

The Mountaineer



THE MOUNTAINEER

1975

Published June, 1976



Cover: (Front) Avalanche Lily *B. J. Packard*
(Back) False Hellebore *B. J. Packard*

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Entered as second-class matter April 8, 1922, at Post Office, Seattle, Washington, under the act of March 3, 1879.

Published monthly and semi-monthly during June and July by *The Mountaineers*. Clubroom is at 719 Pike Street, Seattle. Subscription price, monthly bulletin and annual, \$6.00 per year.

THE MOUNTAINEERS

PURPOSES

To explore and study the mountains, forests, and watercourses of the Northwest;

To gather into permanent form the history and traditions of this region;

To preserve by the encouragement of protective legislation or otherwise the natural beauty of Northwest America;

To make expeditions into these regions in fulfillment of the above purposes;

To encourage a spirit of good fellowship among all lovers of outdoor life.



Mountain Buckwheat.

Ramona Hammerly



Quinault Valley Fern.

B. J. Packard

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South from Camp Muir.

Keith Gunnar

The Great Big Rainier Jamboree

9

Harvey Manning

I can't vouch for the accuracy of the newspaper story which called it "the largest mass climb in the history of the state's biggest mountain." And "mass" is scarcely an apt description, since we were three separate parties on three different routes. But July 22, 1951, we did put 81 people (out of 81 starting) on Columbia Crest, not counting another 10 club members in an Everett group. In *The Challenge of Rainier*, Dee Molenaar says The Mountain was climbed that year by 200 people (of 400 trying); nearly half did so the same day — and on scheduled Mountaineers trips.

The "jamboree" was the bold proposal of Frank Doleshy. Traditionally the annual Experience Climb of Rainier had gone up the Emmons one year, the Kautz the next, then the Emmons, and so forth. In 1950 we'd varied the pattern by substituting for the Kautz the Ingraham, so ridiculously easy the previous year as to provide that legendary avenue up which one could "run your grandmother in a wheelbarrow." In the event the avenue proved to be blocked by a brandnew icefall, forcing us on the Famous Grand Tour of the Glaciers — a low traverse from Cowlitz to Ingraham to Emmons, then switchbacking on high from Emmons to Ingraham to Nisqually to crater rim. Still, as always we'd held a single Experience Climb in order to have plenty of manpower available in case of trouble.

Frank, however, argued the manpower would be there anyhow, the parties able to render mutual support. Moreover, he reminded us the Fo'c'sle high camp below Steamboat Prow had been jampacked in 1949, 69 of us scrabbling in the rubble for spots to sack out.

Somewhat giddy with the daring of it, the convinced Climbing Committee adopted Frank's plan for an assault by four routes — cut at the last minute to three when the Ingraham was again a fright. Came the festive Saturday of July 21 and we variously proceeded to Muir, Hazard, and Prow.

The Mountain hailed the gala affair with weather benign beyond memory. Certainly it was the only occasion I ever crawled from sleeping bag into high-camp midnight without maximum effort of will. Not a cloud, not a breath of wind, the air so warm not a parka was donned; as Emmons leader rearguarding from the Fo'c'sle at 12:45 a.m., I quickly took off mittens and hat and rolled up shirtsleeves. More on a traveling picnic than an adventure we were, halting frequently for socializing and admiring the electric brilliance of Seattle — and a gaudy display of Northern Lights.

A three-quarter moon ruling out need for flashlights, routefinder Don Claunch breezed through crevasse mazes, reaching the summit at 6:15. (Far simpler was his task than mine in the same role in 1949, fumbling in the dark of the moon, blindly planting wands to the tops of a score of seracs and down again, suffering insults of the disgusted 68 dogging my heels.)

Not that Don had an absolute cinch. Ours was but the year's third ascent — in six attempts — of the Emmons-Winthrop route, and the reason was easily seen in the dreadfully motheaten glaciers. Don seemed to have found the one and sole bridge over the Winthrop bergschrund — and to a horrid crunching and groaning it dropped 4 feet under Ward Irwin's boots. Retreating with circumspect speed, Ward wore an exceptionally cool look for a chap who'd just missed accompanying a hundred tons of snow into the blue-black heart of the glacier; he nevertheless was content to back off and let me poke around for another bridge — which just barely existed.

Despite the bottleneck caused by this substitute bridge, requiring a clawing scramble up an 8-foot overhanging wall, all 40 of my party were basking in the sun of the Crest at 10 o'clock. So balmy was the day the air had been a-flutter with butterflies the whole way to the Columbia Crest-Liberty Cap saddle, and to the very summit we were busy fending off bumblebees which thought they'd died and gone to a Heaven of enormous blossoms.

At 9 o'clock the Gibraltar party of 28 began slogging across the crater. Co-leader Jim Henry produced smoked oysters for the ritual testing of stomachs, but due to our leisurely pace was rewarded with few eruptions. He did create a sensation by other means, though. Recently reopened by the Park Service after being closed for a dozen-odd years, Gibraltar was reestablishing its evil reputation as a head-smasher. Climbers on the route customarily defended skulls by stuffing hats full of extra socks. Jim, a logger by profession, foreshadowed the future by wearing the first hardhat any of us ever had seen on a mountain.

At 11:30, as I was rearguarding my party down from Columbia Crest, Doc Spickard, Gibraltar co-leader, rearguarded that bunch in. Vainly I looked for the Kautz party of 13, but they didn't show up until 12:30, as Spick was rearguarding his group down. If we didn't assemble as hoped for a single mass bash, at least none of the parties felt lonesome.

Later I learned what delayed the Kautzers. The Chute was a vertical skating rink and the upper glacier as full of holes as a lace doily. Leader Ron Livingston had fits whacking and weaving a tortuous way through (the first to do so that year); he then gave the rangers fits by not

returning to Paradise until 11 p.m., the incredible warmth having destroyed his ascent route, making even more harrowing the descent.

We shared the problem. Ordinarily one larks down the Emmons-Winthrop route following the mob-tromped trench and/or the line of wands. In the heat wave, however, the glaciers were frying away before our eyes and often our ascent trench led into gaping pits. (The next week the Park Service closed the route entirely.) Fortunately my descent route-finder, though not Don, was equally skilled. Exploiting the opportunity presented by the jamboree, on the summit Cam Beckwith, a Gibraltar ropeleader and former two-term Climbing Chairman, had traded teams (and directions for picking up each others' high-camp outfits and rides home) with Don, permitting both to do traverses.

The numerous novelties gave the whole day a frolicking mood, nor did we climbers enjoy it alone. On high we'd been twinkled at by mirror signals from friends and relatives at Yakima Park watching our progress with binoculars. Hiking out from Glacier Basin we were greeted on the path by a stream of parents come to congratulate sunburned and starry-eyed young heroes and heroines. The Champion Father was Burge Bickford, who to celebrate daughter Nancy's first conquest of Rainier, trudged to Interglacier under a load of dry ice and as we filed past him on the moraine trail handed each of us (all 40) a hard-frozen ice cream bar.

"Largest mass climb" or not, I imagine at that point in history there hadn't been many, if any, such crowded days at Columbia Crest: our 81 of the Experience Climbs, the Everett 10 on the Emmons-Winthrop, and in one guided party and one private party on Gibraltar, a half-dozen "strangers."

But I wonder — noting in Dee's book that 1,600 people attained the summit in 1969, on how many fine summer Sundays of the 1970s are *only* 100 climbers atop Rainier? Eat your hearts out, youngsters.

1975 Garhwal Expedition

Michael D. Clarke

Nanda Devi, Trisul, the Rishiganga Gorge! For years these magic names had worked in my imagination as I read and reread the fine books on the Garhwal Himalaya by Smythe, Shipton and Longstaff. Eventually, after more than two years of letter writing, we obtained permission to visit the Garhwal area of India which had been closed to foreigners for more than a dozen years.

The "we" was a party of seven besides myself. There were David Hambly, Jan Balut and Gordon Thomas all of The Mountaineers, Carl Moore of the Summit Alpine Club of Tacoma, Ray Jewell, a professional trekking guide for Mountain Travel, from California, and Phil Marshall, a student from Seattle. Our ages ranged from 23 to 50.

It was decided that Trisul (or Shiva's Trident), 23,360 feet would make a good objective for a first effort at organizing a Himalayan expedition. The peak stands on the south edge of the main Himalayan range and is surrounded by such magnificent mountains as Nanda Devi (25,660 feet, the highest peak in Garhwal) and Dunagiri, while other notable peaks such as Changabang are clearly visible. While not technically difficult from the north side, Trisul provides twin challenges of altitude and weather and was the highest mountain climbed until 1930. It was first ascended in 1907 by Dr. Longstaff.

In the latter part of 1974 and, indeed, until just before we left for India, details were being worked on. Equipment, first aid courses, high altitude food, visas, customs clearance, vaccinations and many other formalities had to be dealt with. We decided to be a lightweight expedition. Everything except our low altitude food and kerosene was to be taken in our 77 lb. baggage allowance. We took freeze dried food for the basis of our high altitude meals but all our other food was bought in India. Finally, just before we left, four of us engaged in a little medical research when we went through the Boeing treadmill test; this we repeated when we returned.

At long last May 9th arrived and we left Seattle for New York where we boarded our Air India 747 for the long flight to India. It was disappointing not to be able to see the Himalayas as we approached New Delhi but the pre-monsoon dust storms obscured all view. We passed through customs in an hour or so and then were driven to the YMCA in an ancient mini-bus.

We spent five days in Delhi (and the temperature reached a high of 109.7°F) making final arrangements with officials and buying our supplies. We combined work with pleasure and found time to do some

sightseeing.

Our food was bought in the crowded bazaars of Old Delhi. Rice, sugar, spices, biscuits, canned cheese and meat and many other items we bought in bulk and packaged in our YMCA bedrooms. It took perseverance to find bamboo suitable for making wands and kerosene of a quality good enough to burn well at 20,000 feet. We had a pre-expedition dinner at the luxurious Hotel Oberoi International before beginning the hard realities of expedition life.

Early in the morning of the 16th our private bus arrived, driven by a turbaned Sikh. We quickly loaded up and were off through crowded Old Delhi and soon we were driving across the flat, agricultural plains of northern India. We passed through small towns and villages apparently unchanged for centuries. At Haridwar the expedition members swam in the holy Ganges to wash the dust and their sins away.

Eventually we reached Rishikesh at the foothills of the Himalayas. Almost immediately the road began to rise, following the deep gorge of the Alaknanda river which drains a large part of the Garhwal Himalayas. The hills are deeply folded and are partly forested while in many places terracing is reminiscent of Nepal.

The road hugged the cliffs and zig-zagged back and forth and crossed and re-crossed the Alaknanda. The weather deteriorated and a tremendous storm hit us with rain and hail and continuous thunder reverberating in the gorge. The lightning flashed above us in the hills and below us in the gorge. Soon the road was awash in red mud and rocks which rolled down the steep hillsides. The driver was afraid that we would not get through to the hill town of Srinagar where we were to spend the night.

At last, long after dark, we arrived at Srinagar but the place was full of pilgrims and only by the barest luck did we find some space on the floor or in cots in an old building which, we later discovered, was free to the poorer pilgrims. After a night filled with the coughing and praying of the surrounding pilgrims we were off again and after some hours came to Joshimath, the most important hill town in the area, and a major Indian army center. Here the Dhaulti river joins the Alaknanda and we turned onto the road that leads into Dhaulti Gorge. It was raining again but through the clouds glimpses of jagged peaks covered with new snow could be seen. We crossed the bridge over the raging Rishiganga and stopped at the village of Reni. We picked up a few of our porters and proceeded several miles up the narrow road. We camped in the rain by the side of the road below the village of Lata (7,500 feet) built on terraces above the Dhaulti Gorge.

The next morning proved good and we met our 20 or so porters

and 50 goats. The porters carried 46 lbs. and the goats about 15 lbs. Although our liaison officer had not yet shown up, it was decided to push ahead to Lata Kharak, the first camp spot (12,300 feet). We passed through the attractive Lata village where most of our porters lived. Later, the weather suddenly turned bad again and the porters called a halt at a camp site named Belta. The porters slaughtered and ate a goat. It rained heavily during the night.

In the morning, the sun shone brightly out of a blue sky and the trees were filled with singing birds. In the distance cuckoos could be heard. After a steep climb we arrived at Lata Kharak, a beautiful place on a grassy ridge although a lot of winter snow was still lying on the ground. Some fine views of the outlying mountains and Bethatoli (20,800 ft.) due north of Trisul were seen although there was still much cloud. At this camp several expedition members began to be affected by the altitude and others had diarrhea.

On the 20th of May we awoke to a heavy frost and the prospect of a long hard trek over the Durashi Pass (14,000 ft.). We were away by 7 a.m. and soon the porters and goats were far ahead while all but two climbers were lagging behind. The way was steep with long traverses across snow slopes. The snow was new and heavy and the members tired.

By the time we had crossed the high point of the pass it was getting late and Carl Moore was quite ill and had to be helped. The weather turned poor again and after a long traverse above the Durashi alp, we bivouaked by a large rock. We only had a tent fly under which two of us slept while the other three crept under their ponchos. During the night it snowed and by morning all five of us were huddled under the fly listening to the snow pattering down and to the distant roar of the Rishiganga.

In spite of the continuing wind and snow we set forth the next day and were relieved to meet three of our porters who came back to us with chocolate and a stove to make tea. We then struggled over the Malatuni Pass – two porters helping Carl who was very weak – and looked down upon the green alp of Dibrugheta described by Tilman as “a horizontal oasis in a vertical desert”.

A descent of nearly 3,000 feet, a crossing of a mountain torrent, and a stiff climb brought us to a long, overhanging rock used by shepherds where we rested again. Another climb and we arrived at Dibrugheta now, unfortunately, snow covered. However, camp was still some distance away and we had to drop down into another ravine and cross yet another stream before the welcome sight of tents and a campfire in the trees came into view.

After much discussion it was decided that Carl, with Jan, Gordon and two porters should stay at this camp until he recovered, then they should reunite with the main party at base camp in a few days.

In the morning it was still snowing but soon the sun appeared and we pressed on to Deodi, a camp site by the Rishiganga. This was a beautiful hike; after climbing through a forest of large pines we emerged on the open hillside above the Rishi Gorge. A traverse at about 12,000 feet took us through clumps of birch and rhododendrons and later over grassy slopes. Much of the new snow had melted, otherwise we would have had difficulty in crossing some of the steeper parts of the gorge. The Rishiganga was not visible at the bottom of the gorge and it was exciting to think that we were following in the footsteps of Longstaff, Shipton and Tilman.

Suddenly the main peak of Nanda Devi was seen filling the head of the valley with snow and clouds blowing from the summit – a magnificent sight. A steep climb down brought us to the brown torrent of the Rishiganga which would have been impassable if it were not for a fine log bridge built by the Indians. The camp here is called Deodi and was somewhat claustrophobic, being at the bottom of the gorge.

The next camp, Bethatoli, lay up the Trisul Valley and was reached by a steep climb for about 2,000 feet and then a long traverse through rhododendron forests. The rhododendrons were beginning to bloom, white or purple, and beautiful butterflies abounded, swallowtails, fritilleries and a very elusive one which glowed a brilliant golden-orange in the sun.

We came to a point where we could see up the Rhamani Valley. The sharp spires of Changabang and the white sail of Kalanka looked very serene in the warm sun.

The Bethatoli camp was a delightful meadow below the lateral moraine of the Bethatoli glacier. Here we met some Germans who had made the first ski ascent of Trisul.

About two weeks after leaving Seattle we set out to establish our base camp beside the Trisul glacier at about 15,000 feet. The way led over the moraine of the Bethatoli glacier and up the long snow slopes above the Trisul glacier. By now our liaison officer, Flying Officer U. K. Palat, of the Indian Air Force had arrived, having had difficulty crossing the passes because of the new snow and because of a 300-foot fall by his porter. Our goats and all but three porters left us and the next few days were spent organizing the base camp. Jan, Gordon and Carl, who had recovered, were now with us again so we were ready to climb the mountain.

At base camp and at the higher camps too, we had become used to the weather pattern. It would be fine in the morning and then about midday the clouds would roll in and it would snow until 6 or 7 o'clock in the evening. Some days the snow would continue through the night.

In spite of the weather our valiant cooks, Ray and Phil, turned out some fine meals cooked outside on a wood fire and, higher up, on kerosene stoves. A typical supper might consist of dhal, rice, onions and spices and canned sausages, all cooked in a pressure cooker, followed by biscuits and tea or Bournvita. By midnight the sky was usually clear and the surrounding peaks looked remote and serene in the starlight.

"The sky is good" was the cheerful call of Ram Krishna, our porter who had a little English, when the weather was fair in the morning. Camp I was reached by following along the Trisul glacier and then ascending a long steep snow slope which lay between two huge buttresses of rock. With heavy packs and deep snow it was a tedious opponent. However, after three carries, we had a good, solid Camp I at about 18,000 feet on a large snow knoll below the north ridge of Trisul. Our three porters stayed at base camp while the seven members and the liaison officer settled in at Camp I where we had three tents, a Logan, Mariposa and a Kolsic, set up.

The morning brought heavy snow but by 10:30 the sun came out in full strength and the temperature rose to 110°F in the tents and yet by nightfall it sank to 22°F.

The following day (1st of June) we set out to find a site for Camp II. The new snow was deep and later on we suffered severely from "glacier lassitude." Carl and I were unable to climb higher than the top of the final steep slope below the plateau where the others placed Camp II at 20,300 feet. We hung our loads from an ice screw below some crevasses and returned to Camp I.

While all of us had become well adjusted to the altitude, four were going much more strongly so they mounted a first attempt at the summit. They set out on a cold bright morning and we watched them disappear over the top of the steep snow slope just below Camp II as the clouds rolled in. During the afternoon it snowed and there was a constant rumbling, whether from avalanches from the east face of Trisul or thunder storms in the south, we could not tell.

The next day Gordon and I brought up some more freeze dried food from base camp and on our return the others said they saw the advance party climb past the highest visible point on Trisul's north ridge. By midmorning of the 4th the advance party, Dave, Jan, Ray and Phil had come down to Camp I, defeated by deep snow and bad weather. We

decided to take three rest days at Camp I and then move the whole party to Camp II so that we would have more people to share the interminable step kicking.

Above Camp I there was a high point which we called Point 18,700 feet. I climbed to the top of this, which is really the end of North ridge. Great snow slopes and rock precipices fell down to a valley above base camp which I could just discern. A magnificent panorama of the wild jumble of peaks forming the Garhwal Himalaya lay to the north. From Kamet on the Tibetan border round to the neighboring Mrigathuni to the east there was an amazing array of spires, razor sharp ice ridges, snowy cones and dazzling walls and faces seamed with hanging glaciers and crevasses. Above them all was double summited Nanda Devi, Queen of the Garhwal on the summits of which there was a haze of windblown snow. The Franco-Indian expedition was undoubtedly having a tough time trying to make the first traverse between the summits.

As I descended from the warm and peaceful viewpoint, once again the snow laden clouds crept up the valleys and we had a storm of wind and snow. The next day we all moved up to Camp II and just as we arrived a storm from the west (the prevailing pre-monsoon wind is from the west in the Himalayas) hit us and snow dust was driven into the tents through every little hole.

That night there was a thunderstorm. I woke at 2 a.m. and there were faint stars glimmering through gently falling snow. We spent two hours trying to get a stove going and the resulting fumes badly affected Carl. However, the weather worsened and we all thankfully returned to our sleeping bags.

The 9th of June – Summit Day! At 2:30 a.m. it was windy and cold (0°F) but it was clear and the stars and the Milky Way glowed with a brilliance not seen at lower elevations. At 4:15 six of us (Carl and the liaison officer staying behind) set off up the huge snow ridge looming above us. It was quite dark and in spite of our double or triple boots we all had cold feet for many hours. The wind filled in the steps of the leading rope team and those following had to re-kick them.

The sun rose giving a golden glow to the surrounding ridges and the wind dropped a little and it became a pleasure to plod up the seemingly endless ridge. Eventually the ridge narrowed and we had to pass between some seracs and crevasses. At last, a final steep slope and the summit was gained. It had taken from 8 to 10 hours for us to climb the last 3,000 feet.

There are two small summits separated by about 100 yards, one is rounded and the other a sharp cornice. They looked identical to the

photographs taken by Longstaff in 1907. The cornice looked higher so Dave and Jan carefully investigated and confirmed what previous climbers had found – that the nearer rounded summit was the higher. At last we had reached the tip of Shiva's Trident (Trisul) and, unlike previous expeditions, we had a marvelous view from the summit, although the plains of India were cloud covered. Only Nanda Devi was higher than us. The air seemed no thinner than that at the summit of Mt. Rainier so well acclimatized were we.

The usual bad afternoon weather was coming in, luckily later than most days, and we had one very exhausted climber to help down. At last we reached Camp II where we had hot soup waiting for us and then we crept into our sleeping bags and had another uncomfortable night; but we had the satisfaction of achieving our goal.

The next day we descended to Camp I in very bad snow and, with the help of our porters, got everything down to base camp in one carry. That evening the weather was fair and we celebrated our victory in "feast and song" by a big bonfire.

During the next few days we relayed our loads down the Rishiganga gorge where we had arranged to meet some extra porters who were to be sent in from Lata by our liaison officer who had gone on ahead. The beautiful weather made life very pleasant, the snow had mostly gone in the lower areas and spring had come. The flowers were out and the trees full of twittering but unseen birds and, occasionally, a brilliantly colored Monal pheasant would flash across the path.

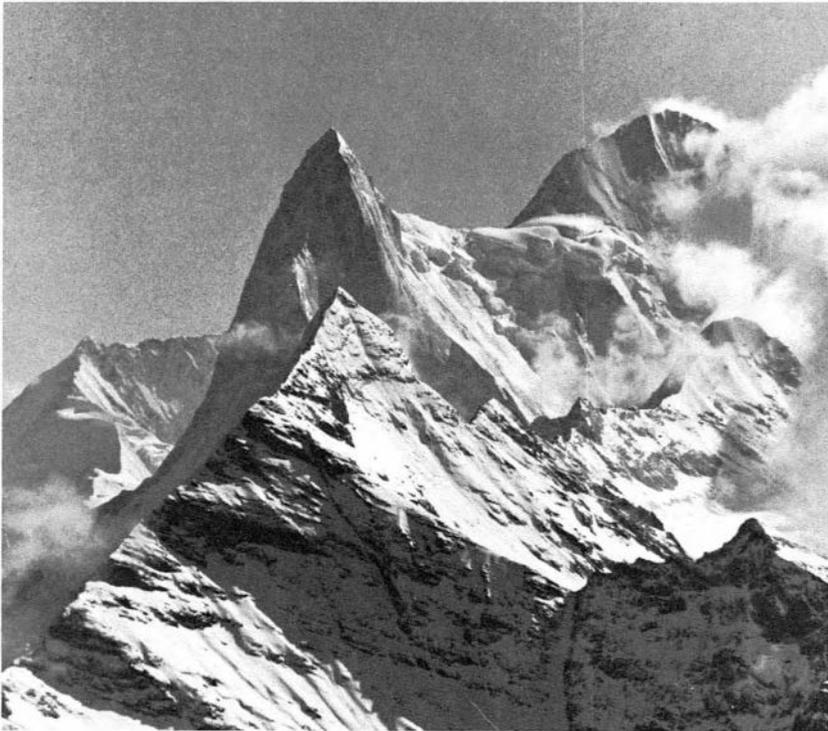
We now had our extra porters and were able to do one big "carry" from Deodi all the way to the Malatuni pass above Dibrugheta which now looked like the green paradise we expected. On the pass we stopped for the night. However, we craved fresh meat so a sheep was bought from a shepherd for 125 rupees. It took an hour or so to catch the sheep from a higher alp and in the meantime the porters brought up some dwarf juniper from lower down since we were well above the tree line at 13,700 feet.

Hereabouts the locals burn the juniper thickets before they obtain the fire wood from them. It apparently aids collecting the wood but the practice appears to lead to soil erosion in places. Water was also a problem and the only supply was from a dirty snow bank. The sheep was killed by Ram Krishna in the same manner as the Incas killed their human sacrifices. A slash was made in the underside of the sheep, a hand thrust in and the still pulsating heart wrenched out. Owing to the problem of keeping the fire going, we had rather rare meat. That night, like the last few, we slept under the stars but lightning was flashing in the southeast.

By early morning heavy damp clouds covered everything and we set out in a thick mist to cross the Durashi Pass. The visibility was poor and we found the cairns useful. By midafternoon we completed the long traverse to Lata Kharak and dropped down to Lata, a descent of over 6,000 feet in one day.

We stayed the night at Ram Krishna's parents' house – the first solid roof over our heads for thirty-three nights. We ate a fine meal of rice, onions and dhal and washed it down with tea and Arak (a local whiskey). It rained hard during the night and it was obvious that the monsoon had arrived early this year.

Before we set out for the road the next morning we bartered for various local handicrafts such as the beautiful, heavy wool Garhwal rugs. At the road we waited for a bus which never came but an Indian army brigadier stopped his staff car and chatted with us and waved down the next army truck that came by. We quickly loaded up and were whisked to Joshimath. At Joshimath Dave and I prepared for a visit to the Valley of Flowers, the others returning to Delhi.



Changabang (left) and Kalanka (right) from "Point 18700" on Trisul, Garhwal.
David Hambly

Ome Daiber: An Interview

Marianne Schmitt

"Resting? – baloney! – I don't get any relaxation from *not* doing anything!" Ome Daiber's eyes sparkled as he spit out these words and settled deeper into a chair in the living room of his Bothell home. This attitude undoubtedly explains why Ome Daiber has been an active member of the Mountaineers since 1931, and why more than fifty years of his life have been actively involved in the mountains and wilderness areas of the Pacific Northwest, Alaska and Canada. Come meet a fellow Mountaineer as he reminisces about the goodly portion of his life that has been spent in sheer enjoyment and exploration of our Pacific Northwest mountains.

For those who also have spent many years in the Mountaineers, the name Ome Daiber is probably quite familiar and needs no introduction. However, even for those of us who are fairly newly-introduced to enjoyment of the mountains, and who have spent many hours pondering the type of equipment most needed for hiking or climbing or backpacking, that name, Ome Daiber, somehow rings a bell. It seems vaguely familiar. Oh yes! – Sno-Seal – that's it! *That's* why his name is familiar – what hiker hasn't sung the praises of Sno-Seal?

When asked how he happened to develop and trademark the idea of Sno-Seal, back in 1937-38, Ome merely shrugged his shoulders: "I got fed up with shoe-grease, 'cause you put it on, and it goes through onto your socks and you have to regrease your boots so cockeyed often it drives you wild." So, instead of merely grumbling about this inconvenience, Ome set himself to figuring what it would take to keep socks ungreasy, boots dry and the hiker happier. Luckily, he hit upon a plasticized compound of wax and penetrating oil that *works*, and Sno-Seal is still being sold today, with the addition of a bit of silicone. This sort of analytical turn of mind characterizes Ome himself, as well as his lifelong attitude toward mountaineering, wilderness travel and survival.

How did Ome first become interested in mountaineering? Though born in Seattle and raised in West Seattle, close to the Sound, the mountains he could see rising far above the Sound and the city were "magnets" to him from boyhood on. His parents were not at all interested in the mountains, and even kept him from competing in high school athletics, which were "far too dangerous," but Ome satisfied his yen for the mountains by joining the Boy Scouts. He chuckled and reminisced that his parents probably never did fully realize the extent of mountaineering experience with which Boy Scouting provided him.

It was also while a Boy Scout that Ome began what would later be a significant activity of his life. Short of dollars and unable to buy the hiking gear he needed, he first started making packs and bags, for use on overnights. After high school, Ome spent a few quarters at the University of Washington in forestry studies, but he quickly took to the mountains again, doing surveying work for logging companies in areas such as the Skagit and the South fork of the Nooksack – work that put him near to the mountains for the hiking, skiing and climbing he so enjoyed.

In 1930, however, it was “back to the Boy Scouts” for Ome, and back to his experience with equipment for hiking and camping, for he ran the Boy Scout Trading Post in Seattle. In about 1931 or 1932, Ome switched to the Hike Shack, which did outfitting for climbing expeditions to every continent except Africa, including Little America and the Byrd expeditions. Ome continued to improvise and to develop ideas for gear during the 1930s, including a penguin-type sleeping bag, complete with retractable arms and legs for instant mobility on frigid mountain mornings. Ome himself still uses, and swears by, such a bag.

In the winter and spring of 1935, Ome was part of the six-man National Geographic Society Yukon Expedition led by Bradford Washburn. Ome recalls that, as part of this expedition, he walked 1200 miles while the expedition explored and mapped nearly 5,000 square miles along the Yukon-Alaska boundary. This heretofore unknown territory was bounded on the west by the towering St. Elias range and on the southeast by the Alsek River, and the territory included such 14,000-15,000-foot peaks as Alverstone and Hubbard, as well as the extensive Hubbard, Lowell and Kaskawulsh glaciers. The story of that expedition is told in the June, 1936, *National Geographic Magazine*, and the accompanying photographs are spectacular.

Combining his recreational interests and natural ability with his chosen line of work, Ome continued on in outfitting, expanding by 1936 into Ome Daiber, Inc., more actively engaged in manufacture of camping and expedition equipment. This extended, during the war years, to research and development work on survival equipment for the Alaska Defense Command and Mountain Troops.

Ome furthered his total involvement in mountaineering by joining The Mountaineers in 1931. Since that time he has spent additional hours in club volunteer activities and pursuits. In fact, it was through the Mountaineers and their common interest in hiking and climbing that Ome and his wife Matie met. The Mountaineer Summer Outing of 1939 was in the Tetons of Wyoming. A grand total of 125 people,

members of the Federation of Western Outdoor Clubs, some of them coming from as far east as Chicago, participated in the outing. Ome was Climbing Chairman for the outing and Matie was there with a group of the Spokane Mountaineers, of which she was a member. Since that time Matie and Ome have been active together in the Seattle Mountaineers. In the post-war years Ome left outfitting and took up carpentry, and then moved on into contracting. He and his family continued to hike and climb, as they still do today, and Ome became greatly involved with the Mountain Rescue Council. His tales of the many mountain rescue attempts he participated in could alone fill a full evening's worth of fireside conversation.

