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Table of Contents

MOUNTAINEERING SECTION

MEMBERS ABROAD

ALPINE NOTES AND TECHNICAL CLIMBING

SCIENTIFIC SECTION

CLUB CAMPS, PROCEEDINGS, AND SECTION CAMPS

OBITUARIES

BOOK REVIEWS

Table of Figures

George Bell

Adamant Group from Granite Glacier
(left to right - Pioneer, Stickle, Adamant, Turret and Austerity).
(See article commencing on page 60.)

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Material for the Journal should be sent to Mrs. Don Munday, 373 Tempe Crescent, North Vancouver, B. C, Canada, or to any other member of the editorial committee by November 1st.

Members are URGENTLY requested to assist your Editorial Committee by furnishing articles themselves or by informing the committee as to where articles might be obtained, as your Canadian Alpine Journal is the official record of climbing in Canada.

Contributions (original and one copy) should be typed DOUBLE SPACED.

Photos should be finished with glossy surface and submitted unmounted; do not use paper clips. A preferred size proportion is 5x7 inches. Black-and-white prints should be prepared from colour slides; do not send negatives or colour slides unless requested. Maps, diagrams or sketches (including a border) should be drawn with India ink on good-grade white paper, though photo or otherwise processed copies with dark lines on white background are acceptable; do not use pencil lines or blue ink. Thickness of lines and size of lettering should be such to allow possible considerable reduction to page size; scales for maps must be drawn, not stated in words. Number each photo (or drawing) on the back with SOFT pencil and supply a separate sheet showing typed titles and photographer's names, correspondingly numbered.

Printer's proof will be supplied only if requested. Separates of printed articles can no longer be furnished free; if any are desired, please state required number and estimate of cost will be given.

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MOUNTAINEERING SECTION

Subject-Author Index To Journal Volumes 1-49 (1907-1966)

Copies of this attractively covered 75-page printed Index, compiled by Club Member Frank H. Smith and published in December 1966, is a very detailed informative and useful reference work even when a set of the Journals is not readily available. Dates of first ascents, illustrations, maps, and other data are indicated. Order from the Club Manager, W. C. Ledingham 2974 West 28th Ave., Vancouver 8, B.C. Price $2.50 (plus 5% sales tax in B.C.).

Yukon Alpine Centennial Expedition Team Members For Centennial Climbs

Names of the fifty-six climbers from across Canada and four from the United States, chosen to participate in the Yukon Alpine Centennial Expedition ("YACE") climbs, were announced by the Management of the Expedition early in March 1967.

Twelve teams of four men and one team of four women will attempt first ascents of the thirteen Centennial Range peaks in the St. Elias Range, Yukon. The peaks will be named after each of the Provinces and the Territories, the thirteenth and highest peak to be named "Centennial Peak."

A fourteenth team, consisting of four Canadian and four American climbers, will attempt the first ascent of a major unclimbed summit on the Alaska-Yukon border, to be named "Good Neighbour Peak" to celebrate the centenaries of the Confederation of Canada and the purchase of Alaska by the United States.

One of the most exciting and ambitious Centennial projects, YACE will take place in a mountain range next in grandeur and dimensions only to the Himalayas and the Andes. This biggest mountaineering expedition ever undertaken will get underway on June 19 with the Alaska-Yukon border climb, for which the team members are as follows:

Good Neighbour Peak— 15,700 feet

Canadian Team: Co-Leader: Montague Alford, Whitehorse, Y.T.
Team Members: Les McDonald, North Vancouver, B.C.
Glen W. Boles, Calgary, Alta.
Dr. Alan Bruce-Robertson, Toronto, Ont.
American Team: Co-Leader: John V. Hoeman, Anchorage, Alaska.
Team Members: Daniel R. Davis, Seattle, Wash.
John E. Williamson, Dublin, N.H.
George Denton, New Haven, Conn.

July 8 will be the starting date for the Centennial Range teams:

Centennial Peak — 12,321 feet
Leader: Waldemar P. Broda, West Vancouver, B.C.
Team Members: Klaus Boerger, Calgary, Alta.
Stanley D. Rosenbaum, Ottawa, Ont.
Jean-Robert Weber, Gatineau Point, Que.

Mount Alberta — 10,983 feet
Leader: David Wayne Smith, Edmonton, Alta.
Team Members: Klaus Hahn, Calgary, Alta.
Philip James Dowling, Edmonton, Alta.
Dr. Gerald A. Wright, Lethbridge, Alta.

Mount British Columbia— 10,200 feet
Leader: Ralph M. J. Hutchinson, Nanaimo, B.C.
Team Members: Andrew Gruft, Vancouver, B.C.
Byron E. D. Olson, Kelowna, B.C.
Karl Winter, North Vancouver, B.C.

Mount Manitoba— 11,150 feet
Leader: Patrick Sherman, North Vancouver, B.C.
Team Members: Dr. Raymond Denson, Saskatoon, Sask.
Duncan McDougall, Vancouver, B.C.
Don J. Forest, Calgary, Alta.

Mount New Brunswick— 11,114 feet
Leader: Peter Brian Spear, Calgary, Alta.
Team Members: Robin Lidstone, Newcastle, N.B.
Stephen Anthony Bezruchka, Toronto, Ont.
Christopher Gardner, Ottawa, Ont.

Mount Newfoundland—12,041 feet
Leader: Werner Himmelsbach, Burnaby, B.C.
Team Members: Donald William Soughan, Vancouver, B.C.
Dr. R. H. Morland Roe, Toronto, Ont.
Ian H. Stewart, St. John's, Newfoundland.

Mount Northwest — 10,796 feet
Leader: Dr. Patrick Douglas Baird, Mont St. Hilaire, Que.
Team Members: James Richard Coldwell, Burlington, Ont.
Donald C. Morton, Ontario.
James McLean Ferguson, Toronto, Ont.

Mount Nova Scotia— 10,800 feet

Leader: Robert M. Paul, Vancouver, B.C.
Team Members: Don M. E. Poole, Edmonton, Alta.
Fred C. Crickard, Bedford, N.S.
Maurice A. Tyler, Baie d'Urfe, Que.

Mount Ontario — 12,200 feet

Leader: Helmut Friedrich Microys, Toronto, Ont.
Team Members: Alex J. Norman, Toronto, Ont.
W. Ronald Reader, Ottawa, Ont.
Sev. Heiberg, Ottawa, Ont.

Mount Prince Edward Island — 12,262 feet

Leader: Norman Purssell, West Vancouver, B.C.
Team Members: Albert Parke, Vancouver, B.C.
Brendan M. Moss, Vancouver, B.C.
Christopher J. Smith, Edmonton, Alta.

Mount Quebec — 12,300 feet

Leader: Claude Lavallee, St. Bruno, Que.
Team Members: Denis Gravel, Montreal, Que.
Peter A. Reardon, Montreal, Que.
Peter W. Hutchins, Montreal, Que.

Mount Saskatchewan— 11,387 feet

Leader: Miss Gertrude Lillian Smith, Vancouver, B.C.
Team Members: Miss Andrea Joanna Rankin, Montreal, Que.
Mrs. Helen Butling, Nelson, B.C.
Mrs. Wendy Farris Teichmann, Montreal, Que.

Mount Yukon— 10,600 feet

Leader: Mike MacCallum, Vancouver, B.C.
Team Members: James Worthington White, Toronto, Ont.
Hugo Hohener, Keno, Y.T.
Dr. William Louie, Edmonton, Alta

The third phase of YACE will start on July 15, with the first of two 2-week General Centennial Camps located by the side of the rampaging Steele Glacier. The second camp will start on July 29, and each camp will have a capacity of about 115 climbers.

The brainchild of Yukon lawyer Craig Hughes, the idea of YACE was made possible by the generous financial support of the Centennial Commission, the Fitness and Amateur Sports Division of the Department of National Health and Welfare, the Yukon Territorial Government, the Provinces of Quebec and Newfoundland, and the Northwest Territories. Each of the more than 300 mountaineers participating will pay their own way to the staging area at Kluane Lake, and will pay a fee to help meet the almost quarter million dollar cost of the Expedition.

The project is being co-ordinated by the Alpine Club of Canada, with Eastern Vice-President of the Club, David R. Fisher of Toronto, as Chief Co-ordinator, aided by the following committees: Equipment and Commissariat—R. Donald Lyon, Philip J. Dowling; Climbing Teams and Camp Attendee Selection—Eric C. Brooks, Robert C. Hind, Hans Gmoser, Frank H. Smith (secretarial); Publicity and Documentation—Vera Norman, Joan Greenwood; Financial Manager—W. Campbell Ledingham.

The next (1968) volume of this Journal is expected to present a full account of the results of this Expedition with, it is hoped, illustrations of the principal climbs and other activities.

The Pantheon Range, 1966

Alice Purdey

The expeditionary camp of the B.C. Mountaineering Club for 1966 was held in a group of rugged peaks lying north beyond the Waddington Range, and separated therefrom by Frontier Creek. The only previous mountaineering exploration of this region was by fellow club members Dick Culbert and Glenn Woodsworth (CAJ 1965, pp. 11-13), who gave the name "Pantheon Range" to these mountains. A pantheon is a temple to all gods, and we have continued their system by drawing peak names from deities of various religions.

Bob Cuthbert and Judy Horgan set the stage by leaving Vancouver 2 l/2 days early to transport community and personal gear to Chilanko Lodge at One Eye Lake. Pilot Roger Dane, lodge owner, and Bob made three trips to "Nirvana Pass" (5800 feet) at the head of Calwell Creek to airdrop 53 boxes of gear and food. On the whole, the drops were successful except one carton of cookies was rendered inedible when it landed in the creek. Otherwise, only a few breakages occurred though cans were smashed out of shape.

Early on Saturday July 16, the ten other expedition members (Martin and Esther Kafer, Paul Plummer, Sheila Pilkington, Sieg Werner, Dick Chambers, Jack Bryceland, Bill Wortman, Jim Craig, and myself) assembled at Williams Lake. After shuffling passengers, we eagerly set off for Tatla Lake, approximately 150 miles and 5 hours west along the Bella Coola road. Here we met Judy and Bob who reported on the air-drop operation. South from Tatla Lake we passed through scenic cattle country characterized by wooden gates across the road. Shortly before Middle Lake a locked one stopped us short but we were allowed access through the kindness of the W. Fosters and Mrs. A. Nicholson. As of this year the road is expected to be unlocked, except possibly during hunting season.

A few miles later, at an impassable (for Volkswagens) washout, we camped for the night. Next morning Jack, the only driver with a four-wheel-drive pick-up, shuttled us the few remaining miles to Hell Raving Creek at the southwest end of Middle Lake.

At last we shouldered our loads, commencing one of the most tiring of the packing days. We had chosen to ascend Hell Raving Creek on its southern side to avoid canyons along its lower reaches, and possible canyons on a side creek from the north. As will be described later, we might have had easier travelling on the northern bank.

Ascending a ridge of nasty burn and windfall to about 2500 feet above the creek, we made a long side-hill traverse (wishing we'd been born with the upper leg shorter) to the first major tributary. Our party then descended to camp beside Hell Raving Creek. Travelling was somewhat easier next day as we made a log crossing of Hell Raving (a creek which deserves its name),

continued up its northern bank, then followed the most northerly of its three sources to a col at 7200 feet. This led into Colwell Creek valley and "Nirvana Pass". The 18-mile pack-in had taken about 20 hours.

Tuesday July 19 dawned dull and showery so we spent the day establishing a habitable campsite. "Nirvana Pass" is about a third of a mile wide and boggy in places. Nowhere is it sufficiently level to pitch a tent without landscaping, but it does provide a good base camp.

Climbs from "Nirvana Pass"

Climbing began next day with an ascent of "Astarte" (9800 feet and named for the Phoenician goddess of fertility) which overlooks "Nirvana Pass" from the west. From a plateau glacier below the east face, the summit was gained by two routes. The southeast ridge, climbed by Jack, Bill, Jim, Sheila, and Judy, proved to be straightforward grade 3 rock and snow. An easy gully leading to a col gave access to the northeast ridge which was ascended by Martin, Esther, Paul, Sieg, Dick, and Bob. They experienced good grade 3 and 4 rock with fine exposure. Descent for both parties was via the southwest face and through a southern col to the plateau glacier.

Separate parties next day headed for the two interesting-looking mountains immediately east of the pass. Bill, Bob, Jack, and I set sights on the more northerly of the two, which appeared to have twin summits. Expecting the climb to be very long, and consequently carrying bivouac gear, we gained the west ridge from alpine scrub brush and heather of the valley wall. Almost at once the rock—which from below had appeared inviting—proved loose and tedious. To negotiate short distances required much time and care. By mid-afternoon we were still far from the summit when the party decided a retreat would be in order.

Descent was almost equally time consuming since piton cracks were extremely hard to come by, but eventually a gully on the southern slopes was reached and glissaded. From the base of this gully we observed that the ridge was a series of ups and downs and had at least two major gaps before the summit. From another mountain climbed later, it looked as though the northeast ridge of this peak ("Vishnu", 9900 feet) might offer a possible route. (Vishnu: in Hindu mythology, "The Preserver" is a cohort of Siva.)

