frye, Mrs. T. C., 4558 9th Ave. N. E.
 Fuller, H. A., 4178 Arcade Bldg.
 Furry, Mabel, 174 Highland Drive
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 Gandolfo, Florence Catharine, 2903 Yesler Way
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 George, Ross, 300 Boston Blk.
 Gerhardt, John B., 4115 Phinney Ave.
 Gerischer, Lillian, 1717 Belmont Ave.
 Gillette, Cora M., 4321 Eastern Ave.
 Gist, Arthur, 1317 N. 41st St.
 Glass, D. H., 1206 15th Ave. N.
 Gleason, Chas. S., 41 Haller Bldg.
 Gleason, Mrs. Chas. S., 1627 6th Ave. W.

- Gleason, Ruth, 1627 6th Ave. W.
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 Glisan, R. L., 612 Spaulding Bldg.,
 Portland, Ore.
 Gorham, Kathleen, 612 Malden Ave.
 Gorham, Wm. H., P. O. Box 263
 Gorton, Fred Q., 7310 View Place
 Gould, Carl F., Denny Bldg.
 Gracie, Helen, Seattle Public Library
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 Grantham, Grace, 415 N. 46th St.
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 Greenleaf, Mrs. J. T., 602 14th Ave. N.
 Greiner, Dr. F. W., 5223 Ballard Ave.
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 Hack, E. M., 600 Cobb Bldg.
 Hagman, Reuben J., 302 King St. Sta-
 tion
 Haley, Lucia, 1609 N. 49th St.
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 Hammer, Sofia, 103 13th Ave. N.
 Hanna, Ruth, 5204 15th N. E.
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 Harford, Fred L., 1334 Terry Ave.
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 Harker, Lenore, 715 17th Ave.
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 Boston, Mass.
 Harper, Paul C., 118 Columbia St.
 Harrington, Eleanor E., Manitowoc,
 Wis.
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 Hartman, C. E., 3040 63rd Ave. S. W.
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 Los Angeles, Cal.
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 St., Los Angeles, Cal.
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 St.
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 Kellett, Gwendolyn O., 1609 E. Colum-
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 Mills, Mrs. B. D., 938 22nd Ave. N.
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 Remsberg, Mabel, 2200 N. 77th St.
 Rice, Earl G., 1601 Smith Bldg.
 Ridgeway, C. E., P. O. Box 1798
 Rigg, Prof. Geo. B., 4719 9th Ave. N. E.
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 Rosaaen, J. D., 4719 21st Ave. N. E.
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 Rosenfeld, Mrs. S. A., 611 36th Ave. N.
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 Ruddiman, C. F., 905 20th Ave.
 Rueter, Emma, 785 E. Taylor St., Portland, Ore.

- Ruetter, Wm., 556 Stuart Bldg.
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 Sanborn, C. D., 1234 E. 69th St.
 Sandborn, Lynne J., 4244 10th Ave. N. E.
 Sanford, Rollin, 927 1st Ave. W.
 Saunders, Wm. R., 340 17th Ave.
 Schoregge, Iva, 507 N. 61st St.
 Schoregge, J. M., 507 N. 61st St.
 Schumaker, Katherine, 1717 Belmont Ave.
 Schwager, Mrs. Lewis, 943 22nd Ave. N.
 Schwedler, Eugen, Wintonia Hotel
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 Sheldon, Ray, 1129 37th Ave.
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 Shelton, Sarah L., 619 High St., Bellingham, Wash.
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 Simmons, Anna, 724 Rose St.
 Simmons, Elma, 724 Rose St.
 Slater, Irma L., 310 Collins Bldg.
 Smail, Lloyd L., 2121 E. 55th St.
 Smith, Adelaide, Fairfield Hotel
 Smith, Oscar J., 601 2nd Ave.
 Smith, S. G., 430 Henry Bldg.
 Smith, T. C., cor. Eastlake and Nelson Pl.
 Snapp, John F., 3804 Highland Drive
 Snow, Miss Stacy M., 941 25th Ave.
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 Spellmire, Adolph T., 1015 Eastlake Ave.
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 Springer, Alice, 3145 Oak St., Kansas City, Mo.
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 Stackpole, E. B., 88th Victoria Fusiliers, Esquimalt, B. C.
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 Thornberg, Mrs. Flora, 1402 E. 63rd St.
 Thornberg, Mildred, 1402 E. 63rd St.
 Thum, Marion D., Seattle Public Library
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 Tormey, J. C., 6660 Dana St., Oakland, Cal.
 Tracy, Joseph P., 4071 9th Ave. N. E.
 Tremper, Henry S., 802 3rd Ave.
 Triol, Mrs. Edward K., 4265 Lowman Drive
 Turner, Oscar D., 715 3rd Ave.
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 Walker, A. Martha, 1457 Allison Ave., Los Angeles, Cal.
 Walker, Geo. H., 1715 E. Spring St.
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 Webster, May, East Seattle, Wash.
 Weer, Mrs. Natalee, 3826 Ashworth Ave.
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 Whithed, Mrs. H. H., 2006 E. 54th St.
 Whitman, Lucy B., 116 14th Ave. N.
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 Witter, Nina B., 1812 E. Republican St., Apt. J
 Wood, Dr. N. P., 615 Cobb Bldg.
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 Wright, Geo. E., 1227 38th Ave. N.
 Wright, Mrs. Geo. E., 1227 38th Ave. N.
 Wright, Ruby, 1523 Grand Ave.
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 Wynn, Inez, 908 Shelby St.
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 Young, J. C., care Dexter Horton Bank
 Young, Mrs. Maudette S., 1414 Lake Ave.