Ome began to climb, and learned climbing techniques, at a time when there were no formalized climbing instructions – he learned by trial and error, utilizing his natural abilities and instincts. He recalls that even at the time he joined The Mountaineers, in 1931, there were no climbing courses; these did not materialize until several years later, under the instigation and guidance of Wolf Bauer. Now, the alpine travel and climbing courses are a comprehensive and vital part of The Mountaineers' total contribution toward helping its members explore, study and enjoy the Pacific Northwest. Ome has frequently been a lecturer for these courses, as well as for the University of Washington.

The course Ome taught at the university, however, was not in climbing but rather in alpine travel and wilderness survival, areas which are vital life-saving prerequisites to a person's exploration of the mountains. If Ome as an instructor had his "druthers," he'd like to insure that everyone who intends to take a basic climbing course, or who plans to do hiking and mountain travel to any extent, be first a graduate of a comprehensive course in alpine travel and wilderness survival. This would be Ome's "bit of advice" for those of us who are new to The Mountaineers and to mountain travel and enjoyment. A course imparting the type of knowledge Ome considers essential for safe enjoyment of our mountain areas would include a beginning understanding of many natural areas, mountain knowledge of a sort that is the basis for analysis, and the ability to improvise, if necessary. The latter, to Ome's way of thinking, is a vital aspect of wilderness survival.

In discussing this area, Ome's eyes *really* lit up, and one could picture the enthusiasm with which he lectured to his classes at the University of Washington. As an example of the type of knowledge and know-how he believes in and lectures about, Ome said: "For instance, I teach the trees, and I think that's a *must* – if you ever want or *need* to build a fire." With a bit of know-how a mountaineer can

build a fire out of wood so wet that it will sink, and this is the sort of survival know-how Ome considers so essential.

Members of his wilderness survival class probably also vividly remember the extent to which Ome would go, in proving a point about survival techniques and knowledge about the best type of gear with which to equip oneself. Ome and his class once had been discussing the relative advantages and disadvantages of winter underwear, especially related to their water and warmth retention qualities, when wet. On one of their field trips Ome decided he and his class would do a field testing of two different types of underwear, in order to actually time the retention qualities of the two. So, wearing only a suit of "half and half" winter underwear pieced together by Matie (one-half regular woolen and one-half a type of nylon pile arctic underwear he was interested in), Ome Daiber did a cedar-tree belay for a quick dunking into the icy-cold spring runoff waters of the river near where they were camped. While Ome shivered and began warm-up measures, his students timed the water-retention qualities of the underwear he was wearing. As Ome would say: "I'm kinda funny, a bit of a bull-headed individual!" This sort of individualistic, improvisational, "know-how" approach to the mountains is one that has characterized Ome Daiber for the entire 50 or so years of his experience in the wilderness areas of the Northwest.



The Hoh.

B. J. Packard



Marmots playing.

Jim Taulman

James F. Taulman

Most hikers and climbers have had the pleasure of having their visits to the high country of the Cascades heralded by piercing whistles from the largest rodents residing there. These sub-alpine natives are the hoary marmots (*Marmota caligata*). I was fortunate in being able to spend the summer of 1975 studying a colony of marmots near Mt. Cashmere. The research formed the basis of my thesis for the master's degree at Central Washington State College.

The colony is situated in the basin of a glaciated hanging valley at about 7,200 feet elevation. The easiest way to get to the site is by the eight mile trail leading to Lake Caroline. Leaving the trail just past the lake, I tramped across the Pioneer creek valley and climbed the remaining 1,000 feet up to the site.

I first visited the site on June 1 to set up my canvas blind so that the marmots would become accustomed to it by the time I began observations. When I returned on June 18 the poles and guy lines were all that remained; the blind had blown away. I found it about a month later 250 yards upslope. The colony I had chosen to study was situated about half a mile east of Windy Pass and I was reminded every day of the appropriateness of that name.

The site is located at the upper extremity of the parkland with bare slopes comprising most of the habitat. I camped at the site for a week at a time and hid a cache containing the tent and other supplies in a large mixed clump of trees. Cacheing enabled me to reduce my pack weight from 70 pounds on the first two trips to a fairly consistent and much more tolerable load of about 45 pounds on the other five excursions.

The following constitute some facts taken from my own and others' observations that might not be common knowledge to all mountaineers.

The Colony

Hoary marmots are polygamous colony dwellers. A single adult male lives with his harem of several adult females who breed once every two years. Biennial breeding is a physiological adaptation to the rigorous environment and gives the female a summer to recover from the metabolic losses in producing young. It also allows the young a second summer in their mother's care. All members of the colony roam freely within a colony territory which is defended against other marmots.

Strangers are chased off the territory and vicious and damaging fights may occur between members of adjacent colonies in a territorial border dispute. The colony I studied defended a territory of 29 acres.

Three or four young are born around the first of July and emerge fully furred around the third week in July. They spend their first weeks exploring all the rocks and burrows and soon range confidently over the entire colony territory.

Burrows

Hoary marmots construct burrows under boulders or less commonly in open ground with a single tunnel leading to the nest. Colony members maintain a few burrows in the central part of the colony as sleeping burrows and use all the others scattered over the territory as resting places or refuges in flight when feeding nearby. The marmots I observed had 71 burrows on their territory; four were used for sleeping.

Activity

Hoary marmots are only active during the day. They emerge shortly before sunrise and retire after sunset. Early in the summer marmots are active all day foraging and exploring. By early July they have assumed a two-part daily cycle of activity with a rest period in the noon hours. Feeding is the most time-consuming activity until September when lying on a rock or porch takes up the majority of the above-ground time.

Hibernation

Accumulation of fat reserves in late summer triggers a daily cycle of body temperature fluctuation. Each night the body temperature drops lower and on each succeeding day it reaches a lower maximum. A certain threshold temperature must be reached before activity is possible and this temperature is attained later in the morning and lost earlier in the afternoon each day in September with the result that marmots arise later and retire earlier. They become very lethargic as well in late summer. When the temperature fluctuation no longer attains the threshold for activity during its daily increase, the marmots have entered torpor. Hoarys usually become inactive by October 1 and sleep for about eight months until the end of May.

Communication

The long call of the hoary marmot is given in response to any disturbance which does not present an imminent threat. This call has

been heard by all who have come into contact with the species. Hoary marmots, however, have a diverse vocal repertoire. Immediate danger is signalled by a descending call of less than half a second's duration. It is uttered upon the rapid approach of a predator or upon the sudden appearance of a disturbance. An ascending call in three forms is given in response to other marmots. The caller thereby expresses a conflict in the drives to advance and to flee. The most intense performance is an accelerating run of ascending chirps. A low frequency call which sounds like a rabbit's distress call is given in response to predators in the vicinity but not posing an immediate threat and expresses a conflict of the drives to stay and continue previous activity and the drive to flee. A growl sounding much like a dog's growl is given as a threat to other marmots within the colony and serves to maintain distance between individuals not in a social mood. A yearling was heard whining like a puppy in response to growls from its mother. Tooth chattering was given by marmots trapped in a cage in response to the presence of their human captor.

Other means of communication among marmots involve a visual threat given by turning broadside to the recipient, arching the back with the tail raised and looking toward the recipient with bared incisors. Tail flipping constitutes another visual signal and seems to be performed by marmots in a tense mood though its meaning is unclear. Marmots possess scent glands on their cheeks and rub these on a rock at each burrow they pass or on the dirt of a porch. Scent marking constitutes an olfactory signal among hoary marmots and may serve to maintain the colony scent on all burrows in the territory.

Greeting

Marmots greet by touching noses, touching or locking teeth or sniffing about the face of another. As in man, greeting serves to re-establish friendly ties through physical contact and to appease aggression. Secondly greeting may aid in individual recognition though this is mainly accomplished by sight.

Play

Young and yearling marmots actively engage others their own age in extended bouts of play. Opponents face each other on haunches or on the hind legs and spar or lock teeth and engage in a tug-of-war in an effort to throw the other off balance so that a bite can be safely landed. Adult fighting behaviors are practiced and developed during play but

the context is a non-serious one. An attacker may flee or one which has broken off a contest may restart it. Notably, no damage is done in play. Young commonly lie on their backs to fend off an opponent but the one on top doesn't take advantage of the marmot lying on its back. Fights between adults, on the other hand, are uninhibited affairs and damage almost always occurs to one or both participants.

An interesting posture is performed by both partners at the beginning of bouts of play and fighting. Opponents pause during the fray and while leaning against each other at arm's length simultaneously point their noses toward the sky. This posture lasts about a second and may have evolved as a break in the bout to give one marmot a chance to flee before any damage is done. It is only practiced in play but serves its proper function in an earnest encounter.

Predators

Bear were twice observed crossing the colony basin but they paid no attention to the marmots. Hawks, vultures and falcons frequented the site in late summer and always alarmed the marmots and sent them scurrying though no attacks were ever observed and the marmots ignored other birds entirely. A coyote was observed crossing the territory on three occasions and was actively stalking marmots on each visit until it sighted me; it then proceeded steadily over the opposite ridge. Colony dwelling marmots are seemingly untouchable and predation undoubtedly is not a significant cause of mortality in colony marmots. Young marmots travelling over unfamiliar ground in dispersal may well fall prey to these potential predators as well as other carnivores reported to take marmots, such as mountain lion and fisher.

Prospects

Hoary marmots are a highly social species. It is very easy to identify with individuals as they go about their daily activities, sprawling out on a snow patch on a hot day or approaching to greet and appease a "friend" who has instigated a chase for no apparent reason.

As hoary marmots inhabit regions largely unattractive to human developers, these rodents, who are the true land owners of the high country, will probably be permitted to remain undisturbed. If so, they will continue to grudgingly tolerate the intrusion of admiring mountaineers for an indefinite future.

Sam Fry

President, The Mountaineers, 1975

What does the future hold for The Mountaineers? In what direction are we going? Are our route finders plotting a proper course to achieve our objectives? Where will we be five years from now? Ten years from now?

As we enter the 70th year of our Club's existence and as we look toward the future, it is important to examine our goals, our plans, and our dreams. And these can best be examined by reference to achievements of the past, evaluation of the present, and, hopefully, extrapolations into the future.

Let us look at some of the basic philosophies of our Club and then at the means by which we implement them. It may appear somewhat surprising that the fundamental objectives as set forth by the Club's founders still remain as true, as ambitious, and as challenging today as they did 70 years ago. They have remained unchanged and provide the basic charter against which all our activities are measured.

However, experience has shown that attempted deviations from these objectives have usually resulted in failure. For example, attempts at philanthropic activities involving social consciousness, or suggestions for service-club type activities (other than conservation-related) have been notably unsuccessful. The average Club member has joined The Mountaineers for a single purpose, to indulge in one of the Club-sponsored activities, such as climbing, ski lodges, conservation, ski touring. Some members develop multiple interests, but it is difficult, if not impossible, to motivate the average member beyond his special interest.

This is consistent with the strongly voluntary nature of the Club's activities. The presence or absence of sustained member interest is one of the primary criteria for Club sponsorship of an activity – not the forcing of an activity upon reluctant members by Club officials. Another criterion for a successful program has been the adherence to the Club's charter objectives. Let us take another look at these objectives in the light of past, present, and future applications.

“To explore and study the mountains, forests, and watercourses of the Northwest;”

Our early outings were truly exploratory in wilderness areas where roads and trails were unknown. As civilization encroached into these wildernesses, the nature of the explorations may have changed from

macro to micro but the challenge of the exploration has not diminished – so long as some portions of wilderness remain.

Nor will the study of the mountains, forests, and watercourses ever cease to hold one's interest. The manifestations of this objective are seen in the many outdoor activities presently sponsored by The Mountaineers – such as the climbing, hiking, camping, skiing, snowshoeing, canoeing, and their related outings. Certainly these activities will continue to expand in the days ahead.

“To gather into permanent form the history and traditions of this region;”

The Mountaineers have been recording the history and the traditions of the Northwest mountaineering and related subjects ever since the publication of our first annual in 1907. Then in 1960, the publication of *Mountaineering: The Freedom of the Hills* paved the way for a rapidly growing list of books deemed by the Board of Trustees “to further the purposes of The Mountaineers.”

The number of books published by The Mountaineers now totals over 30; their scope includes history, conservation, alpine and trail guides, mountain medicine, and first aid. Also *Freedom's* completely updated third revision in 1974 maintained it as the undisputed best basic textbook on climbing.

The publishing business, which presently amounts to over a quarter million dollars a year, is handled by the Literary Fund Committee – a group of highly dedicated volunteers. Publishing profits have gone to expanding the business and into the publishing of potentially unprofitable, but worthy books supporting such causes as conservation.

It is expected that these publication activities will continue. The University of Washington Library has agreed to store Club records in its archives as a permanent repository for the Club's history.

“To preserve by the encouragement of protective legislation or otherwise the natural beauty of Northwest America;”

Conservation has been of primary importance to The Mountaineers since the Club's inception. The public's more recent awareness of conservation only emphasizes its significance for the future.

Our first President, Henry Landes, wrote in the first annual: The Mountaineers “hopes to render a public service in the battle to preserve our natural scenery from wanton destruction and yet make our spots of supremest beauty accessible to the largest number of mountain lovers . . .”

The battles have been many and the accomplishments of The Mountaineers are a matter of public record. From the Olympics, the

North Cascades, Mt. Rainier, the Alpine Lakes, we have striven to retain as much as possible of our ever-shrinking wilderness areas.

We helped form the Federation of Western Outdoor Clubs in 1932 and have joined in its legislative conservation efforts. We have set aside 180 acres of Mountaineer land as a Rhododendron Preserve and are still battling to preserve it from the encroachments of civilization. In recent years we have participated in wilderness hearings, agreed upon an updated Mountaineer philosophy and policy on wilderness.

We have adopted new policies on National Park and Forest Service land usage urging small party size to reduce the environmental impact. Gone are the days of 60 to 80 persons in climbing parties; the maximum size is now 12 people for overnight trips, 25 for single day trips. Protection of the environment and preservation of our scenic resources will continue to represent an ever stronger challenge over the future years.

“To make expeditions into these regions in fulfillment of the above purposes;”

For the early members, it took a four-day expedition just to reach the summit of Mount Si for the first Club ascent of a mountain peak by The Mountaineers on May 12, 1907. Outings to Mt. Rainier and Mt. Olympus were truly expeditions.

As transportation facilities improved, it became possible for Mountaineer members to make expeditions not only in the Northwest but in all parts of the world, climbing the highest peaks and in some cases being the first to do so.

As the number of unclimbed peaks and unexplored regions decreases, “expeditions” will turn toward the continuing search for more detailed knowledge of our mountains, our forests, our water-courses. The object of such “expeditions” might be to add to our understanding of how the various eco-systems interact or of the creation and crumbling of our mountains; or it might be the development of safer and more meaningful ways to enjoying our outdoor resources. Expeditions such as these can be carried out by any of the outdoor divisions or lodge activities.

“To encourage a spirit of good fellowship among all lovers of outdoor life;”

The spirit of good fellowship is the glue that holds together all of the above objectives. It is this quality that enables us to “enjoy the natural beauty of Northwest America.”

This “Mountaineers’ Spirit” motivates members in all their activities and is a major factor in making The Mountaineers one of the finest organizations in the United States. It is this spirit of cooperation which

leads members to willingly put in hours of time and effort in support of Mountaineer activities, whether it be in work parties, committee meetings, or speaking out in defense of conservation issues.

Good fellowship is generated by respect for the mountains as well as respect for our colleagues. Each of the activities in The Mountaineers – lodges, outdoor, indoor, conservation, publications, Board of Trustees – all contribute to this spirit whenever the groups meet. Many members agree that the friendship and fulfillment they find in working and relaxing with a congenial, outdoor-oriented group is their primary reason for retaining their membership.

How does the Club manage, and how is it managed to fulfill the above five objectives?

Management of the Club is in accordance with the Bylaws, which are changed from time to time, by vote of the membership, to take care of changing conditions and needs. The Bylaws provide that “the entire management and government of this association . . . shall be invested in the Board of Trustees,” who are elected by the membership. Officers are elected by the Board but they operate at a low profile.

The real work of the Club is done by the individual committees, and they have a wide latitude of operations within the policy guidelines set by the Board. For ease of management, the committees are organized into five divisions, the chairmen of which report to the Board at their monthly meeting.

Branches are organized in a similar manner, with representation on the Board of Trustees. Board actions are defined in the Board minutes and summarized in the Bulletin for membership information.

Policies and guidelines are periodically extracted from the minutes and placed in a policy manual for use by division and committee chairmen and for new trustees. This representative-type organizational structure has worked well over the years, and there appears to be no reason to alter it in the foreseeable future.

The actual day-to-day business of the Club is handled at the club room by a staff of several secretaries, an accountant and a dedicated part-time business manager. In earlier days these activities were all voluntary; however, significant increases in membership, activities, and finances have necessitated proper business procedures and six-day-a-week club room operation.

Our club room facility has also had to expand to meet the demands of increased membership. As early as 1956 the need for a larger “future club room” was recognized. Voluminous reports in 1960, 1962 and 1963, along with intensive efforts by a large number of members, led to the acquisition in 1965 of our present clubhouse at 719 Pike Street.

Volunteer work parties did much to prepare the second floor for club room activities, leaving inherited tenants on the first floor. By 1975 the mortgage for the building had been paid off and we were enabled to dispossess the tavern tenant, thus permitting more space for our expanding needs as well as upgrading the neighborhood.

Current plans are to continue the small restaurant tenant, add a small bookstore tenant, and utilize the remaining first-floor space for an additional large Mountaineer meeting room and for storage space for our book publishing operations. This plan permits a large amount of flexibility for growth to meet future space and facility needs over the next five years at least.

The consideration of Club management would not be complete without the mention of finances. In earlier days financing was fairly simple – albeit not without problems – consisting of dues to pay for publication expenses, donations and volunteer labor to pay for lodges, and outing and trail fees to help pay for activities.

Today we are a big business with an annual income from dues and fees of nearly \$100,000, not including the \$225,000 annual book business.

About one-third of our income goes to salary and administration, about one-third goes to publications (Bulletin, Annual, Roster), and the remainder goes for committee operations (activities), for the branches and for income tax.

The policy of the Board has been to attempt to make each activity as self-supporting as possible so that the costs of an activity are borne by those who benefit. Lodge fees and climbing course fees are typical examples. Thus the dues of an “inactive” member primarily go to such shared interests as the Bulletin, Annual and Roster; the support of conservation activities; and the support of such property and facilities as the Rhododendron Preserve, Snoqualmie Lodge and the clubhouse.

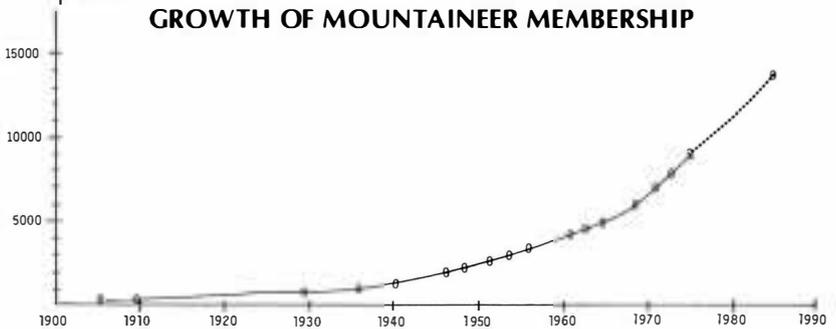
The Club’s financial situation for the past several years has been very good. Two years of good snow enabled all ski lodges to end up in the black; good weather and good productions enabled the players to gross a substantial amount; and the dues increase of 1972 had eased the former strain on cash flow and depletion of reserves for maintenance of Club property. However, it can be expected that the inexorable bite of inflation will demand yet another round of dues increases within the next five years.

What measures can we utilize, now and in the future, to assess successful achievement of our goals and objectives?

Some clues as to the success of our policies might be found in how the outside world regards us – our prestige, our image, our credibility

on the issues in which we choose to take a stand. These factors, being somewhat subjective, are difficult to assess, and yet we know our climbing textbook is recognized as authoritative, our statements on wilderness and conservation in the Northwest are respected, our rapport with the land managers of the national parks, national forests and state parks is excellent.

A better clue as to how well we are doing might be found in the inside world — from the eyes of our members. A quantitative measure of success might be found in membership trends: joining and retaining membership would be indicative of acceptance and support of Club policies; dropping one's membership would be indicative of non-acceptance.



Sam Fry, prepared by Don Brooks

The chart shows the membership trend since the founding of the Club. With the exception of a slight decline during the Depression, the membership has shown a steady and healthy increase from the 151 charter members in 1907 to 800 members 25 years later, to 3,500 members 50 years later, to the nearly 9,000 members now as we enter our 70th year. The membership has doubled in the past 14 years with a recent growth of about 500 additional members each year. The number of *new* members per year is considerably higher than that because of resignations and dropouts.

Many members join, for example, to take the climbing course, at the conclusion of which they drop out. Others will actively engage in climbing activities for five years or so and then divert to other interests. However, a substantial number retain their membership, thus contributing to the net growth of membership. The current five percent growth rate appears to indicate a healthy membership acceptance of Club policies and activities.

If this current growth rate continues, our membership can be expected to reach 14,000 in 10 years. Can we foresee any factors that might accelerate or diminish this growth rate?

Some say that the limits being set on climbing course enrollment and on party size, along with facility limitations, will tend to flatten out the growth curve over the coming years; others say that the public has only begun to be aware of our outdoor resources and we can expect continuing expansion in our non-climbing activities such as trail trips, ski touring and snowshoeing.

Participation in ski lodge activities and in non-outdoor activities has remained relatively stable and is not expected to vitally affect the growth rate. One factor that retains many members long after they have hung up their climbing shoes is the spirit of fellowship acquired on Mountaineer activities.

What problems do we face as our membership continues to increase? Certainly the problems faced by staff, facilities and finances are not insurmountable in the foreseeable future if growth continues at the present rate. However, some have expressed doubts that the Club can retain its close-knit character, its spirit of fellowship, its congeniality of interests if it grows too big and becomes too impersonal. The smaller size of the branches allows such close-knit relationships, but with the disadvantage of potentially narrower scope and breadth of activities.

There is probably an optimum size of something between several hundred and several thousand for the branches, and it may well be that proliferation of branches in the surrounding Seattle areas will be the long-range solution to the heavy additional membership. The central core "non-branch" will always be required, however, to provide the breadth, scope, specialization and direction that are necessary to hold the whole organization together.

And finally, how are our leaders doing in charting a route through the hazy future? The trustees and officers are not unaware of present and future problems facing the Club. The Club is fortunate in having competent and dedicated people in these positions of responsibility.

In their handling of the on-going problems at the monthly board meetings little time is available to look at longer-range problems. Consequently, fall planning conferences are held every two years to examine in greater depth those long-range problems affecting the Club. Often these will result in the formation of ad hoc committees to continue to study the problem and report back to the board.

Recent examples are the ad hoc committees for such subjects as Club Room Future, Impact of Guide Books, Club Standards, Junior Activities and Future of the Rhododendron Preserve. Over the recent past, resolution of these types of problems has been accomplished in a positive and constructive manner. I am confident that the direction of the Club is in good hands and will continue to be, so long as The Mountaineer spirit of goodwill prevails.

Of Metagraywacke and Mt. Shuksan

A Geology Study Tour in the North Cascades, Summer, 1975

James H. Crichton and Grayson L. Capp

Seattle Pacific College

Metagraywacke: a rather precise term for a type of rock found on and near Mt. Shuksan. Of such materials are majestic mountains made, like Shuksan, a veritable cliché of calendar and place-mat art. But in the presence of such mountains, what they are made of or the geologic processes that formed them always stand second to the awe their beauty inspires. To those fortunate people who can stay at The Mountaineers' cabin at Heather Meadows near Mt. Baker, Mt. Shuksan forms a dominating, sky-filling backdrop — first, a source for visual enrichment, for reverence and meditation, but also one of motivation for inquiry into the geologic origins of such beauty.

The aim of the study tour was to teach the basic ideas of geology with slide-illustrated talks at the cabin in the evenings and day-hike geologic field trips. The result of each student's learning was a journal of the daily observations and a photographic essay which either augmented the journal or, on its own, provided a tool for earth science education. For these experiences and activities, the participants received three quarter-credits in college physical science.

The biggest enticement to the course was the presence of the steaming, sputtering volcano that had several months of constant newspaper coverage. It was both reassuring and disappointing that we were sheltered behind a remote shoulder of Baker, far removed from the interesting happenings in the south crater.

The complexity of the North Cascades offers a significant challenge to student and professional geologist alike. The main features of the geologic history have been worked out by Professor Peter Misch of the University of Washington and his graduate students over the past 25 years. Well summarized by Bates McKee in *Cascadia: The Geologic Evolution of the Pacific Northwest*, the history dates back to a formation of metamorphic rock, the Yellow Aster basement complex, indirectly fossil-dated as older than 350 million years.

Subsequent formations developed from the accumulation of marine sediments, volcanic activity (including submarine basalt flows) and crustal deformation producing metamorphic rock, for example, the metagraywacke of which Mt. Shuksan is partly composed. Sediments and volcanic rocks accumulating in a non-marine environment date from 60 to 30 million years ago. Uplifting occurred which then gave the

agents of erosion the gravitational energy necessary to carve the valleys and shape the peaks. The latest addition to the area, Mt. Baker lava, has been around less than a million years.

Much of the present topography of the area is due to the volcano's filling of old valleys with lava and spawning glaciers which have cut newer valleys — in some places exposing the ancient bedrock and in other places covering it with glacial debris. To the recent ice age is due the credit for sharpening the non-volcanic peaks by glacially chiseling at their bases.

Armed with McKee's book, topographical maps, good boots and more enthusiasm than wisdom, the group set out to master this complex geology.

The first hike was almost the last. Snow lay on the road to Kulshan Ridge, on the trail around Table Mountain and over most of the bedrock. It served as an efficient reflector of the bright sun that seemed to follow us all day. The last group of sunburned snow-sloggers returned to the cabin 11 hours after starting out.

The geological highlights were many, however, starting with roadside columnar andesite, a volcanic rock which flowed from Mt. Baker — dark, almost like basalt, but with light-colored weathered surfaces. At the end of the road we had a view of Baker with occasional steam clouds appearing over the mud-spattered Boulder Glacier.

On the way to Table Mountain, we encountered outcrops of lighter-colored volcanic rock. Hiking around to the west of Table Mountain we came to the Galena Chain Lakes, formed by a glacier heading at Table Mountain and helping to carve the Anderson Creek drainage.

Glaciers have cut impressive cirques into the north side of Table Mountain, reducing considerably the size of a much larger lava plateau.

Dropping into the Bagley Lake basin, a classic glacial cirque valley, we picked our way over metamorphosed sedimentary and volcanic rocks of the Chilliwack Formation, ancient rocks that form Mt. Herman, to the west of the cabin.

The next day, the weary hikers drove to fossil sites identified in The Mountaineers' publication, *Trips and Trails*. At Fossil Creek, the students found many marine fossils, mostly shells, but also some interesting "worm holes" that may have held the remains of primitive tube-dwelling worms.

On the Canyon Creek road, outcrops of the Chuckanut Formation contain many well-preserved leaf fossils in the sandstone and siltstone. (Such rocks and fossils are also found, of course, along Chuck-

anut Drive south of Bellingham.)

Another roadside stop of geologic interest is Nooksack Falls, where the Nooksack's north fork drops 170 feet at the junction with Wells Creek. The bedrock in this area, indicated in the literature as Wells Creek Volcanics, the reddish rock through which the highway is cut, was formed over a hundred million years ago.

The third day of activity had an objective of finding the Yellow Aster gneiss, the region's oldest rock. By thrust faulting, remnants of the oldest rock are found anomalously on top of younger rock.

Moving up the Keep Kool trail in fog to the snow-covered meadows below Yellow Aster Butte, we identified positively only the younger metagraywacke of the Shuksan Suite (technically, according to Misch, Darrington Phyllite, a schistose feldspathic metagraywacke). Quartz veins laced the outcrops and were brighter than the snow. Several fine specimens of quartz crystals were found at a mined vein.

The fourth day was left to the participants' choice. Several visited Swamp Creek to pan for gold, as suggested in *Trips and Trails*, but came back only with interesting rocks from the creek bed and from that of the Nooksack River.

A road blockage prevented us from hiking to Hannegan Pass and viewing the remote interior peaks of North Cascades National Park, and lack of time prevented our visiting all the areas close at hand with different rock types. However, the geologic processes provided a good sampling of the region's rocks in the river beds.

The fifth day saw the group hike to the edge of the Coleman Glacier on the northwest side of Mt. Baker. Shielded from a view of the volcanic happenings, the students found the glacier to be a grand spectacle in itself.

With its jumbled masses of seracs moving imperceptibly downslope, punctuated by avalanches and landslides, it presents a forceful picture of the power of geologic processes. (Its steady advance over the last 25 years is probably more significant than the hissing and bubbling in the summit crater: it may be signalling a world-wide change in climate.)

High melt-water levels forced us away from the relatively docile lower reaches of the glacier with its healed crevasses and up to a more active region at the end of the Heliotrope Ridge trail.

The trail crosses several moraines and involved adventurous boulder-hopping of streams to reach the present lateral moraine. In some places, the glacier had scraped down to bedrock, leaving the characteristic striations; elsewhere, soil on the moraines supports sub-alpine flora.

A part of the group lunching at the moraine was treated to the sight

of the remainder of the group scrambling desperately away from a debris slide at the edge of the glacier. As the warning sign says: "Do not venture onto the glacier."

An interesting note was that both the Coleman and neighboring Roosevelt Glaciers showed definite growth when compared with a 1972 photograph.

The last day of activity took those who wanted to go to Lake Ann to search out the contact between the Shuksan metamorphic rocks and other rocks and to find some surface expression of the Shuksan thrust fault. Snow cover and fog hampered our search, although we did find the granodiorite of the Lake Ann Stock and lots of the metagraywacke (the Darrington Phyllite).

The Lower Curtis Glacier provided a show of avalanches and the summit of Mt. Shuksan made a brief appearance. The rest of the group returned to and climbed Table Mountain for a closer investigation of the Mt. Baker Andesite.

When the notebooks were handed in and the photographic essays and course evaluations mailed in, it became evident that the students indeed had learned some geology and had a great time. The beauty of Mt. Shuksan, the camaraderie of those sharing joys and adversities, the adventures of learning (even about metagraywacke) combined for a rewarding experience.

Splendor

Tender green of lichen
Beside the brown of old –
White granite rocks in meadows
Mid flowers of red and gold.

Lacy leaves of cedar
Droop from hanging boughs –
Nature all her colors shows
Beneath soft fleecy clouds.