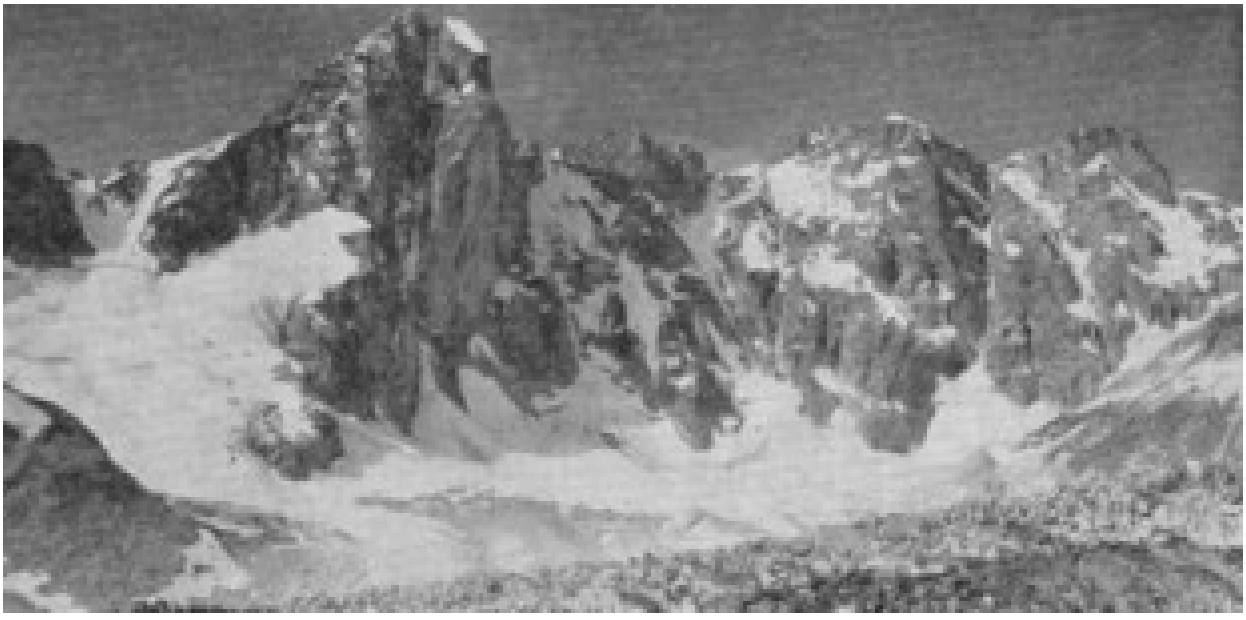
Meanwhile, the other eight climbers were bound for the more southerly of the two peaks (Mt. "Byamee"—Australian medicine man) which from camp appeared to sport an impressive summit block. Shortly beyond camp they spied a grizzly and her three cubs crossing a snow patch a few hundred yards above. Much shutterbugging and yelling ensued until the bruins decided to move along.

Grade 3 snow, a double cornice, and some solid rock gave access only to a sub-peak (9800 feet) north of the true summit. The "block" seemed to be a rotten tower, separated from our northern summit by a deep, narrow gap.

On July 22 the camp again divided into two parties. Jim, Bob, Paul, and I set off for a peak a couple of hours to the south, the western flank being just visible from camp. This summit terminates a cirque ridge with several gendarmes, the most northerly of which is the tower of "Byamee". These impressive towers appear to offer enjoyable climbing but could easily prove rotten. From the cirque ridge (which we crossed mid-way on an easy snowfield) we stopped to marvel at the panorama here featuring peaks from Queen Bess through the Waddington Group to the Klinaklini icefields and beyond. It seemed as though we could almost reach out and touch Waddington and the Serras. Following the cirque on the east now, but keeping to the snowfield, we eventually reached a sand gully leading to a grade 3 rock ridge and the summit of "Danaus" (8700

Martin Kafer

"Mt. Vishnu" and "Mt. Byamee", with Twist Glacier, the western source of Twist Creek.



Alice Purdey

"Mt. Astarte" (9800 feet) north face.

feet). (In Greek legend, Danaus was king of Argos.) Descent and return were via the same route.

Meanwhile, Martin, Esther, Judy, Bill, Sheila, and Dick were enjoying their climb on the third mountain to the north, still to the east of Colwell Creek. They plotted their route through an icefall and glacier on the western slopes to a small saddle on the northwest ridge. Here they split to follow both the rocky ridge and the steep slope beside it (occasionally grade 3) to the summit of "Siva" (9800 feet). (He is the Hindu god of destruction and reproduction; cohort of Vishnu.) From this peak they had an excellent view of the northeast ridge of "Vishnu".

The following day our routine changed. For some reason everyone overslept so a rest day was declared by general consensus. However, in the afternoon Dick, Esther, Sheila, Bill, Jim, Sieg, Judy, and Paul shouldered their gear and packed south down the north fork of Twist Creek for about 2 miles, thence an equal distance up a tributary to the west. Here they established camp.

Clouds that had been gathering ominously on July 23 broke loose that night and rain continued next day, giving us our first bad-weather climbing day. Still at "Nirvana" and restless from a day off, Martin and I decided to attempt an easy-looking peak northwest on the cirque ridge from "Mt. Siva". From the north moraine of the "Siva" glacier, a system of easy gullies was ascended to a gap in the misty south ridge. Progress was impeded by looming towers so we descended a few hundred feet and traversed to a probable-looking gully which fortunately led to the summit: "Osiris", 9000 feet, named for the Egyptian god of the lower world and judge of the dead. Rain had meanwhile given way to quiet snowfall which lent a peaceful winter air to the scene. Descent held in store a welcome surprise—a 2000-foot continuous gully allowed us to plunge-step and glissade back down to the moraine. Our return to camp was light-hearted although soggy-skinned.

Weather was drizzly the following morning but clear in the afternoon so we used the time to dry our wet clothing.

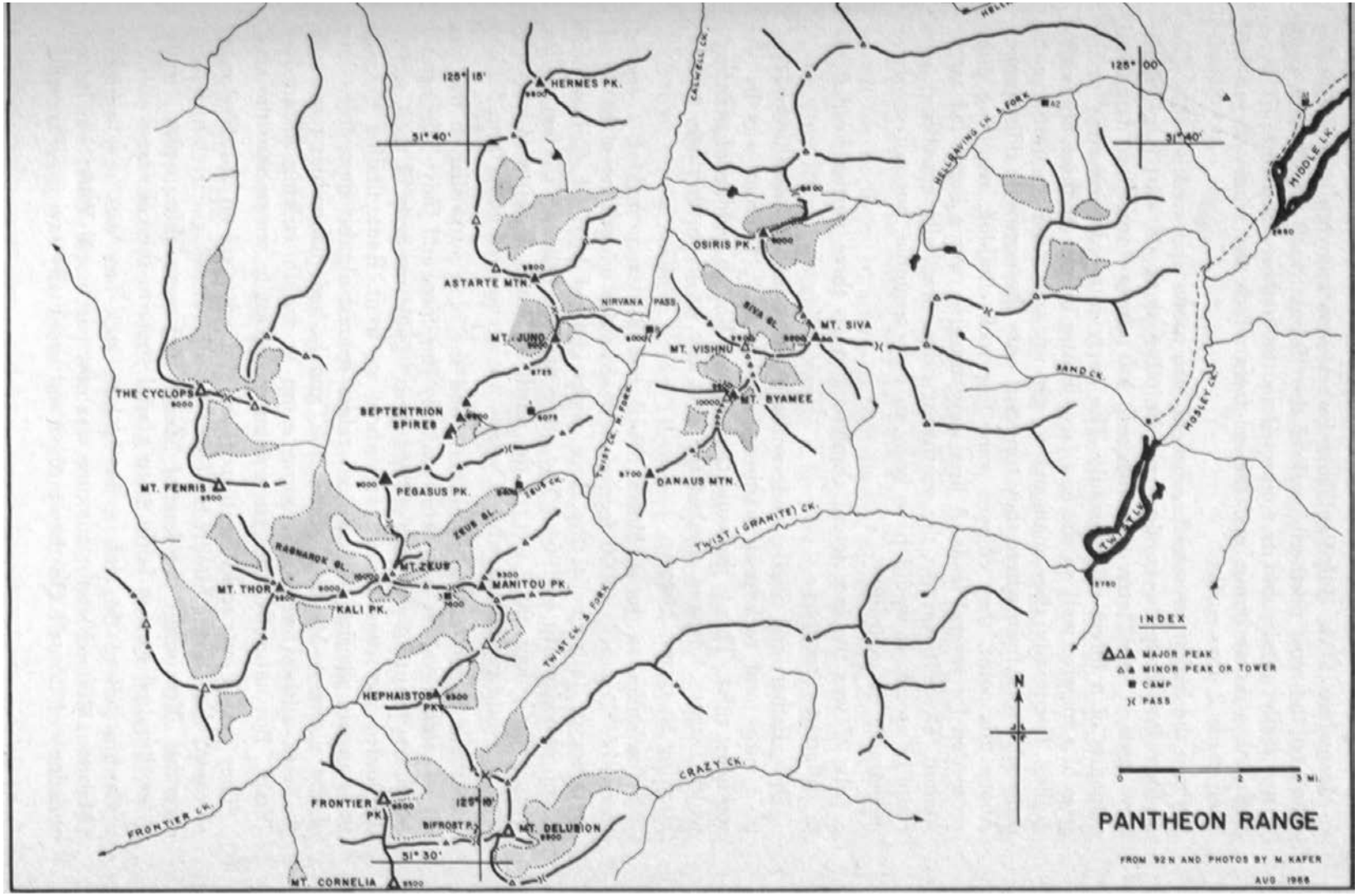
July 26, the four of us at Nirvana Pass decided to make a second ascent of "Byamee" and a possible attempt on the tower. However, when it required an interminably long time to move over only 50 feet of very loose rock on the ridge, and when the perch on which Jack was sitting during lunch abruptly disintegrated not once but twice, we decided that a hasty retreat was in order—and the hastier the better.

Quite a different type of mountaineering was in store for us next day— a long trek (16 miles return) to the most northerly prominent peak on the western side of Colwell Creek. We followed the old route to the base of "Astarte" glacier. Veering north we traversed two ridges, boulder-hopped for 2I/2 miles up a massive moraine, wandered through beautiful alpine meadows and eventually, after some final scrambling up the southwest ridge, reached the summit of "Hermes" (Greek messenger god, 9800 feet). On return we dallied for a quick, refreshing dip in an ice-water lake sporting the reflection of the sheer north face of "Astarte".

July 28, the last climbing day, Jack and I remained in camp with injured knees while Martin and Bob spent a relatively lazy day on "Mt. Juno" (9000 feet). This peak lies a short distance to the southwest of "Nirvana". The pair approached from the east shoulder of "Astarte" and gained the summit by walking up the north ridge. Much to their dismay they discovered a cairn in which the names of some of the members of Camp One—including that of Martin's wife—were entered. Somewhat disappointed, they descended the east face and a pocket valley.

Climbs from Camp One

Meanwhile, those at the valley campsite were having a climbing heyday. They were located



M. Kafer

Sketch of Pantheon Range

near four fine-looking rock towers, the "Septentrion Spires". On these was encountered perhaps the best climbing of the camp.

July 24 dawned with a light rain but Dick, Esther, Bill, Jim, Sheila, Sieg, Judy, and Paul left camp headed for their prime objective, the highest of the "Septentrion Spires" (9500 feet). After crossing a couple of snow patches alternating with rock and heather, the group gained an upper snowfield on the eastern slopes. Here they roped up, crevasses being apparent. From a bump above the col northeast of the spire, their route appeared steep but fairly short. Accordingly, all left their spare clothing and ice axes at the col, expecting a fast return trip before the rain got worse. Two easy leads on rock had been completed when the ridge ended in a short drop to a narrow saddle. Beyond, was a partly filled ice gully that became steeper and steeper; the summit couldn't even be seen. About this time the rain was turning to snow so Jim and Judy decided to return to camp. By the time the summit eventually was reached (several hours and many rope lengths later), the rock was plastered and everyone was shivering violently, soaked to the skin.

Descending back into the ice gully, the 100-foot rappel unfortunately ended in the middle of some hard, steep ice. With belay and some manoeuvering, everyone managed to get down safely to the col whence record time was made back to camp. The persistent rain had foiled Jim's efforts to maintain a fire so most of the party headed straight for their dry sleeping bags without supper. A few hardy souls did brew some tea. (The same storm caused local flooding where we had left the cars and also caused difficulty on parts of the main Chilcotin road.) It is maintained by those who made the ascent that in fine weather the spire would be a very enjoyable grade 4 climb.

The following day (Monday July 25) while Dick and Esther returned to "Nirvana" for more supplies (the group had taken only enough for 2 days) the other six wandered onto two minor peaks at the head of their valley and south of the spires, with the intention of surveying the countryside.

All three remaining spires in the "Septentrion" group were climbed on July 26. Jim, Sieg, Judy, and Sheila reached the two more southerly towers after hiking to the glacial moraine, by-passing the ice-fall, and heading for the obvious southwest ridge. Some easy scrambling led to the first summit. A gap of a few hundred feet, more easy scrambling, and their objectives of the day were won. Return was via the same ridge.

Meanwhile, Dick, Bill, Paul, and Esther were enjoying an exhilarating climb on the most northerly peak of the "Septentrion" group. This peak is not really a spire but is connected to the highest "Septentrion" by a high col, a minor bump, and the col from which the wintry ascent had been made 2 days earlier.

From the higher, crevassed snowfield, two routes appeared possible. One of these lay above the familiar col, the other along the east ridge. Being new ground, the latter was elected, but closer inspection dampened thoughts of a direct ridge assault. The party retraced their steps to the base of a massive wall on the east face, broken by two or three uninviting gullies. Eventually they managed to get up and out of a rotten gully onto solid rock from where they traversed onto the northeast ridge proper. Above this point, they enjoyed some fine rock climbing, requiring piton protection for several leads. A final easy traverse over a bump led to the summit. Descent was via the southwest ridge, originally considered as a route of ascent. It would have been an easy scramble, but not nearly so memorable or exciting.

July 27 was the last actual climbing day so three parties headed out in different directions.

Dick, Esther, and Sheila made an easy ascent, via the southwest ridge, of a snow and rock peak southeast of "Astarte". Descent was by the southeast ridge. This is the same peak (Juno: Roman goddess of marriage) which Esther's husband climbed the next day via its north ridge,

without knowing its recent history.