EVERETT BRANCH

(Place is Everett unless otherwise stated.)

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Alder, Eunice G., 2414 Hoyt Ave.
Alexander, A. F., 1921 Oakes Ave.
Anderson, Ogette, 2410 Hoyt Ave.
Anglin, E. A., 2532 Lombard
Bailey, Bernice E., P. O. Box 406
Baily, A. A., 1610 Hewitt Ave.
Blomberg, G. A., 1726 Colby Ave.
Bordsen, Edwin H., 2630 Hoyt Ave.
Bratney, Nella M., 3120 Colby Ave.
Cady, Vernon E., care Post Office
Cady, Mrs. V. E., 2209 Cedar St.
Carlisle, Isabelle, 2502 Colby Ave.
Chernausek, Mary, 2711 Hoyt Ave.
Church, Geo. A., 3009 Hoyt Ave.
Crayton, Catherine, 2404 Hoyt Ave.
Crogstad, Alvina, 2711 Hoyt Ave.
Cuthbertson, W. L., 2815 Rockefeller
Ave.
Davidson, Edith E., 1729 Colby Ave.
Davis, Bessie L., 2922 Norton Ave.
Deiwert, Myron M., 2132 Rockefeller
Ave.
Deiwert, Stella, 2128 Rockefeller Ave.
Doolittle, Hazel, 418 Ave. J, Snohom-
ish, Wash.
Doph, W. E., 3325 Oakes Ave.
Dunn, William W., 3420 Oakes Ave.
Eaton, Lina, 801 Laurel Drive
Eriksen, W., 3409 Colby Ave.
Fairbrook, L. F., 2518 Virginia St.
Fitzpatrick, Mary G., 2504 Hoyt Ave.
Frank, Mary, Public Library
Frazier, Prof. C. R., 2314 Hoyt Ave.
French, Frank R., 2107 Cascade View
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Hinman, George M., Box 331, College
Station, Pullman, Wash.
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Hinman, Mrs. H. B., 2605 Baker Ave.
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Wash.
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Jürgensohn, Eva E., 2325 Baker Ave.
Kelly, Isabel C., 2414 Hoyt Ave.
Lesh, Louis, 1605 Everett Ave.
Lowe, Jennie E., Apt. 4, 2020 Pacific
Ave.
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Moore, Mae E., 2521 Rucker Ave.
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Swan, Harry W., 1610 Pacific Ave.
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Thompson, Anna M., 2607 Everett Ave.
Thompson, Geo. D., 2429 Baker Ave.
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Vikdal, P. G., 1612½ Hewitt Ave.
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Waller, Maude A., 2414 Hoyt Ave.
Weeks, Marie, 341½ Colby Ave.
Young, W. H., 2310 Colby Ave.
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 Barnes, Mary, Avalon Apts.
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 Brown, Nell, 2301 N. 8th
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 Brown, Mrs. Warren, 911 N. J St.
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 Campbell, Margaret, 1314 Nat'l. Realty Bldg.
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 Engle, Norman W., 401 S. G St.
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 Hopkins, Hazel L., Hillcrest Apts.
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 Hunt, Louise L., 723 N. J St.
 Hutchison, Minnie, 607 Fidelity Bldg.
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 Streeter, Lillian, 2618 N. Puget Sound Ave.
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