Bob Dunn



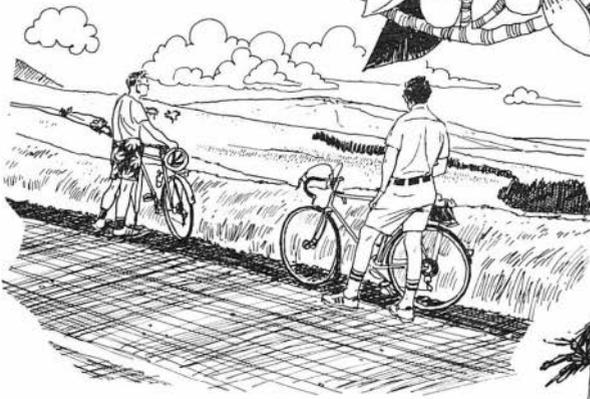
Akaka Falls



Waipio valley lookout



Plumeria - the Lei flower



Rest stop going over the N. Kohala Mnts.



'City of Refuge' Park

Biking on Hawaii.

Gerald Martin

Roger Aasen

The Big Island of Hawaii offers excellent bicycle touring. It is almost twice the size of all the other Islands combined – 318 miles around the coast – and roads follow the coastal route almost all the way. Four Mountaineer bicyclists made a two week tour of this island starting in late November when cold weather was well established in Seattle.

The first day was spent flying to the island and getting ready to begin. It's necessary to remove pedals and turn handlebars sideways when shipping a bicycle by air. The baggage of one member was sent to Atlanta, Georgia by the airlines and was not available for the entire trip, so we rented a car to find lodging, as one tent, sleeping bag and air mattress were taking a much different route.

We planned to circle the Island clockwise starting in Hilo, the state's second largest city. While waiting for the lost luggage we decided to ride north to beautiful Akaka Falls State Park and return to Hilo that night. The next morning the missing luggage had still not come, so we started around the island without it. At least we all had our bicycles and a car to carry the heavy gear, which we took turns driving. Soon after leaving Hilo the rains began and kept up all day at a very hard rate. By the time we had ridden 20 miles to Pahoa we were thoroughly soaked. Luckily for us we encountered Margaret of the Purple Cow Art Gallery who allowed us to stow our bikes in her kitchen while we piled in the car and drove back to Hilo to spend the night in a dry motel, as there were no motels in Pahoa. The next day we drove back to Pahoa to resume bicycle riding. Our destination was the Hawaii Volcanoes National Park where some reserved cabins awaited us.

The next morning we toured Crater Rim Drive in the National Park by car, then got on our bicycles to ride downhill to Waiohinu at the southern end of the island. South Cape near here is the southern most point in the United States. Very hard rain again made the bicycling somewhat less enjoyable.

The sixth day we rode through many miles of desolate lava flows to the town of Captain Cook, stopping on the way to see the City of Refuge National Historical Park. The weather was improving at this point as now we were on the "dry" side of the island. The evening we arrived in Captain Cook was Thanksgiving and a local church group invited us to share their Thanksgiving feast with them. This was one of the highlights of the trip as they really made us feel welcome.

The next day was hot and sunny as we rode up to Kailua which is one

of the few resort spots on the island. We had planned to spend the next day in the Kailua area, resting and sightseeing, but that morning we were awakened at 4:45 a.m. by a large earthquake. This was accompanied by sirens and loudspeakers warning of tidal waves, which made for some excitement! Soon we heard that there also was a volcano eruption taking place back in the National Park where we had been three days before. Not wanting to miss this, we drove the car back to the volcano (90 miles) on our day of "rest" to see what we could of the eruption. There was not much to view, so we drove back to Kailua, stopping on the way to see some tidal wave damage.

The next day we rode up to Hapuna Beach State Park which has one of the few really good beaches on this island. We took the following day off to enjoy this spot and visited a fancy hotel nearby for their famous buffet lunch.

The next day we rode up to Hawi at the north end of the island and, after finding a motel, took a side trip out to Pololu Valley, getting back just ahead of the heavy rains which continued all night.

The toughest day of cycling began the following morning as we had steep uphill through ranch country to Waimea and then heavy rain on the ride to the Portuguese settlement of Honokaa where we spent the night. In Honokaa we toured a macadamia nut factory and ate lots of free samples.

The last day of cycling started with a drive out to quiet Waipio Valley Lookout for breakfast. We then drove back to town, mounted our bicycles and rode back to Hilo, completing the trip around the island.

John Klos

The Hawaiian Islands offer a wide variety of hiking, backpacking and camping opportunities. Although the beach at Waikiki is crowded, and high-rise hotels cater to increasing numbers of tourists, there still are opportunities to walk forest trails and camp on secluded beaches.

Each island is somewhat different, but travel between islands, even by air, is time consuming. So unless you have plenty of time available, we recommend you limit your first trip to no more than two islands.

Hiking can be included as part of a tour or on a trip specially arranged for the purpose. It is not necessary to do any camping or backpacking to enjoy most of the trails. It is advisable, however, to rent a car to reach trailheads.

Several publications will be helpful in trip planning. Among them are *Sunset Magazine's Guide to Hawaii* and *Hawaii on \$10 and \$15 a Day*, an Arthur Frommer publication. *Hawaii Hotel Guide* is free from Hawaii Visitors Bureau, 2270 Kalakaua Ave., Honolulu, HI 96815. State forestry offices, listed in the *Sunset Guide*, furnish detailed maps of hiking trails.

The temperature range at sea level in Hawaii is small, from the low 80s during the days to the upper 60s at night. However, higher elevations on both Kauai and Maui may experience freezing and snow, especially during the winter months.

Precipitation varies from side to side of the islands. Generally the northeasterly portions are the wettest and some higher mountains also can be very wet. Good examples are the West Maui Mountains and Kauai's Alakai Swamp, which receives more than 400 inches of rainfall annually.

The islands also have a wet season, though islanders seldom will admit it. It occurs from about mid-December to the end of February, somewhat longer on Kauai.

On lowland trails, a minimum of clothing is required, but at higher elevations, warm wool clothing and rain gear is necessary. Tennis shoes are adequate on many trails, but light hiking shoes are recommended on major peaks, in the rain forests, and for the backpack trip to Kalalau Valley.

For camping, a lightweight tent is advisable, not only for protection from occasional showers but from insects which are quite numerous in some areas.

We have found a flannel sheet, sewn to form a sleeping bag, is

adequate for lower elevations. A pad underneath makes for more comfort. Firewood generally is scarce in camping areas, so a stove is advisable. All stream water should be boiled or purified with Halazone tablets for drinking.

For backpacking trips, we stock up on freeze-dried food on the mainland and supplement it with items such as bread, sausage and cheese which can be purchased readily in the islands.

Perhaps one of the most spectacular hiking trips is the Kalalau trail along the Napali coast of Kauai. The trail starts at the end of Highway 56, forty miles northeast of Lihue. Except for day trips, it is not advisable to leave a car there, since break-ins are common. There is less chance of a problem if the car is left about one-half mile back at the parking area for Haena Beach Park.

After registering at the trailhead, you will start a rather steady 600-foot climb on a cobblestone path. The trail runs along the edge of a cliff overhanging the roaring surf below. Excellent viewpoints of Ke'e Beach and the Haena coast are located at the one-quarter and one-half mile points.

Many people turn back at the viewpoints but if you really want to savor this trail, continue at least to Hanakapiai Valley, a distance of two miles from the trailhead.

A warning for those who are very modest or upset by nudity: the hot, muggy climate along the trail encourages hikers to strip to the least amount of clothing with which they are comfortable. The most usual mode of dress is undress and many persons of both sexes wear nothing but boots and a smile.

At the one-mile marker, there are several small springs whose waters provide a welcome chance to cool off and freshen up. From here, the trail drops into Hanakapiai Valley. Except in winter there is a small beach with a nice stream and a camping area. Most of the camp spots are upstream on the west side. The beach makes a nice goal for a day trip, but swimming in the surf here can be dangerous. During the winter, people use the pools near the mouth of the stream for bathing and sunning.

For the more ambitious, a beautiful two-mile, partially-developed trail follows upstream to Hanakapiai Falls which has a drop of several hundred feet to a beautiful pool. Along the way you will see ancient Hawaiian taro terraces and the site of an abandoned coffee mill. Trees along the trail include mango, pandanus and mountain apple. There are also many nice pools in the stream. This trip should not be attempted if the water is high.

Many Kalalau Valley-bound people, having tested their physical

fitness on the first two miles of the trail, abandon their plans for backpacking and call it quits here at Hanakapiai. The remaining diehards (and these are very few) get up at daybreak for an early start on the remaining nine miles.

The trail from Hanakapiai to Kalalau starts up steeply and switch-backs up the cliff until an elevation of about 800 feet is reached. At the two-and-one-half mile marker, an outlook provides views of Hanakoa Valley and the intervening distance to Kalalau Valley.

From this viewpoint the trail drops and climbs in and out of valleys until the shelter hut at Hanakoa Creek at Mile Six is reached. The hut is on the east side of the trail about 200 feet beyond a picnic shelter. It is recommended only for emergency use, as this area is heavily infested by mosquitoes.

Across the trail from the hut, a faint path leads about 100 feet to a large, deep pool which is wonderful for taking a dip and cooling off.

About one mile upstream from the hut, look for Hanakoa Falls. If they are not visible from the trail, there is no reason to go further, as they come and go with the seasons.

From here the trail climbs again and gets progressively drier. The Century Plant and the pesty Lantana grow here.

After much climbing and descending, plus crossing a scary scree slope that drops several hundred feet to the ocean below, you arrive at the top of the "red hill" overlooking Kalalau Valley. Descend again, cross the stream (take time for another dip) and continue one more mile to a sandy beach area where there are places to camp. Water (and a waterfall for showers) are available about another 200 yards up the beach. Watch out for falling rock dislodged by goats above.

From this campsite, a hike up the valley along the trail on the west bank of the stream is a "must." Here is the most extensive terracing we have seen in the islands, with beautiful vistas, streams, plant life and fruits such as oranges, guavas, etc. Spend at least two nights here and explore during the days. Note that the surf can be dangerous during the winter months.

The hike to Hanakapiai takes about one hour; from six to seven additional hours are required to reach Kalalau Valley.

Other hiking trips on Kauai can include Kokee State Park and Waimea Canyon areas.

For a trip of quite a different sort, we turned to the island of Maui, drove to the 10,000-foot level of Mount Haleakala and hiked the trail into the crater.

You can make a day hike or stay for several nights in campsites or in the three cabins there. Reservations are required for the cabins and

may be obtained by writing, at least two months in advance, to Haleakala National Park, P.O. Box 537, Makawao, HI 96732.

You need take only food if you stay in the cabins since they contain bunks, blankets, stoves, pots, dishes and eating utensils. Each cabin has a water supply and the Park Service issues candles when you register and collect the cabin key.

Severe weather extremes can be encountered on this trip, so warm clothing is recommended and rain gear is essential.

Whether you are making a day hike or staying several days, it is best to start at the 10,000-foot level and regain the road at 8,500 feet. After registering at Park Headquarters, drive to the parking area near the observatory. Find the start of the Sliding Sands trail and follow it to the crater rim.

The one-day trip may be 12 miles or more, depending upon which trails are followed. As the sun climbs, colors and light patterns change and various geologic formations come into view. You pass from one climate zone to another; from areas with almost no vegetation to those with scattered plants such as the unique and impressive Silver Sword, then into regions of pasture grasses and heavy brush.

Goats may be glimpsed — look for black spots on the hillsides — descendants of domestic stock released by early explorers. You may also see chukar and pheasants and the rare Nene geese, state bird of Hawaii.

The trail drops to about 6,500 feet before the final steep climb, then switchbacks up a cliff and along a ridge to the road. Watch for the bright red of the newest leaves of tree ferns beside the trail.

An overnight trip or a stay of several days permits exploration of a larger area of the crater. The final ascent to the road is the same but total hiking distance each day can be limited to a maximum of ten miles by staying at Holua, Kapalaoa or Palaku cabins or campsites.

Another desirable and completely different area on Maui can be seen on a day hike in the Seven Sacred Pools area of the north coast, about sixty miles east of Kahalui.

This is the rainy section of the island and extreme caution is required if a hike up the Kipahula stream is contemplated. In one hour we have watched the stream rise from a trickle to a raging river, seven feet deep and filling the width of the canyon.

Park in the designated area and from the bridge view the pools above and below the road. Hike one-half mile up the stream bed (providing the water is not too high) to the 200-foot Kipahula Falls. Then return to the road and walk down toward the shore.

From the trail there are exotic views of the pools and connecting falls

through scattered pandanus trees. Swimming in the pools is excellent and the several falls provide enjoyable water slides. The trail leads beyond the pools to cliffs where you can watch waves break on deserted beaches. Swimming in the surf here is not recommended.

Return to the road and walk south about 100 yards to a turnstile. Climb over the stile and hike through cattle pastures about one-half mile for a view of Kipahula Falls from above. Look carefully for the trail to the pools above the falls and, if the water is low, enjoy a dip. Then continue another three-quarters mile up the pasture to a creek crossing. Follow the trail through thick bamboo forest to 300-foot high Waimoku Falls. Even on a bright, sunlit day, the shade in the bamboo is so dense you will feel the need of a flashlight.

The trail from the road to Waimoku Falls is approximately two miles each way. Allow about two hours for the round trip.

The publications referred to earlier will provide information on additional trails on Maui as well as on the other islands.

A final word:

Most hikes in Hawaii will be hot and humid. These conditions sap strength quickly. Wear light clothing. Carry plenty of liquids and plan occasional stops at streams and pools to cool off.

Be sure to take insect repellent, sun lotion and a hat.

Beware of heavy rains which may result in rapidly rising streams.

When hiking at high elevations, be prepared for cold, windy, wet weather. Take wool clothing and rain gear.

May all who read these pages enjoy pleasant hiking in Hawaii. Aloha.

Adaptation to Harshness: Alpine Plants of the Pacific Northwest

Ola Edwards

Illustrated by Dina Chybinski

Nowhere is it more difficult for plants to grow than in the arctic and alpine life zones, often referred to as tundras. These cold, harsh regions cover more than nine and a half million square miles of the earth's surface and extend beyond and above the arctic and alpine timberlines. In the Pacific Northwest, the latter occurs around 7,000 feet in the region of the prostrate elfinwood or krummholtz tree species; then begins the alpine vegetation.

The Physical Environment

The alpine regions are typically cold and windy in both winter and summer seasons, and it is these two features, cold and wind, which are most important in determining and limiting plant life. **Wind** is a constant presence at high altitude; every experienced mountaineer knows the discomforts of flapping clothing, flying grit, chapped lips and dehydration. It blows and distributes the snow which in turn, by its smothering effect, controls the plant communities. Plants on the dry, windy ridges endure the most severe climatic conditions of all. In winter the wind dehydrates all exposed plant tissues. Because the soil water is frozen, lost water cannot be absorbed and replaced by the roots, and there is considerable risk of death by desiccation. Meanwhile, aerial shoots are abraded and pruned back by wind-driven grit and ice particles.

In summer on the ridges, the only **precipitation** comes from occasional rain or snow showers; they are beyond reach of the snow melt rivulets. The wind continues to abrade and evaporate and further lowers the temperature by the chill factor effect, a phenomenon only too well known to mountaineers. On a cool day at high altitudes, a 30-mile wind can lower the temperature by 20°F.

Winter **snow** is blown off the ridges, which remain exposed and snow free, and collects into deep drifts. These become snowbanks or snow beds, depending on the steepness of the slope. Plants living under the late-melting snow beds have problems resulting from a very short growing season. In years of especially heavy snowfall, the snow melt may be so late that there is not enough time left for flowering and seed ripening. Although some evergreen snow bed plants are capable of photosynthesizing while still covered by a few inches of snow, they

must await its melting away before they can recommence growth in earnest.

But, even though the snow restricts their growth, snow bed species enjoy protection from cold, wind-blast and desiccation throughout the winter. Anyone who has enjoyed the haven of a snow cave in midwinter will know that this is so. Temperatures beneath the insulating snow remain around 26°F. while those on the ridges may fluctuate between -20° and 15°F.

Dryas octopetala, the mountain dryad, is one of the very few species that will tolerate both winter exposure and late snow cover. Only mosses and lichens survive at the limits of plant growth. *Spraguea umbellata*, *Eriogonum pyrolifolium* and *Saxifraga tolmei* are the three most successful late snow bed species in the Pacific Northwest. *S. tolmei* requires a constant moisture and is never found far from running water, usually tucked tightly against the warmer south edge of a dark, heat-absorbing and protecting rock whence it slowly spreads out into more open ground.

There is less usable **heat** in alpine environments compared with lowlands, and it is the low summer temperatures that are critical. A successful inhabitant must be able to complete its annual life cycle in the short six- to eight-week summer season, growing and reproducing in temperatures often not much above freezing point.

MT. ELLINOR OLYMPICS



*Cassiope
mertensiana*

White
Heather

*Luetkea
pectinata*

Partridge
Foot

*Erigeron
aureus*

Alpine Yellow
Daisy

*Douglasia
laevigata*

Cliff
Douglasia

*Polemonium
elegans*

Sky Pilot or
Jacob's Ladder

The effects of **microenvironment** on alpine species are dramatic. Even a few inches difference in topography, such as a small rock, a sedge hummock or a depression makes a great difference in soil temperature, wind effects, snow drifting and the resultant protection of the aerial parts. The plants, then, are found growing close to the ground with bare soil or rock in between. These scattered plants can have only a very local effect in modifying the environment, compared for instance with lowland forests whose influence on the climate is considerable; alpine species, like those of deserts, are at the mercy of the fluctuations of the physical environment. Both are unable to grow in milder environments because they become overrun by better adapted competitors. Although individual plants may not have much influence on the local climate, the microclimate within the crown of the plant itself may differ considerably from that of the open air.

Plant Adaptations

Adaptations by alpine plants involving responses to temperature, light and moisture are seen in the leaves, in their shape, color, size and hairiness and by the branching arrangement of the plant itself. Internal temperatures of a hollow grass stem may be much higher than those of the outside air.

All alpine plants must make **rapid growth** after the snow cover melts in the first week or two of the alpine spring. The energy and materials for this sudden burst come from carbohydrates and lipids stored in previous seasons, within roots, rhizomes, bulbs or even old leaves and stems. Unlike temperate species which utilize these **stored food** materials during their dormant winter season, the alpine species save them for the spring growth burst to take full advantage of the short summer.

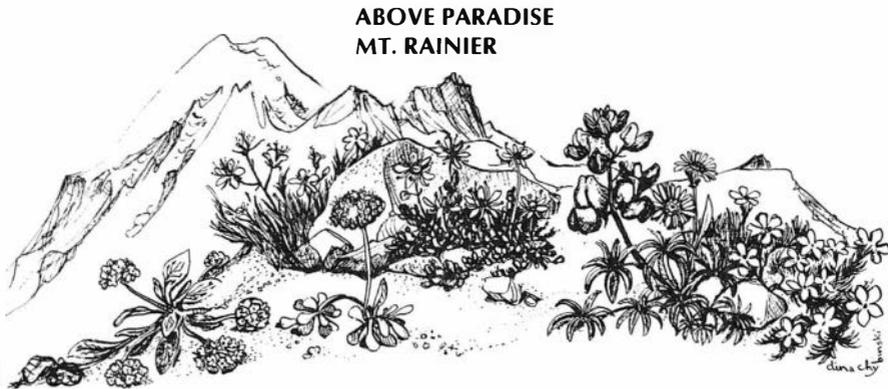
Red pigments called **anthocyanins** are often produced in the surface tissues as a by-product of carbohydrate metabolism during spring growth and these may convert light rays into heat to help warm the plant tissues. They also prevent cell damage by absorbing ultraviolet radiation.

One of the fascinating questions posed by alpine plants is how they are able to manufacture relatively large amounts of food at low temperatures in very short periods of time while enduring the environmental stresses inherent at high altitudes, including low atmospheric pressures and intense solar radiation, particularly ultraviolet rays.

In alpine environments, the plants are all **small**. It takes too much energy to produce unnecessary wood or shoots — and in any case the

wind would soon prune them back. Dwarfing involves only the leafy shoots, so flowers seem large in proportion. Many alpine species have evolved from lowland ancestors and their flower size has remained relatively unaltered.

Up to 90% of alpine plants are insect **pollinated**, and they face the problems caused by the low mountain temperatures which limit insect



- | | | | | | |
|------------------|-----------------|------------------|----------------|-----------------|----------------|
| <i>Spraguea</i> | <i>Arenaria</i> | <i>Saxifraga</i> | <i>Lupinus</i> | <i>Erigeron</i> | |
| <i>umbellata</i> | Sandwort | <i>Tolmiei</i> | <i>lepidus</i> | <i>aureus</i> | <i>Phlox</i> |
| Pussypaws | | Tolmie's | Lyall's | Alpine Yellow | <i>diffusa</i> |
| | | Saxifrage | Lupine | Daisy | Phlox |
| | | <i>Eriogonum</i> | | | |

activity. Bumblebees are the most common; often they are the only bees working above timberline in the northern hemisphere. They fly only during daylight hours when the temperature is above 50°F. and seek out long tubed flowers that are also scented. The wind is useful in grass and sedge pollination. In the most severe environments, self pollination or some form of vegetative reproduction is often the rule and cross pollination may be relatively rare.

Many alpine plants have **hairy** leaves. These hairs surround and protect the stomatal pores thereby reducing water loss through them. They also diffuse the strong alpine light which, while satisfactory for photosynthesis, may cause cell damage, especially when combined with high light reflection from snow or rock surfaces. The hairs are also able to trap heat rays which warm the surface of the plant in a greenhouse effect. Some of the hairiest species are also the earliest to flower: for example, *Draba* or rock cress species. Other alpine plants, for example, *Saxifraga tolmei*, reduce water loss by having thick, waxy coverings over the epidermis.

Most alpine species, about 98 percent, are **perennials** and there are obvious advantages to this. Perennials do not have to complete their entire life cycle from germination to seed maturation in one short summer but add to what has been established in previous years. Most of these alpine perennials are extremely slow growing and long lived. Their yearly maintenance is low and reproduction need only occur at long intervals. Arctic willows have been estimated to be more than 200 years old. In perennial plants over-wintering food storage is possible and nearly always occurs. A perennial plant subjected to water shortage and constantly shifting and sliding soils can develop an extensive and permanent root system. This must be done during the first few seasons, before flowering, and an alpine plant one inch in diameter may possess a tap root a yard long.

Many alpine plants are able to colonize wide areas by **vegetative** methods, such as underground rhizomes and runners. This is particularly important for snowbed species which may experience seasons too short for flowering and seed set. The developing new plants can draw nourishment from the parent plant until they are well established. Even if no rhizomes are produced in a particular season, the parent plant still survives. Perhaps the most important mechanism used by many alpine perennials is the ability to make **pre-formed** or precocious shoot and flower **buds**. This phenomenon is uncommon elsewhere in the plant world. Flowering buds begin developing early in the year preceding flowering, sometimes even several years before, and they are usually well formed by the time dormancy sets in. The great advantage is that shoot elongation and flowering are ready to take place immediately after snow melt. Thus, flowering of these alpine plants is determined more by the climatic conditions of previous years than by the current season.

Because most alpine plants are **evergreen**, they avoid the effort of producing a new crop of leaves each season. Older leaves function for several years, and besides manufacturing food, they often double as food storage organs as in many of the heathers. Evergreen species, whose leaves are already photosynthesizing, can break dormancy later in the spring than deciduous ones which must take the chance of producing new leaves when there is risk of frost damage in the uncertain spring weather. However there are some disadvantages to the evergreen habit such as winter-killing by wind blast, freezing and desiccation in frozen ground on exposed ridges. Here deciduous plants such as willows and birches have an advantage.

The **underground parts** of most alpine species are far more extensive than parts above the surface. Between 60 and 80 percent of the living

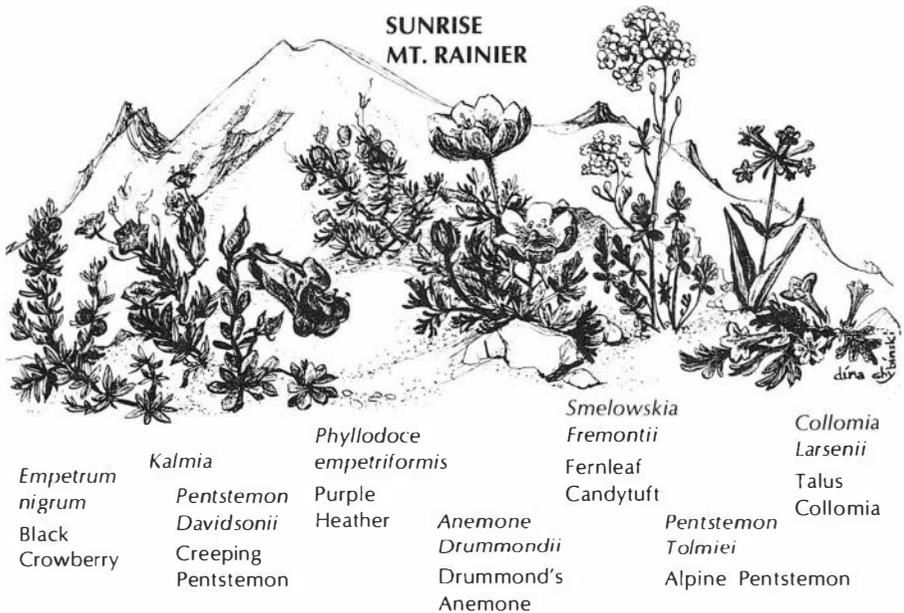
biomass is commonly found underground and up to 98 percent has been recorded. So, while visible plants may seem to grow far apart from each other, their interactions underground may be considerable. Those of us who have pitched a tent on an alpine fell field on a seemingly vegetation-free site will have noticed bared roots where the tent floor has rubbed against the ground.

In high mountains the summer weather is sometimes so cold that flowering and fruiting is not possible and no viable **seed** is produced. Even when seeds are produced they do not ripen until the end of summer and then, only after a period of hot sun-ripening days. As with most temperate and tropical species, germination of alpine seeds takes place only after soil temperatures exceed 50°F. and moisture is available. Although freshly ripened seeds can germinate immediately, these requirements of heat and moisture are not met until the following summer and the seeds are meanwhile forced into dormancy. Since not every alpine year is favorable for germination, in order for the species to survive, their seeds must remain viable through a run of cold, wet summers. Some species have amazingly long viabilities. It has been shown that many seeds retain viability indefinitely when kept in a frozen or dry condition. There is strong evidence that some seeds of *Lupinus arcticus*, the arctic lupine, taken from permanently frozen burrows of the collared lemming in unglaciated central Yukon, may have survived at least 10,000 years of freezing. After they were collected, these seeds were stored for another 12 years at normal temperatures before being given to the National Museum of Canada. Six of the seeds germinated within 48 hours on wet filter paper and at least one seedling has subsequently flowered. This suggests that some plant species may be able to survive an ice age and then reestablish themselves thousands of years later after retreat of the ice.

After germination in early summer, alpine **seedlings** at best have only a few weeks to **establish**. They must produce enough leaves to make sufficient food materials for survival through the following winter, as well as establish a root system that can both collect adequate water and anchor the seedling firmly in the soil. The latter is often prevented by late-summer drought or later by frost-heaving of the soil. Frost-lifted seedlings are more susceptible to drought-kill in the second summer. Fragile seedlings often stand a better chance of survival when they root into existing vegetation. The few species that are able to establish directly into open soil are extremely important to the alpine community as pioneers of bare places. One example in the Pacific Northwest is *Lupinus lepidus*. In long lived perennials, seedling establishment need only occur occasionally for the species to be maintained.

Plant Life Forms

Alpine plants adopt a variety of life forms, each one suited to a particular habitat. These may be herbaceous perennials such as cushion and mat plants, grass-like forms or dwarfed shrubs. **Cushion** plants are best suited of all forms to the dry, wind-swept ridges, talus slopes and fell fields and are well illustrated by *Silene acaulis*, *Lupinus lepidus* and *Phlox diffusa*. A typical cushion has a single, very long tap root, above which dwarfed stubby branches support a thick flattened cushion of leaves. They make ideal pioneers in windy areas since their entire profile is less than an inch above the surface of the ground. The closely packed interlocking leaves make a streamlined shape over which the wind flows smoothly. The outer windward parts break the



<i>Empetrum</i> <i>nigrum</i> Black Crowberry	<i>Kalmia</i> <i>Pentstemon</i> <i>Davidsonii</i> Creeping Pentstemon	<i>Phyllodoce</i> <i>empetriformis</i> Purple Heather	<i>Anemone</i> <i>Drummondii</i> Drummond's Anemone	<i>Smelowskia</i> <i>Fremontii</i> Fernleaf Candytuft	<i>Pentstemon</i> <i>Tolmiei</i> Alpine Pentstemon	<i>Collomia</i> <i>Larsenii</i> Talus Collomia
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wind, reduce its force and drying and cooling effects so that temperatures within the cushion may be several degrees higher than outside.

Mat plants, as the name suggests, grow flat against the ground. In this they somewhat resemble cushions but instead of having a single tap root, mat plants root shallowly from outwardly creeping stems. They are not as restricted as cushions in their outward growth but can creep along, colonizing wide areas, anchored by many roots as they go. But they are unable to probe as deeply for water as do cushions. Pacific Northwest mat plants include *Penstemon davidsonii*, *Sibbaldia procumbens* and *Dryas octopetala*. *Dryas* has a particularly rugged

root system which is well able to resist rock movement and it is one of the important rock and soil binders where it occurs. It is also able to fix free nitrogen, unusual for a member of the rose family, but a tremendous asset to a plant growing in nitrogen-deficient alpine soils. There is recent evidence that the white, saucer-shaped flowers are able to track the sun and concentrate its warming rays onto the flower's reproductive parts and speed their development. Insects such as mosquitos evidently also take advantage of this heat source and warm their reproductive organs.

Beyond all growing limits of the flowering plants some hardy **mosses** and **lichens** still flourish or at least eke out an existence. Some moss species are usually found growing in the latest lying snowbeds and a very few grow on exposed ridges. The most extreme ridge habitats are colonized only by lichens. They are formed by the growing together of an alga and a fungus in a permanent, mutually beneficial association. The alga makes food for the pair and the fungal threads enclose and protect them. Lichens are able to withstand colder temperatures than either part could separately, or could any flowering plant. They can grow as long as there is surface water at some time during the year. At high altitudes the highest daytime temperatures are found next to the rock where the lichens attach. Here is the most likely place for a drop of water to thaw and sufficient heat generate for photosynthesis. Because of the absence of a water-conducting system in lichens, liquid water can move directly and rapidly into the food-producing algal cells. Lichens are extremely slow growing and long lived, with estimates of up to 4,500 years of age. They do not need to produce new biomass each year but can lie dormant for long periods at extremely low temperatures. One species has been known to survive for 110 weeks at 5°F. When they thaw out from these long periods of dormancy, they can resume normal activity.