A few miles to the southwest, Paul and Bill were making a second ascent of "Pegasus" (9000 feet, named after the winged horse in Greek mythology). It is one of the three peaks claimed by Dick Culbert and Glenn Woodsworth in 1964. (The other two are Fenris, 9500 feet, to the west, and Cyclops, 9000 feet, to the north of Fenris. Fenris was a special wolf in Norse mythology while Cyclops was a one-eyed giant from Sicily.) But the biggest ascent of the day, and the most surprising to the rest of the camp members, was being made by Jim, Sieg, and Judy. Throughout camp, the beautiful east face of "Mt. Zeus" (supreme deity of the Greeks) dominated the scene almost everywhere we went. Route-finding through the hanging glaciers and corniced ridges seemed almost impossible. Four of the climbers—Martin, Esther, Bob, and I—had planned to remain in the area a third week and move camp to within striking distance of "Zeus". But naturally, the others wanted at least to reconnoitre the area. They passed over rocky heather slopes, through a col on the ridge south of camp, then down hundreds of feet to the "Zeus" glacier which they ascended. Now under the face of "Zeus" they were able to plot a route a few hundred feet up fairly steep glacial snow to the col east.

On the left of this col, a fine-looking rock face was very tempting (Manitou, climbed later), but time was now past noon. What was behind this flank of "Zeus"? On they pushed and eventually saw it—a snowfield.

Pleasant, heathery terraces, the snowfield, a steep snow tongue to the rocky southwest ridge, an interminable boulder field, and the 10,000-foot summit was theirs. The most prized peak had been won. Yet all agreed what a shame it was that such a magnificent mountain offered so little resistance.

The Camp One climbers packed back to base at "Nirvana" on July 28 and everyone began preparations for departure—eight for the journey-back to civilization and four for the journey to the "Zeus" valley.

A light rain greeted us on the morning of July 29, in empathy with the moods of those who were leaving. As decisions were made about which "extras" should be jettisoned, and as packs were readied, one could note a loss of the enthusiasm that had accompanied the packing two weeks earlier.

Finally, excuses for dallying were depleted and backs were turned on beautiful "Nirvana". On the first day, essentially the same route was followed as on the second day in—through the high col behind "Osiris", down the northern tributary to Hell Raving Creek and along the creek itself. As the jumble of windfall, river bush, and swamp dictated, their track wove from the water's edge to a few hundred yards back, in search of the best route. Somehow the bush seemed to have grown much thicker and more unpleasant over the past couple of weeks.

Finding that the original log crossing had been destroyed by swift high waters, the group pressed on until they camped short of the canyons beginning on the northern banks. There were already cliffs on the southern banks, cut by deep side gullies which would prove troublesome to the other party on their way out a week later.

Next morning they reached the major tributary, which had originally influenced our decision to avoid this bank of Hell Raving Creek. However, only a few hundred feet had to be gained before descent via a steep dirt bank could be made into the tributary. A log-jam crossing was easy. Up another steep dirt bank and the party was home-free. By paralleling the main creek on a vague ridge crest, but still amid the typical B.C. coastal bush, they eventually reached the ridge nose leading to the road and civilization.

Generally speaking, it is debatable which route might be chosen if we were to go into the area again. The Pantheon Range now has a fond place in the hearts of each of us who was there, and it still has much to offer in the way of virgin peaks and new routes.

More Of The Pantheon Range.

Martin Kafer

Our camp on Nirvana Pass looked forlorn and empty after the eight climbers had left for home; only Alice Purdey, Bob Cuthbert, my wife Esther, and I remained. Unfortunately we had delayed unpacking the food boxes reserved for the third week until the others had left. Thus we didn't have a chance to trade the 15 packages of noodles for some oatmeal or other cereal and were reduced during the following week to noodles (warm) for breakfast and noodles (hot) for supper. In spite of this we persisted with our plan and abandoned Nirvana Pass for a high camp at the base of Mt. Zeus.

At first we followed the plastic markers placed the previous week down the boggy meadows of Twist Creek (north fork) and eventually turned up into the valley leading to the Septentrion Spires. An indistinct and heavily grizzly-scented trail through thick timber forced us into very slow progress; many wailing anti-grizzly noises wildly echoed through the valley. About 2 hours after leaving Twist Creek we reached the site of the previous high camp, whence our route was over easy open slopes and snow patches to a low saddle, from where we found a steep, bushy route down to the end moraine of the Zeus Glacier and a cosy camp spot on some gravel flats. Wood for the camp fire was not really abundant, but could be found here and there in the avalanche paths on the moraine.

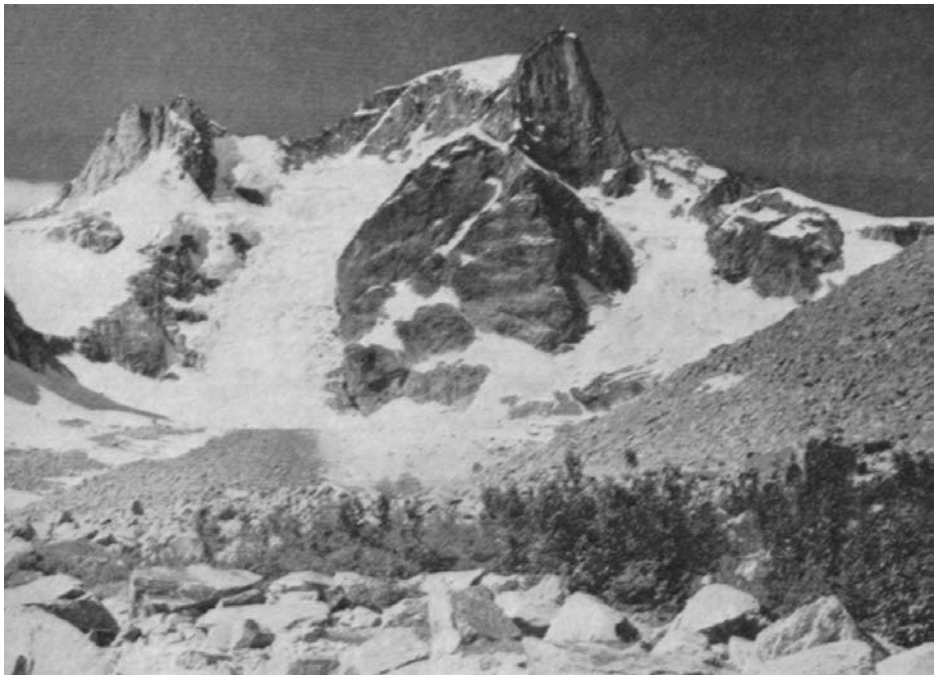
Our first objective from this camp was a rather impressive-looking peak that somehow had acquired the nickname "Big Freddy". The route along Zeus Glacier and up to the saddle between the easterly outrider of Zeus and "Big Freddy" was the one the Zeus party had used. We found the very steep snow quite a bit harder than they had reported and used crampons most of the way. From this 7500-foot saddle we enjoyed a rock climb over a slabby and then blocky ridge to the foot of an elegant snow crest, which leads directly to the peak. Alice and Bob had taken a somewhat different route through the southwest face, which we used on our descent. As the name "Big Freddy" didn't seem to fit the exalted tradition of the local names, we decided to rename it "Manitou Peak" in honor of the North American indigenous deity. The descent from the saddle meant careful belaying and step kicking till we reached the avalanche cone on Zeus Glacier.

After this first experience with the very steep snow slopes leading to Mt. Zeus we felt moving camp to somewhere above the saddle between Zeus and Manitou would be a good idea. We decided to leave the tents and to carry only bivouac gear. Next day we packed up the hard snow to the saddle, where we were fortunate in finding a nice flat rock trench protected from the wind, which we turned into a comfortable bivouac complete with kitchen, wind break and plastic sleeping shelter.

Monday's dawn found us on our way toward the peak of Mt. Thor, whose gleaming twin snow summits we had admired from Mts. Astarte and Byamee. From our campsite we traversed a series of small glaciers on the southern flank of Zeus and after about l l/2 miles of cramponing reached a high sub-peak on the east ridge of Thor. A descent of about 300 feet brought us to a wide plateau and at last revealed the true shape of the double peak. On the last few hundred yards of

Alice Purdey

North Face of "Manitou Peak" ("Big Freddy")



Alice Purdey

East Face of "Mt. Zeus" (10,000 Feet)

steep snow we started to sink in as the sun had warmed up the southerly exposures. The ascent of Thor was surprisingly easy, and the cairn we built was correspondingly large. On the return we made a detour to climb Kali Peak which had been named by Dick Culbert. Ascending the south face we encountered some interesting rock scrambling, whereas the descent turned into an exciting belay manoeuvre down steep rotten snow.

Tuesday's objective was a very prominent flame-like peak directly south of our bivouac which had attracted our attention from Manitou. A half-hour descent to the upper snowfield of Frontier Creek and we were ready to follow a carefully laid out route through the icefall leading to the north ridge of Hephaistos Peak. Once we had reached a low saddle on that ridge we traversed to the southeast ridge of the peak, from where we had a magnificent view of the Waddington and Tiedemann groups, now only about 10 miles south of us. The ridge itself was very solid rock and offered grade 3 and 4 rock climbing right to the peak, where we built the nineteenth and last cairn of the expedition. For the return trip we chose the very steep east face where a narrow snow gully seemed to lead quickly back to our tracks. However, we had underestimated the size of the double bergschrund which forced us into some slow and careful belaying. A side excursion on the return to the peak just north of the saddle we had crossed in the morning came to naught, when the late hour and a sudden deterioration in the weather prevented us from attempting what seemed to be a difficult rock tower.

Next morning Alice, Bob, and I left camp just as the sun touched the highest mountain tops and within 2 hours we reached the top of Mt. Zeus, repeating essentially the first party's route. From the top it became apparent that Zeus was rivalled by the tower of Byamee and was therefore not the only 10,000-foot peak in the Pantheon Range. For the descent we chose an all-snow route on the southwest face and reached the bivouac in less than an hour. The rest of the day was spent packing down the awkward snow slopes to Zeus Glacier, which we then followed back to our tent camp.

The return trip back to civilization turned into three ever longer days of heavy back packing; the first day to Nirvana Pass base camp, where we abandoned all our surplus gear; the second back to Hell Raving Creek over the now familiar high pass north of Osiris, where we followed the tracks of four grizzlies for many hours, and the third day an unforgettable 12-hour fight with the most vicious tumble of Coast Range vegetation, dead and alive variety, back to the road and the car. A few miles along the road our overloaded Volkswagen groaning along at a snail's pace was overtaken by Walter Foster. From then on our worries were over; Walter took us along to his house where he and his charming wife treated us to a midnight snack, offered us the living room as sleeping quarters and sent us off next morning with a magnificent breakfast.

The expeditionary character of this year's British Columbia Mountaineering Club Camp is shown by the fact that Esther Kafer, as an example, spent 11 days packing loads, 9 days climbing, and a "rest day" making camp.

Some New Climbs From The Upper Raleigh Glacier, B.C. Coast Mountains

G. Suddaby

The plan had been to fly to Icewall Lake and walk over the glaciers to Mts. Falcon and Raleigh; but at the end of June 1966 Icewall Lake was still frozen, so we unexpectedly found ourselves faced with a bushwhack up Raleigh Creek. On July 1 we travelled by air to Southgate

Camp at the head of Bute Inlet, and the Cattermole Logging Company generously provided us with transport along its road up the Southgate Valley. Then we entered the bush.[1] Where Raleigh Creek rushes down from its hanging valley there is no choice but to forge through the dense growth on the steep northern side of the valley, cursing the width and height of packs bulging with supplies that a wealthier or wiser party would have air-dropped on the glacier, and collapsing with relief onto a couch of prickles every time a rock slide interrupts the massed phalanxes of firs that always seem to be standing there, trunk to trunk, barring the way. The bush is most conveniently entered quite high above the creek—at the end of a little spur road—and a gradually ascending traverse is made along the side-hill, to converge with the creek where its gradient is less steep. If there is not too much water in the creek it makes a pleasant change to follow its boulder-strewn bed all the way to the gravel flats above. Horizontal progress can be measured by the big rock-fall on the south side of the creek: it moves past incredibly slowly. The brisk walk along the gravel bars gives an appetite for lunch, and some mossy rock bluffs on the north side of the creek are ideal for the mid-day siesta. The bluffs are passed about 250 feet above the creek and a descent is made beyond them; then a dry watercourse filled with alders is crossed, and a steep ascent made into big timber and round the corner into the upper part of this dog-legged valley. From this point on, the side-hill traverse is more straightforward, until eventually the timber is left behind and a steep climb made up the left side of a most impressive rockface just below the snout of the glacier. At the top of the rockface it is possible to pitch camp, to gaze into the awful depths with some surprise at having emerged from them, and to watch enviously the agility of other, more expert mountain goats cavorting on the crags.

We were a party of three—D. Boyd, G. Fish, and myself. On July 2 we marched up the Raleigh Glacier, pitched camp on the highest available moraine just above the icefall, and settled comfortably into our two-man tent. Next day, cameras clicking in the beautiful sunshine, we ascended Mt. Gilbert by way of reconnaissance, and, surveying the mountain panorama from its summit, made climbing plans which would have occupied us for a month, but we had only a week available. We decided to have one rest day, and then to make a determined assault on Mt. Falcon, the unclimbed 9,300-foot peak across the Filer Glacier from Gilbert.

Mt. Falcon

On July 5 we left camp very early and wasted no time crossing the upper basins of the two arms of the Raleigh Glacier. As we traversed the Gilbert Glacier in the dawn light rain began to fall. The sensible thing to do was to turn back; this was no weather for rock climbing on an unknown peak. However, we decided to press on a little further and we followed the pleasant lower part of the northwest ridge in swirling cloud, squalls of rain and flurries of snow.