Alpine Communities

Each environment within the alpine zone supports its own distinctive plant community and the plants themselves are adapted to particular niches within these.

Talus and **scree** communities are found on broken rock and gravel slopes steeper than 30 percent. The plants here must be able to resist the constant downhill sliding of the substrata and they all possess very long, tough and flexible tap roots — *Polemonium elegans* and *Smelowskia ovalis* are the most successful species in the Pacific Northwest.

Fell fields — or literally stone fields — occur in the winter exposed windy areas and are dominated by cushion and mat plants. Soil and

humus are blown away as fast as they accumulate and fell fields are rarely able to develop further.

Alpine **meadows** evolve where soil and humus do accumulate, but for this to take place there must be protective winter snow cover. Two types of meadow vegetation may develop: grass and sedge turfs on the drier sites and heath-like communities (commonly with *Cassiope*, *Phyllodoce*, *Gaultheria*, *Vaccinium*, *Kalmia* and *Empetrum* species found on the Cascade and Olympic Mountains) on moister but still well-drained places.

In places of later snowmelt, meadows give way to **snow bed** communities with their specialized species zoned in concentric rings towards the barren water-logged center.

One further set of communities must be included and those are the ones **damaged** by human or other animal activities. There is no biological destruction that compares to that of man's. Experimental work has shown that eroding and impoverishment can be created in as few as ten days by concentrated walking across fell fields, meadows and snow beds, and estimates for time needed to restore the original vegetation reach one to five hundred years or more. In lowland communities, recovery time roughly equals the time taken to disturb an area but on the alpine tundras, recovery may require 10 to a thousand times longer because succession is incredibly slow as it proceeds from rock-encrusting lichen to thickly turfed meadow, from raw rock and gravel to humus-rich soil. But succession is inevitable, given stability of climate and other factors.

Because of the cold climate and short growing season, alpine plants regularly trampled or overgrazed are slow to regenerate. *Silene acaulis* well illustrates the extremely slow growth rate found among alpine plants. A *Silene* seedling may reach half an inch in diameter by the end of its first five years, and if there is no competition from nearby plants, it will reach seven inches diameter in 25 years and by this time will have a tap root 4 to 5 feet deep. Flowering of the cushion may begin at 10 years but will not be profuse until it is 25 years old. Eight weeks of human walking on a *Silene* cushion causes damage that has not been repaired 25 years later. It should be mentioned in passing that *Silene* itself is considered to be a rapid grower by comparison with many in the alpine community.

The simplicity of alpine ecosystems has its price. The food chains are short: grasses — pika — hawk. In lowland communities, where food chains are long and complex, a shift in any one component is less drastic and the community may still retain its essential stability. But when the food chains are short, as in alpine environments, alteration

of a single member can bring an immediate change in the rest of the chain. Plant production in alpine regions is at best very low – about three percent of that in a good lowland meadow. The pace of life is slow, but when undisturbed, it is in balance with itself.

**PARK RIDGE
CANADIAN ROCKIES**



*Eritrichium
aretoides*
Alpine
Forget-Me-Not

*Dryas
octopetala*
Alpine
Dryad

*Ranunculus
Eschscholtzii*
Buttercup

*Polygonum
viviparum*
Rocky Mountain
Bistort

*Gentiana
arctophila*
Four-parted
Gentian

*Silene
acaulis*
Moss
Campion

Latin American Odyssey

Irma Rodenhouse

Fall 1975

"Island of a thousand mysteries — Easter Island, the most unusual, fascinating, and the remotest inhabited island in the world. Now you can see all this for yourself." So read the article in the newspaper. The Society for the Preservation of Archeological Monuments would make it all possible, and in addition, would have a professor of archeology along. This was the bait. But why spend all that money to go so far for such a short time? Why not see all of South America while there? Indeed, why not see Central America on the way too? Since time was not a factor, it was all arranged and the dream came true.

Arriving alone in Panama in the dark with an electric storm and hot, humid air did not seem very auspicious for the start of three months' exploring. However, people can make the difference between the success or failure of a trip. The group was small and congenial. Panama sprawls in typical tropical fashion around that strip called the Canal Zone. The Canal, like a placid river, carries 40 to 50 ships a day from ocean to ocean with water averaging some 15 feet higher on the Pacific side. An early flight in a small plane took us over dense jungle and swamp land to a questionable landing strip along the Caribbean. A short walk on a muddy trail by the sea brought us to an odd craft with a coconut-frond thatched roof, our transportation to the fascinating San Blas Islands. There must be hundreds of them, some no bigger than a city block, yet covered beach to beach with stick and thatch houses. These are the homes of the Cuna Indians. It is here that the women wear, in the form of ornate gold jewelry, the wealth of the family, and where they make the beautiful reverse applique work, called molas. Farming and laundry are done on the mainland; dugout canoes are the means of getting there.

Thunder and lightning accompanied the early morning flight to Quito, Ecuador, a city of 600,000 perched at 9,200 feet among many snow capped peaks of the Andes. A two-hour drive on the Pan-American Highway through lovely green valleys brought us to Salcedo and its Sunday market, actually three different ones. One was a potato market. Ecuador has some 500 kinds of potatoes and markets about 50. With all the many varieties of potatoes were Indians sitting on the ground twisting sisal rope, mats, etc. There is even a parking lot for the donkeys.

The flight to Guayaquil passed through many snow-capped peaks, high, steep and forest covered, to the flat, parched land by the Pacific. Some two hours later those arid, volcanic, prehistoric islands, the Galapagos, came into view. These are the islands that intrigued Charles Darwin, inspired him to write his famous *Origin of Species*, and still are much the same. All have been raised from time to time by disturbances and pressures far below the sea, as recently as 1968. The archipelago, about 600 miles from mainland Ecuador, consists of over 65 islands and protruding rocks, and covers about 3,000 square miles. How amazing to find one island is some 100 miles long. Much of the land is barren lava or cinder, but some places have mangrove or saltbush groves by the sea, others have well spaced skeletons of trees patiently waiting for the growth-producing rains, or vicious stands of tall spiny cactus. Sea lions abound on some; iguanas concentrate like stacks of driftwood on a few; boobies, penguins, finches, pelicans, flightless cormorants, frigate birds and many others can be found readily. Four days were hardly enough to more than sample a small portion of this outer world.

Cuzco, Peru, at 11,300 feet, nestles in a very green valley surrounded by more spectacular snow clad peaks. The city of 150,000 people is clean and quaint. The roofs are all of red tile, the buildings very old. This was the holy capital of the Incas when the Spaniards arrived in the early 1500's. The population today is still largely Indian. These people are short and wirey, friendly but not talkative, and industrious. Some of the ruins just above the city are awesome — two-ton rocks perfectly cut and moved over a mile without the use of metal or wheel, then fitted with others to make a smooth wall. No mortar was used and a knife cannot be inserted between the blocks which have stood intact for hundreds of years. What skilled craftsmen!

A three and a half hour train ride along the high plateau and down the beautiful canyon of the Urubamba River to 6,000 feet brought us to the foot of Machu Picchu, the Lost City of the Incas, located on the ridge nearly 2,000 feet above. This is an utterly unbelievable spot. Terraces are everywhere, stone retaining walls again perfectly fitted, a marvelously engineered water system, houses, gardens, meeting places, and a hitching post for the sun. All this on a razor edge mountain top. Machu Picchu is still one of the mysteries of the world.

From Cuzco to Lima at sea level, then to the Bolivian altiplano at 13,000 feet caused a bit of breathing difficulty for some. But the beautiful Andes were enough to make one forget any discomfort. The Royal Range on the way from LaPaz to Lake Titicaca was out in all its shiny white glory against the brilliant blue sky. The lake is huge, the highest navigable one in the world. Imagine, the Bolivian Navy and a port at

this elevation. In places the shores were thick with the totoro reeds, strangely enough, the same as those found on Easter Island. At Sun Island we were reminded of the legend that the first Inca king arose after a golden staff had been plunged into the ground here. The sacred waters still gurgle down the hill, the ancient Inca terraces are very much in evidence. This was the birthplace of the Incas and is still much revered.

Again a flight in and amongst those gorgeous Andes, this time from 13,000 feet to sea level in 35 minutes, caused much discomfort for the passengers. Since it was sunset time, we seemed to drop through piles of pink whipped cream to a hazy desert by the ocean. Arica, in northern Chile, may get .02 of an inch of rain a year. Yet the Azapa Valley nearby produces olives, apples, oranges, bananas, carnations, roses, vegetables in sufficient quantities to export large shipments. Another valley can grow only corn, but that in abundance. Although this desert has greater extremes of temperature than the Sahara, it has been vitally important because of the abundance of nitrates.

Santiago was the departure point for Isla de Pasqua, or Rapa Nui, or known to us as Easter Island, that tantalizing spot about the size of Vashon Island situated 2300 miles away and 2300 miles from Tahiti — truly the navel of the earth, as the native people believed. Here is another all volcanic island, a mountain top poked above the sea and in the same undersea range as the Galapagos Islands. The Island has three main volcanoes and several smaller cones, giving it a triangular shape. The highest point is little more than 1800 feet. At one time the Island was well forested but now is mainly covered with grass. Eucalyptus and other trees have been brought in.

The population of some 2,000 people lives mainly in the one village, Hanga-roa. Many of these are Chilean Navy personnel. Native families are large, averaging about 10 to 12 children per family. There are many sheep. Some 5,000 wild horses roam freely, so most of the people have tamed one or two for personal use. The original inhabitants evidently migrated at a time of population explosion from the Marquesas area, so they are of Polynesian background.

Legend tells us that Hotu Matua, the first king-priest, brought two huge double canoes laden with people, plants and animals. These fantastic navigators found their way to a small sandy bay and established the first village.

The islanders believed in a strong ancestral cult which was represented by those huge stone statues, called moai, and which have become an identifying image of Easter Island. Carved from the rock of a volcano with basalt and obsidian instruments, these moai were

“walked” to large open-air sanctuaries in front of the villages and placed upon stone altar-like ahus facing the village. It was believed that mana, a supernatural power, emanated through the statue’s eyes from the remains of the chiefs buried below to the local chief and villagers. The artists developed a keen sense of competition in statue building so the number and size of the moai became a matter of status. The height varies possibly from five to eighteen feet; the largest is about 90 tons.

There are now about 390 known ahus and over 1,000 statues in various stages of decomposition and destruction. When the population reached approximately 45,000, or 1,000 persons per square mile, a terrible famine occurred which precipitated cannibalism and a civil war. Villages were destroyed, the moai were toppled with necks broken to rob them of their supernatural power, the ahus were torn apart.

A new religion, the Birdman cult, arose; Makemake was another and later god. The people were very superstitious, believed in spirits and did not know who might be an evil one. Some still do. These people were able to develop a written language which they inscribed on wooden plaques, called rongo rongos. When wood became scarce, and when the white man’s religion became popular, these were burned so that only a few exist today, not enough to allow scientists to decipher the hieroglyphics. Peace reigns today. However, with only three ships a year and one plane a week, supplies sometimes become short, so the local people try to trade their carvings and shell jewelry for shoes, clothing, makeup and perfume. One visitor traded every bit of clothing he had except what he wore for the trip to Tahiti.

From Santiago the flight was over one Mt. Fuji after another all the way to Punta Arenas on the Straits of Magellan. What a bleak, cold looking place. The Straits at this point are wide, but one can see Tierra del Fuego in the distance. The channel goes southwest from the town and soon turns sharply northwest toward the Darwin Range, beautiful glaciated mountains.

The flight to Puerto Montt, still in Chile, took us back along the rugged Andes to a city by the sea which was reminiscent of Seattle. Perhaps it was the rain, perhaps the harbor, perhaps the fish markets. A short bus ride through a German area brought us to Lake Llanquehue (pronounced “Yankee way”), situated at the foot of two high volcanoes, one of which had recently spread cinder ash for miles around. Our highway went across this to a lovely cataract of turquoise colored water, and thence to another lake completely surrounded by mountains, most of them snowcapped. This is the gorgeous Chilean lake country.

Immediately across the divide is the Argentina lake country and picturesque San Carlos de Bariloche. Lake Nahuel Huapi, with its arms stretching like fjords into the Andes, is several times the size of Lake Washington and is located in a large valley completely surrounded by the mountains. In every direction one can see a calendar picture. Along the lake in a small protected area there is an unusual stand of myrtle trees; on Victoria Island are metasequoia and most of the other conifers we recognize. It is one of the most beautiful spots in the world.

From Bariloche to Buenos Aires one flies over miles and miles of the pampas, flat grassland sparsely populated, into the heart of a city of 8,000,000 people. Most of the eastern part of South America is European in flavor. Argentina has very few Indians since most of them were killed off by the early Spanish invaders. It was surprising to find so many cities of 1,000,000 to 10,500,000 people, all reminiscent of old, large, European cities. Buenos Aires looks much like Paris in some ways with its tree-lined streets, statues and fountains. Montevideo in Uruguay, and Asuncion in Paraguay were even more like the old, gray Continental cities. But on the outskirts, the new growth is modern and very colorful.

At a point where Brazil, Argentina and Paraguay join there is one of the natural wonders of the world, Iguassu Falls. Two miles of river drop over 270 falls in two levels to a wide basin where the pink water flows into the Parana River. It is impossible to capture all of this spectacle on film, from the ground or from the air. It must be seen and absorbed.

There is a narrow strip of Colombia which stretches down to the Amazon, with Leticia, a small frontier port town, about 2,500 miles from the Atlantic. At this point the river is about a mile wide, runs at a good clip, and is still a pink mud color. Nearby small lakes and channels form estuaries where jungle life abounds. Plant life crowds the shores and pads the surface of the water. The Victoria Regia waterlily spreads its three-foot leaves which birds walk across without causing a quiver. Here, also, is found the fresh water porpoise.

A short launch trip took us to a monkey island where a walk through the jungle, hot and humid, exposed us to the varied vegetation and lots of monkeys skittering amongst the trees. During lunch at a safari-type camp, a tropical storm let loose in all its fury, with rain bouncing a foot or more off the walks and running like a huge waterfall off the corrugated metal roofs. Lightning and thunder, a tremendous sound and light show, lasted a short time. The temperature must have dropped 40 degrees before we returned to our hotel. The Ticuna Indians, up the Araca Valley, live in stick and thatch houses built on stilts since the river rises some 45 feet. They have developed a very primitive art form

of bark painting and carving.

In Venezuela big industries are moving to the jungle where the huge Guri Dam project on the Caroni River can supply tremendous quantities of electricity. But Angel Falls, the highest in the world at 3,213 feet, is worth the whole trip. It plunges from the mesa down a cliff reminiscent of Grand Canyon. There is no road to this, so a flight past it is the only way to see it. If one is lucky, as we were, the spray will not cover it, but will produce rainbows at the foot. Twenty miles down river are the seven lovely Hacha Falls and Canaima Lagoon, an unspoiled jungle oasis and campsite. A ride in a dugout canoe past the falls is a culminating experience.

Some 1,200 miles west and a bit south is San Jose, Costa Rica, lying in a pleasant valley at 3,800 feet. In its 400 years it has twice been destroyed by earthquakes. Nearby Mt. Irazu, one of nine active volcanoes in the area, recently blew cinder and smoke for miles. A flight to Limon on the coast took us over rugged mountains, jungle and plantations. The train ride back was past coconut, banana, cocoa, coffee and sugar plantations as well as a heavily forested jungle. Brightly colored flowers are everywhere.

Honduras is a slowly developing country; its capital, Tegucigalpa, is a contrast of the very old Spanish and a bit of the very new modern architecture. To see one of the best of the Mayan ruins at Copan, it was necessary to take a long, hard bus ride out of San Pedro Sula. Fortunately much of these ruins have been cleared, and are now well protected. Copan existed from 465-800 AD and has many well preserved stelae with pictures and hieroglyphs carved on them, probably to depict the historical events of the lives of heroes. Tall pyramids, temples, plazas and a ball court have been uncovered from the dense jungle growth.

San Salvador is situated at about 2,200 feet in a circle of volcanoes. A side trip to see the top of Volcano Izalco gave us the unexpected opportunity to meet the President, Col. Arturo Armando Molina, who had flown up in his helicopter to help dedicate a formerly idle hotel, now a training school for hotel managers and tour directors. This hotel was built 16 years previously as a tourist spot where one could view the every-10-minute eruption of Izalco. As soon as the hotel was completed, Izalco quit blowing. But now there are at least 20 fractures giving off fumes.

Antigua in a mile high valley was the capital of Guatemala for over 230 years. Two disastrous earthquakes left the city in shambles so the capital was moved to Guatemala City. One volcano, Fuego, had erupted just a week prior to our visit and was still fuming.

Far to the north and across the heart of the Guatemalan jungle is the almost inaccessible lost Mayan city of Tikal. This was a ceremonial city as its residents were priests, astronomers, mathematicians, civic leaders, artists and craftsmen. The ruins are fairly well uncovered; high pyramids, stellae, plazas, reservoirs carry one back 16 to 17 centuries to a glory suddenly and mysteriously abandoned. Perhaps we can thank (?) this area for a substance used by us now, chewing gum.

Merida, in Yucatan, Mexico, is the focal point for visiting more Mayan ruins. The drive to Chichen Itza passes through miles and miles of sisal fields. A visit to a sisal processing plant gave us a much greater respect for the lowly plant. The enormous ruins seem to have building on top of building. There is an observatory, a pyramid with 365 steps topped by a temple with a stone jaguar, Kukulkan's Castle, the Sacred Well or sacrificial cenote to the Rain God, the 1,000 column Temple of the Warriors, the giant ball court and many other uncovered structures.

Uxmal, farther to the west, is smaller, built on a dry area without the underground water of Chichen Itza. Intricate geometric designs made from some 20,000 hand-cut stones decorate the Governor's Palace. In the Nunnery Quadrangle, a sound and light show brought to life the history and ways of the ancient people, their Rain God, and their sudden disappearance.

It was a great surprise to see so many huge cities in Latin America, but the archeological ruins were more interesting for one with a good imagination and much curiosity. The Indian areas were quaint, the mountain and lake areas unbelievably beautiful, and the Galapagos and Easter Islands utterly fascinating.



Sea Lion Pups Napping, Galapagos Islands.

Irma Rodenhouse

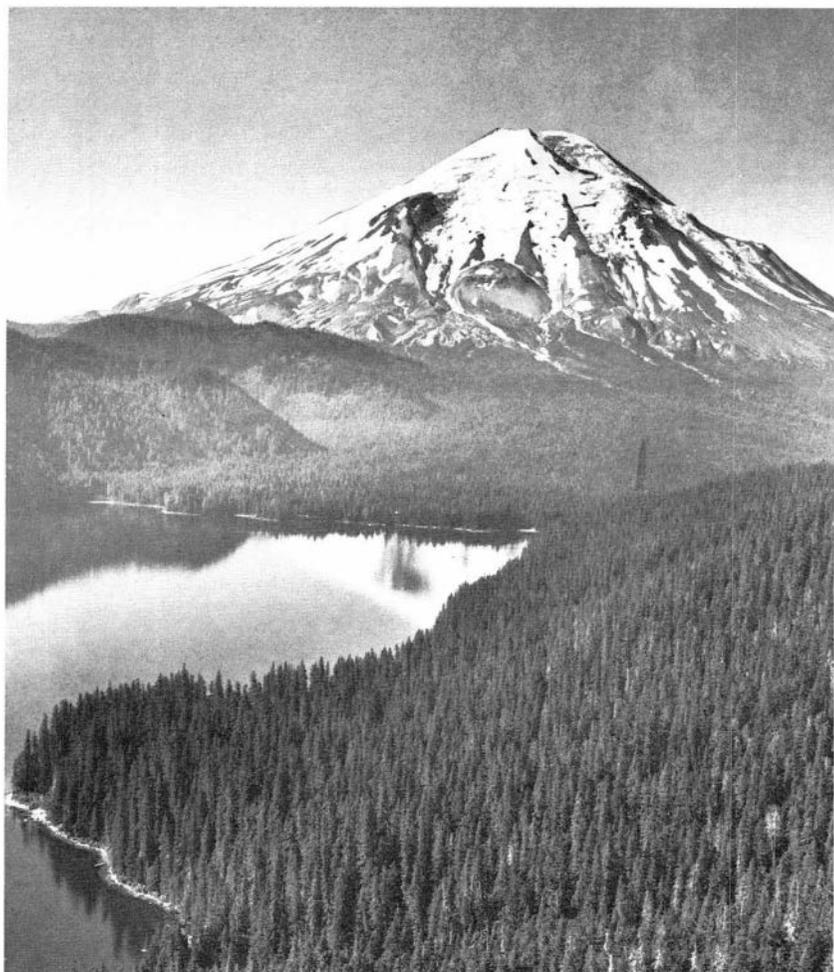
Harold St. John

The flowers and higher plants of Washington State are multitudinous and among them are stately trees, delicate herbs, tiny curiosities; some are of great beauty. Promising places in which to hunt for them are the mountains.

The southern Cascade Mountains are dominated by Mt. Rainier, 14,410 feet high, and at the south end by Mt. Adams, 12,307 feet high. Forty miles to the west of the latter is Mt. St. Helens, 9,677 feet high. It rises among several low mountains and towers above them. It is volcanic, and a perfect, symmetrical cone, with permanent snow fields in the upper valley heads. At its north base is clear, beautiful, Spirit Lake, 3 miles long. The peak is unique among the Washington Cascade Mountains in being nearly bare, and standing almost naked above its low tree line. The explanation of this bareness is that it is due to a volcanic eruption of recent times geologically about November 1842. This was a violent eruption which ejected a great quantity of very liquid, bubbly lava. In the air, this cooled and showered down on the existing volcanic cone. The smaller gobs of lava solidified into delicate, glassy shards which were carried by the wind — some as far as Bonner's Ferry, Idaho. The larger masses cooled into rounded balls of pumice which fell on the slopes of Mt. St. Helens and on the adjacent areas. The mountain slopes are masked by this pumice, in a layer as much as 30 feet thick. The surface pieces are from the size of a marble to that of a bowling ball, and they are unconsolidated. A climber on the slopes loses three quarters of each stride. It is worse than climbing a sand pile. Added to that is the danger from the big balls. Often one comes bounding down the slope, so the climber must constantly look up, to be ready to dodge the hurtling stones.

This account covers the flora and the vegetation of the mountain from the Toutle River and Spirit Lake, Skamania County on the north to the Lewis River, Cougar, and Merrill Lake, Cowlitz County on the south.

When I went to the mountain in 1925 I thought that it was wholly unknown botanically except for three plants, the Cascade Lomatium (*Lomatium anqustatum*), collected on July 14, 1903 by L. L. Goodwin, and filed in the Washington State University herbarium at Pullman. This specimen is listed by C. V. Piper in his *Flora of the State of*



Spirit Lake, Mt. St. Helens.

Bob and Ira Spring

Washington, as are two others. The second is the Indian Paint Brush (*Castilleja crispula*), Coville 768, the type of the species. The third is *Juncooides* (= *Luzula*) *divaricatum*, Coville 799. This was a clue and it was followed. By correspondence I learned that Coville's collection was in the Smithsonian Institution. In June 1975 I spent a week there and was shown Coville's field notebook, found the sheet number of this plant, then was shown the record book of sheet numbers. Apparently all of Coville's Mt. St. Helens collection was mounted in series at one time. Then I looked up his specimens and verified or redetermined each one. Coville's Journal for 1898 was not truly a collection number list. For instance, under July 18 at Merrill Lake, he wrote:

"Around the lake are

Populus trichocarpa, fallen fruit hairy

Alnus oregona

Salix (populoides) lasiandra

Salix (discoloroides) piperi

No. 751

Salix longifolioides

No. 752

Salix (velutinus) sitchensis

Cornus sanguinea

Spiraea douglasii, in flower . . ." etc.

Most of his specimens I found. When inserted most of his plants were named, but a few were given only the generic name. These were sought, but in large, technical genera like *Carex* and *Salix*, about half of them I was unable to find. Other missing ones were in *Osmorrhiza*, *Rosa*, *Prunus*, *Juniperus*, *Sorbus*, *Poa*, *Elymus*, and *Eleocharis*.

However, Piper does give other records, for in his floristic part (1906: 61-62, 63-65) he gives tables showing the known distribution of montane species. In his column for Mt. St. Helens, he lists 25 species of Hudsonian plants, 10 of which I did not find; and for the Arctic-Alpine species he lists 21 species, 5 of which I did not find. At no place does he give the name of the collector or state what herbarium contains them. After a lengthy search it was discovered that the collector was Coville, and that his specimens were in the Smithsonian Institution.

Dr. F. V. Coville, principal botanist of the U. S. Dept. of Agriculture, travelled in the Pacific states in 1898, and collected in Oregon and in Washington. He approached Mt. St. Helens with a Mr. Johnson, from the south, up the Lewis River, past Cougar, and camped at the north-east corner of Merrill Lake, at 1,533 feet altitude, a lake separated from Mt. St. Helens by the 3,940 foot Cinnamon Peak. From Merrill Lake he followed the trail up the Kalama River, past Goat Mt., and spent the night at Three Buttes Camp, at 4,600 feet altitude, at the southwest base of Mt. St. Helens. Then, on the 20th, he climbed on and botanized on the mountain. He did not state whether or not he reached the top, but he lists the plants growing just above tree line, then five plants found at a greater height, then 13 ones growing next highest on the mountain.

Botanical Exploration

My trip to Mt. St. Helens began on Aug. 2, 1925, so as I write about it now I am recalling events of 50 years ago. I drove in from Castle Rock,

accompanied by two students, R. T. Davison, and C. S. English, Jr. and by an outsider, G. N. Jones, who two months later came to Washington State College as my student. On the south side of Spirit Lake we camped in the forest $\frac{1}{4}$ mile above the lake. From there we botanized the lake region, and the north slope of the mountain, and one day climbed to its summit. We left on August 10th. Then on the 12th I drove with C. S. English, Jr. to the south side of the mountain, and until the 13th botanized the upper valley of the Lewis River and the area around Cougar in Cowlitz County. The specimens collected are in the herbarium of Washington State University, at Pullman, Washington.

Basal Forest

This is the Humid Transition Forest or the Evergreen Forest, and it covers the region of Spirit Lake, at 3,199 feet altitude, and the lowlands near Mt. St. Helens and its lower slopes up for some 500 feet. Prominent are the Western Hemlock, White Fir, Big-leaved Maple, Red Alder, and beneath these trees, the Salal, Red Huckleberry, and in the ground cover Dull Oregon Grape, Deerfoot, Bishop's Cap, Oregon Goldthread, Wood Sorrel, and many others.

Tree Line

The upper border of the forest, or tree line, is the most striking feature of the mountain. There is no distinct Hudsonian Forest; instead the trees of the Evergreen Forest diminish and become dwarfed, then disappear at tree line, which is at 3,500 feet, or, in a few places at 4,000 feet. Above this the mountain slopes are arid and with little or no vegetation. The pumice slopes are completely porous, and the water from rain or melting snow sinks immediately through the pumice down to lava ledges below. There are no surface streams on the bare mountain slopes, and even down in the forest they are a rarity. We found and camped by one such, which was forced to the surface by a rock ledge. It ran exposed for 100 yards, then sank and disappeared under the porous pumice.

Alpine Slopes

Above the tree line, which was an abrupt border, there begins the alpine vegetation. In the lower part, it was more continuous, and I remember the abundance of the charming, little Lyall's Lupine. There are no lush mountain meadows, as on the other high peaks of the



Pink Pyrola.

Bob and Ira Spring

Cascades, though many of the same alpine plants are here. These are perennial herbs or low shrubs. Prominent among them are the Partridge Foot, Pink Heather, Pinemat Manzanita, Oval-leaved Bilberry, Great Red Indian Paintbrush, and Alaskan Club-moss. Not far above tree line, the bleak exposure, and the aridity and the instability of the pumice makes the habitat a very difficult one for plant growth. Still, there is a sparse vegetation. A sturdy plant would grow and make a low tussock, but it was usually 100 feet or more to the next plant. The plants growing highest on the mountain are Pyrola-leaved Eriogonum, Parry's Rush, Pussy Paws, Alpine Collomia and Alpine Saxifrage.

The heads of the upper valleys are filled with permanent snow fields. The summit is bare of vegetation.

Enumeration of the Flora of Mt. St. Helens

The numbers given after the common name (such as 7,531) are the collection numbers of St. John of that plant. Other collections are cited by the collector's name and number.

Lycopodiaceae

Lycopodium annotinum L. Stiff Club-moss. 7,531.

Lycopodium clavatum L. Running Pine 7,455; Coville 834.

Lycopodium sabinæifolium Willd., var. *sitchense* (Rupr.) Fern. Alaskan Club-moss. 7,462; Coville 769; 802.

Selaginellaceae

Selaginella Wallacei Hieron. Wallace's Selaginella. 9,127.

Equisetaceae

Equisetum arvense L. Field Horsetail. 7,505.

Ophioglossaceae

Botrychium lanceolatum (S. G. Gmel.) Angstr. Lance-leaved Grape-fern. 7,439.

Polypodiaceae

Adiantum pedatum L., var. *pedatum*. Maiden-hair. 7,518.

var. *aleuticum* Rupr. Western Maiden-hair. 7,460.

Asplenium Trichomanes L. Maiden-hair Spleenwort. 9,131.

Athyrium filix-femina (L.) Roth. Lady Fern. 7,470; 7,524.

Blechnum Spicant (L.) With. Deer Fern. 7,502.

Cryptogramma crispa (L.) R. Br. ex Hook., var. *acrostichoides* (R. Br.) C. B. Clarke.
American Parsley Fern. 7,453; 9,145.

Cystopteris filix-fragilis (L.) Bernh. Brittle Fern. 7,504; Coville 825.

Gymnocarpium Dryopteris (L.) Newm. Oak Fern. 7,495.

Polypodium glycyrrhiza D. C. Eaton. Licorice Fern. 9,134.

Polystichum munitum (Kaulf.) Presl. Sword Fern. 7,523; 7,596.

Pteridium aquilinum (L.) Kuhn, var. *pubescens* Underw. Bracken. 9,126.

Thelypteris sp. 7,397. The specimen not located.

Pinaceae

Abies amabilis (Loud.) Forbes. Lovely Fir. Coville 829.

Abies grandis (Dougl.) Lindl. White Fir. 9,189, at Cougar.

Abies lasiocarpa (Hook.) Nutt. Subalpine Fir. 7,373; Coville 831.

Pinus albicaulis Engelm. Whitebark Pine. Reported by Coville.

Pinus contorta Dougl. ex Loud. Lodgepole Pine. 7,441.

Pinus monticola Dougl. ex D. Don in Lamb. Western White Pine. 7,442.

Tsuga heterophylla (Raf.) Sarg. Western Hemlock. 7,418.

Tsuga Mertensiana (Bong.) Carr. Black Hemlock. Reported by Coville.

Cupressaceae

Chamaecyparis nootkatensis (D. Don in Lamb.) Spach. Alaska Cedar. 7,510.

Juniperus communis L., var. *montana* Ait. Dwarf Juniper. 7,471; Coville 786.

Thuja plicata Donn. Giant Cedar. 7,508. Coville also observed it.

Taxaceae

Taxus brevifolia Nutt. Western Yew. Coville observed it.

Sparganiaceae

Sparganium simplex Presl. Simple-stemmed Bur Reed. 7,571.

Potamogetonaceae

Potamogeton epiphydrus Raf. Nuttall's Pondweed. 7,393; 7,590.

Alismataceae

Alisma Plantago-aquatica L. Water Plantain. 7,600.

Gramineae

Agrostis exarata Trin. Western Bent Grass. 7,404; 7,552.

Agrostis tenuis Sibth. Colonial Bent Grass. 7,479.

Agrostis variabilis Rydb. Alpine Redtop. 5,141; 7,428; 7,432; 7,451; 7,536; 9,278.

Bromus sitchensis Trin. Alaska Bromegrass. 7,481.

Calamagrostis sesquiflora (Trin.) Kawano. Blue Joint. 7,555.
Danthonia intermedia Vasey. Mountain Wild Oatgrass. 7,543.
Danthonia spicata (L.) Beauv. ex R. & S. Northern Wild Oatgrass. 9,130.
Deschampsia elongata (Hook.) Munro ex Benth. Slender Hairgrass. 9,168.
Elymus sp. Coville 795. Specimen not found.
Festuca ovina L., var. *brachyphylla* (Schult.) Piper. Alpine Fescue. Recorded by Piper as the var. *supina* (Schur.) Hack.
Festuca subulata Trin. in Bong. Nodding Fescue. 7,421.
Phleum alpinum L. Mountain Timothy. 7,419.
Panicum occidentale Scribn. Panic Grass. 9,132.
Poa nevadensis Vasey ex Scribn. Bluegrass. 7,535.
Sitanion Hystrix (Nutt.) J. G. Sm. Squirrel Tail. 7,382.
Stipa occidentalis Thurb. ex Wats. Needle Grass. 7,542.
Trisetum spicatum (L.) Richt. Downy Oatgrass. 7,430; Coville 796.

Cyperaceae

Carex canescens L. Sedge. 7,585.
Carex foetida Allioni. Native Sedge. 7,381.
Carex Kelloggii W. Boott in Wats. Kellogg's Sedge. 7,548; 7,586.
Carex laeviculmis Meinsh. Smooth-stemmed Sedge. 7,576; Coville 761.
Carex leptopoda Mack. in Rydb. Shorter-scaled Sedge. 7,594; 9,178.
Carex Mertensii Prescott ex Bong. Mertens' Sedge. 5,139; 7,390.
Carex microptera Mack. Small-winged Sedge. 5,140; 9,637.
Carex pachystachya Cham. Thick-headed Sedge. 7,400; 7,534.
Carex phaeocephala Piper. Mountain Hare Sedge. 7,446.
Carex Preslii Steud. Presl's Sedge. 7,400.
Carex retrorsa Schwein. Retorse Sedge. 9,180, at Cougar.
Carex Rossii Boott in Hook. Ross' Sedge. 7,554.
Carex spectabilis Dewey. Showy Sedge. 7,396; 7,410; 7,461; Coville 823.
Carex sp. 7,548. Specimen not located.
Eleocharis palustris (L.) R. & S. Creeping Spike Rush. 9,179 at Cougar. Coville also observed it.
Scirpus microcarpus Presl. Small-fruited Bullrush. 7,570.

Araceae

Lysichiton americanum Hultén & St. John. Yellow Skunk Cabbage. 9,148.

Juncaceae

Juncus filiformis L. Thread Rush. 9,159, at Cougar.
Juncus Mertensianus Bong. Mertens' Rush. 7,383.
Juncus Parryi Engelm. Parry's Rush. 7,414.
Juncus xiphioides E. Mey., var. *triandrus* Engelm. Iris-leaved Rush. 7,569.
Juncus sp. 7,586; 7,592, these not located.
Luzula divaricata Wats. Forked Wood Rush. 7,425; 7,445; Coville 799; in 1964, J. F. Franklin 382.
Luzula multiflora (Ehrh.) Lejeune, var. *comosa* (Mey.) Hultén. 7,557; Coville 800.
Luzula spicata (L.) DC. 7,448.

Liliaceae

Calochortus Lobbii Purdy. Lobb's Star Tulip. Coville 765.
Clintonia uniflora (Schult.) Kunth. Queens Cup. 7,476.
Disporum trachycarpum (Wats.) B. & H. Rough-fruited Fairy Bell. 7,516.
Erythronium montanum Wats. Alpine Fawn Lily. Coville 830.
Lilium columbianum Hanson in Baker. Wild Tiger-lily. 9,136.
Majanthemum dilatatum (Wood) Abrams. Two-leaved Solomon's Seal. 7,369.
Smilacina racemosa (L.) Desf. False Solomon's Seal. 7,527.
Smilacina stellata (L.) Desf. Spikenard. 7,529.
Stenanthium occidentale Gray. Western Stenanthium. 7,513.
Streptopus amplexifolius (L.) DC., var. *chalazatus* Fassett. Claspingleaved Twisted Stalk. 5,136.

- Streptopus roseus* Michx., var. *curvipes* (Vail) Fassett. Simple-stemmed Twisted Stalk. 7,566; 7,588.
Trillium ovatum Pursh. Western Trillium. 7,522.
Veratrum Eschscholtzianum Gray. Green Hellebore. 7,436.
Xerophyllum tenax (Pursh) Nutt. Bear Grass. 9,142.

Orchidaceae

- Corallorhiza maculata* Raf. Spotted Coral Root. 7,560; Coville 814.
Corallorhiza Mertensiana Bong. Mertens' Coral Root. Coville 753.
Goodyera oblongifolia Raf. Rattlesnake Plantain. 7,466.
Habenaria saccata Greene. Slender Bog Orchis. 7,515; 7,582.
Listera Banksiana Lindl. Northwestern Twayblade. 7,538.
Listera caurina Piper. Coville 813.
Listera cordata (L.) R. Br. Heart-leaved Twayblade. 7,568.
Listera convallarioides (Sw.) Torr. Broad-lipped Twayblade. 7,497.
Spiranthes Romanzoffiana Cham. Hooded Ladies' Tresses. 7,465.

Salicaceae

- Populus trichocarpa* T. & G. ex Hook. Black Cottonwood. 7,435; Coville also observed it.
Salix Barclayi Anderss. Barclay's Willow. 7,559; Coville 818; 822.
Salix commutata Bebb. Variable Willow. Coville 718.
Salix lasiandra Benth. Red Willow. Coville 722; 723.
Salix Piperi Bebb. Piper's Willow. 7,558; Coville 716; 751.
Salix Scouleriana Barratt in Hook. Scouler's Willow. Coville 710, 711, 712, 713, 714, 715.
Salix sitchensis Sanson in Bong. Sitka Willow. 7,406, 7,423; 7,452; Coville 709; 719; 814; 819.

Betulaceae

- Alnus rubra* Bong. Red Alder. 7,587.
Alnus sinuata (Regel) Rydb. Sitka Alder. 7,551.
Corylus cornuta Marsh, var. *californica* (DC.) Sharp. California Hazelnut. 9,120.

Aristolochiaceae

- Asarium caudatum* Lindl. Long-tailed Wild Ginger. 7,498.

Polygonaceae

- Eriogonum pyrolaeifolium* Hook. ex A. Murr., var. *coryphaeum* T. & G. Pyrola-leaved Eriogonum. 7,412; Coville 801.
Eriogonum sp. 7,440. Specimen not located.
Polygonum amphibium L. Water Smartweed. Observed by Coville.
Polygonum hydropiperoides Michx. Mild Water Pepper. 7,611.
Polygonum Newberryi Small. Newberry's Knotweed. 7,537; 7,564; Coville 766.
Rumex Acetosella L. Sheep Sorrel. 9,147.

Portulacaceae

- Claytonia parvifolia* Moc. Small-leaved Montia. 7,437.
Claytonia sibirica L. Miner's Lettuce. 7,372; 7,526.
Lewisia columbiana (Howell) Robins. Columbia Lewisia. Recorded by Piper.
Spraguea umbellata Torr. in Smith, var. *caudicifera* Gray. Pussy Paws. 7,464; Coville 771.

Caryophyllaceae

- Arenaria macrophylla* Hook. Large-leaved Sandwort. 7,544.
Arenaria neglecta Greene, var. *Howellii* (Greene) Conq. Howell's Sandwort. 7,443.
Cerastium vulgatum L. Common Mouse-ear Chickweed. 9,173.
Silene antirrhina L. Sleepy Catchfly. 9,119.
Silene oregana Wats. Oregon Catchfly. Coville 826.
Spergularia rubra (L.) J. & C. Presl. Sand Spurry. 9,144.
Stellaria crispa C. & S. Chamisso's Starwort. 7,380.

Nymphaeaceae

Brasenia Schreberi Gmel. Water Shield. 7,602.

Ceratophyllaceae

Ceratophyllum demersum L. Hornwort. 7,605

Ranunculaceae

Actaea rubra (Ait.) Willd., var. *arguta* (Nutt. ex T. & G.) Lawson. Western Red Baneberry. 7,485.

Aquilegia formosa Fisch. in DC. Crimson Columbine. 7,545. Also observed by Coville.

Anemone deltoidea Hook. Columbia Windflower. 7,374.

Caltha biflora DC., var. *rotundifolia* (Huth) C. L. Hitchc. White Marsh Marigold. 7,580; Coville 763.

Coptis laciniata Gray. Oregon Goldthread. 7,567; 9,169.

Ranunculus flabellaris Raf. Yellow Water Crowfoot. 7,391.

Ranunculus Flammula L., var. *ovalis* (Bigel.) Benson. Creeping Buttercup. 9,184; and observed by Coville.

Trautvetteria grandis Nutt. ex T. & G. False Bugbane. 7,376.

Berberidaceae

Acyps triphylla (S.) DC. Dejfot. 7,367.

Berberis nervosa Pursh. Dull Oregon Grape. 9,141; 9,177.

Vancouveria hexandra (Hook.) Morr. & Dec. Northern Vancouveria. 5,142; 7,496.

Papaveraceae

Corydalis Scouleri Hook. Scouler's *Corydalis*. 7,577.

Dicentra formosa (Andr.) Walp. Pacific Bleeding Heart. 7,517.

Cruciferae

Erysimum capitatum (Dougl.) Greene. Douglas' Wallflower. Coville 777.

Rorippa curvisiliqua (Hook.) Bessey. Arc Cress. 9,183, at Cougar.

Crassulaceae

Sedum oreganum Nutt. ex T. & G. Oregon Stonecrop. 7,438; 7,556.

Saxifragaceae

Boykinia elata (Nutt.) Greene. Coast Boykinia. Coville 832.

Chrysosplenium glecomaefolium Nutt. ex T. & G. Pacific Water Carpet. 7,597.

Heuchera glabra. Willd. ex R. & S. Alpine Heuchera. 7,540; Coville 807.

Heuchera micrantha Dougl. Small-flowered Alum Root. 7,519.

Mitella Breweri Gray. Brewer's Mitrewort. 7,533.

Mitella caulescens Nutt. ex T. & G. Leafy Mitrewort. 7,473.

Mitella pentandra Hook. Bishop's Cap. Coville 759.

Philadelphus Lewisii Pursh. Syringa. 9,167, at Cougar.

Ribes bracteosum Dougl. ex Hook. Stink Currant. 7,402; 7,494.

Ribes Howellii Greene. Howell's Currant. 7,546; Coville 780.

Ribes lacustre (Pers.) Poir. Swamp Gooseberry. 7,405.

Ribes laxiflorum Pursh. Trailing Black Currant. 7,420.

Ribes sanguineum Pursh. Red Flowering Currant. 9,158 at Cougar.

Saxifraga arguta D. Don. Brook Saxifrage. 7,482.

Saxifraga Tolmiei T. & G. Alpine Saxifrage. 7,415; Coville 809.

Tellima grandiflora (Pursh.) Dougl. Fringe Cups. 7,501.

Tiarella laciniata Hook. Laciniated Tiarella. 9,181 at Cougar.

Tiarella trifoliata L. Lace flower. 7,472.

Tiarella unifoliata Hook. Sugar Scoop. 7,491; Coville 815.

Tolmiea Menziesii (Pursh) T. & G. Youth on Age. 7,392; 7,483; 9,157; Colville 764.

Rosaceae

- Amelanchier florida* Lindl., var. *humptulipensis* G. N. Jones. Pacific Service Berry. 7,450; Coville 776.
Aruncus sylvester Kostel. Goat's Beard. Observed by Coville.
Fragaria bracteata Heller. Wood Strawberry. 7,532.
Fragaria platypetala Rydb. road-petaled Strawberry. 7,433; 9,193; Coville 806.
Geum macrophyllum Willd., var. *macrophyllum*. Large-leaved Avens. 9,161.
Holodiscus discolor (Pursh) Maxim. Ocean Spray. 7,388.
Luetkea pectinata (Pursh) Ktze. Partridge Foot. 7,411.
Osmaronia cerasiformis (T. & G.) Greene. Oso Berry. 9,140.
Potentilla palustris (L.) Scop. Marsh Cinquefoil. 7,599.
Prunus emarginata (Dougl. ex Hook.) A. Eaton, var. *mollis* (Dougl. ex Hook.) Brewer. Bitter Cherry. Coville 828, but specimen not found.
Pyrus fusca Raf. Oregon Crabapple. 9,186, at Cougar.
Rosa gymnocarpa Nutt. ex T. & G. Woodland Rose. 9,149; Coville 837, not seen.
Rosa pisocarpa Gray. Cluster Rose. Coville 706; 707.
Rubus laciniatus Willd. Evergreen Blackberry. 9,156, at Cougar.
Rubus lasiococcus Gray. Hairy-fruited Dwarf Bramble. 3,534; Coville 781.
Rubus leucodermis Dougl. ex T. & G. Black-cap. 9,160, at Cougar.
Rubus macrophyllus Weihe ex Nees. Large-leaved Blackberry. 9,160A, at Cougar.
Rubus parviflorus Nutt. Thimble Berry. 7,492.
Rubus spectabilis Pursh. Salmon Berry. 7,489; 7,521.
Rubus ursinus C. & S. Pacific Blackberry. 9,172, at Cougar.
Sibbaldia procumbens L. *Sibbaldia*. 7,530.
Sorbus cascadenis G. N. Jones. Cascade Mountain Ash. 7,553; Coville 791.
Sorbus occidentalis (Wats.) Greene. Western Mountain Ash. 7,417; Coville 812.
Spiraea densiflora Nutt. ex T. & G. Rose-colored Meadowsweet. 7,416; 7,539; Coville 775.
Spiraea Douglasii Hook. Douglas' Spiraea. 9,190, at Cougar

Leguminosae

- Cytisus scoparius* (L.) Link. Scotch Broom. 9,162, at Cougar.
Lotus crassifolius (Benth.) Greene. Broad-leaved Hosakia. 9,165, at Cougar.
Lupinus latifolius Agardh, var. *columbianus* (Heller) C. P. Sm. Broad-leaved Lupine. 3,452; 3,453.
Lupinus Lyallii Gray. Lyall's Lupine. 3,449; 3,450; 3,451; Coville 769.
Lupinus rivularis Dougl. ex Lindl. Riverbank Lupine. Colville 811. The specimen not found, not verified.

Oxalidaceae

- Oxalis trilliifolia* Hook. Wood Sorrel. 7,486.

Callitrichaceae

- Callitriche heterophylla* Pursh ex Darby. Water Starwort. 9,176, at Cougar.

Celastraceae

- Paxistima myrsinites* (Pursh) Raf. Mountain Lover. 7,500.

Aceraceae

- Acer circinnatum* Pursh. Vine Maple. 7,507; 9,125.
Acer Douglasii Hook. Mountain Maple. 7,394; 7,512.
Acer macrophyllum Pursh. Big-leaved Maple. 9,146.

Rhamnaceae

- Ceanothus sanguineus* Pursh. Buckbrush. 9,138.
Rhamnus Purshiana DC. Cascara. 9,122.

Guttiferae

- Hypericum perforatum* L. Goatweed. 9,166, at Cougar.

Violaceae

- Viola glabella* Nutt. ex T. & G. Smooth Yellow Violet. 7,487.
Viola sempervirens Greene. Evergreen Violet. 9,137.

Onagraceae

- Epilobium alpinum* L. Alpine Willowherb. 7,385.
Epilobium angustifolium L. Fireweed. Observed by Coville.
Epilobium glandulosum Lehm., var. *adenocaulon* (Hauskn.) Fern. Northern Willowherb. 7,579.
Epilobium Hornemanni Reichenb. Hornemann's Willowherb. Coville 758; 785.
Epilobium paniculatum Nutt. ex T. & G. Panicked Willowherb. 9,174.

Umbelliferae

- Angelica arguta* Nutt. ex T. & G. Lyall's Angelica. 7,378.
Heracleum maximum Bartr. Cow Parsnip. 7,509.
Lomatium angustatum (C. & R.) St. John. Cascade Lomatium. 7,395; 7,525; Coville 756; 7/14/03, L. L. Goodwin.
Oenanthe sarmentosa Presl ex DC. Pacific Oenanthe. 7,584.
Oplopanax horridus (Sm.) Miq. Devil's Club. 7,520.
Osmorhiza. Sweet Cicely Coville 760; 816. Specimens not found, not verified.

Cornaceae

- Cornus canadensis* L. Bunchberry. 7,475; 9,182.
Cornus Nuttalliana And. ex T. & G. Mountain Dogwood. 9,135.
Cornus stolonifera Michx. Red-osier Dogwood. 9,185, at Cougar.

Ericaceae

- Arctostaphylos columbiana* Piper in Piper & Beattie. Columbia Manzanita. 9,128; 9,129.
Arctostaphylos nevadensis Wats. Pinemat Manzanita. 7,431; Coville 821.
Arctostaphylos Uva-ursi (L.) Spreng. Bearberry. 7,434.
Chimaphila Menziesii (R. Br. ex D. Don) Spreng. Pipsissewa. 7,477.
Gaultheria ovatifolia Gray. Oregon Spicy Wintergreen. 7,454; Coville 803.
Gaultheria Shallon Pursh. Salal. 9,133.
Menziesia ferruginea Sm. var. *ferruginea*. Fool's Huckleberry. 7,424; 9,121; Coville 787.
Monotropa uniflora L. Indian Pipe. 9,143.
Phyllodoce empetriformis (Sw.) D. Don. Pink Heather. 7,469; Coville 785.
Phyllodoce glanduliflora (Hook.) Coville. Yellow Mountain Heather. 7,463; Coville 782.
Pyrola asarifolia Michx. Wild Beet. 7,514.
Pyrola elliptica Nutt. Shinleaf. 5,138.
Pyrola picta Sm. Variegated Wintergreen. 7,375.
Pyrola secunda. One-sided Wintergreen. 7,368.
Pleuricospora fimbriolata Gray. Finged Pinesap. 7,370.
Pterospora andromedea Nutt. Pine Drops. 5,135; 9,191.
Rhododendron albiflorum Hook. White-flowered Rhododendron. 7,456; Coville 788.
Vaccinium ovalifolium Sm. Oval-leaved Bilberry. 7,490.
Vaccinium parvifolium Sm. Red Huckleberry. 7,499.
Vaccinium scoparium Leiberg. Grouseberry. Observed by Coville.

Primulaceae

- Dodecatheon Jeffreyi* van Houtte. Jeffrey's Shooting Star. 7,574.
Trientalis latifolia Hook. Wild Potato. 9,124.

Gentianaceae

- Gentiana sceptrum* Griseb. Scepter Gentian. 5,137.
Gentiana sp. 7,603. Specimen not located.
Menyanthes trifoliata L. Buckbean. 7,598.

Apocynaceae

- Apocynum androsaemifolium* L. Spreading Dogbane. 9,123.

Polemoniaceae

- Collomia debilis* (Wats.) Greene. Coville 808. Specimen not seen.
Collomia heterophylla Hook. Varied-leaved *Collomia*. 9,175, at Cougar.
Gilia Nuttallii Gray. Nuttall's *Gilia*. Coville 772.
Phacelia heterophylla Pursh, var. *griseophylla* (Brand) Macbride. Virgate *Phacelia*. 7,371.
Phacelia nemoralis Greene. Shade *Phacelia*. 7,384.
Phlox diffusa Benth. Spreading *Phlox*. Listed by Piper.
Polemonium californicum Eastw. Jacob's Ladder. Coville 779.

Hydrophyllaceae

- Hydrophyllum albifrons* Heller. White Waterleaf. Coville 778.
Hydrophyllum tenuipes Heller. Pacific Waterleaf. 7,488; 7,593.

Boraginaceae

- Mertensia platyphylla* Heller. Broad-leaved Lungwort. 7,575.

Labiatae

- Lycopus uniflorus* Michx. Bugleweed. 9,187, at Cougar.
Prunella vulgaris L., var. *lanceolata* (Barton) Fern. Healall. 9,192.
Stachys Cooleyae Heller. Great Hedge Nettle. 7,581.
Stachys mexicana Benth. Mexican Hedge Nettle. 7,480.

Scrophulariaceae

- Castilleja crispula* Piper. Indian Paint Brush. Coville 768.
Castilleja miniata Dougl. ex Hook. Great Red Indian Paint Brush. 7,458; 7,459.
Castilleja sp. 7,387. Specimen not located.
Mimulus guttatus DC. Monkey Flower. 7,506; 7,583; 7,589.
Mimulus Lewisii Persh. Lewis' Monkey Flower. 7,377.
Pedicularis racemosa Dougl. ex Hook. White Lousewort. 7,474; Coville 833.
Penstemon confertus Dougl. Beard Tongue, Coville 784.
Penstemon Davidsonii Piper. Davidson's Beard Tongue, Coville 754.
Penstemon nemorosus (Dougl.) Trautv. Woodland Beard Tongue. 7,407; 7,561.
Penstemon serrulatus Menzies ex Sm. Cascade *Penstemon*. 7,389; Coville 774.
Verbascum Thapsus L. Woolly Mullein. 9,150.
Veronica americana Schwein. ex Benth. American Brooklime. 7,573; Coville 820.
Veronica scutellata L. Marsh Speedwell. 7,610.
Veronica serpyllifolia L. var. *humifusa* (Dickson) Vahl. Speedwell. 9,163.

Lentibulariaceae

- Utricularia vulgaris* L. Common Bladderwort. 7,601.

Plantaginaceae

- Plantago major* L. Common Plantain. 9,155.

Hippuridaceae

- Hippuris vulgaris* L. Mare's Tail. 7,604.

Rubiaceae

- Galium Aparine* L. Cleavers. 9,188.
Galium oreganum Britton. Oregon Bedstraw. 7,563.
Galium triflorum Michx. Fragrant Bedstraw. 7,493.

Caprifoliaceae

- Linnaea borealis* L., var. *longiflora* Torr. Twinflower. 7,478.
Lonicera involucrata (Richards.) Banks ex Spreng. Black Twinberry. 7,591.
Sambucus glauca Nutt. ex T. & G. Blue Elderberry. 9,139.
Sambucus leiosperma Leiberg. Red Elderberry. 7,562.

Symphoricarpos albus (L.) Blake. Snowberry. 9,153.

Valerianaceae

Valeriana sitchensis Bong. Heliotrope. 7,399; Coville 762.

Campanulaceae

Campanula rotundifolia L. Scotch Bluebell. 7,547; 7,550.

Campanula Scouleri Hook. Scouler's Harebell. 7,366.

Compositae

Achillea Millefolium L. Yarrow. 7,398; 7,447.

Adenocaulon bicolor Hook. Silver-green. 7,484.

Agoseris aurantiaca (Hook.) Greene. Goat Chicory. 7,444; Coville 810.

Agoseris gracilens (Gray) Ktze. Slender Agoseris. 7,386.

Anaphalis margaritacea L. Pearly Everlasting. 7,401.

Antennaria media Greene. Everlasting. 7,413; Coville 805.

Antennaria parvifolia Nutt. Nuttall's Everlasting. 7,449.

Antennaria rosea (D. C. Eaton) Greene. Rosy Everlasting. 7,457.

Arnica betonicaefolia Greene. Betony Arnica. 7,427; 7,503.

Arnica diversifolia Greene. Lawless Arnica. 7,578.

Arnica latifolia bong. Mountain Arnica. Coville 757.

Aster alpigenus (T. & G.) Gray. Alpine Aster. Listed by Piper as *Oreastrum alpigenum* (T. & G.) Greene.



Twin Flower.

Bob and Ira Spring

- Aster ledophyllus* Gray. Cascade Aster. 7,403.
Aster modestus Lindl. Great Northern Aster. 7,595.
Bidens Beckii Torr. ex Spreng. Water Marigold. 7,606.
Chrysanthemum Leucanthemum L., var. *pinnatifidum* Lecoq. & Lamotte. Oxeye Daisy. 9,170.
Crepis capillaris (L.) Wallr. Smooth Hawkesbeard. 9,152.
Crepis sp. 7,429. Specimen not located.
Erigeron peregrinus (Pursh) Greene, ssp. *callianthemus* (Greene) Cronq. Mountain Daisy. 7,565.
Eriophyllum lanatum (Pursh) Forbes. Oregon Sunshine. 7,549.
Gnaphalium purpureum L. Purple Cudweed. 9,164.
Hieracium albiflorum Hook. White-flowered Hawkweed. 7,409; 7,422.
Lactuca biennis (Moench) Fern. Tall Blue Lettuce. 9,151.
Luina hypoleuca Benth. Little-leaf Luina. 7,379.
Microseris alpestris (Gray) C. Jones, Alpine Agoseris. Coville 770.
Petasites speciosa (Nutt.) Piper. Large Coltsfoot. 7,511.
Senecio sylvaticus L. Wood Groundsel. 9,171.
Senecio triangularis Hook. Arrowhead Butterweed. 7,528.
Taraxacum officinale Weber in Wiggers. Dandelion. 9,154.

MOUNTAINEER OUTINGS 1975

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Compiled by Loretta Slater

Type	Dates	Area	Leaders
Backpack	Aug.1-5	Olympic National Park – Dosewallips	Pat Abbott
Backpack Naturalists	Aug. 2-9	Glacier Peak Wilderness	Ramona Hammerly
Backpack	Aug. 17-24	South Alpine Lakes	Joe and Bev Toyndee
Backpack	Aug. 16-24	North Cascades National Park	Ruth Arnold
Backpack Swingles	Aug. 19-29	Bridger Wilderness Wyoming	Joyce Britton
Backpack	Aug. 30-Sept. 7	North Cascades National Park	Cliff and Mary Ann Cameron
Backpack	Sept. 6-13	Mt. Adams Wilderness Area	Mike Kirshner
Backpack	Sept. 6-14	Alpine Lakes West	Frank King and Bartlett Burns
Bicycle	July 25-Aug. 8	Banff and Jasper Parks, Canada	Neil and Susan Hunt
Base Camp	Aug. 3-15	Banff National Park, Canada	Byron Clark
Car Camp Campcrafters	Aug. 2-17	Vancouver Island Canada	Louise Grimes and Harriet Scott
Canoe	Aug. 16-24	San Juan Islands	Joe Tall
Climbs	Aug. 2-10	North Cascades Ptarmigan Traverse	Frank King and Tom Mogridge
Climbs	Aug. 23-Sept. 6	Wind River Range Wyoming	Norm Winn
Foreign Outing	Feb. 8-17	Mexico: Popocatepetl Ixtacihuatl, Orizaba	Dean Wingfield

Naturalists: Glacier Peak Wilderness

Expecting late-lying snow and some solitude, 12 of us set out on the 30-mile “Kodak loop” to explore the high country south of Glacier Peak. From Sloan Creek Campground we hiked through rich and varied lowland virgin forest past numerous campsites to Makinaw shelter (trail no. 649, 5 mi., 900 ft. gain). Queen’s Cup, Canadian Dogwood and Twin Flower were blooming; denser stretches were brightened by Pine Drops, Coral Root and slime molds.

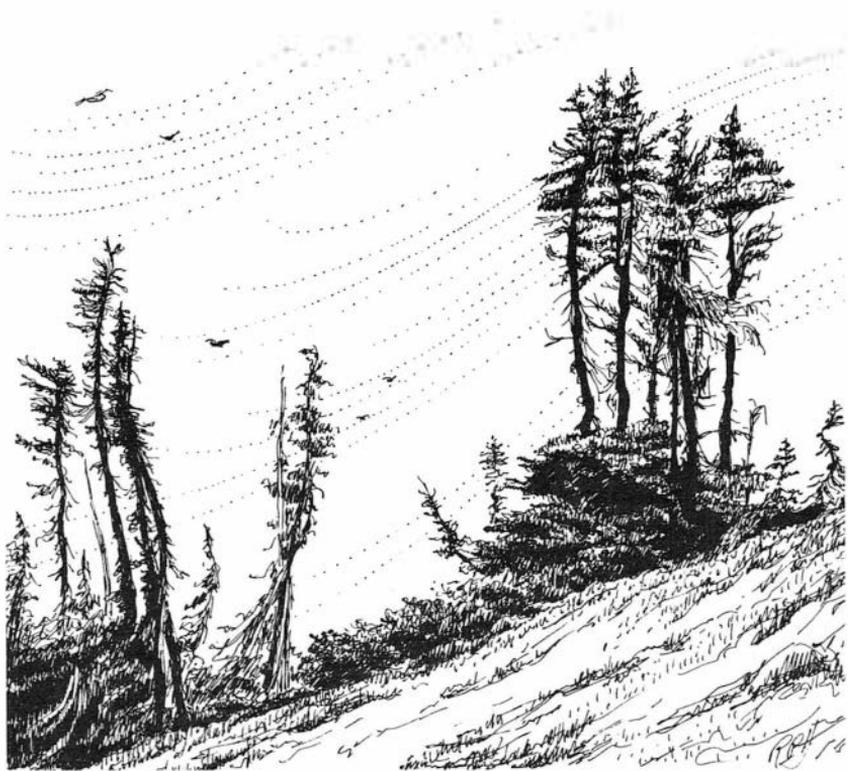
Sunday started with unrelenting switchbacks in forest. As we climbed the trees became shorter and the forest more open, with meadows. Heather was blooming and marmots cavorting at Red Pass. White Pass was abloom with creamy white Indian Paintbrush, lupine, Western Anemone, Fleabane Daisy, Jacob’s Ladder, Pedicularis, Bistort and buttercups. The ridge at White Pass provided scattered campsites for the night.