When we reached the rocks we bore left off the crest of the ridge into a little embayment where we climbed a short wall by an interesting right-foot-behind-the-ear move. Above the wall was a snow gully which we followed for a while before branching out onto the crest of the ridge, which was running parallel to us on our right. We followed the ridge, buffeted by the wind and sweeping fresh snow from every hold, to a beautifully airy and capacious stance overlooking the Filer Glacier. From here a traverse left above the snow gully and a short ascent brought us to another large stance. And at this point the blizzard miraculously ceased, the clouds blew away, and

1 Editor's note: A map of the area described in this article will be found opposite page 112 of the 1953 C.A.J.; we are taking the liberty of inserting here an illustration showing Mt. Falcon, that appeared on page 68 of the 1966 C.A.J.

the sun came out. When the cloud had disappeared we saw that we were less than 100 feet below the summit, and after enjoying a steep slab and a short knife-edge ridge we found ourselves sitting on the top of Mt. Falcon at 9 a.m. In good weather, probably only the last 100 feet of this ridge would be harder than grade 3.

After breakfast we climbed the twin summit to the west without deciding which of the two was the higher, and then, as it was still early and the weather was a little better, we started to descend the long south ridge. This proved to be interesting. It was easier than the northwest ridge, but very time-consuming, so that it was mid-afternoon (and raining again) before we were able to leave the ridge for the snowfields and begin the long traverse round the east side of the mountain and back to camp—a 15-hour day.

D. Boyd

Gordon Fish On The Last Pitch Of The Northwest Ridge Of Mt. Falcon: Fyler Glacier In Background

The Rock Peaks

Around the upper basin of the north arm of the Raleigh Glacier there are a number of easy passes, and, between them, some jagged rock ridges. At one end of this broken horseshoe of rocky ridges is the southeast outlier of Mt. Raleigh, a 9700-foot peak in its own right (which we climbed on our last day in the mistaken belief that it would provide a suitable approach to the southeast ridge proper of Mt. Raleigh); at the other end is "The Cleaver." Between these the ridge rises in peaks of about 9500 feet, any of which looks suitable for a short rock-climbing day. The quality and nature of the rock vary greatly from place to place: the dark rock is generally sound and well-provided with holds; the light rock is shattered and eroded into gullies or slabby slopes strewn with debris. The ridge itself is very narrow in places and defended by gendarmes.

For our rest day (July 4) before the assault on Mt. Falcon we chose to look at the nearest peak on this horseshoe, the one that lies immediately to the right, or east, of the pass that leads to the east face of Mt. Raleigh. The peak has two summits, both of which are probably most easily climbed from the gap between them. However, from below, the gully leading to the gap and the climb out of it look steep, and we decided to climb an obvious rock ridge which curves down from the easterly summit towards the Raleigh Glacier.

Don Poole, from 1966 D.A.J, page 68

Mt. Falcon (Left) And Mt. Gilbert (Right) From The Southwest

We sauntered pleasantly up most of this ridge (grade 2 to 3), and encountered one grade 4 pitch near the top. The lower part of this pitch had quite a fine exposed position and was climbed on small loose flakes, which were always just adequate, and which the third man says were still there after he had ascended. The upper part was rather like a badly constructed dry stone wall, a wall in which each stone weighed about half a ton; this part of the pitch we were also pleased to leave intact. The delicately balanced masonry of our ridge abutted against a steep shaly slope

which had a convenient photographer's aerie halfway up and which led to the main ridge a few yards from the 9600-foot summit.

While eating our summit lunch we watched with interest the clouds of snow and ice which poured down the east face of Raleigh, and listened attentively to the thunder which always followed these exhibitions. Then we descended our peak by an unpleasant gully of avalanching snow and shale just beside our route of ascent, which we joined about 500 feet down when our gully showed signs of disappearing over an overhang into an invisible but unfriendly sounding bergschrund below.

On July 7—after the excursion to Falcon and one day spent digging an ice-cave after a blizzard had torn the tent—two of the party returned to this peak and traversed the main ridge of the westerly summit from west to east.

From the Raleigh col this ridge leaps up in a steep group of pinnacles, which one will probably omit by scrambling up gullies and ribs a few hundred feet to the right, to reach a level part of the ridge beyond the pinnacles. There follow several hundred feet of grade 3 to 4 climbing on the delightfully airy crest of the ridge, with one excursion across a rubbly slope on the right and up a little chimney back to the ridge. Thus one is thoroughly warmed-up when the climbing abruptly becomes harder and more exposed. A narrow pinnacle bars the way. As one approaches, the pinnacle rears up in warning, and one knows that an outflanking movement is necessary. The ridge curves to the right at this point: the right side of the pinnacle is visible, but not the left. What can be seen on the left is rather intimidating—the Styx Glacier 3000 vertical feet away—but nevertheless the right flank looks so steep that one edges round to the left until the stomach sinks at the sight of the black, wet cliff on this wintry side of the mountain. The pockets and bands of snow on the narrow ledges look like gulls nesting on a Hebridean sea-cliff and the swell of the Styx Glacier breaking at its foot induces a seasickness that makes one return with relief to the rejected precipices on the right, which do at least have a summery aspect. The fact is that one has become accustomed to the easy incline of the ridge and to the ample holds which it has amiably provided so far, and it needs a conscious effort to adjust to the greater exposure and smaller holds of the next few yards. However, when one has taken a grip of oneself and been convinced by thee eye of experience that the rock is eminently climbable, one steps out onto the face and, using a toe-ledge and an undergrip, dances lightly sideways until it is possible to climb up to a little gap in the crest of the pinnacle. Here one can throw one's right leg in the direction of the Styx, sit as between the humps of a very bony camel, and sing the praises of the pitch to the second man as he eases himself stiffly off his last stance and prepares to follow.

As a reward for his patience you can now let your second man lead through on a convenient ledge on the left side of the ridge to easier ground underneath the big overhang which you have seen from the bottom of the mountain and which seems likely to be the crux of the climb. After unraveling the knots that have crocheted themselves around you during these manoeuvres you join your companion, and, your appetites whetted by the pinnacle pitch, gird your loins again with slings and surmount the overhang by a crack a few feet to the left of the crest of the ridge. This crack is a steep 100 feet, and it is advisable to belay as close as possible to the overhang, or to use 150 feet of rope from the gap below.

You have now gained most of your altitude, and feeling, justifiably, that the worst is over, you survey the ridge ahead and decide which of the many humps between you and the summit shall be your lunch spot. It is a long way to the top, and there are many ups and downs, but for the most part you can move together, and admire the big black buttress that rears up all the way

from the Raleigh Glacier to within a few yards of the summit. The summit itself is the only place on this ridge that is more than a yard or two wide, so you will undoubtedly take off the rope and roam about for a while, until, as evening approaches, you amble off along your descent ridge. The ridge is still interesting and very narrow. You pass two broad rubbly gullies descending to the right and consider escaping that way (at least one of them does go through easily) but the purists insist that the ridge must be completed, and force you to the final drop (100 feet with a few feet of easy grade 4) to the gap between your peak and the summit reached on July 4th, where you relax before plunging down the easy snow gully back to the Raleigh Glacier.

This climb can be thoroughly recommended. No pitons were used.

July 8 was our last climbing day, but the temperature still refused to drop far enough to make the east face of Raleigh safe. We made an attempt to reach the southeast ridge of Raleigh, but this ridge would be more easily approached through the broad basin that leads up from the foot of the Raleigh ice-fall, so after a wet and windy ascent of the 9700-foot peak beside our camp we descended in the afternoon to the flowers and trees on the little lateral moraine nearly 3000 feet below. On the next day we walked down the glacier and out through the bush to the Southgate logging road where a vehicle was waiting; we drove to Southgate Camp, flew to Campbell River, and were in Vancouver the same night.

Bella Coola Mountains

George W. Whitmore

During the first two weeks of August 1966, three new ascents were made in the Bella Coola region of the British Columbia Coast Mountains by George and Frances Whitmore, Joe and Joan Firey, Gary Rose, and John Chichester. Air service from three different points was utilized and a base camp was established on the south shore of Ape ("Symphony") Lake.

Leaving a small cache at the lake, we spent the first day hauling heavy packs to the top of a "nunatak" 2 miles northwest of Mount Jacobsen. This rocky outcropping was the same one used by Dudra's party in 1953, and it proved to be an ideal campsite. Although the map shows otherwise, it seems to be less than 1000 feet below the Jacobsen-Mongol pass and provides a relaxing heather camp within reach of a number of the icefield peaks. Since the weather was poor the following day, we again left a cache and then moved camp across the icefield to the foot of the southeast ridge of Snowside Mountain.

Our group in 1956 and the Appalachian group in 1961 had both climbed the east ridge[2] of Snowside to within 100 or 200 vertical feet of the summit, only to be turned back by poor snow conditions and lateness of the hour.[3] This year the climb went smoothly up the rocky lower portions of the ridge, with a bit of class 4 climbing to bypass a prominent step. Above the last rocks we gained the crest of a prominent arête of snow which sweeps gracefully down from the summit for over 1000 feet. This turned out to be a very straightforward climb, and the anticipated difficulties never materialized. Crampons were useful on the final few hundred feet, but were not essential. This was only the second time the mountain had been climbed, the first ascent having

2 Mistakenly called "S.E. ridge" by 1961 group; Snowside does have a ridge on the southeast side but it is unattempted as yet.

3 CAJ, 1957, p. 18; CAJ, 1962, p. 54; CAJ, 1966, p. 26.

been in 1956.[4]

We moved camp back to the "nunatak" and from there did a splendid new route on the west peak of Mount Jacobsen, which had not been climbed since the first ascent in 1953. We cramponed up a steep snow tongue to gain the crest of a long spur which runs out to the north of the peak. Some of the party left the snow half-way up in favor of a broad, rubble-covered ledge which led up and around a corner to the left. Although less esthetic, the rock route proved significantly faster. Once on the spur, we traversed along its east side on easy snow slopes, and then climbed steep snow above a schrund to regain the crest at a rocky saddle. From here two rope lengths of delicate climbing took us up a precipitous class 5 arête. Easier rock and then snow landed us at the foot of a broad ice slope high on the right (west) side of the north face. We bypassed the slope on the right by cutting across the head of an impressive ice couloir; this landed us on a rock rib which then led to the top of the ice slope. From here a vertical rock step barred the way. By traversing left around the foot of the rock wall, we managed to enter a snow-ice couloir which cut through the step to its top. An easy snow crest then led right up under the final rocks, and a short scramble landed us on the summit. Crampons were used extensively throughout the ascent.

The climb had taken more than 10 hours, and to return the same way would mean a night out. We decided to attempt the descent via a route we had noticed several years before, when we had seen the southeast side of the mountain. We descended the southeast glacier until we reached a broad band of snow which extends horizontally across toward the saddle between the east and west peaks. Dudra's party apparently had descended the glacier all the way to the icefield, but we traversed toward the saddle by following a ledge system along the lower margin of the snowpatch. Eventually the snow gave out, but the ledge continued for several hundred feet more before stopping. Fortunately we were then able to pick our way down the seemingly vertical face on an obscure series of tiny, interconnected ledges which led to the talus just a short distance below the saddle. Going through the saddle, we traversed across a glacier to regain our route on the north spur. We reached camp after dark, having been gone 17 hours.

Our final climb was a first ascent of the highest Mongol Peak, 2 miles northeast of Ogre Mountain. Which peak (or peaks) Dudra meant the name 'Mongol' to apply to has never been entirely clear, as he placed the name differently on the maps which appeared in the Canadian and American Alpine Journals. Usage has resulted in the name being applied to the three peaks which lie on the divide between Jacobsen and Ogre. In the hope of minimizing some of the confusion, we applied the name "Genghis" to the western (highest) peak, "Ogedei" to the central peak,[5] and "Kublai" to the eastern (lowest) peak.[6] These were, respectively, the first, second, and fourth of the Mongol khans. (The name of the third khan seemed less familiar, and is less pleasing to the ear and tongue.)

Our climb of Mount Genghis took us through the Mongol-Jacobsen pass and around onto the icefield plateau south of the Mongols. We skirted the foot of the south ridge of Genghis and then ascended directly up the southwest glacier, keeping quite close to the south ridge all the way. The mountain turned out to have two summits of essentially equal elevation; a cairn was left on the easier (southeastern) one. Descent was via the southeast glacier, again keeping quite close to the south ridge most of the way.

An observation regarding the weather seems worth noting. This was the eighth year I

4 CAJ, 1957, pp. 14-20.

5 1961 group's "Greater Mongol".

6 1961 group's "Lesser Mongol".

have been in the Bella Coola area, and previously I had always found that the summer weather pattern closely paralleled that to be found farther down the coast and into the north Cascades of Washington. This year we found a distinct difference. While the southern coast was generally dry and warm, with resultant forest closures, we were experiencing a very wet and cold season. The division was rather sharp. A British Columbia Mountaineering Club group in the Pantheon Range to the east consistently basked in sunshine, meanwhile taking note of the foul weather in our direction and the good weather over Mount Waddington and points south. At the same time, a forest fire southwest-ward near Owikeno Lake attested to the proximity of sustained good weather in that direction.

Because it varies somewhat from year to year, the current status of the air service in this area is given here. Dan Schuetze and Darrell Smith of Wilderness Airlines operate a Cessna 180 and a Cessna 185 out of Bella Coola. They also have a three-passenger Stinson, flown by Con York, at Stewart's Lodge on Nimpo Lake. As a separate operation (although under the Wilderness Airlines charter) Roger Dane flies a Cessna 185 from his Chilanko Lodge at One Eye Lake. All of these men have provided good service, and rates per mile are approximately the same.