Meadows – N.E. of White Pass.

Ramona Hammerly

Morning brought sun and trips to Red Pass, White Mountain, a peak on Ten Peaks Ridge, and along a shepherd’s trail traversing upward and east from White Pass. Rock outcrops were splashed with red Indian Paintbrush, Cliff Penstemon, Phlox and Mountain Buckwheat. Butterflies flitted about the flowers and humming birds buzzed anything red – including wool caps.



Trees — pruned by the elements, on ridge east of White Mtn.

Ramona Hammerly

Next morning the clouds rose with the sun. After a late start we headed south on the Cascade Crest trail. Blue Grouse thrummed and gray-capped Rosy Finches gleaned insects from occasional snowbanks. Lunch was at Indian Pass, where a small gully off Indian Head Peak ended in a fascinatingly eroded fan of debris, including pumice. Our ascent out of the pass complete, we admired the view, then eagerly grabbed what campsites we could conjure up just off the crest above Meander Meadow.

Wednesday brought hikes to Lake Sally Ann, Blue Lakes and Johnson Mountain, Kodak Peak and east along Wenatchee Ridge. On Thursday parties started hiking to Indian Pass, Meander Meadows and Blue Lakes in an early-morning mist which gradually precipitated itself into undeniable rain. By midday thoughts were of the road only 12 miles away.



RMH
Meander Meadow from Kodak Peak

Meander Meadow from Kodak Peak.

Ramona Hammerly

Our exit was over Dish Pan Gap where we left the Cascade Crest trail to go down the Bald Eagle Trail (no. 650). Only the briefest attention was given the water-soaked Avalanche Lilies, soggy Cinquefoil and mats of luetkea along the trail. Lunch was at Spring Camp; and a mile farther on was Long John Camp, with water, blue skies and a myriad of Marsh Marigolds. Unlike the evenly graded pack route we followed in to White Pass, this trail bumped along the rugged slopes to Curry Gap. From Curry Gap it was 1½ miles northeast through forest to the car waiting to carry drivers the remaining seven miles to Sloan Creek Campground.

Ramona Hammerly

South Alpine Lakes Outing

The eight members of this outing left Alpentel on the Snow Lake trail on Sunday, August 17. At Snow Lake the campsites were damp but the weather good. Heavy rain began Sunday night, however, and continued all day Monday as we descended into the valley of the middle fork of the Snoqualmie, crossed the river, and followed the gravel road to the end where we camped the second night. Two stream crossings this day had to be made by sitting on a slippery log and hitching along. Tuesday we proceeded to Pedro Camp for a pleasant two-night stay. The elusive sun returned Wednesday and a scenic side trip was made to Williams Lake. On Thursday the party climbed over Dutch Miller Gap and dropped down to the large camp area at the east end of Waptus Lake. On Friday the rain returned, and the decision was made

to wade out a day early on Saturday. Saturday morning five members of the party hiked down the Waptus River to Salmon La Sac, while the three others went north to Deep Lake, and then over Cathedral Pass to the road-end north of Fish Lake where two cars had been left.

Joe Toyntbee

1975 Copper Mountain – Chilliwack River Outing

We left our cars at the parking area at 11:30 a.m. Saturday, August 16, one mile from Hannegan campground. It took about half an hour to get the group across the huge avalanche obstructing the road. By 2 p.m. lunch was over, packs adjusted, and the trip to Hannegan Pass began, hours too late. At 5 p.m. the leader, with the slowest members, came to the first snowfield. At 6:45 we reached the campsites below Hannegan Pass. At 7 p.m. we reached the pass; by 7:45 we arrived at Boundary Campground, glad to see that those who arrived early had set up camp and were ready to help us. We cooked and ate by candlelight and retired about 10 p.m.

As we left the cars Saturday morning it started to rain, and this continued most of the time for the remainder of the trip.

Sunday, August 17, we got a slow start because of the disorganization of the night before. It was 11 a.m. when the leader left Boundary Camp. We reached Egg Lake at 4 p.m., where the ten of us camped.

In order to get an early start we were all up at 5:30 a.m. Monday, August 18. The four strongest hikers started for Copper Lake at 8 a.m., intending to hike along the ridge toward Copper Mountain if the weather cleared. The rest of us got started about 9. By this time we were all pretty wet, and since we were crossing steep snow a good part of the time, we were not moving very fast. Several times during the morning the mist and clouds parted and we had magnificent views of Silesia Creek to Canada, with Slesse Peak. On the other side the Picketts and Easy Ridge showed. Our photographers got some lovely pictures between raindrops and clouds.

We passed through mountain meadows of white heather, huckleberry, valerian, bistort, lupin, incredibly pink paintbrush, purple fleabane, gold arnica, luetkea and penstemons, and arrived at Copper Mountain Lookout at 12:30 p.m.

Eating lunch in the Lookout, chilled to the bone and much too wet, we decided that the only thing to do was turn back. The ranger called other lookouts and learned that it was raining even east of the Cascades. The forecast was for several days' rain. We sent a message to the four at Copper Lake to turn back, and sent the four slow ones

ahead to camp at Boundary that night. The rest of us got to Egg Lake at 6 p.m. and set up the same camps we had had the night before. It was still raining, and by then we were all reconciled to going back.

Tuesday, August 19, the leader left Egg Lake at 7 a.m. to check on our friends at Boundary Camp, arriving there at 9:45 to learn that the group had arrived at 6 the evening before, set up camp and had a good night. We left Boundary at 10:45 a.m., and the fast group did not overtake us until we got to the cars at 5 p.m. As we came down the hill toward Hannegan Camp, we came out of the rain and clouds.

We left at 5:30 p.m., stopped for dinner at Arlington from 8 to 9:30, and were home at 10:30, satisfied that we had had adventure enough for nine days, crowded in to four days.

Ruth Arnold

Bridger Wilderness Outing

Tuesday, August 19th, we left Pinedale, Wyoming, for the 50 mile drive to Green River Campground, where the backpack began. Completely outfitted for 11 days, we headed out. We traveled through the Green River Lakes meadow with clear views of Square Top Mountain to our right. Beyond the meadows, we traveled into forested land to Beaver Park, 10 miles distant.

Wednesday the 20th we decided not to move camp until late in the afternoon, enabling the group to go up Square Top or to Granite Lake for the day. Thursday the 21st we broke camp at Three Forks Park early. We hiked to Trail Creek Park for breakfast, and then hiked in trees up to Vista Pass, 10,000 feet. The trail was good to there, and the views at Vista supported its name. From Vista the trail up to Cube Rock Pass traversed a boulder field and continued up a stream. While the trail was strenuous, the views were magnificent. From Cube Rock Pass, we hiked down to Peak Lake, 10,500-feet.

The next three nights we were at Peak Lake. Establishing camp here gave us the opportunity to explore in the area. Part of the group went up to Mammoth Glacier, 12,400 feet, while others scouted Knapsack Col, our intended route to the Titcomb Basin. Taking the Col would cut several miles, although hiking 12,300 feet would be strenuous with packs. The route was abandoned when viewed, as the ascent was all scree, talus, and snow and the descent required navigation around several large cornices and down a 60 degree slope.

On our second full day at Peak Lake, some people decided to hike up to Shannon Pass, while others went over to Stonehammer Lake, or up a 11,000 foot knoll behind camp. Peak Lake offered us typical Rockies' weather, with high winds of at least 60 miles per hour, and

snow.

Sunday the 24th we arose to sunshine and snow flurries. We packed up our frozen gear with numb hands and headed out from Peak Lake, hiking an icy trail over Shannon Pass in 30 degree temperatures. Views from the pass were spectacular, and the trail was good the rest of the day. Twelve miles later, no wind, some sun, a small campfire, and popcorn renewed everyone's enthusiasm.

On Monday, with our camp based at Island Lake, we had beautiful areas to hike. Many of the group hiked to Indian Pass on the Continental Divide. Others hiked up to Titcomb Basin to see what we missed in not coming over Knapsack Col. Since the rain caught up with us again the next day, our party headed out in small groups between thunderstorms.

On Thursday the 28th we headed for Elk Heart Campground. We had good trail and our last views of the Wind Rivers as we headed out, but distances by signs were unreliable. Our last break was about 4 miles from Elk Heart. From there to the end, we were on a wide trail, a "highway" through a lodgepole pine forest, which was like cement under the feet. We hiked 15 miles that day, and were glad that the last four were not the first four, due to the hardness of the ground.

We left the Wind Rivers the next morning with vivid memories of high jagged peaks, deep aqua lakes, columbine and deep red paintbrush, boulder fields and scrub pines. Our memories were also of the hard trails, the heights we had hiked, the wind and snow we had encountered. But most important and most vivid were the memories of the beauty of the wilderness.

Joyce Britton

Mt. Adams Wilderness Backpack

On Saturday, September 6, we left our cars at Timberline parking area and began a loop of the mountain. First night's camp was in a beautiful meadow just before Morrison Creek, with good views of Mt. Hood and Mt. St. Helens.

Sunday found us crossing approximately 13 creeks between Morrison Creek and Horseshoe Meadow. No water was found between Horseshoe Meadows and Sheep Lake, but we found a beautiful meadow with a good water supply about 1/8-mile beyond Sheep Lake.

Monday we headed leisurely for Foggy Flat. We lunched in a small, pretty meadow just after Adams Creek and about 1/2-mile before Killen Creek. From there, it was possible to scramble up towards Mt. Adams through lush subalpine meadows, again with fantastic views.

On Tuesday we left Foggy Flat, on a trail steep but not hard to follow, towards the high point between Red Mountain and Mt. Adams. From there down to Avalanche Valley the trail rapidly deteriorates, often evidenced only by infrequent cairns and footsteps. The area around Avalanche Valley is spectacular, however, with good campsites, lots of water and wood, and even a nearby lake warm enough for bathing.

The next day we decided to return to Timberline the way we had come, as it would take quite a strong party to continue on across the Big Muddy and the Ridge of Wonders. On the way out, we re-camped at Foggy Flat and again near Sheep Lake, but then found a lovely campsite alongside Killen Creek, with a large, clear lake overlooking Mt. Rainier only a short side trip away.

In general, there were many excellent campsites around Mt. Adams, with plentiful water and few mosquitoes. The scenery was beautiful and varied, including lush meadows, rugged lava flows, alpine tundra, and areas resembling the arid southwest.

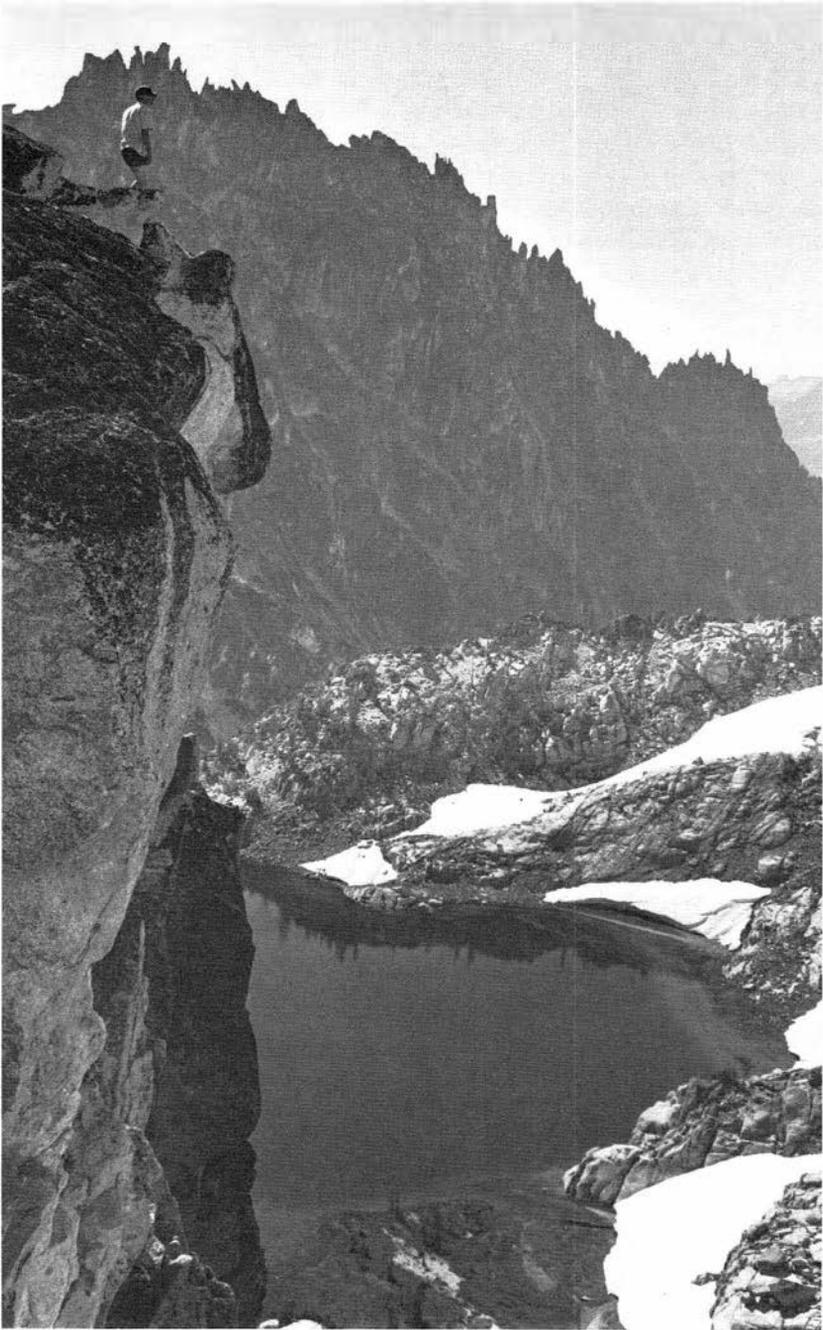
Mike Kirshner

Alpine Lakes West

The route distance for this 9 day trip was some 23 miles, with about 8 miles cross country or on way-trails. A small charter bus with baggage trailer took the 12 of us to the West Fork Foss River trailhead 9 miles from Skykomish. The first day we packed in 3.5 miles to Copper Lake, exploring the very beautiful Malachite Lake on the way. The following morning several members of the party climbed Malachite Peak, 6,261 feet, before packing on to Big Heart Lake.

On day 3 we traversed the way-trail over the sharp ridge between Big Heart and Angeline Lakes to camp at 5,000 feet between Chetwoot and Little Chetwoot Lakes. On our layover day three people climbed Big Snow – a long but rewarding day. Others explored the Iron Cap ridge and Lake Angeline.

From Chetwoot Lake our route proceeded generally east up gentle heather and rook to ice-covered Iron Cap Lake, 5,450 feet. A natural shelf runs east from the lake outlet at approximately 50 feet above lake level. When it petered out we were on our own to pick a route southeast on steep hillside to the saddle at about 5,300 feet, overlooking the Middle Fork Snoqualmie River. From here we traveled about 0.4 miles east to a beautiful virgin campsite due south of the southernmost Tank Lake. Our view of the Middle Fork Snoqualmie, Dutch Miller Gap, and all those rugged peaks was unimpeded. The following day some explored the route east to LaBohn Gap and



John Warth in the Enchantments, on hilltop overlooking Crystal Lake.

Lou Berkley

climbed LaBohn Peak, while others explored the area south past Tank, Foehn and Tahl Lakes — fascinating terrain — and ascended Otter Peak, 6,359 feet. The view from here is utterly fantastic, including 12 lakes in all directions, the Otter Lake drainage, Necklace Valley, and the upper portion of the Middle Fork Snoqualmie peaks, among others.

On day 7 all but four of us packed up and hiked south to Foehn Lake once more, dropped our packs and revisited Otter Peak. Reshoulder-ing the packs we discovered a route marked with cairns and ribbons, mostly down talus, below Foehn Lake to the Necklace Valley trail. (Special note should be made of the fact that, by taking this route we were spared the horrendous snow field down from LaBohn Gap into Necklace Valley. It would probably be quite feasible for hikers at Williams Lake to ascend to the Tank Lakes and take the same route into Necklace Valley, or even for hikers to traverse from LaBohn Gap along the south side of LaBohn Peak to this same route.) The other four members of the party climbed Mt. Hinman, and then followed the lead party to Necklace Valley and camp at Emerald Lake.

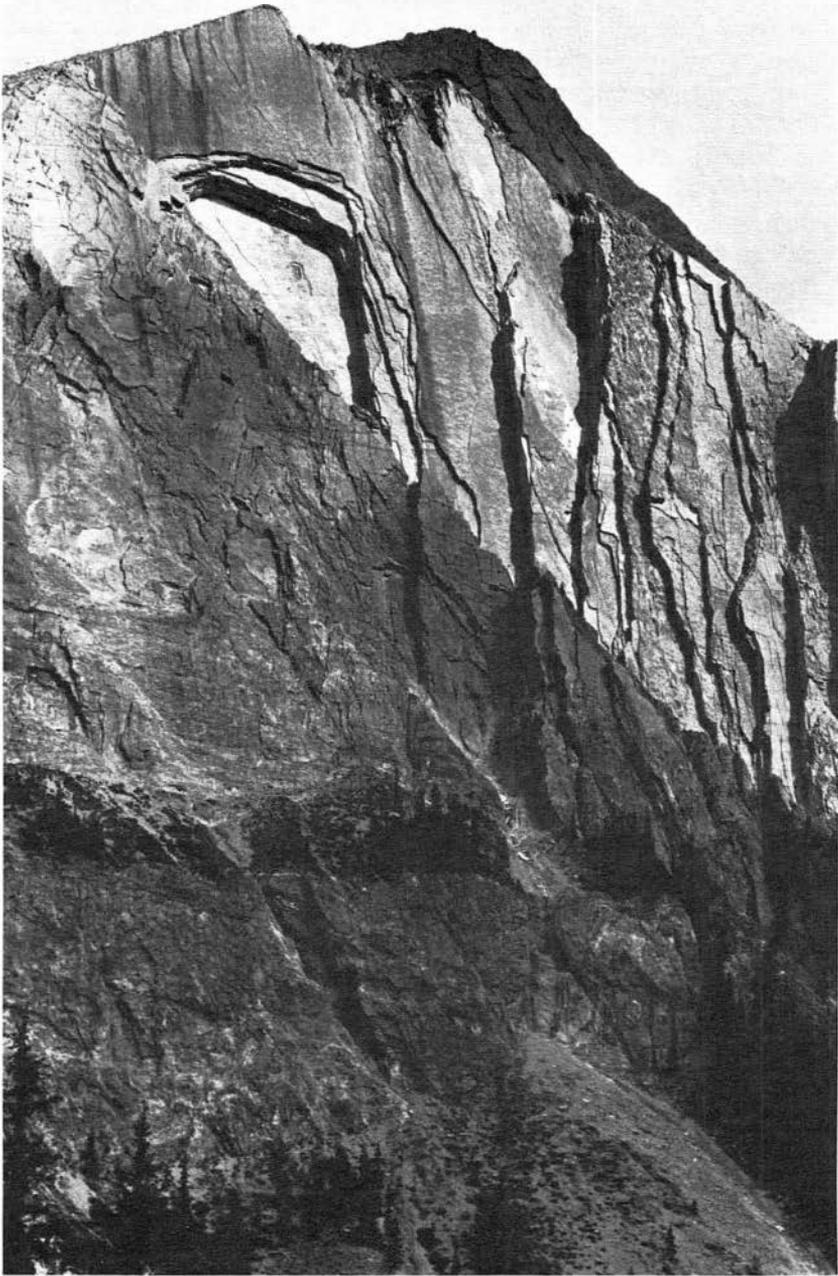
The next day we explored nearby lakes, with good luck for those fishing. One member of the party worked about 3 hours to clean up the shelter cabin, burning a great quantity of debris and packing up about 8 pounds of junk which was carried out the final day. The charter bus met us once again at the terminus of the East Fork trail and took us back to Seattle. The weather was perfect the entire time, sunny but not too warm. Much of the time we slept out under the stars. By actual count each of us saw a minimum of 29 lakes. The trip has to be rated a total success.

Bartlett Burns

Banff-Jasper Outing

On July 27, 37 bicyclists broke camp at Hillsdale Meadow near Banff and made their way past an arrogant camp bear and aggressive mosquitos. With camp gear loaded in panniers they took off with the first of the 100,000 or so crank turns of the outing. The destination of the first day was Mosquito Creek Camp Ground, with a side trip to Lake Louise. The grind up to Lake Louise was a precursor of what was in store at Bow and Sunwapta passes. Lunch was enjoyed in the sun-bathed atmosphere of Lake Louise, and the mosquitos of Mosquito Creek evidently had all gone down to Hillsdale Meadow to see us off.

A gentle climb up to Bos Pass was interrupted by the first of several days of Seattle winter-type weather. The start of the inclement weather was offset by hot coffee and rolls at Num-Ti-Jah Lodge near Bow Lake. The effect of the goodies quickly wore off in the steady



Mt. Ishbel (elev. 9,440 feet) near Hillsdale Meadows Base Camp. Banff National Park Outing, 1975.

Byron J. Clark

downpour which was encountered later in the morning. The humidity of the next cafe quickly rose as 37 wet cyclists crowded in to eat and dry out. While the weather varied during the rest of the outing, the scenery remained outstanding.

On the fourth day camp was set up at Whistler Camp Ground, and plans were quickly made to tour the scenic area near Jasper during the next three days. But, first things first; the hot showers at Jasper swimming pool were soon going full blast. For those who made the tough climbs to Edith Cavell Mountain or Maligne Lake, the scenic imprints will only get better with age.

The 170-mile trip back to Hillsdale Meadow gave us a new and different look at the mountain ranges on both sides of our route. The headwind coming off the Columbia Ice Fields gave us time to study the glacier in detail as all geared down to 30-inch gear on the level. When the group arrived back at Hillsdale Meadow, all had pictures or memories to bring back to Seattle.

Walt Carlson

Banff National Park Base Camp

During the first two weeks in August, 50 Mountaineers enjoyed a traditional, yet somewhat different stay at Hillsdale Meadows in Banff National Park. Hillsdale is an organization camping area 13 miles west of Banff in the Bow River Valley. The Mountaineers' campsite was well removed from the highway parking area and located in a scenic meadow with the encroaching forest surrounding much of the area. Nearby crests of Mt. Ishabel, Pilot Mountain, Mt. Ball and other peaks set the alpine atmosphere with striking vistas in all directions. In all there were probably more sunshine and fine days than rain, snow or icy cold mornings, but we had a lot of different weather.

Hillsdale Meadows served as an excellent base camp for numerous trail trips, hikes and general sightseeing in the Banff-Lake Louise area. Three or four trips were scheduled every day, with each group traveling by car to the trailhead or other destination. Hiking and trail trips, planned to suit differing desires and capabilities, varied from a few miles to 10 miles or more. Every trip was worthwhile and many were magnificent. The areas visited covered about a 30-mile section of the Bow River Valley and its encompassing mountain ranges between Banff and Lake Louise. For this short account some of the names will serve to give an indication of where we went: Eiffel Lake, Sentinel Pass, Lake Agnes, Saddle Pass, Plain of Six Glaciers, Lake O'Hara, Cascade Mountain, Johnston Canyon and Sunshine.

Hiking was not the only activity. A party of three climbed Mt. Athabasca (11,452 feet), and on another day were forced to retreat by bad weather from reaching the summit of Mt. Temple. Two other larger groups traveled by car to the Columbia Ice Fields, about 100 miles from camp, and to Jasper, about 160 miles distant. The Lake Louise to Jasper highway traverses a remarkable panorama of impressive peaks and mountain ranges, hanging glaciers, waterfalls and lakes.

The year-round resort town of Banff has many attractions and everyone spent some time there. Hot spring bathhouses and swimming pools operated by the Park Service were a welcome diversion. The setting of Banff Springs Hotel alongside of Mt. Rundle with the Bow River below has to be seen to be fully appreciated. For those who want a quick trip to a mountain top there is the Sulfur Mountain gondola. During the summer, under a program of the University of Alberta, a Fine Arts Festival, attracting talented students and professionals from all part of Canada and the United States, is held at Banff in a new campus on Tunnel Mountain. One evening a group of Mountaineers attended an opera and, a few nights later, a ballet performance.

Hillsdale Meadows was home base for all of these activities. Here was the friendship and fun of a congenial group of Mountaineers camping together; a hot breakfast every morning and an excellent dinner each night prepared by Charleen; the evening campfire and the starry nights. All around us – in camp or on the trails – were the other natural things for those who have eyes to see: wildflowers of many varieties; animals large and small including ground squirrels, coyotes, deer, bear; the forest; fossils; and geological features on a grand scale. The Summer Outing went well; it was a fine experience for all of us.

Byron Clark

Vancouver Island Campcrafter Outing

Vancouver Island was the site of the Seattle Campcrafter Outing for 70 members, which lasted from August 2 to August 17. Due to the fact that Canada's Provincial Parks offer no group camping nor will they take reservations, it is necessary to stay at private resorts. As a number of our members are now traveling in trailers/campers it becomes necessary to provide available space for such vehicles. The first week of the Outing was spent at "Pacific Playgrounds," a private campground situated on the Oyster River, halfway between Courtenay and Campbell River. This resort had much to offer: hookups for trailers, swimming pool, playground for children, hot showers, laundry facilities, store, marina, salmon fishing and excellent clamming. Some of the activities included a boat trip from Gold River out to Pleasant Cove on

Nootka Sound, a ferry trip to Quadra Island, visits to museums in Campbell River and Miracle Beach, a backpack trip to the Forbidden Plateau, nature walks led by the park naturalist, and hikes of the areas near Kelsey Bay, Sayward, Miracle Beach, Buttle Lake, Comox and Gold River. Most every family enjoyed fresh clams just for the digging and corn-on-the-cob from a nearby farm.

The second week was spent at "Pacific Rim" resort, four miles south of Tofino, on the west side of Vancouver Island. This camp was a little more primitive but still provided trailer space, hot showers, laundry facilities, store and pleasant campsites. Most of the time was spent exploring the many lovely beaches and coves and taking in the nature trips sponsored by the adjacent Pacific Rim National Park. One group had lunch at the famous Wickaninnish Inn, while still another group chartered a small fishing boat and was taken out to the sea lion rocks and to several Indian villages. Each day ended with a campfire circle on the beach as we sang the old, familiar songs, toasted marshmallows and watched the sun go down.

Louise Grimes

Exploring the Waterways of Northwestern San Juan Island by Canoe

Twenty Mountaineers in 10 canoes enjoyed the water trails and anchorages first sailed and rowed by Spanish commander Francisco Eliza (1790-1793), British Captain George Vancouver (1792), and American Navy officer Charles Wilkes (1841). Most of the geographic names of the area were charted by these three explorers. Wonder grew at their tenacity in mapping these uncharted passages in the pre-motor days, as canoeists matched muscle power against winds, tides and currents.

During the afternoon of the first day of the actual outing, while the canoeists arrived from various ferries, the early arrivals visited Roche Harbor. This protected bay was named in 1846 for a British midshipman on the *HMS Herald*, with the settlement and port assuming the same name when the first residents arrived 10 years later. Roche Harbor's luxurious 19th century Hotel de Haro, its historic lime kiln, gardens and wooded trails were all of interest, as well as the present resort additions of swimming pool, yacht harbor, restaurant and country store. Our first night was spent in the only public campground on San Juan Island, which was packed tree-to-tree with campers.

The second morning the canoe flotilla set out for Henry Island, drawing much attention from yachtsmen, with several cruising slowly alongside, watching us with envious expressions and calling, "That

really looks like great fun!" In a sandy bay we set up camp, feeling happy and isolated. The paddle or hike to the spring was an adventure. We came upon a grave marker with the name Henry, and wondered if he had been the master of Henry Island. Later we learned that the island was named long before by the 1841 Wilkes expedition. Beach campfires, driftwood and shell collecting, struggles through brush and timber for rocky-point views of eagles and sunsets over Vancouver Island eased our paddling muscles. Campfire meals were generous and varied, with fresh clams, crabs and fish. Paddle trips were made to neighboring bays, around the island, and to Pearl, Battleship, Barren and Posey Islands. It was puzzling to note that the local plane service was making repeated trips, circling over our camp. Boat visitors became frequent, curious about our canoe experiences. When we expressed surprise at the number of local people interested, the answer was that "everyone" knew we were there, and air tours to view us were popular as our tents and canoes lined along the beach made a colorful sight.

Reluctantly leaving our base camp on Henry Island, we moved to Westcott Bay on San Juan Island. This opened new paddle trails of Mitchell Bay and historic Garrison Bay. Early Indian camps were located here, and it is the 1860-1872 site of the English Army Camp, its 529 acres recently becoming part of the San Juan National Historical Park. To end the enjoyable outing like true Mountaineers, a successful ascent to the summit was made of 680-foot Young Hill!

Loretta Slater



Posey Island, 1975 Canoe Outing.

Lou Berkley

Wind River Range

Some “pretty fair” mountains can be climbed in Wyoming, as the members of the Mountaineers’ 1968 Wind River Outing had discovered and as the members of the 1975 outing re-discovered.

The Wind River Range is a high, mountainous region in the Bridger Wilderness in Western Wyoming about 60 miles south of Jackson. The closest town, Pinedale, Wyoming, is about 1,000 miles from Seattle, two long days’ drive. The classic guidebook to the area, Bonney’s *The Wind River Range*, is not readily available in Seattle, but can be purchased through several mountaineering catalogs and is widely sold in Jackson and Pinedale. USGS maps for Bridger Lakes, Gannet, Fremont Peak North and Fremont Peak South can be ordered from the USGS or through map stores in Seattle.

It is necessary to be well-equipped in the Wind Rivers, since most camps are at about 10,000 feet and there is a breeze almost constantly. We had heavy wool clothes, down sweaters, good raingear, gas stoves and normal climbing gear, including both chocks and pins. Because of all this, plus two weeks’ supply of food, we hired a packer to take in most of our food and climbing gear, a worthwhile additional expense. Guides and packers must register with the Wyoming Department of Game and Fish which furnishes a current list. (Bonney’s is not current.)

The trailhead at Elkheart Lake Guard Station is about 10,000 feet in elevation, so we flatlanders required several days of acclimatization. Although this area is very popular for hikers and backpackers, we started hiking in on August 25 following a week of terrible weather which had flushed out most of the campers. Fortunately that weather had passed, but climbers on the trail told stories of tents being blown down and of climbers who hadn’t seen a peak for a week.

The first night we stopped at Seneca Lake, about 11 miles from the trailhead. We had 50-pound packs, the elevation was enervating, the ups and downs were discouraging, and the camp was most welcome. The campsite was not really level, we caught no fish, but the scenery was marvelous and the sunset spectacular.

After a leisurely breakfast we continued our trek, arriving at lunch-time at Island Lake, 16 miles from the trailhead. This lake supposedly has good fishing and is very crowded during the summer, but we had it almost to ourselves. Late in the afternoon we arrived at Upper Titcomb Lake, where we established our permanent camp in a glaciated valley surrounded on three sides by massive rock walls and jagged peaks. Our campsite, on a shoulder 40 feet above the trail at the southeast corner of Upper Titcomb Lake, was the best site near the lake. It was flat,

somewhat sheltered from the wind, close to a stream, and it provided magnificent vistas in every direction. Surprisingly, it did not show signs of heavy use.

Our first day of climbing was devoted to a "warm-up" climb of Fremont, whose massive face loomed directly above our camp. We found talus scrambling quite tiring at 11,000 feet, and breathing spells were frequent. Although we left camp in sunshine, at 11 a.m. we watched an impressive lightning storm on distant peaks, and a few minutes later we were being bombarded by a hailstorm. We waited out the storm in the lee of a rock, and then trudged on, only to be engulfed in another storm an hour later. This time there was so much static electricity the ground hummed. Mindful of stories of lightning strikes, we discarded packs and ice axes, and huddled in the open until the storm blew over. We then hit the trail along the ridge to the summit. Close to the summit were several hundred feet of granite slabs that provided enjoyable friction climbing. The summit was so windy that the party huddled in the rocks, after signing the register, rather than enjoying the view.

The next day we decided on some more ambitious rock climbing, partly to justify the great load of hardware the packer had delivered. Four climbers decided to climb Trident, which is the picture on the frontispiece of Bonney's book. Interestingly, our group recorded the tenth ascent, and saw in the register Bonney's record of the first ascent in 1939, along with the record of the 1968 Mountaineers. Three in the party decided to tackle the Southeast face of Garnick's Needle, rated 5.1 in the guidebook. After considerable examination from the base we decided on a route that somewhat resembled the description in the guidebook. One false start and a retreat cost us some time, and this party was low on the face when the other party was heading back to camp from Trident. The rock on Garnick's Needle was beautiful granite, a joy to climb, but the route had pitches of 5.7 instead of 5.1 promised by the guidebook. Steady progress led to the summit at 5 p.m., but no register could be found. One long rappel and some downclimbing on the back side brought us to the snow, still soft in the late afternoon sun. We descended rapidly, reaching camp at 8 p.m., to the surprise of our friends in camp who expected a bivouac after such a late summit.

After a layover day to recover, we tackled Woodrow Wilson, the imposing peak which dominates the upper end of the valley. The guidebook promised some serious climbing, so we left camp at 4 a.m. and traveled to the upper end of the valley by flashlight. As the sun

came up, we cramponed up steep ice and snow to the base of the rock. The route was a series of gullies, cold, damp, and filled with loose rock, interspersed with several class 5 pitches and a rappel for entry to the final gully. Again the summit was in the middle of the afternoon. The descent was a slow series of rappels down gullies, and we all sighed with relief when we reached the snow.

After another well-deserved layover day, we tackled the "Big One," Gannett Peak, the highest in Wyoming, the colossus straddling the Continental Divide at 13,804 feet. Our route was over the shoulder of Wilson, cramponing up the steep ice and snow again, then down a steep couloir and across a big snow bowl northwest of Wilson. Above Glacier Pass we expected formidable rock climbing, so we left camp at 3:30 a.m. Except for the steep cramponing below Wilson, the route was enjoyable, and the fearsome stretch of rock turned out to be pleasant class 4. By 1:30 p.m. we were on the summit, under cloudless skies, enjoying smog-free air, gazing at 12,000-foot peaks rolling to the horizon in every direction. Interestingly, everyone agreed that Gannett was less tiring and more enjoyable than Wilson, although Gannett was quite a bit farther and more strenuous.

The next day was another layover day, due in part to marginal weather. Two climbers decided to climb an arête on the face of Fremont, directly above camp. Several hours later those in camp saw them descending slowly, with frequent stops. The binoculars revealed that one climber was limping badly, so a rescue party set out to meet them. The injured climber had banged his hip in a leader fall. In the morning it was clear that he could not hike out 22 miles with a 60-pound pack, so two in the party immediately started out for Pine-dale, arriving the following day. The sheriff's office phoned a helicopter service in Jackson, and an hour later the injured climber was picked up and on his way to a hospital for a checkup.

While the two members were going out for assistance, three climbers conquered Sacajawea, part of the massive face on the east side of the valley. The final climb was rated very highly. Would we do it again? Certainly. Will we go back? We hope so. *Norm Winn*

Mexico: Popocatepetl, Ixtacihuatl, Orizaba

Contrast seemed to be one theme of our climb of Popocatepetl and Orizaba for here were 13 of us ready to conquer mountains the Mexicans largely ignore. Our first Monday in Mexico City was a wild scramble to find water, buy food and cope with the myriad minor difficulties of living in a foreign country. But that night we were under Popocatepetl, in the Tlamacas hut, at 13,000 feet. "Hut" is a poor

description for this massively wonderful stone and timber climbers' quarters. Bunks, stoves, bathrooms with hot water, a huge fireplace and splendid views of the arid and sparsely forested countryside made us feel like visiting monarchs.

Mexico's dry season is *dry*, the weather usually clear and stable, and the next morning at 3:15 when we left the lodge our way was lit by clusters of stars seemingly gathered around the summit. From the lodge the trail cuts through low hills thick with pumice, for the several miles to Las Cruces hut, at 14,300 feet. As we moved out there was occasional confusion as our flashlights couldn't pick out the dim trail. Starting up there is relief to be doing something familiar again, but the effects of the elevation are quickly evident, forcing the climber to slow down and to labor for each thin, straggling breath.

The world slowly lights up. To the east Orizaba glows palely, now a pink mound on the horizon. The snow, not too steep here, becomes grainy and shadowed with the low-angle light. Across from us Ixtacihuatl appears as an immensely long snowfield – not difficult from here – but an interminable struggle for climbers working along the ups and downs of its main ridge.

During a rest break we have a major problem. One climber faints and falls backward off the rock on which he is sitting. Unable to arrest, he slides, rolls and tumbles downhill until his fall is stopped by the final climber 150 feet below. He is not badly hurt but is cut and scraped, and some members of the party escort him back to camp. The seven who remain trudge off on a long traverse for the summit. Hours later, just below the crater's rim, the lead rope stops as its last climber becomes ill. Once he feels better, his rope team goes charging off to the summit. (Charging, at this elevation, means taking three breaths per step instead of four.)

Like Rainier, Popo's summit is a high spot on the rim. The crater is incredibly vast – it seems a half mile across and close to half a mile deep. From this great hole wisps of sulphur vapor eerily arise, a residual volcanic action. The sheer walls make us giddy, and we marvel that the Spanish conquistadors descended into it to obtain sulphur for gunpowder. Finally we notice the sun is getting away from us and we know we must hurry to get back.

At four we leave, grateful to duck the chilling wind and to walk with gravity on our side. Father down we return to our normal alertness. On the summit it is very difficult to do simple things like take pictures, rope up, and even to think clearly. But back at the hut everyone cheers up as we revive after eating and drinking.

Wednesday and Thursday we rested and drove around to Orizaba.

From Tlachichuca, where we rented a truck to take us to the mountain, Orizaba seemed an impossible distance away: remote, high and distant. The 30-mile drive to our hut took 2½ hours, and when we arrived there was disturbing news. We found the gear of a climber we were told had been missing four days.

Again the volcanic dust coats our dragging boots as we ascend a steep, pumice-filled ravine. The snow is steep with long patches of ice. Runout is not a real problem, but the slope is very long and no one feels confident in a fall. At 17,200 feet there is a long conference among the first two rope teams. Several of the climbers have been feeling faint and they are having trouble staying stuck to the ice.

Ice was unexpected, and the possibility of tired climbers taking long falls weighs on everyone's mind. As we debate retreating, the weather worsens slightly. The summit is two to three hours away and that would mean leaving for the descent at 4 or 5 p.m. — too late for safety, considering the ice and the weather. Regretfully, the decision is made to leave the mountain.

As we descend the side of the vast ice slope we find pieces of gear — a glove, a crampon, part of a camera case, and far below, on a level spot dusted with freshly drifted snow, Dean spots a red parka. Descending, he, George and Jon find the missing climber. Suddenly the disappointment of not making the summit and fatigue of 12 hours of climbing pale before the frightening loneliness of the high, hostile, darkening mountain. Feeling small and lonely, as do we all, they mark the location of the body and trudge across the snow slope to rejoin the party.

At dinner we speculate on when the truck will arrive the next day. The truck arrives two hours late, but no matter; we pile in for the long ride back to Tlachichuca. That evening, covered with dust and layers of grime, we arrive in Mexico City where no one seems to notice how grubby we are. The climbing was over for most of us, and the tourist activities began.

On Monday morning most of us flew home. A few stayed behind for additional sightseeing and further climbing. Dick and Jim climbed Toluca, a smaller volcano outside Mexico City, and later Jim went with a Mexican Mountain Rescue unit to climb Ixty. For the rest of us, it had been a pleasant outing that was now over. Not all the peaks were climbed, but they will be there for another attempt, on another trip to Mexico.

Jonathan Fox

Compiled by Joan Firey

The Southwest Peak of Bonanza (9320), North Face

When the Soviet team arrived in Seattle we met them, for the first time, during a luncheon in the Plaza Hotel. I arrived a little late, and at first glance, I could not be sure which of the fifteen persons at the table were the foreigners. A series of introductions by Pete Schoening and a round of handshakes quickly acquainted me with the Soviet guests and some of the Northwest hosts.

About a week later, after a Northwest tour that included an ascent of Mt. Rainier, water skiing on Lake Washington and a visit through 37 departments of the local Sears and Roebuck store, I was advised that, as a finale, our guests would be interested in a "hard first ascent" in the North Cascades, but one that involved no more approach difficulties than driving up in a car and marching off the roadway to the first pitch! Well, accessibility is not exactly what the North Cascades are famous for but, upon viewing my slides of a 2,300-foot, nearly vertical buttress that was still unclimbed, the Soviets admitted that the two- or three-hour hike to its base would not be objectionable.

Early morning on September 10th the "North Cascades team" (Vitaly Abalakov, Vladimir Shatayev, Vyacheslav "Slava" Onishchenko, Valentin "Valia" Grakovich, Anatoly "Tolia" Nepeomnyashchy, Sergei Bershov, all of the USSR, and Nina Cvetkovs, Mike Helms, Jim Mitchell and I) drove over to the east side of the Cascades, sailed forty miles up Lake Chelan, drove 10 more miles over an old mining road in a "wilderness taxi," and after a three-mile hike, arrived at the "Bonanza base camp" on the north shore of Hart Lake (elev. 3,935 feet) still early in the day.

After a refreshing swim in the ice cold waters of the lake (the Soviets never lost a chance to "skinny dip" in any body of water they happened to encounter), the rest of the afternoon was spent sorting out food, gear and tactics for the climb. American freeze-dried food, nylon down gear and "rip-stop" nylon tents impressed the Soviets very much. The Soviet hardware collection included many innovative designs (mostly by Abalakov) for both rock- and ice-climbing. Most of their pitons were titanium, which combines the strength of steel and the light weight of aluminum.

Starting early the next morning we ascended the steep rock and heather terraces to the 7,100-foot pass between North Star and Bonanza Peak in about 2½ hours. It was a perfect Autumn day. As we

reached the pass the north buttress of the Southwest Peak of Bonanza came into close view. Slava studied it for a while, then, gesturing, asked me where the route was? There was no apparent fault system that indicated that the buttress would even "go." I responded: "The route is where you make it. I wish you luck!" I gave them one more opportunity to make it a team of four (Onishchenko, Bershov, Grakovich and Nepomnyashchy)* but they all insisted that I must climb with them.

As we roped up at the base of the buttress, I was startled to see Slava and Sergei put on petit galoshes that stretched tight over their bare feet! Sergei took the first lead up a narrow chimney and proceeded up the broad face above while Slava belayed. Tolia informed me that I would be on the end of his rope with the privilege of cleaning all the pitches. Valia tied a prussik near the middle of the rope and often climbed simultaneously.

As we proceeded upwards, the climbing remained demanding. Sergei and Slava were well ahead and could be seen maneuvering under some major overhanging headwalls. Tolia often remarked to me that he would certainly prefer his galoshes now instead of the conventional climbing boots he had on. Valia, a very strong climber that did not enjoy following as much as he did leading, started shouting up at his compatriots that in his opinion they should be attacking the headwalls directly (with aid) and be done with it! I (politely) quelled his vocal efforts and said; "Give them a chance; they may see something we cannot." My words were prophetic: Sergei and Slava, far from encountering insurmountable impasses, reached a sloping ramp that cut diagonally across the crest of the buttress (from east to west) circumventing two of the headwalls. It was an unexpected and important key to the route!

The next few leads involved some of the hardest free climbing I have ever witnessed under alpine conditions; by Northwest standards, I am sure I would have aided at least three of the pitches. As we reached our bivouac ledge, I learned that Sergei did almost all the leading! His stature as USSR rock-climbing (speed) champion is well earned.

The setting sun silhouetted the mountains of the Olympics and Vancouver Island while hot foods and liquids were shared. Songs, jokes and stories abounded late into the night. The spirit was contagious and our language differences presented no barrier. We were all slipping off into sleep when the resident "snaffle hound"*** started

*Shatayev remained in base camp with fever. Abalakov explored the North Cascades via its beautiful valleys.

**Pika.

scavenging through our utensils for dinner leftovers. Anchored loosely to some pitons, I remained still and semi-wake as the familiar commotion continued close by. Suddenly I felt this "monster" running over me! When his feet hit my face, I jumped up yelling and cursing (using very dramatic expletives). My Soviet buddies thought I was "attacked by a bear," and my description of the beast supported that impression. A "bear hunt" failed to produce a quarry. I lay back down to sleep with my hammer at hand, just in case. More jokes (at my expense) kept us awake a while longer.

By late the following morning we had surmounted the final headwalls of the buttress and were jubilating on the summit. I asked Slava, who had done some of Europe's hardest climbs, what his impression of the route was? He said that "some of the climbing was very hard and some not so hard, but if the weather had become bad it would have been very difficult to escape the face." Having experienced some September blizzards in the North Cascades, our predicament on the face could have been unpleasant indeed. A quick descent over the numerous glaciers and cliffs of Bonanza's 5,000-foot south face brought us hot and thirsty to base camp and another, most refreshing swim in Hart Lake.

Alex Bertulis

Editor's note: For a fuller account of this ascent, see *Off Belay*, February, 1976.

Peak 8599 (Bonanza), Southwest Arête

During a prolonged spell of late summer good weather, a joint Soviet-American team established base camp at Hart Lake, four miles from Holden. On September 11 Mike Helms, Alex Bertulis, the Soviet team and I hiked to the base of the North Buttress of the West Peak of Bonanza Peak, on which Bertulis and the Soviets established a new route. Mike and I continued past the West Face of Bonanza to the Southwest Arête of Peak 8599. After a bivouac at 7,300 feet, we ascended the arête in twelve pitches of moderate difficulty (up to F5) characterized by much loose rock and poor protection. No indication of previous ascent of Peak 8599 could be found. We then traversed the Northwest ridge of Bonanza with another bivouac at 9,400 feet and descended the East Face down the Mary Green Glacier. The traverse was completed with a rappel from an ice bollard, then a scurry down the lower icefall as the ice creaked and groaned around us.

James R. Mitchell

Mount Adams, Lava Glacier Headwall, Variation, West Portion

On June 21-22, 1975, Clint Crocker, Craig Eihlers, Matt Kerns and David Rowland of Yakima ascended the Lava Glacier Headwall of Mt. Adams by a variant route from those described in the Cascade Alpine Guide (1973).

The North Ridge was crossed at about 8,500 feet as described in the guide. The route crossed the lowest schrund on the extreme west side of the Lava Glacier beneath the North Ridge, and continued up diagonally across the headwall, using rock outcroppings for protection from continual rock fall. We crossed the West Portion Route just beneath rock cliffs and entered an obvious chute slightly above mid-center of the headwall and between the two routes described in the guide. We then ascended directly upward, joining the East and West Portion junction on the upper portion of the North Ridge Route, following the route to the summit.

David E. Rowland

Lundin, South Face

Barry Briggs, Lee Whiteside and I did what seems to be a new route on the south face of Lundin on July 31, 1975. Begin at the lowest point of the face between the summit and the start of the West Ridge Route. Jam and lieback up an obvious right-facing dihedral 40 feet to the top of a pillar. Continue up a dihedral 30 feet to a large ledge, then walk left 20 feet to a belay. Ascend easy rock for 40 feet until the climbing becomes more difficult in a 15-foot left-facing dihedral. Traverse left 20 feet to a belay ledge. From the belay ledge return to the left-facing dihedral and ascend up and slightly to the right past a small roof at the top of the dihedral. Continue out on the steep face, angling slightly right until a prominent roof with white rock underneath is met. Turn at roof on the right and belay. Then continue up to join the West Ridge Route. The first and third pitches offer interesting, sustained class 5 climbing on solid, high-angle rock. The second and fourth pitches are class 4 with some loose rock. Twelve nuts; I, 5.7; 2-3 hours.

Kenneth Small

Mount Fury, East Ridge

Anthony Mendoza and I climbed the East Ridge of Mt. Fury on September 13, 1975. Camp was made near a 6,455-foot knoll on an arm extending into the McMillan Creek drainage halfway between Luna Peak and Mt. Fury. We ascended to the 7,200-foot pass immediately east of Fury (class 3). At the base of the ridge there is a very exposed,

unprotectable 25-foot step of fairly good rock (easy class 5). The rest is scrambling over ledges and loose blocks left of the crest to where the ridge ends just below the final bergschrund of the Southeast Glacier. Time: 3 hours from camp.

Alan Fries

Sue Peak, Southwest Ridge (6,950)

On August 11, 1975, Bert Brown, Roger Peffer, Mike McNerthney and I established a new route along the Southwest Ridge of Sue Peak, located in the Bailey Range in Olympic National Park. Access to the peak was made by descending east from the summit of Mt. Carrie along the Carrie Glacier to about the 5,500-foot level, turning left up a steep scree slope, then on up to the summit along the Southwest Ridge. Class 3, Grade 2.

Mike Gallagher

Jackson's Spire

On August 11, 1975, Greg Wornell and I made the first ascent of an unnamed pinnacle located halfway along the ridge running between Sue Peak and Mt. Carrie in the Bailey Range in Olympic National Park. Access to the pinnacle was made by descending down the Carrie Glacier to about the 6,000-foot level, turning left up a steep scree slope to the East Ridge and on up to the top. Descent was made by the Northeast face. We wish to name the pinnacle *Jackson's Spire* in memory of Mark Jackson who was killed by rock-fall on the Mowich Face, Mt. Rainier, on August 14, 1975. Class 4, Grade 2.

Peter Janker

Northern Caribos, British Columbia

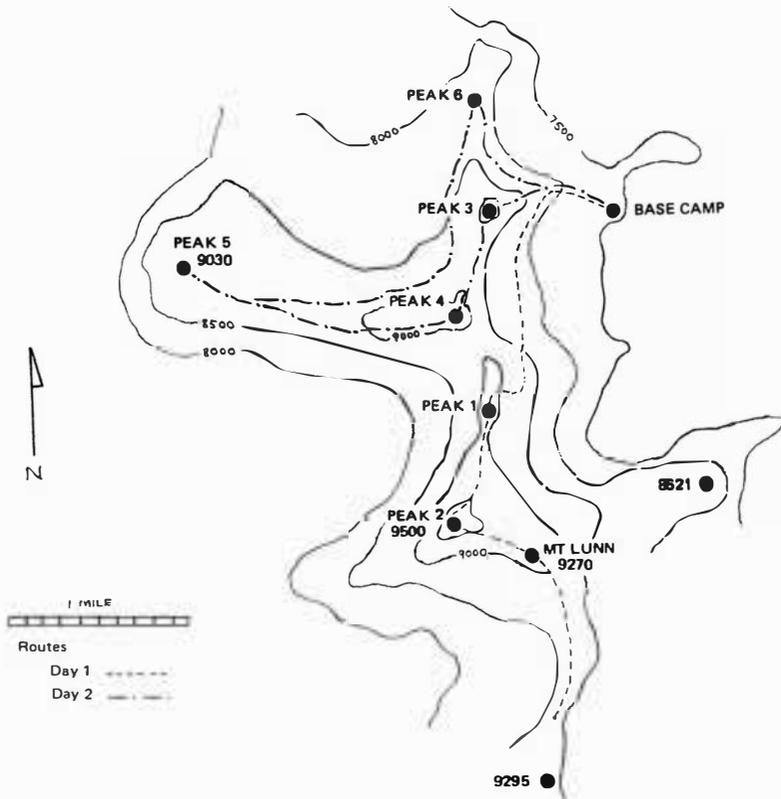
Approximately 60 air miles west of Mt. Robson lie a number of unnamed and unclimbed peaks in the northern Cariboo Range of British Columbia. Wayne Misenar, Bill Robinson, Warren Thompson and I made the 612-mile drive from Seattle to climb there in the last week of July, 1975. Approach to the area is through the town of McBride 40 miles north of Tete Jaune Cache. From McBride we drove a well-maintained logging road 25 miles up Castle Creek to the road end at the 3,500-foot level. We proceeded up the northwest fork of the creek through nearly impenetrable brush and insatiable mosquitoes. Base camp was established that evening in a downpour on a meadow

at 7,500 feet on the north side of the valley.

On our first climbing day we ascended three peaks in the fog, including Mt. Lunn, the only named summit in the area. Though it is visible from the valley below, it is not as high as 'peak 2' to its northwest. In beautiful weather the next day we ascended three more summits above 9,000 feet west of our camp.

The rock of the area is badly broken and not reasonable to climb. Glaciers and ice are everywhere, and ascents of the 8,500- to 9,500-foot peaks can be made as challenging as one would like. The vast area contains countless peaks yet unnamed and unclimbed. Access to the area and others is difficult. Without a convenient logging road flying is the only reasonable and timely manner of approach.

Dick Mitchell



Map of Cariboo Area.

Dick Mitchell

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Administration

Compiled by Paul Robisch, Secretary

The membership of The Mountaineers totalled 8,695 in December 1975 which represented an increase of 550 from December 1974. The membership total includes: 6,730 Non-branch; 1,128 Tacoma Branch; 464 Olympia Branch; and 373 Everett Branch.

The major event for The Mountaineers in 1975 was certainly the "Burning-of-the-Mortgage." At the Annual Meeting – attended by approximately 200 members which was a major event all by itself – the mortgage on the Club Room Building was officially and ceremoniously burned by Frank Fickeisen and Grace Kent (the President and Secretary who signed the mortgage on May 6, 1965). The "castle" on Pike Street is now all ours. The large attendance at the Annual Meeting was certainly due in part to the extraordinary program – the showing of hand-tinted lantern slides of Mountaineer Outings dating back to 1909. The slides were taken by C. E. Schurman, H. B. Hinman and Asahel Curtis.

The saddest event during 1975 was the passing of the last charter member of The Mountaineers. Lawrence Denny Lindsley died on January 3, 1975 (see the 1975 Annual, page 89).

The 1975 Club election saw an increase of approximately 11 percent over 1974 – 30.7 percent of eligible members voted. Three amendments to the Bylaws were approved by overwhelming majorities. These were the same amendments which failed in 1974 due to a voter turnout of less than the required 20 percent.

The first amendment reestablishes the Life Membership category. The required payment is 20 times the regular annual dues. The funds from Life Membership are to become a permanent investment which will provide a constant source of income for the Club. Automatic Life Membership is granted to all 50-year members.

The second amendment abolishes the 25-year Membership category and establishes a Senior Membership category available to members of 10 years or more who are 65 years of age or over. Senior members are entitled to reduced annual dues.

The third amendment provides for a change in the maximum amount of the Permanent Fund from a current fixed value of \$5,000 to an amount which is variable with the number of members.

Conservation Division

The Club was unusually busy this year trying to influence legislation affecting the Alpine Lakes. The Mountaineers presented testimony at Congressional field hearings in favor of an extensive Wilderness surrounded by a National Recreation Area. In addition, we sent representatives to Washington, D.C., for the mark-up sessions of the various bills before the House of Repre-

sentatives. Generous support by The Mountaineer branches made this possible. It is hoped that 1976 will see the conclusion of this long effort to gain legal protection for this beautiful favorite area.

A field trip was held to investigate the proposed Sunrise Mine in the Monte Cristo area. Several problems came to light. Another field trip was taken to the Mt. Baker area to review a controversial timber sale. Because of changes agreed to by the Forest Service no appeal was planned.

Several public meetings and hearings were attended by Division members to help refine the logging regulations under the State Forest Practice Act. Additional meetings and hearings concerning the Seattle Shoreline Master Plan were also actively attended.

An extraordinary amount of effort was required in the State Legislature to prevent environmentally unacceptable amendments to the Shoreline Management Act, Forest Practices Act, and other worthwhile laws.

Some of the other important activities were:

1. Coordinated calendar and notecard sales, the proceeds of which went to environmental causes.
2. Worked with the Forest Service to write a master plan for the Glacier Peak Wilderness area.
3. Continued preliminary work for the extension of the Olympic Ocean Strip.
4. Supported Fish and Wildlife Service Plan for the management of Dungeness Spit.
5. Sponsored a trail maintenance project on Bedal Creek Trail near Darrington.
6. Testified in favor of a Skagit River Recreation and Scenic Area.
7. Supported Friends of Discovery Park in their successful effort to keep a proposed golf course out of the natural park.
8. Attended the Fish and Wildlife Service's conference in Portland.

Indoor Division

The **Membership** Committee completely revised the information meeting slide show during 1975. New text was introduced to bring the descriptions of Mountaineer activities up to date, and a large number of new photographs was obtained in order to improve the visual quality of the show.

Jim Whittaker and Dianne Roberts presented the program for the 1975 **Annual Banquet**, which was held at the Sea-Tac Holiday Inn. An audience of over 400 people enjoyed a slide show and lecture on the 1975 American K-2 Expedition. Pictures of the Mustagh Tower and other sensational peaks of the Karakoram Range complemented the scenes of the attempt on K-2 and provided an outstanding evening's entertainment. Acting banquet chairman Bob Milnor reported the banquet to be in the black for the first time in many years.

After a lapse of nearly two years, **Junior** activities were reestablished in The Mountaineers. Initially, events were planned and conducted by an ad hoc Junior Activity Investigating Committee, composed of members of the Board of Trustees and Division leaders. In December a permanent Junior organization, composed of 14-17 year olds, was created within the Indoor Division.

Seven events were conducted during 1975, including an organization meeting, two skiing weekends, a bike trip, a backpacking trip, a tour of a ski factory and a beach party. The last two were by far the most popular, each drawing 20-30 Juniors. It is hoped that the Junior organization will once again grow to the size it once enjoyed in The Mountaineers.

In 1975 the **Players** presented "Plain and Fancy" for their 51st production in the Forest Theater. Joan Galstaun directed and Bob Young was the musical director. Spectacular scenes included a fire, barn-raising and a wedding. More than 70 Mountaineers participated. With the weather cooperating, about 5,500 tickets were sold to delighted patrons.

The **Dinner Meetings** have grown in attendance from about 18 participants monthly in 1971 to a recent high of 200 at a single potluck dinner. The highlight of this potluck was a program by Bob and Norma Spring on the Soviet Union. Other outstanding programs included "Alaska Bears" by Dick Bayne and "Antarctica" by Bill Lokey.

The **Photography** group presents nine programs yearly. Among 1975's finest was the first American ascent of "Trisul." A competition of individual slides has been held at the end of each formal presentation.

The **Art Committee** continues to bring fine paintings, drawings and photographs to enhance the Club room. While enjoyment of the works of many artists is the primary goal of this committee, some sales have also been made.

The **Musicmakers** and **Folkdancers** continue to meet and make merry wherever they are. The Musicmakers have some fine potluck dinners preceding their music making and the Folkdancers continue their merrymaking at the Masonic Temple.

Outdoor Division

The **Alpine Scramblers** retained the basic concept for the Alpine Travel Course and, with the acceptance of students requesting second-year status, awarded Certificates of Completion to approximately one-third of the total enrollment.

The Alpine Scrambles were well attended with most parties consisting of around 10 participants on weekend Scrambles and four or five on mid-week Scrambles. In the interest of party safety, only students or graduates of The Mountaineers' Alpine Travel, Basic or Intermediate Courses were permitted on Scrambles without an "equivalent" approval of the Alpine Scramble Committee.

A variety of activities were enjoyed by the **Bicyclists** in 1975. Six winter "Blue-Nose" rides were well attended. The summer season was led off with a

bicycle seminar for beginners at the Club room. A following clinic which covered "Bicycle Road Repairs" was completed by 15 feminine bicycle mechanics who were all awarded the prize for the "Fastest Wrench in the West." A special first-aid class oriented toward the needs of the bicycle tour leader was completed by 14 tour leaders.

A total of 42 tours and one outing were completed during the summer season. The climax of the tours was reached with 50 bicyclists taking the demanding ride over the North Cascade Highway. A total of more than 50,000 rider miles was completed by the groups of 8 to 53 bicyclists, who made Bicycle Tours during the 1975 summer season.