The Peaks Of The Albert Icefield

Robert West

Precisely on schedule, the bright red helicopter appeared in the clear blue sky above Albert Canyon. It circled the abandoned C.P.R. siding, then landed in a swirl of sand near our mountain of supplies. A hurried conversation with Fred Baird, our pilot, then Art Maki and I climbed aboard. The Albert Icefield trip was under way at last.

We'd thought about climbing here for several years. "An infrequently-visited area," the guidebook says, "of relatively easy climbing. Two (un-climbed) peaks of the Albert Snowfield rise above 9400' . . ."[7] Peggy and I had seen these mountains from Mt. Fortitude in 1956,[8] gleaming white in the distance, and knew then that someday we would have to visit them. This year, 1966, we wanted "new country"—unclimbed peaks, but not necessarily severe ones, for we would have two children and several inexperienced climbers along. The Albert Snowfield seemed perfect, and better still, it was only 12 miles by air from Albert Canyon on the Trans-Canada highway.

In the early days, prospectors are supposed to have used the canyon of Albert Creek as a route from the Incomappleux River north to the mines near Lauretta on the Illecillewaet But the alder-choked valley is now no place to travel. Four of us had tried to reach the snowfields on foot a few days earlier, and had managed to make only about 2 miles in half-a-day's hard going. The helicopter was not just a convenience.

In all, there were ten of us—Peggy and I and our two boys, Davy (9) and Scott (5); Art Maki of Washington, D.C., who had climbed with us often before; three graduate students from the University of Wisconsin, Tom Fiebig, John Freitag, and Mike Petrilak, also Mike's wife Stefi, and 19-year-old Bill Taylor, the expedition baby-sitter.

As we sailed up the canyon, spectacular snowy peaks and glaciers came into view. But our attention was directed below, for we had to select a campsite from the air. Just at timberline, we

7 W. L. Putnam, A Climber's Guide to the Interior Ranges of British Columbia, 4th Edition, A.A.C., New York 1963 ; Cf. earlier editions.

8 R. West, C.A.J., 1957, p. 79.

From Kodachromes by R. West

Davy West On Summit Of "Campion Peak" (8400 Feet).
"Prudence Peak" And "Mt. Justice" In Middle And Right Background.

From Kodachromes by R. West

Unclimbed Southheast Ridge Of Albert Peak From "South Albert Peak".

From Kodachromes by R. West

Crevasses On Glacier On Northeast Face Of "Mt. Justice" Below "Prudence Peak".

found what we were looking for—level alpine country, dotted with small tarns and snowbanks. Our campsite was the most beautiful we had ever seen, a level heather bench between two large glaciers. To the east, and 1000 feet above us, was the Primrose Snowfield.[9] To the west, the bench drops away to the Justice Glacier, 300 feet below; across this, the ice-covered west face of Mt. Justice rises unbroken to the summit.

The helicopter ferried everyone in by noon. As we pitched camp we made plans to attempt Mt. Justice the next day.

Our good weather held, and on August 3 we were up and away, first down to the Justice Glacier, then across the ice and onto the steep glacier-covered northwest face of 9400-foot Mt. Justice. The crevasses are monstrous on the face; it is really a gigantic icefall, but well snowed-in. We threaded our way upward, finding solid bridges, and finally reached a rock-point on the west ridge.

From here the summit looks close—across a bit of snow, then gain the rock again, and up the steep ridge to the summit. But the rock was loose and after some trouble we roped up. We arrived, somewhat shaken, at the virgin summit, 6 hours after leaving camp.

We traversed the peak, descending the snow of the north ridge. Art and Tom continued on to explore some of the Albert Snowfield, but the rest of us traversed back under the summit so as to descend the icefall to camp. On the way down we found a snow ramp leading down into a large crevasse, and we descended on rope, one at a time, into the depths of the glacier.

The following day everyone started out up the grass and rock slopes to the Primrose snowfield. Peggy and Scott turned back at the edge of the ice, but the rest of us continued on to climb the three small peaks around the snowfield. All are easy climbs and can be done on snow almost to the summit. Travelling slowly, we took 3 hours from camp to climb the southernmost, Campion Peak; another hour to the top of Primrose Peak, the highest (8600 feet) of the three; and a further hour to the summit of Cassiope Peak at the north end of the snowfield. The weather was spectacularly clear; we had fine views of the southern Selkirks, and could see far beyond into the Purcell Range.

From various vantage points we had been trying out the walkie-talkie radio which we had brought with us. From the top of Cassiope, we could signal to the park service, although we could not hear their answer clearly. But now we knew that in an emergency we could probably get a message out. We returned to camp in 1 1/2 hours, glissading much of the way on snow.

The next day brought the first of many rainstorms, but we were happy to rest. The 6th, however, dawned cloudless, and Peggy, Tom, Art, and I rose early to attempt the 9900-foot Bain Peak at the head of Bain Brook. This mountain was ascended in 1920 by Allen Carpé, alone, in 3 days from Flat Creek on the CPR.[10]

Our route led onto the Primrose snowfield to Mt. Cassiope, which we traversed somewhat below the summit to attain the long zigzag ridge leading generally northward toward Bain Peak. The ridge winds its way over many pinnacles and gendarmes, consuming precious time. Finally, after nearly 6 hours, we reached the col below the peak. Here are two large cairns, probably built by prospectors during the mining days, 60 years ago.

The crux of the climb is obvious even from afar. It is a steep step in toe ridge, directly above the col. It is sound quartzite, with many holds, offering no real difficulty. Above, we worked

9 All names, except for Albert Peak and Albert Icefield, used for features in this area are unofficial pending action of the Canadian Permanent Commission on Geographic Names.

10 A. Carpe, C.A.J.. Vol. XII, p. 180.

up easier ledges and broken rock of the south ridge. Crossing the small glacier on the south face high, we reached the rock of the summit ridge and scrambled up to the top (9900 feet), 2 l/2 hours after leaving the col.

The summit bears the remnants of a cairn, in which were two pieces of what had been a metal matchcase, holed and partly melted by lightning. One of them held a fragment of paper: Allen Carpé's calling card, placed there 46 years ago and miraculously preserved. We reassembled the matchcase as well as possible and left Carpé's record along with ours in a sealed tin, well buried in a rebuilt cairn.

After descending to the col, we decided to drop all the way down into the valley of Albert Creek, to avoid the rock-ridge which had taken us so long in the morning. It was a mistake, but we were blissfully ignorant as we glissaded down; in the valley, we followed a maze of goat trails leading us ever deeper into spruce-willow bush, through which we grimly fought our way, emerging at last into open meadows 1000 feet below our camp, which was finally reached at 7:30 p.m.

August 7 was mostly a rest day, but Davy and I, along with Mike, Stefi, and Art, did some enjoyable rock and snow climbing on a minor summit east of Prudence Peak. The following day brought rain, giving us a chance to explore a fantastic ice cave, which we had noticed leading into the main glacier from shortly below our camp. The cave begins at the lateral edge where the glacier is passing over an irregularity in its bed, and goes directly in toward the center of the glacier. It is far larger than any glacier cave I have seen or heard of in Canada. For the first 100 feet or so it is large enough to drive a truck through. The floor of the cave is of ice, but lying directly on bed rock, below the active sole of the glacier. We followed the cave for nearly 400 feet before it narrowed so that further travel was difficult. At one point we stood at the bottom of a moulin, looking upward to the opening far above on the surface of the glacier.

On August 9 we set out soon after dawn to reach the unclimbed peaks —three of them—to the east beyond Bain Peak. Mike, John, Art, and I followed the now familiar track to the Primrose Icefield, and this time crossed it between Primrose and Cassiope Peaks, descending 1000 feet on the other side. From here we contoured around the head of the valley east of the Primrose group on steep snow slopes, and crossed below the active icefall of the glacier on the southeast face of Bain Peak. On the way, an idea for the names of the three unclimbed peaks came to us. To the north in the same group lie Mts. Patience and Fortitude—what better than to name the three southern summits "Faith, Hope and Charity"? The central and highest of the three should be Charity Peak, after St. Paul's observation ". . . and the greatest of these is charity".

By 10:30 we were 5 1/2 hours from camp. The ascent proper now begins with a short rock pitch leading us above the icefall. Then we climbed on snow, to hit the summit ridge of 9300-foot Faith Peak as high as possible.

Our good weather was deteriorating, and in a swirling fog we made a tricky crossing of the moat onto rotten rock. Once across, it was not obvious which way led to the summit. We took one rope lead west to the top of a small tower, and waited. After a few minutes, the clouds parted long enough for us to see our peak, far above us to the east Descending the tower, we tackled the west ridge of Faith Peak. On a good day, it would be a pleasant scramble. At 1:30 p.m. we finally reached the summit, another of the goodly number of our first ascents in this group.

Cairn built and stomachs filled, we pondered our next move. Shall we push for another summit? The weather was not improving, but we decided to try to reach the next eastward peak, Charity (9500 feet). We descended the easy rock and snow of the ridge of Faith, which led us

onto a broad, flat snow pass that was successfully navigated in thick fog, with the aid of John's compass, precisely to the east ridge of Charity. This ridge is not difficult, but long. We pressed upward through the murk, and after traversing a false summit reached the top in 2 1/4 hours from Faith Peak, at nearly 4 p.m. We couldn't tarry long, so following our ascent route and glissading as much as possible to the snow pass, we traversed below Faith Peak on snow to the glacier we crossed in the morning, to come out at 6 p.m. just above the rock step of our ascent of Faith. After sidehilling back below Cassiope and wearily climbing up to the Primrose Snowfield in gathering darkness we reached camp at 9:30 p.m.

Singing to the music of Davy's guitar and reading were the major activities during the next week of nearly continuous bad weather. But in what we hoped were breaks, we did some minor climbs. One such day was August 12, when Bill, Art, and I struck off in the direction of the Albert Peaks. The route lies down the Justice Glacier to its foot and across the extensive, freshly deglacierized area below. Comparison with aerial photos shows that the Justice Glacier has wasted exceptionally fast, retreating many hundreds of feet since 1950. Then one ascends alongside the icefall leading down from the trough-glacier to reach the nearly level snow of the glacier itself. This day we climbed the high point of the south retaining wall of the glacier, via its east ridge (easy broken granite). We reached the peak in 4 l/2 hours from camp, the actual climb from the glacier requiring only an hour. The summit (8600 feet) had been blasted by lightning, forming a pool of hardened, lightning-melted rock in a depression in the very summit boulder. On this account we decided to call it "Fulgurite Peak".

Another doubtful climbing day was August 15, when Mike, Art, and I set off in the clouds to climb 9000-foot Prudence Peak, the east summit of Mt. Justice. The ascent is straightforward, following the route for Mt. Justice to the col between the two peaks (3 hours) and then the rocky west ridge of Prudence (40 minutes).

After more rain and snow, August 18 dawned with only broken clouds. Art and I followed the route up to the trough glacier as on the 12th, passing south of Fulgurite and eventually reaching the col just to the west of the peak. Across the col, a large glacier runs westward toward the unclimbed south peak of the Albert Group. We descended the steep snow north of the col and started up the glacier into the clouds. High up, we carefully crossed a steep ice patch, and soon attained the rock of the east ridge. Now it was blowing hard and snowing; for 45 minutes we waited out the worst of the storm. Then upward, along the crest of a sharp steep snow ridge and to the rotten, knife-edge summit ridge of our peak. We moved carefully, for buffeting by the wind is dizzying. At last the summit, at 1:30 p.m., and we did not linger. There was electrification in the air as we descended. On the glacier, fresh snow had nearly obliterated our tracks, but we were able to find the route back to the col and from there to camp, arriving at 7:30 p.m.

On the 17th, the weather finally cleared; Art and I rested while Peg, Tom, and Bill explored the trough glacier, and Mike, Stefi, and John reascended Prudence Peak. I baby-sat for the two boys; we went looking for mountain goats, without success, and then after we had given up, a pair wandered nearly into our camp! On good days like this one hummingbirds were also frequent visitors to base camp. They were apparently attracted to any bright color, and would often strike our jackets.

August 18 was our last day, so Art and I decided to make a last-ditch attempt on Albert Peak itself. To do this, we had to ascend nearly to the summit of South Albert Peak, which we did following the route worked out two days before. The climb seemed much easier in perfect weather. Descending the rotten rock of the north face, we started out on the long ridge connecting the south

and main peaks. The numerous towers are at first easy but become progressively more difficult; we finally reached a point from which we could only rappel or climb down with a belay. With time, we could probably have continued, but it was now 1:30 and our difficulties were just beginning. The southeast ridge of Albert Peak will provide someone some day with a splendid and difficult rock climb, but we decided not to press our luck today. Turning back, we reascended South Albert Peak and spent a leisurely hour enjoying the view.

Returning, we decided to traverse the summit of Fulgurite Peak, which we climbed via its steep west ridge from the col. On the descent, Art dislodged a loose granite boulder the size of a small automobile, which went bounding down the mountainside. He was well clear, but the rockfall which resulted was most impressive. (When the last echo had died away, he said quietly, "rock".)

For further variety on the return, we came up the moraines along the west edge of the Justice Glacier. Here we found half-buried logs 18 inches in diameter, far bigger than any timber now growing so far up the valley, had these persisted since a time when the climate was warmer? If so they predate the "little ice age", and must be at least 500 years old

Nearly all of our objectives had been achieved and we were glad to stake camp the next day. The weather was perfect for the helicopter flight, and we were soon flapping out over the Justice Glacier and down to the railroad. Here we were warmly welcomed by the Woolseys, the last family living in Albert Canyon. In September they too moved away

Mount Thor [11]

(Monashee Mountains, B.C.)

Dave Parfitt

Last fall, when Helen Butling suggested climbing Mt. Thor as an ACC Kootenay Section trip this summer, and appointed Jack Oswald and myself to investigate the area to find a route, the mountain meant no more to me than a name and an approximate location. Studying maps during the spring to find a suitable approach, that by way of Arrow Park and Pingston Creek seemed most favourable. However, a Celgar official, approached for information on roads in the area, recommended the road system from Sidmouth and produced a map substantiating this.