The **Campcrafters** got off to a good start with an outing attended by 90 members over Washington's Birthday at the Methodist Church Camp, Long Beach, Washington. In March about 50 attended a Swim/Potluck supper at the Aqua Dive in Lake City. Millersylvania State Park was the site of the April outing with about 10 families participating. About 40 members joined Peg and Bill Stark of "Family Adventures," just out of Leavenworth on the Icicle River, for the Memorial Day weekend where we enjoyed the many wild flowers and spectacular mountain views. Lake Cushman in June and back to the Starks for July 4th. July found us at Cougar Rock Campground at Mt. Rainier with a climb of Gobbler's Knob. The Potluck reunion was held in October. The successful year ended with the annual Halloween Party at Snoqualmie Lodge.

The **Canoe and Kayak** group answered requests from new devotees, as to types of craft, rental outlets, advisable training areas. Several day trips were made with these members to small lakes and mild streams for practice. Favorite areas were run on local rivers, with potlucks and picnics at members' homes. The summer outing in the San Juan Islands was enjoyed by 20 canoeists. In addition to the majority of open cruising canoes, the group has members with foldboats, various types of kayaks, and "Duckies," or inflatable canoes.

The 41st Basic **Climbing** Course culminated at the Climber's Reunion in September. The Basic Course graduated 126 of the 250 students who entered in February. The Intermediate Course had an enrollment of 73 and 15 intermediates were graduated. This brings the total number of intermediate graduates since the course began to 275.

In addition to the climbing courses a Club Climbs program of 85 climbs was presented. The Climbing Seminars program consisted of 19 seminars, 13 of which were field trips with surprisingly high attendance. Climbers' outings were successful. Awards were given for the six majors and the first and second 10 Snoqualmie Lodge peaks.

The **First Aid** Committee graduated over 500 students from its Mountaineering Oriented First Aid Training Program in 1975. This represents a 25 percent increase over the previous year. However, demand continues to outstrip our capability to offer classes. We also graduated two classes of new instructors. Our instructor corps now exceeds 100 instructors (a 30 percent increase over last year). This year the committee was also able to purchase additional training aids, such as the newly released film "The Thermal Wilderness," a film

on heat stress. The film is available for use at Club-sponsored activities, and it is hoped that it will contribute not only to the instruction of our first aid classes but to the education and information of all our members.

Only one **Foreign Outing** occurred in 1975 – another climbing outing to the big volcanoes in Mexico. This trip is so popular it may become an annual event! Because of their complexities, planning for some trips must be started a year in advance. Consequently organization is now underway for a major expedition to Aconcagua in the Andes of South America, as well as the European Alps.

The varying life found at different elevations in the mountains provided the major study topic for the **Naturalists** during 1975. The monthly study activities were: March – the Biotic Zone; April – the Yellow Pine and Bunchgrass Zone; May – flora and fauna of the west side of the Cascades; June – Alpine and Tundra plants around the world. During the year there were 35 field trips, many in conjunction with the study topics, and nine lecture meetings. Other activities included birding, flower photography, geology, rock hunting, and a very popular feature – the exploration of the Seattle Public Parks.

Nordic, or cross-country, skiing recently came through its first season as an organized activity of The Mountaineers. First-year activities included the formation of a working committee, an evening session of lectures on various aspects of the sport, a field trip, and a series of weekend day trips. Ski tours ran from February 15 through April and at least one was scheduled each weekend. Sixteen tours were completed, attendance ranging from parties of 3 to 19 persons. The goal of the committee was to organize the activity in such a way that Club members could easily enjoy the fast-growing winter sport.

This year there were seven graduates from the **Ski Mountaineering Course**. A successful season was had with one or two trips scheduled each weekend from January through May. Of the 35 scheduled trips, 25 took place, although in some cases alternate destinations had to be chosen. The cancellations were due to road closures, avalanche warnings and heavy rains.

Trail Trips had another active year with 312 trips. These ranged from beach walks to an 11-day outing.

Trails Coordinating Committee

In June 1975, the Trails Planning and Development Committee, generally known as Trails Advisory, was changed to Trails Coordinating Committee to more accurately reflect its scope and functions. Major activities of the Committee are as follows:

The Committee spearheaded the efforts to solve the winter recreational parking problem that had been unresolved since 1971. Club officers, other organizations and state and federal agencies all worked hard to secure the passage of the Winter Recreational Parking Bill (HB 762). Ch. 209, Laws of 1975, 1st Extraordinary Session, enables winter recreationists to purchase a \$5.00 SnoPark Permit, which when displayed on the motor vehicle permits parking in designated areas. The funds obtained from the sale of permits are admin-

istered by the Washington State Parks and Recreation Commission to snow-plow the parking areas.

A trail inventory of the 950 trails in four National Forests: Mt. Baker-Snoqualmie, Wenatchee, Gifford Pinchot and Olympic. For each trail basic information from various sources is compiled on a one-page sheet. Recent changes in Forest Service policy include recognition of the significance of the recreational use of trails and a new flexible trails classification system. The 1975 Trails Assessment Program of the Forest Service is designed to be the basis of developing trail management plans. The trails inventory will enable trail user organizations to provide more meaningful and timely input. Over 100 Mountaineers have already assisted with this important continuing project. A slide show, **The Trail Inventory and You**, is being shown to meetings of various outdoor clubs to explain the Trail Inventory Project and to encourage trail user participation.

Trail maintenance work parties were encouraged by the Board in response to an open letter to outdoor clubs indicating that only 60 percent of the 1,000 miles of trails in the Mt. Baker-Snoqualmie National Forest could be maintained with present funds. Since this type of activity is new to us and to the Forest Service, no experienced cadre of leadership is available. A number of small work parties was held in 1975, and it is expected that the number of trail-maintenance work parties will increase as the membership realizes the importance of participating in this activity in order to keep trails in Western Washington open.

A Trail Condition Report form was developed and distributed to leaders of all activities using trails. Its purpose was to encourage and facilitate reporting trail conditions to land management agencies. We hope that, as a result, more accurate information will be available from the Forest Service, whether persons contact the district office or the new Seattle information service.

Property Division

The past year the **Rhododendron Preserve** and **Kitsap Cabin** have evidenced an increased usage. The Players have had rehearsals, performances, work parties, salmon bake and St. Patty's, Halloween and Christmas gatherings. The Seattle and Tacoma climbing classes and the Olympic Community College gave the belay practice area workout.

Other activities included the Alpine Travel Course, The Seattle Caravaners Trailer Group, one church group, one wedding, several work parties, the annual Kitsap Thanksgiving Dinner and an Environmental Education Workshop for the Tacoma Public School Teachers. The women's dorm roof has been completed with volunteer help and with shakes made from Preserve timber. Some wiring has gone underground and the process of replacing the old wood shed, lost from last fall's winds, has been started.

A good snow year (15 feet plus) helped **Snoqualmie Lodge** through a suc-

cessful season. The much spliced rope on the big tow was finally retired near the season's end, after considerable splicing expertise was displayed by the hill committee. The ever popular ski lessons with Jim and Joy Lucas helped maintain the Mountaineer reputation of being the Club of rugged and expert skiers.

The outgoing lodge chairperson, Liz Robertson, satisfied many ravenous appetites with her extraordinary cooking fare. The lodge continues to be a favorite gathering place for many celebrating the holiday season. Folk dancing, as well as the torchlight parade on New Year's Eve, was enjoyed by all.

A continuing effort was put forth to encourage year around use of the facilities. Several organizations have found the lodge to have a quiet, undisturbed atmosphere in which they can conduct group meetings during the summer. It is also a convenient location for a base camp from which many popular climbs can be obtained.

Stevens Lodge celebrated another successful year, lots of snow and a full lodge almost every weekend. The Stevens Pass Sewer District finally completed plans and the Board of Trustees authorized the necessary funds for lodge hookup.

This fall the Mountaineer skiers who use the Stevens Lodge showed their interest by contributing to three very successful work parties. Major projects this year were: rebuilding bunks to accommodate the new mattresses; placing three new outside lights; tearing down the back portion of the outhouse; reorganizing the basement for the future indoor plumbing facilities; and facilitating winter access to the water supply.

At **Meany Lodge**, the exceptional snowfall allowed the ski season to run from Christmas to May 1. Attendance was good. Members enjoying Meany included skiers, snowshoers, cross country skiers and people just wanting to get away from the city to play in the snow. Cross country skiing continues to be a strong activity at Meany.

A ski school has been started at Meany and is proving to be popular. With the successful advent of the little tow, the ski school will be expanded to include the beginning skier.

The work parties in September, October and November were well attended and productive. A section of the road used by the sno-cat was relocated. The tow hut was resided and decorated in a Bavarian style.

A year with a below normal amount of snowfall required less effort by weekenders in the operation of **Mt. Baker Lodge**. The snow level did not reach the roof at the rear of the lodge, as it has in previous winters. Attendance was down during the winter season. Summer usage increased making for a profitable operating year. The area is skiable the year round as evidenced by a crowd of 600 skiers one fine August day.

Many diverse groups made use of the lodge this past year. Some are Mountaineer groups such as the Swingles, Players, Ski Schoolers, Cross Country Skiers and Snowshoers. Non-Mountaineer groups such as the B.C. Mountaineers, Alpine Club of Canada, College of Pacific Astronomy Club,

youth organizations and church groups kept the lodge solvent.

Painting, generator maintenance and firming up our access road were some items completed at our fall work parties. A good turnout at our last work party in October made the lodge ready for the coming ski season.

Publications Division

The sharp inflation of 1975 with its effect on all publication activities gave cause for serious concern and created the need to plan alternate approaches in order to maintain the quality and service of each of the Division's activities. The Board of Trustees approved a major format change for the *Bulletin* (The Mountaineer) in an effort to offset rising costs. However, due to unexpected circumstances, the change was not made. Other possibilities of meeting the cost problems are being considered.

The **Bulletin** underwent a change of editors in mid-1975 and, thanks to the help of numerous elements of the Club and the devotion of some earlier editors, the bulletin continued to be published on time while a new editor was found and was learning the ropes. Many members of the Club may doubt the "on-time" since it became a not uncommon cry to hear, "I haven't got my Bulletin yet!" The Business Manager, unable to withstand the plethora of complaints, launched an intensive investigation and found a change in the practices of the U.S. Postal Service to be the problem. This forced the printing date of the Bulletin to be earlier in the month which, in turn, forced the Editor to maintain a very tight and rigid deadline; but more members were getting their Bulletins in time to sign up for the monthly activities.

In an effort to offset the rising costs of publications, a decision was made by the Division to discontinue providing a **Roster** for all Club members, providing them only to committee persons and to those members who would make a specific request. The Board of Trustees vetoed that decision and an "austere" **Roster** was provided to all Club members. In hindsight, there was general agreement that this was the best solution.

The **Annual** did not escape the pressure of the budget either. Hence, the 1975 Annual was somewhat thinner than usual, but it did achieve two significant milestones: it was published on time, and it maintained its high standard of quality. The issue is blessed with a fine collection of articles and pictures; noteworthy among the latter are some outstanding sketches by Ramona Hammerly. The Annual continues to be the basic source for maintaining the Club's history of all activities as well as the year's summary of its administration and its financial status.

Bringing out a new book on the heels of the Christmas selling season would seem a sure way to a commercial flop, but the tremendous acceptance of "Snowshoeing" was typical of the good year to come for the **Literary Fund Committee** (LFC). During 1975, the LFC continued its furtherance of the Club's purposes by publishing "The South Cascades: The Gifford Pinchot National Forest," a pictorial book with a strong conservation message; and "The Unknown Mountain," a reprint of a classic story of the early exploration and

climbing of Mt. Waddington and the British Columbia Coast Range.

Many of the LFC's long-standing and popular titles were updated, revised and reprinted so that, at year-end, the list of Mountaineer titles in print totaled 24. Sales continued at a high level throughout the year. Reflecting the increasing costs of keeping a title in print, the LFC chose to raise retail prices on the popular hikes guides and selected other titles, beginning in the third quarter of the year.

The Mountaineer **Library** has again experienced a year of continued growth and use, proving itself to be a valuable resource to the Club's members. While mountaineering materials received the greatest use, the books, periodicals and pamphlets relating to the wide variety of out-of-door and recreational interests of The Mountaineers were also, again, in great demand.

Approximately 80 titles were added to the collection. Sixty volumes were removed from and returned to the Library after receiving "first-aid": badly needed repairs to spines, covers and pages. The Mountaineer Foundation Library, housed in the Club room Library and initiated with the bequest of Mrs. Irving Gavett, has continued to grow into a comprehensive collection covering conservation- and ecology-related issues and has received much borrower use.

In addition to the new paint job the Library received, two new tables were acquired and placed in the Library, and monies were allotted for the purchase of a new free-standing floor shelving to house the ever-expanding collection.

Everett Branch

Pamela Zue

The Everett Branch continues to grow, with a membership count of 378. Along with growth in membership, we are also expanding in activities.

This year for the first time the Everett Club offered an Alpine Travel course, conducted by Hal Brown. The course's purpose was to teach fundamentals of off-trail hiking, "scrambling" on steep rock and snow slopes and the use of the ice axe. Requirements for graduation were attendance at all six lectures, two field trips, and the successful completion of three scheduled scrambles, one of which was an overnight trip. Ten people from an initial registration of 36 completed the requirements. We are looking forward to next year and an increased number of graduates.

1975 was an outstanding year for climbing in the Everett Branch. Of 37 scheduled club climbs, 28 were successful, including climbs of Mt. Shasta, all of the Six Majors, and seldom-climbed Mt. Bullon. For the first time in its 24-year history, it was necessary to limit enrollment for the Basic Climbing course, which was conducted by Robert Burns. Of 119 applicants 65 were

accepted, and 36 of these students were graduated from the course, which is the largest graduating class to date.

Music has played a traditional role in our annual outings throughout the years. The Salmon Bake, the Steak Walk and our potluck dinners are always followed with music by our faithful musicians, Steve Philipp and Val Brodine on the accordion and Paul Lund on the banjo.

A tour of the Museum of Natural History and Industry and the display of Trees of Many Lands has been an annual excursion for several years shared by many members. The tour is followed by a short walk in the area and a potluck lunch at Paul and Addie Lund's. The singing of Christmas carols around the fireplace is a natural finale to a seasonal get-together.

This has been a successful year for the Everett Branch, and we are looking forward to enthusiastic participation in the many activities in the year to come.

Olympia Branch

Ron Seibold

The branch membership continues to grow, with our current membership about 480.

The winter activities consisted of numerous snowshoeing trips, with participation by a few but hardy individuals, and our first cross-country skiing trips being planned, but getting off to a slow start with little participation.

The Climbing course under Chairman Ruth Marcy had 37 students and 4 auditors. Of those 37 students, 23 completed all their requirements and received certificates, with 6 more eligible to complete next year. Also, 5 students completed their requirements from the 1974 course. The Club Climbs went well this year with small groups on most climbs, which accounted for a very successful climbing year.

The Hiking course under Chairman Jim McCorkhill had 49 students and 8 auditors. The number of graduates was small this year with only 3 students completing all the requirements and several others very close to completing. Also, 3 students from the previous year received their certificates. Attendance at the field trips was good and participation in the branch hikes was excellent, with many members taking advantage of the trips planned.

Participation in the Bicycling Program under Jim Krehmeyer was moderate, with a small but growing group of enthusiasts taking part in the trips.

The Branch Programs were well attended, and the Family Picnic, which was again catered this year, had about 100 people enjoying the meal and the activities.

At our Annual Banquet, held in late September at the Tye Motor Inn, Six Peak pins were awarded to Gary and Olive Hull, Linda Stretz, Joy Yancey, Don Lund, Ron Granberg, Ron Brown and Gloria Ford. Olympic Peak pins were also awarded to Make Lonac and Ruta Benton (Seattle).

It was a good year for the Olympia Branch with hopes for an even better year to come.

Tacoma Branch

Marge Granger

The Tacoma Branch enjoyed another fulfilling year of activities and continues to grow, with membership over 1100. An irrigation system was installed and natural type shrubbery planted to complete the backyard of the Clubhouse. Spearheaded by Dorothy Newcomer, the backyard became a place for weekday picnics.

Conservation, inspired by Elizabeth Breen, saw Tacoma Branch join the Washington Environmental Council. A joint Tacoma Mountaineer-Tahoma Audubon Society Committee was formed.

Under the leadership of Susan Peterson the Climbing Committee experienced another successful year with 50 Alpine Travelers, 78 Basics and 3 Intermediate Climbers receiving graduation certificates. Six Peak pins were awarded to seven climbers with seven earning their first 12 Irish Peak pins, three their 24 Irish Peak pins, one his first 10 Snoqualmie pin, and one his second 10 Snoqualmie pin.

The Annual Banquet, well organized by Carol Knowles, featured Slade Gorton, "By Bicycle from Olympia to Boston." His outstanding presentation was enthusiastically received by those in attendance.

Traditional events were well attended. The Clubhouse was the scene of The Mountaineer Fair under the direction of Mary McKeever. Many families enjoyed excellent salmon at the Salmon Bake organized by Betty Jo Hutchinson. With Sally Lynn directing the Thanksgiving Dinner, Irish Cabin vibrated to an overflow of happy and contented people.

The Kayak and Canoe course enrolled 40 students. During the course, which was organized by Bob Hammond, the students built two kayaks.

The Junior Program was sadly discontinued due to indifference and poor attendance.

A record number of members participated in scheduled Club Hikes and Climbs, Winter Mountaineering, and the Special Outings initiated by Elmer Price. Campcrafters, Geology and Photography scheduled activities throughout the year. Monthly meetings were well attended, with Gwen Williams providing the refreshments.

**THE MOUNTAINEERS
SEATTLE, WASHINGTON**

FINANCIAL STATEMENTS

SEPTEMBER 30, 1975



VOJTA, LEW & RAMSEY
CERTIFIED PUBLIC ACCOUNTANTS

To the Members of
The Mountaineers

We have examined the statement of assets and liabilities and fund balances of The Mountaineers as of September 30, 1975 and the related statement of income and expenses and fund balances and statement of changes in financial position for the year ended September 30, 1975. Our examinations were made in accordance with generally accepted auditing standards, and accordingly included such tests of the accounting records and such other auditing procedures as we considered necessary in the circumstances.

In our opinion, the financial statements identified above present fairly the financial position of The Mountaineers at September 30, 1975, and the results of its income and expenses and fund balances and changes in its financial position for the period specified above, in conformity with generally accepted accounting principles applied on a basis consistent with that of the preceding year.

Vojta, Lew & Ramsey

Seattle, Washington
February 2, 1976

THE MOUNTAINEERS
ASSETS, LIABILITIES AND FUND BALANCES
AS AT SEPTEMBER 30, 1975

Assets

Current Assets

Cash		\$119,077
Accounts receivable Note 1		
Trade	\$ 52,148	
Other	259	52,407
Merchandise on hand Note 1		118,912
Prepaid expenses		9,636
Deposits		6,370
Total Current Assets		<u>306,402</u>

Investments

Joint venture Note 2	1,971	
U.S. Savings Bonds	789	2,760

Property and Equipment Note 1

.....	230,818	
Less accumulated depreciation	<u>139,992</u>	90,826
Land		54,187
		<u>\$454,175</u>

Liabilities and Fund Balances

Current Liabilities

Accounts payable		\$ 13,404
Accrued royalties		11,380
Federal income taxes payable Note 3		1,195
Other taxes payable		1,976
Contracts payable		794
Rental deposits		300
Total Current Liabilities		<u>29,049</u>

Fund Balances

General Fund	\$149,220	
Literary Fund	223,377	
Permanent Building and Improvement Fund	(3,554)	
Permanent Fund	5,000	
Property Fund	3,156	
Haynes Memorial Fund	447	
Seymour Memorial Fund	2,330	
Mountaineers Safety Education Fund	981	
Tacoma Branch	30,031	
Everett Branch	5,849	
Olympia Branch	<u>8,289</u>	425,126
		<u>\$454,175</u>

The accompanying notes are an integral part of these financial statements.

THE MOUNTAINEERS
STATEMENT OF INCOME AND EXPENSES
AND FUND BALANCES
FOR THE YEAR ENDED SEPTEMBER 30, 1975

	General Fund	Literary Fund
Income		
Dues and initiation fees Note 1	\$ 82,854	
Committee Operations — net	4,272	
Sale of books		\$248,296
Gross rentals — club rooms	6,950	
Advertising and subscriptions	312	
Interest income	324	806
Interest income (expense)	(68)	
Miscellaneous income (loss)	461	(58)
Overhead allocation	5,000	(5,000)
Total Income	<u>100,105</u>	<u>244,044</u>
Expenses		
Cost of books sold		147,016
Salaries	24,115	16,979
Publication of Annual, Roster and Bulletin	25,030	
Office and general expenses	14,590	4,924
Postage and shipping	3,863	11,269
Telephone	1,576	
Payroll and business taxes	2,528	3,814
Promotion and advertising		9,889
Election expenses	1,505	
Conservation	3,436	
Seattle and Tacoma Clubroom expenses	14,935	
Other general expenses	5,110	3,250
Total Expenses	<u>96,688</u>	<u>197,141</u>
Income before Provision for Federal Income Taxes	3,417	46,903
Provision for Federal Income Taxes Note 3	952	12,963
Net Income	2,465	33,940
Fund Balances		
Balance, September 30, 1974	146,891	189,437
Transfer of Fund balances	(136)	
Balance, September 30, 1975	<u>\$149,220</u>	<u>\$223,377</u>

The accompanying notes are an integral part of these financial statements.

Other Funds (Note 5)	Tacoma Branch	Everett Branch	Olympia Branch	Total
\$2,502	\$ 3,618	\$1,361	\$1,769	\$ 92,104
	(289)	12	(403)	3,592
	4,506			248,296
				11,456
				312
461	474	232	331	2,628
68				-0-
	43		222	668
				-0-
<u>3,031</u>	<u>8,352</u>	<u>1,605</u>	<u>1,919</u>	<u>359,056</u>
				147,016
	2,144			43,238
				25,030
	776	27	50	20,367
			83	15,215
				1,576
	266			6,608
				9,889
				1,505
				3,436
	3,807			18,742
	896	783	350	10,389
	<u>7,889</u>	<u>810</u>	<u>483</u>	<u>303,011</u>
3,031	463	795	1,436	56,045
-0-	94	112	274	14,395
<u>3,031</u>	<u>369</u>	<u>683</u>	<u>1,162</u>	<u>41,650</u>
5,193	29,662	5,166	7,127	383,476
136				-0-
<u>\$8,360</u>	<u>\$30,031</u>	<u>\$5,849</u>	<u>\$8,289</u>	<u>\$425,126</u>

THE MOUNTAINEERS
STATEMENT OF CHANGES IN FINANCIAL POSITION
FOR THE YEAR ENDED SEPTEMBER 30, 1975

Financing Provided	
Net income for the year	\$41,650
Add income charges not affecting working capital	
Depreciation	14,925
Book value of equipment disposed of	682
Loss on joint venture	58
Financing Provided from Operations	57,315
Reduction of investment in joint venture	1,011
Total Financing Provided	<u>58,326</u>
Financing Applied	
Increase in investment of U.S. Savings Bonds	47
Purchase of property and equipment	7,606
Reduction of long-term debt	624
Total Financing Applied	<u>8,277</u>
INCREASE IN WORKING CAPITAL	<u>\$50,049</u>
Changes in Working Capital	
Increase (decrease) in current assets	
Cash	\$29,965
Accounts receivable	22,242
Merchandise on hand	(9,819)
Prepaid expenses	(2,418)
Deposits	6,188
	<u>46,158</u>
Increase (decrease) in current liabilities	
Accounts payable	(2,107)
Accrued royalties	3,317
Federal income taxes	(1,563)
Other taxes	140
Long-term debt, payments due within one year	(2,699)
Rental deposits	(979)
	<u>(3,891)</u>
INCREASE IN WORKING CAPITAL	<u>\$50,049</u>

The accompanying notes are an integral part of these financial statements.

THE MOUNTAINEERS
NOTES TO FINANCIAL STATEMENTS
SEPTEMBER 30, 1975

Note 1 – Accounting Policies

Basis of Accounting

Assets and liabilities and revenues and expenses are recognized on the accrual basis of accounting with the exception of dues and initiation fees, which are recorded as income when collected.

Accounts Receivable

The Club is on a direct charge off method for recognizing bad debts.

Inventories

Inventories are stated at lower of cost or market. Cost is computed using the first-in, first-out method.

Property, Equipment and Depreciation

Property and equipment are carried at cost. Ordinary maintenance and repairs are expensed; replacements and betterments are capitalized. The straight-line method of depreciation is being used over the estimated useful lives of the assets. The buildings are depreciated from 15 to 30 years, equipment 3 to 5 years, furniture and fixtures 10 years. The depreciation expense for the year amounted to \$14,925.

Note 2 – Joint Venture

A joint venture with the University of Washington Press is accounted for under the equity method of accounting.

Note 3 – Federal Income Taxes

The Federal income tax returns for the year ended August 31, 1973, the short period return ended September 30, 1973, and the year ended September 30, 1974 are subject to review by the Internal Revenue Service. Investment credit is accounted for by the flow-through method.

Note 4 – Special Use Permits

Mt. Baker and Stevens Lodges are built on leased U.S. Forest Service Land.

Note 5 – Other Funds

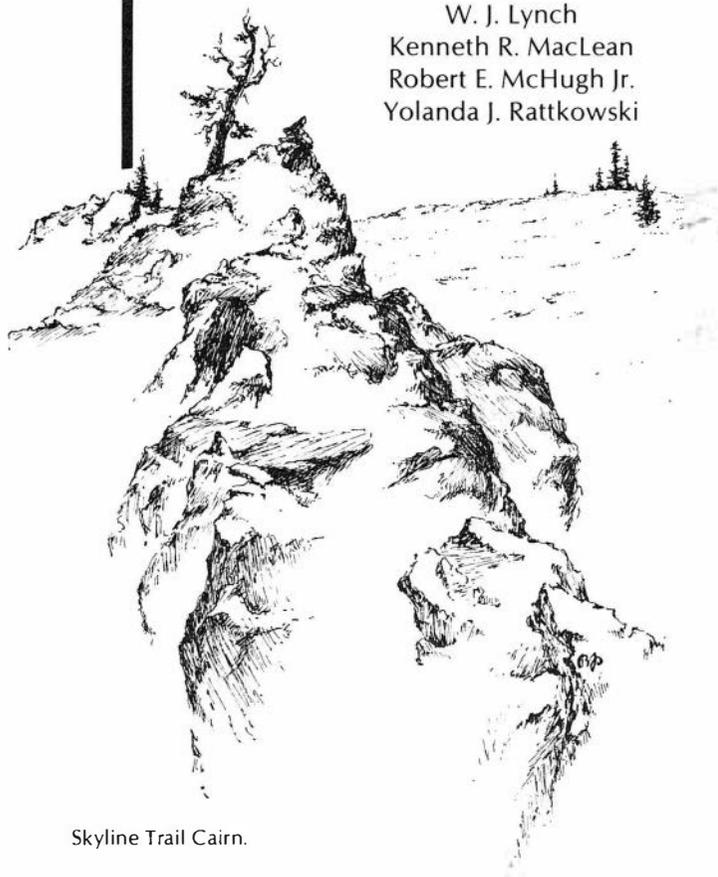
Funds included on Exhibit B under the heading of "Other Funds" are as follows:

- Permanent Building and Improvement Fund
- Permanent Fund
- Property Fund
- Haynes Memorial Fund
- Seymour Memorial Fund
- Mountaineers Safety Education Fund.

IN MEMORIAM

1975

Dean F. Andersen
Burge Bickford
Bruce Carson
Mrs. G. Bruce Deck
Norman Engle
Jeanne Flemmer
Amos W. Hand
Ann E. Jackson
W. J. Lynch
Kenneth R. MacLean
Robert E. McHugh Jr.
Yolanda J. Rattkowski



Skyline Trail Cairn.

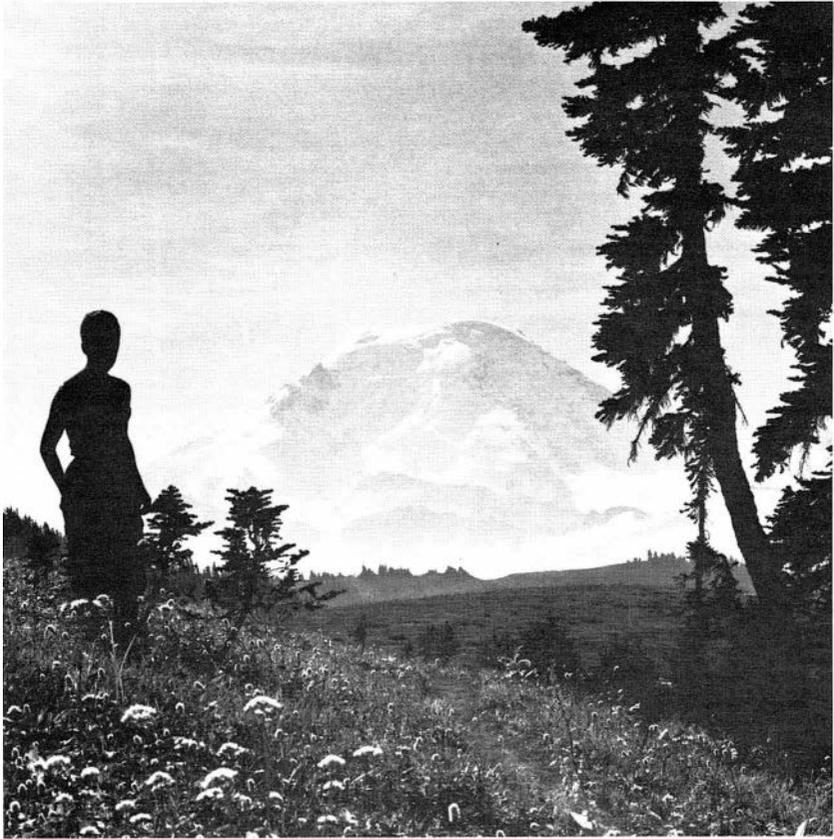
B. J. Packard

Mountaineers Good Night Song

Though like a wanderer,
The sun gone down,
Darkness be over me,
My rest a stone.

Still in my dreams I'll be
Nearer my God to Thee,
Nearer my God to Thee,
Nearer to Thee.

Good night, we must part,
God keep watch, o'er us all,
 where we go.
Till we meet, once again,
 Good Night!



Mt. Baker from North.

Keith Gunnar