Mt. Thor is in the Gold Range of the Monashees, west of the head of the Upper Arrow Lake, B.C. The massif consists of a ridge of peaks running east-west, separated by deep chasms, with the easternmost peak (9673 feet) being the highest. "Cheerful as sharks' teeth" is the way the peaks to the west were described to me in a letter from the Rev. Joseph L. Smith who had seen Thor from the air, and it is a very apt description. The summit ridge drops less steeply down on the east to a snow-covered col from which a secondary ridge of peaks sweeps first northeast, then, after another small col beyond the peak, northwest, lower but equally ferocious in aspect. The northwest ridge can be easily gained from the east side where it extends above a snowfield contained in a basin between the ridge and an outcropping peak to the northeast.

Thor Creek has its source in a small lake to the north of the mountain and flows east into Pingston Creek which flows southeast, veering south from its confluence with Thor Creek and flowing parallel to the Upper Arrow Lake. The first task of a reconnaissance party would be to bridge these two creeks.

11 Reproduced by permission from the A.C.C. Kootenay Section's Kootenay Karabiner. It is claimed that Mt. Thor was first climbed in 1908 or 1909 by Andy Symon and Peter Gibeau.

With the climb scheduled for the weekend of July 10, 1966, we decided to do the reconnaissance on June 18-19. On Friday evening Bob Dean, Roy Hopland, Jack Oswald, and myself drove to Galena Bay and settled down to wait for the ferry. We were scarcely in our sleeping bags when a brush-clearing gang returned to their nearby camp, presumably from an evening at the pub in Nakusp, and proved to be noisy neighbours.

In the morning we awoke just in time to strike camp and catch the first ferry. We drove as close to the mountain as we could get on Celgar logging roads, then spent the rest of the day bridging Pingston and Thor Creeks and slashing a trail through the bush. Pingston Creek was bridged at a narrow place by Roy and Jack using only a hatchet but Thor Creek gave us more trouble. It was uniformly wide and fast flowing and Bob had left his chainsaw in the car. Taking turns, we attacked a large tree on the bank with Jack's rather blunt double-bitted axe and the hatchet.

We were about half way through the task when the axehead parted company with the handle and disappeared into the creek. Rather than hike 3 miles to get the chainsaw, we kept on pecking away with the hatchet until the tree fell. It didn't make a very good bridge as it broke at the far bank and sagged into the creek swollen with the spring run-off. We returned to the road where we camped at about 4000 feet.

At 4:30 next morning we set out. Bob carried the chainsaw as far as the Thor Creek bridge and took it across, intending to build a new bridge on the way back. We made good progress up through the bush into the basin after the frustrating delays involved in belaying each other across the bridge. By 9:30 we were at the col and decided to attempt the climb, but the weather deteriorated and we had to turn back at the small col (where the ridge swings northwest) by 10:30 a.m., with wet snow falling and a thunderstorm approaching from the northwest.

Before we arrived back at the creek it was raining hard. Once there, Bob selected a tree, undercut it carefully, and sawed it nearly through, but there was no movement from the tree so we cut some wooden wedges and drove them in, also without effect. Bob cut even further with the chain-saw so that the tree was all but separated from and balancing on its stump. We looked at each other with consternation. Just then, a light puff of wind fanned the forest and our tree fell with a resounding crash—the wrong way! Bob finally selected another tree, a giant on our side of the creek, and cut half way through it before the chainsaw coughed and died. Out of gas! We crawled across the bridge muttering imprecations against chainsaws and their owners, and were soon en route for home. To warm up, we waited for the Arrowhead ferry inside the waste burner at the sawmill, which was shut down for the weekend. Despite the fact that Thor, shrouded in cloud, looked as remote as ever, we felt pleased with our reconnaissance, certain that we had located a route to the summit.

On the 9th of July, a party consisting of Bob Dean, Graham Hollins, Roy King, and myself arrived and did some more work on the trail. Again we camped at the road but this time started at 2:45 a.m. on the 10th. It was a warm and very dark night and we had some difficulty finding our route through the bush by the aid of headlights. We were able to dispense with the lights about 3/4 hour after crossing Thor Creek and then made good progress, but to no avail, for we were turned back by a snowstorm and very limited visibility during the morning. However, we did find that we could easily climb down to the snowfield which we had to cross to gain the summit ridge.

On August 6th, Graham Hollins and myself, accompanied by Chris Kopczynski and John Roskelley of the Spokane Mountaineers, arrived in the area. This time the plan was to bivouac above timberline. At 5 p.m. we chose a spot at the edge of the snowfield in the north basin at 7400

feet. The weather was cool and clear, but a strong wind led us to build a stone wall for shelter before turning in.

We set out up the snowfield to the col at 4:30 a.m. and then turned right onto the rock ridge. A few hundred feet up the ridge we traversed along its side and then descended to the snowfield below the summit. After crossing the snowfield we had 1000 feet of rock ahead of us, which was mostly steep scrambling, although some belaying was necessary.

On our reaching the summit at 10 a.m. John and Chris built a huge cairn in which we placed a record of our climb. The weather was perfect and we stayed an hour. To the south, beyond the rugged outline formed by the chain of Mts. Burnham, Grady and Thor, we could see the Pinnacle Peaks. Further east the Valhallas were visible, while to the northwest the snowy peaks of Cranberry and Blanket Mountains shone in the sunlight. The northeastern and eastern horizons were rimmed with peaks whose names we did not know.

During our descent we had a harrowing few minutes high in the basin, where Chris, John, and Graham decided to glissade from the col down the snowfield. The first two made it safely but Graham fell and, losing his ice axe, slid down the snowfield at a terrific rate, fortunately away from a large rock down below where Chris and John were waiting. As soon as they saw what had happened they moved out to intercept Graham, who came to a halt abreast of the rock, unhurt, but shaken by the rapidity of his descent. This was a lesson to all of us, namely, don't glissade unless there is a perfectly safe run out, don't glissade without gloves on and, if you fall, roll towards the head of the ice axe and hang onto it. The wrist strap was missing from Graham's axe at the time but even had it not been he would have lost his grasp of it. I retrieved the axe on the way down.

After reaching our bivouac site at 2 p.m. we hastily packed our gear and cleaned up the area, then made a fast descent of the rest of the bowl and the bush below it, arriving back at our cars at 4:30 p.m. Here we parted company, Chris and John to drive home via Revelstoke and the Okanagan and Graham and myself to catch the 6 p.m. ferry at Arrowhead.

Much credit is due to those who took part in the two unsuccessful attempts but who didn't take part in the third, for the useful groundwork which they put in, making it much easier for us on the third try. We believe Mt. Thor was unclimbed prior to our ascent.

From Mt. Sir Sandford To Fairy Meadow

Jo Kato

Until recently, climbing in the Northern Selkirks has been rather inaccessible. However, in the past two years, with much effort especially on the part of Ben Ferris and Bill Putnam, two new climbing huts have been constructed, one at Great Cairn close to Mt. Sir Sandford, and the other at the upper part of Fairy Meadow. With these two facilities, plus the modern use of helicopters, it has become an easy area to enter and a highly desirable and challenging region for climbing.

Hans Gmoser, Scipio Merler, Robi Fierz, and I were lifted by Bullock's helicopter on July 18, 1966. The first flight of two passengers landed at Fairy Meadow with food and supplies and returned to the Great Cairn Hut where the party assembled.

This hut is of stone and mortar construction with screened windows. There are six bunks with foam mattresses, and dishes and cooking utensils. There is a wood-burning stove. Candles are needed. There is an axe and saw.

The weather was very wet in 1966, and after being stormed off Mt. Sir Sandford, we finally

persevered the next day and, planting willow wands on the upper glacier in a white-out, we reached the summit at 10 a.m., having left the hut at 3:45 a.m. in the dark. Our route was a variation of the Michael route. We stayed for only 15 minutes on the summit and were back at the hut at 2 p.m. The continually wet weather with a low ceiling prevented our attempting the Blackfriars.

On July 23, 1966, we cleaned up the hut and left with packboards for Fairy Meadow starting at 6:30 a.m. Azimuth Notch was reached at 8:45 a.m. where a good view of the south aspects of the Adamant Range was first seen, together with the Gothics. Thor Pass was attained at 11:30 a.m., and after crossing Friendship Col (which is marked incorrectly on the map), a descent was made to the upper portion of Fairy Meadow where the hut stands at 6500 feet.

This hut, the construction of which is described in CAJ, 1966, pp. 139-40, is of Pan-Abode construction with an aluminum-sheeted roof. It has two bedrooms, each with six bunks all with foam mattresses, and a large sitting room with a wood-burning stove. There is an axe and saw and a propane-cartridge lantern. There are many large pots and pans but no utensils or dishes except large plates. Running water with a tap and double sink below bright double windows covered with screening make kitchen chores very light. This is a luxurious lodge, complete with chess table and set made from local wood.

The weather continued to be very wet for the entire two weeks of our trip. However, on July 27 a first ascent of Quadrant Spire was made. This is a rock needle visible from the hut. We left the hut at 7 a.m. and traversed all four peaks of Quadrant to reach our objective. The final pitch was a vertical chimney of about 60 feet. The summit was attained at 2:10 p.m. While on the summit a helicopter was seen to fly in to the hut. It eventually made four flights and brought in the Putnam party of seven climbers.

On July 28 an attempt was made to do a new route on Mt. Adamant. At an altitude above the adjacent Stickle, and above the first summit of Adamant, the snow conditions became extremely hazardous, and a retreat was thought the wise thing.

Hans and Scipio managed to do Mt. Austerity, and also Sentinel Spire in a lightning storm. Robi painted water-colours.

The mountains of this area are of granite rock as in the Bugaboos and at Chamonix, and are a pleasure to climb upon. An invigorating shower can be had at the waterfall. And there is a growing library available. The “Happy Hour” before dinner will be remembered as memories of the mosquitos fade.

It is an easy and rapid flight by helicopter down Swan Creek and along the Columbia River to Bush River Ranger Station. With two new and comfortable huts, I am sure many parties will now be able to climb in the Northern Selkirks.

Stanley Peak - East Face

Nick Ellens

Leaving the Banff-Windermere Highway on the afternoon of July 21, 1966, Heinz Kahl and I packed in to the end of the Stanley Glacier trail, and camped at the little island of trees in the talus at the end of the valley. That evening we explored a route to the glacier by traversing the broad scree band above the first band of cliffs running northward along the base of Stanley Peak to the break caused by the large waterfall. From there easy ledges would give direct access to the ice. Heinz said he considers that on Stanley Peak (10,351 feet), the east face has the longest continuous snow-ice face in the Canadian Rockies, with the exception of Mt. Robson.

With a 5:30 a.m. start next morning, we proceeded to where we had parked our gear and food at the glacier the previous evening, and started up the glacier. The first several hundred feet were bare ice up to an angle of 45 degrees before we reached the snow. We climbed the snow to the left up to the large transverse crevasses, which we easily circumvented; thence we swung right under the face, climbing the avalanche cone directly under the bergschrund. The cone again offered a 40- to 45-degree slope but the snow was good for steps and we moved simultaneously to the schrund. Here we were directly in the centre of the face with a certain objective risk since here it forms a funnel that collects stuff that might fall down toward the glacier.

Heinz found a partial snow bridge from which he cut two steps on the upper lip of the bergschrund and stepped cleanly across to the steep slope above. As he belayed me up and over I just managed it, clumsily kicking the partial bridge away as I scrambled up. Two rope lengths to the left of the clean avalanche trough brought us to a large ice bulge. This required two and a half rope lengths to surmount and proved the steepest part of the climb. The second lead required two pitons for safety and the two and a half leads were protected by piton anchors. The steepest portion may have been 65 degrees according to Heinz, who was experienced in estimating steepness of slopes.

Nick Ellena

East Face Of Stanley Peak
(1 - Bergschrund, 2 - Ice Bulge, 3 - Upper Bergschrund)

Above the ice we crossed a treacherous stretch of steep, soft snow overlying narrow crevasses. I looked up in one spot to find Heinz had disappeared. He had fallen into a crevasse and become wedged a few feet below the surface so that no pull came on the rope. He quickly scrambled out however, cold but uninjured. This stretch had to be probed every foot. Then two rope lengths where we could move simultaneously brought us to the second bergschrund, which was ice-choked and offered no obstacle. Here the face was a constant slope of 50 to 55 degrees of soft snow to the summit ridge, with no possibility of adequate belays. Heinz used an ice axe and a picket as he climbed, careful to have three points of contact with the slope because a leader's fall probably could not have been held. The axe went all the way in and pulled out with just a small amount of pressure. Steps sometimes slid back into the ones below so that it was difficult at times to gain height. Of the ten rope lengths in a direct line upwards required for this section, only for the last couple of lengths did the slope ease somewhat, and we came out on the ridge just at the summit cairn at 3:30 p.m.

Choosing the northwest ridge for descending into the valley, instead of taking a chance on finding a way through the lower cliff bands below the notch between the main peak and the subsidiary northern summit, we were forced to bivouac at midnight after stumbling through the woods for several hours. We retrieved our gear from high camp the next day. The first ascent of Stanley Peak (by another route) was made by the famous mountaineer Edward Whymper in 1901, with guides.

Some Climbs In South America

Dick Culbert

Part I—Amoebas on Aconcagua

Santiago, Chile (Feb. 17, 1966): An entire two-storey building here is shared by a complex of building clubs, but not much information is available about Aconcagua just across the frontier. There's a trail of some sort up the Horcones River, and apparently ascents are controlled by the Argentine Militia out of Punta del Inca. Parties of less than three are not allowed on the mountain. Reckon I'll have to go and find out by trial and error!

Feb. 21: Yesterday afternoon I jumped off the train at Punta del Inca and managed to avoid all habitations, locating the mule trail on the Horcones that evening. Before camping I met a doctor from Boston who was part of an international party working on Aconcagua's famous south face. He was evacuating an Italian with an abscessed tooth and an Austrian who had sustained a broken rib by rock-fall.

Much of the activity has been on the south face this year, with a wide variety of nations participating. At one time four southern routes were occupied simultaneously. The trail going from the major confluence of the Horcones up toward this face was indeed so well used that I got off on it by mistake. Much time and energy (pack weight—85 pounds) was spent wandering among gravel gorges and terraces of impressive scale, trying to re-find the track. One ledge crumbled, and I sprained a finger attempting to do an ice-axe arrest down a wall of glacio-fluvial debris. Happily this wall wasn't one of the larger ones.

The valley of the Horcones is an unreal world, barren and wind-scoured, with coloured walls of rotten rock and endless scree slopes sweeping up to jagged ridges. Rock, scree, and a few high ice patches—nothing gives a scale in the thin, clear, air. Nothing, in fact, lives up much

beyond the confluence—small dust twisters and the occasional mule train being the only things that move amid the valley debris. The mountains themselves look a great deal like the Rockies, but with sterner colours.

About noon today I met a Frenchman from Buenos Aires and got the first real information. At head of the Horcones stands a hut known as Plaza de Mulas (14,000 feet). There is another shelter at about 20,000 feet called Refugio Plantamula, and my informant had covered the distance between in 6 hours. (He neglected to mention that he had been promptly driven back by nausea and headache.) There are no technical difficulties on the usual route, and no trouble with the militia. On the strength of this I ditched much of my food and equipment, packing 50 pounds on up. This afternoon I met two English lads and camped with them just short of the Plaza de Mulas.

Feb. 22nd: The Plaza is quite a place. Parties of many nationalities, many tongues, and with an amazing variety of equipment congregate here.

Apparently, if you can make yourself sound half important the Argentine Militia will pack you all in free. The mules and their handlers sleep behind rock windbreaks and the floor of the "cabin" is strewn with a cosmopolitan tangle of bodies each night. The recommended procedure is to spend a few days hiking from here to get acclimatized, and then push on for further acclimatization at the Refugio. Although I had just packed the 18 miles up from Punta del Inca yesterday, I made the colossal blunder of heading on up immediately. The dizziness, headaches, and nausea that plagued most parties never did come on, but at 17,000 feet 1 just ran out of wind and could go no farther. It's quite a feeling. I spent a night there, but felt no better in the morning and was forced to retreat again to the Plaza.

Feb. 24: Some of these "expeditions" will ride mules to the amazing altitude of 21,000 feet, then strap on oxygen for the final 2000 feet of scrambly stuff. This strikes me as quite an outstanding feat—for the mules. Parties are coming and going every day; about half have been unsuccessful because they could not acclimatize. A few come down this way from an Aconcagua south face ascent, and two young Austrians have just arrived after 10 days on the southwest ridge. They ran out of supplies, but will return for the final 1000 feet tomorrow.

Meanwhile I have had my eye on the southwest face of Cerro Cuerno (Horn Pk.) which dominates the head of the Horcones Valley. The face looked as if it just might go, and would be a good acclimatization trip. This was an attack born mainly in ignorance. Had I known the nature of the glaciers, the rock, or seen the face in profile, I wouldn't have gone. Glaciers here are broken into a mass of small pinnacles peculiar to the central Andes and known as penitentes. They made progress very painful and very slow. The rock proved to be rotten downslab, and the face steeper than expected. It was good luck rather than sound planning that allowed me to find a route up it involving nothing worse than an unstable class 4 (altitude 18,500 feet). Cairn records in Spanish and German confirmed that this was a new route.

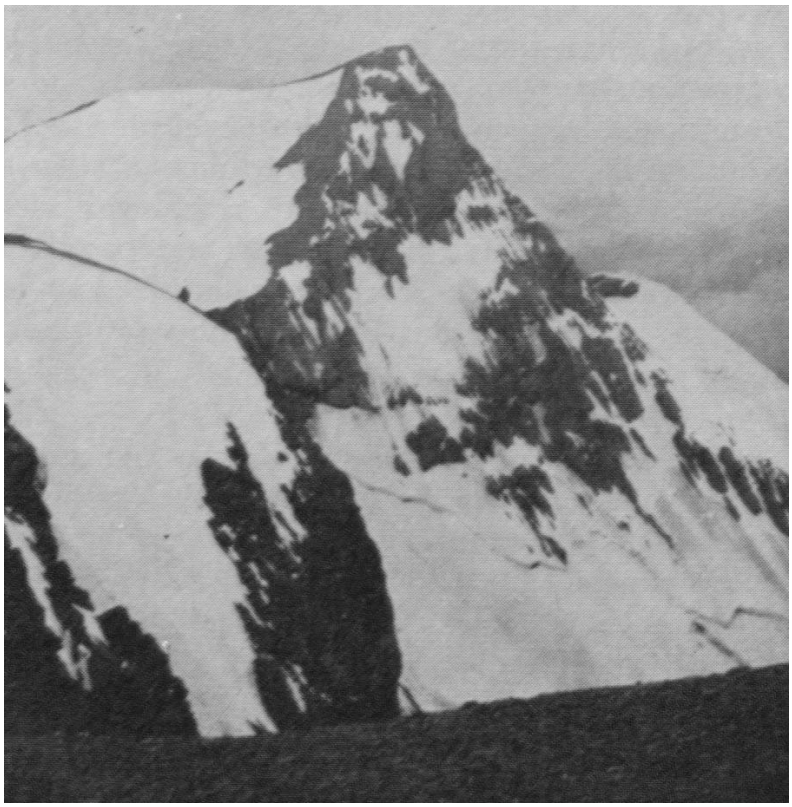
A glacier now offered the easy and obvious method of return, but of that sort of torture (penitentes) I'd had enough; so in deteriorating weather I headed off down a ridge connecting with Aconcagua itself. Several rotten gendarmes got in the way, and finally I was stopped by an impassable tower in a mature blizzard. Considerable luck and some airy class 5 traverses over verglassed rock faces (I had left my rope with the food cache) finally gave access to a scree chute on Aconcagua, and I escaped from one of the tighter jams of my career.

Again this night I nibbled at several of the food packages with foreign labels left by past parties in the Plaza, and stretched out my rations with "food" from the friendly mule handlers. The result was acute dysentery.

Next day I did not feel well at all, and by the following morning was definitely sick. A Japanese doctor who had just come over the south face that night gave me some chloromycetin and I began the long pack out, feeling in a rather blue frame of mind and a definitely green frame of stomach. Being very weak it required 2 days to get out, the second evening being spent with a large Austrian party—a very gay party considering that they had just lost a man on the mountain. It took me 2 days more to hitch-hike back to Santiago, and more than a month (spent mainly in Patagonia) to shake the amoebic dysentery.

Part II—Climbs in Southern Peru

According to a pamphlet by Cesar Morales Arnao of the Peruvian Ministry of Education, there are twenty distinct ranges in Peru, some of which have not been explored by mountaineers. One such range goes by the name of Cordillera Chila. It has the advantage of being in a part of Peru where ice was not likely to be a major problem (an important factor when solo climbing) and where weather should be accommodating even though I was going to be in "storm season" for the better-known ranges. I had picked up appropriate maps when in Lima earlier, and shaken off the last effects of amoebic dysentery while in Bolivia, thus arriving in the south Peruvian city of Arequipa ready for action.



Dick Culbert

South Face of Cerro Cuerno

Mismi (18,350 feet) is the highest summit listed by Morales in Cordillera Chila, and this stands at the extreme southeastern end of the range above the town of Chivay. I was thus delighted to find that one of the local "back-road" buses ran to Chivay, a day's drive north of Arequipa.

The country buses of South America lie beyond the powers of description of the casual

writer. This particular rolling menagerie crosses the high pampas to a group of towns nestled in the incredible gorge of the Rio Colca. The largest of these towns is Chivay.

Life in the canyon of the Colca is almost as unreal as its setting, but as this is a climbing report it must suffice to say that I packed first to the town of Coporaque and thence north beyond Cerro Pumachiri to the eastern slopes of Mismi. Here I first ran afoul of what I call the "hill-tribes" —llama herders and vicuna (wild mountain deer) hunters mainly, who live in colourful rags and clay hovels to an altitude of about 16,000 feet. They are Quechua Indians, and spoke nearly as little Spanish as I. Their surprise was evident, and their questions were always quite simple:

"Where are you going?" "Why?"

"Are you alone?"

"Are you rich?"

"Do you have a gun?"

"Are you coming back this way?" "When?"

Friendly chaps, but I thought it inadvisable to return from any of my forays by the route of access. They called the big mountain "Wishmi".

Dick Culbert

Mt. Sabancaya

I climbed the highest summit of Mismi by its northeast ridge from a camp at about 16,500 feet. Far above the stone patterns of ancient llama pens there were vicuna and then just ice and rock. The climb was not difficult—class 3 at the worst—but there were the usual problems of acclimatization. Next day I packed south across Pampa Torucaca to the great bluffs above Chivay. There were cactus underfoot and condors wheeling effortlessly above as I found a break in the walls and zig-zagged down ledges to the dry slopes above the Rio Colca, and thence to Chivay itself.

The day after returning from Mismi, I took the bus back toward Arequipa as far as the

eastern rim of Patapampa. Here I stopped the bus and, to the passengers' consternation, waved goodby—packing to the east. First I had to hide my pack from the "hill tribes", which is tricky in the endless volcanic dust when one is wearing something as alien as boots with vibram soles. My method was to walk until reaching a rocky area, then step sideways onto a boulder and hop rocks to a place suitable for hiding a pack. Next I would hop rocks back and continue my tracks without visible interruption. This was a good ruse, for on more than one occasion I found that my tracks had been followed, but the caches were never found.

Crossing two valleys eastward, I next made the first ascent of Huarancante (17,700 feet) of Cordillera Volcanica. Ascent was by scrambling up the northwest ridge, and descent by snow on west face. By the time I had regained the pampa (any flat area is called a pampa) it was dark, and it began to look as if I had hidden my pack just a little too well. A bivouac at 15,500 feet was not appealing. Finally I managed to locate my tracks and trace them in the moonlight, finding the cache about midnight.

Next day I packed westward across the incredibly desolate steps and boulders of volcanic Patapampa. There was no water, however, so late in the afternoon I was obliged to drop southwards into a high valley, there hiding my camp as well as possible.

Nevado Ananta (17,250 feet) is listed as unclimbed by Morales and as a major ice peak by the map. It proved to be a scramble from the northwest, totally devoid of snow or ice, and crowned by a very large cairn.

A day and a half later I finally reached one of my major objectives, camping on a small pumice outwash plain beneath Sabancaya of Cordillera Ampato. My first climb was to the south on a summit which I referred to then as Ampato Norte, but later found to be called Hualca-Hualca (20,000 feet). This was a first ascent of no great difficulty. There was an unbelievably wild and shattered zone of recent lava to be crossed, and then a longish crampon slope. Near the top an unusual crevasse pattern appeared, and an over-riding wind crust made for much probing and slow progress. On top I was thoroughly surprised to find two large fuming pits melted through the summit glacier, and the smell of sulphur. Climbing into the largest, I found that it was indeed a region of steam and sulphur vents, festooned with yellow and red deposits. In later discussion with Dr. Parodi of the University of Arequipa I learned that this peak had not previously been known to be showing signs of present volcanic activity.

Next dawn I pulled the "boy-scouts-would-never" stunt of dropping a large chunk of ice into my pot, and rolling over to contemplate the frost on the far wall of the tent. The result was a hole burned through my only cooking pot. It was thus evident that this would be my last day climbing for that outing, and I set off directly for Sabancaya (19,850 feet). This is a many-summited mountain seen plainly from Chivay, but called Ampato by people there. I had intended to use a glacier leading into the massif's east face, but was forced instead directly up a buttress onto the northeast peak. This is likely the highest, although I traversed west and then south in deteriorating weather to the other major summits. I did not have time to try for a lower but shapely rock peak to the northwest. Return was by moraines south of the main glacier. Sabancaya was a first ascent.

My map showed that if I dropped northeast down Pampa Cipina I would cross two trails. Neither appeared. After several hours stumbling about the land of roily little stones I reached the edge of the chasm of the Rio Colca. That afternoon I found a trail down, pounding my feet senseless as I descended the 5000 feet into a town called Maca. Here, to our mutual surprise, I ran into Father Kellogg of New York, making a biannual tour of the valley for the Catholic Church. Three eventful days later I was back in Arequipa.

It was a week before I headed back into the mountains. In this period I had contacted Dr. Parodi, a field geologist with the University of Arequipa. Parodi had himself been a member of one of the Italian Coropuna expeditions, and from him I learned that the highest of Coropuna's eastern summits (Coropuna Este, 20,500 feet) was unclimbed. This was interesting, especially as I had already concluded that the highest summit of Cordillera Chila was not Mismi but a group of rocky peaks northeast of the town of Anduhua, and only a few days travel from Coropuna.

The first step was a memorable bus trip to the town of Viraco. At least that is what the bus sign read, but the road ended several thousand feet in elevation below Viraco. And how do I get to Viraco?—"By horse of course". And where can I get a horse?—"But if you are going to Viraco of course you have one, Senor". Thus started 2 days of negotiations and travels by various beasts, not only to Viraco but to about 15,000 feet on Coropuna. Here the pack animals gave out, and the mountain began to become alpine. I left my "guide" and packed on up in a storm, establishing camp at about 18,000 feet.

Next morning I had a little trouble with the rib I had selected in cloud the previous night. Above this came glaciers and the unusual crevasse pattern I had seen on Hualca-Hualca. Sure enough, a "cirque" to the east was anomalously ice-free and yellowish in colour. I traversed that way, finding the region to be liberally sprinkled with active fumaroles. The ice-free sector provided access to Coropuna's main east ridge, although sulphur fumes didn't help breathing at that altitude. This may be the first time that crampons have been used on sulphur slopes. The east ridge of Coropuna Este was not technically difficult. There were a few hidden crevasses, and soft snow in gathering cloud on top. A fierce electrical storm hastened my descent.

Next morning I felt sick. I gave it a day, but without much result. The following morning I struck out for Andahua, soon discovering that I was far too sick to pack my 90-pound load at 16,000 feet. Gradually the distinctive taste of amoebic dysentery returned, and I was forced to pull out.

Often those I met had told me that there were men in the next valley who would surely shoot me for what I was carrying. This retreat brought the only real unpleasantness, however—a classic game of hide-and-go-seek at sunset. Finally, I managed to lose my tracks on rocky ground in the dark, and by evening next day I was out to the road.

It was the time of year when the main Peruvian Ranges were opening up, and friends would soon be arriving in Lima for Yerupaja and other expeditions. I had a job commitment at home, however. Poisoned by too much chloromycetin, and having wrestled with dysentery for three of the last five months through every Andean country from Colombia to Patagonia, I was glad to be getting back.

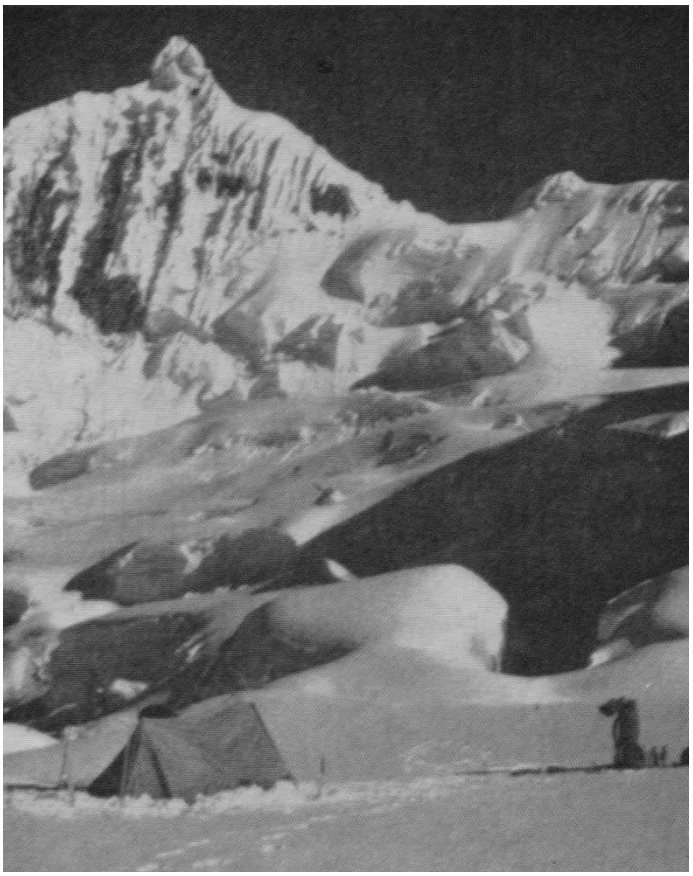
MEMBERS ABROAD

The Peruvian Andes

David Atherton

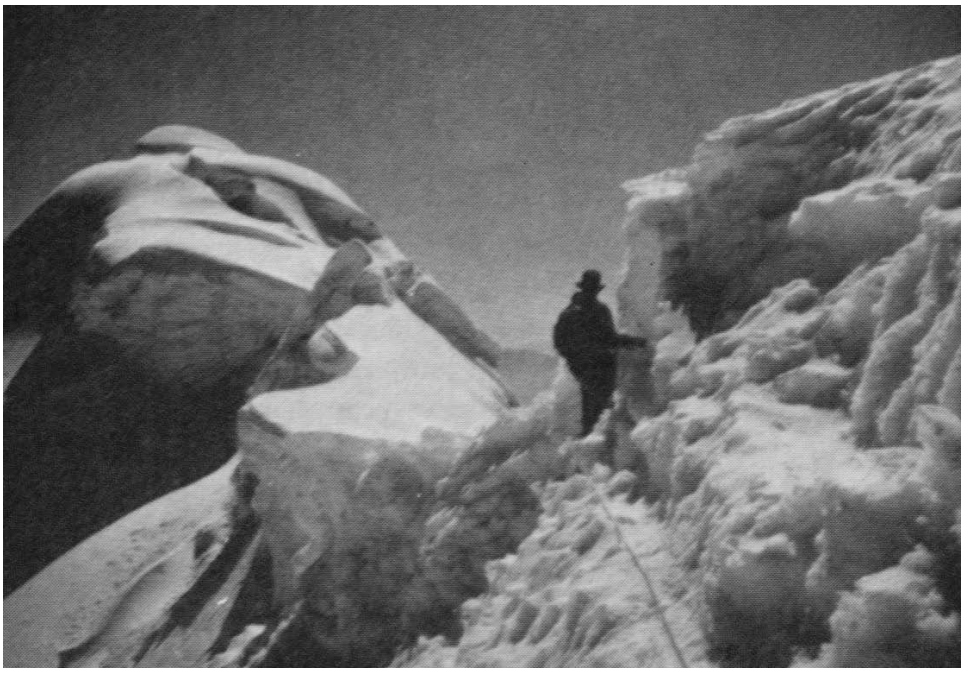
There are two mountain ranges inland to the north of Lima, the capital of Peru. First, the Cordillera Negra, which are hot, dry mountains rising to about 16,000 feet. Further inland lie the Cordillera Blanca, beautiful snow-capped mountains rising above 20,000 feet. Beyond lies the lush vegetation of the upper Amazon basin.

The Andes are a challenge to any mountaineer and the magnificent snow climbs in the



Kodachrome by Don Morton

Mt. Tayapampa (Ca. 18,700 Feet); First Ascent By Don Morton And R. Goody, 1966



D.L. Atherton

Don Morton Leading Into Cornice Trouble On First Ascent Of Plario Norte (Ca. 17,200 Feet)

Cordillera Blanca are famous. Four of us, Richard Goody, Don Morton, R. Wylie, and myself, went there in 1966 to climb in the Alpamayo Valley.[12] Alpamayo itself is often claimed as the most beautiful mountain in the world. Its shape is as perfect as a child's drawing of a mountain peak and the magnificent ice flutings and overhanging snow cornices of the ridges and summit add a wonderful delicacy to its majestic shape.

After flying to Lima, we drove to the Santa Valley, which separates the two mountain ranges. First, we followed the coastal road north, through the desert sandhills and stony hillsides which look no more hospitable than the moon's surface. The road then climbs from sea level up to about 14,000 feet at the pass crossing the Cordillera Negra. It is a dust track, only just wide enough for passing, which twists and turns up the side of the hill. Each time you approach the top there seems to be more beyond. Meeting another vehicle is a frightening occurrence since many of the bends are blind corners with a cliff or overhang on one side of the road and a precipice on the other. It is always claimed that there are no bad drivers on this road since the bad ones have been killed long ago. Crosses beside the road mark the sites of these tragedies. The mules and the donkeys, which are used for carrying loads, are another hazard on the road. We never saw an accident but it seemed that donkeys and drivers alike are slow to give way and certainly never before the last moment!

We crossed the Cordillera Blanca briefly by a pass of over 16,000 feet to visit an ancient temple and amphitheatre. It has been partly covered by a landslide, but recent excavations are showing work of a very advanced culture. The site is over 3000 years old. We then descended the Santa Valley to Huaraz where we engaged two Indian porters. They are naturally timid and unwilling to take responsibility but they were extremely reliable and, since they live at a relatively high altitude, they were acclimatized. We, on the other hand, were quite severely handicapped by our rapid ascent and suffered from headaches and sickness at first when we exerted ourselves much. Our porters were a great help in establishing our climbing camps. They spoke Quechua, the Indian tongue, and also Spanish; our Spanish was poor by comparison. It is always difficult to keep clean or to cook properly under the difficult conditions of a climbing expedition and certainly our porters managed better than ourselves in these respects. They had a grand sense of humour which communicated itself despite the language hurdles and they took intense delight in our successful climbs, often setting the hillsides on fire to celebrate.

As soon as we could finish our preparations, we started for the mountains. Looking up to the east is a succession of glorious, snowy spires dominated eventually by the massive hulk of Huascaran, Peru's highest mountain, over 20,000 feet. We began by taking a truck down the Santa Valley until we came to the side-road leading to our valley. The bridge across the Santa had been washed away some years before and was now replaced by a wire cable from which was hung a small platform of wooden planks. This was propelled across the 200-foot gorge by pulling on some old knotted fibre ropes. The more safety-conscious among us asked rather dubiously when the cables were last tested and replaced, only to be told that they were tested daily by people crossing and replaced whenever they broke! We climbed on briskly, smiled bravely for the photographs and crossed quickly.

We pulled the baggage across too, and were pleased to find our mules, donkeys and their drivers waiting for us as arranged. The customary bargaining formalities were a suitably long drawn out affair with the quicker mental arithmetic and halting Spanish of the gringos (ourselves)

12 An official record of these climbs, by Richard Goody, leader of the party, and a map by the present author, will appear in the American Alpine Journal.

matched against the drivers' superior local knowledge; agreement was reached with both sides baffled as to who had won the bargain.

Our caravan now consisted of we four gringo climbers, decidedly handicapped by the altitude and the results of our farewell to civilization, two porters, a mule, ten donkeys, two arrieros or drivers, an immense pile of tents, climbing gear, food, fuel and each person's conception of his minimum of personal necessities, which varied surprisingly, plus various small boys, miscellaneous animals and other items of confusion. It seemed wisest to let this chaos sort itself out, so we set off up a very hot, dry, dusty trail. It is impossible to ascend the Alpamayo Valley directly with mules because the lower end of the valley consists of enormous rock walls and precipices with no direct path. Instead, one climbs up to the south and crosses over two 16,000-foot passes before dropping down into the upper Alpamayo Valley. It is an exhausting 3-day trek, but the path has been in use for hundreds of years at least and is well worn.

We had a short first half-day stopping at the highest irrigation stream in the valley. The donkeys arrived shortly after; they are patient, lovable animals ideally suited to the work and conditions. They carry a bundle on each side of a reed saddle fastened with ropes under the belly and tail. Fifty pounds is the nominal load but ours managed better. The drivers we had were extreme types; the first set were hard working and conscientious, always running up and down the line to adjust a slipped pack or to guard the edge of a precipice. Our other drivers were a sorry set, who chewed coca leaves moistened with lime to extract the cocaine; a handful of stones served to encourage the donkeys but most of the work was left to our porters.

Next day, we left the last green patches of the irrigation of the valley farms and climbed up a long series of ascending zig-zags in the track. We crossed a plateau with the ruins of an extensive town, terraces on the hillside and a good supply of bones in the old charnel houses. Nothing is known of the history. Above this, we continued up another slope; it went up a very, very long way. The day got hotter and there was no water. We plodded up and the air got noticeably thinner so that we found ourselves panting to maintain our oxygen intake. Later on, during the expedition we became better acclimatized as our blood adjusted. We halted at last just beneath the final shoulder; I collapsed on one side of the path and one of our donkeys on the other, because of an unbalanced load. Our drivers were seen bleeding the donkey, which recovered well from its exhaustion next day; my medication was restricted to aspirin and sleeping tablets—recovery was not as dramatic.

We set off again next morning just before dawn and traversed over the shoulder and then around a deep, dark rock valley, gouged out by the glaciers. There were old stone foundations built to carry the path across some of the rock precipices but it was still impressive. At the head of the valley we came to some glacial lakes trapped by the rock. Above these was an imposing view of the Santa Cruz group. Two of these had been climbed previously but the third is probably the finest unclimbed peak in the area. Looking up it seemed hard to imagine anyone scaling those narrow jagged ridges. The faces with the steep gullies of fluted ice guarded by open crevasses at the bottom and overhanging snow cornices at the top and bombarded with avalanches and occasional rock falls seemed quite out of the question. We had hoped to attempt the first ascent of Santa Cruz Norte, but even had we been in better condition, this first view could not have given us much hope; we thought, however, that the back side, which we could approach from our base camp, might be easier but, in fact, when we saw it and examined it carefully, it proved equally formidable. The south ridge, which seemed the most promising line of attack, was well guarded by a series of vertical rock steps each topped with a large overhanging mushroom of snow. Since we had many alternative aims, we wasted no time on attempting this mountain, but someday soon it will be

climbed by a determined and experienced group. Such a challenge cannot be disregarded long.

A climb up another rocky ridge and into a small valley, strewn with huge boulders, brought us up to the first high pass. We then dropped down 1000 feet into a small, marshy hollow. An unlucky step by the author gave it a name. We stopped for a brief lunch and I dried out again in the sun. Another hot pull up at a snail's pace brought us exhausted to the second pass, from where we could look down into the Alpamayo Valley at last. The donkeys followed shortly after and, since there was no water, we had to descend rapidly into the valley as darkness closed swiftly over us. The valley is still farmed at over 12,000 feet and there were ancient terraces on the hillsides at over 13,000 feet. These were probably of pre-Inca origin, and some of the fine old stone walls in the valley probably date from this period.

Next day, we followed the valley up, crossing some enormous terminal moraines deposited centuries ago at the end of the glacier when it extended lower down the valley. Soon a glorious snow spire began to show at the head of the valley; as more became visible it lost none of its first grandeur. Despite some magnificent neighbours Alpamayo is quite unmistakable. Just beneath the icefall, tumbling down from the plateau at the foot of Alpamayo, we climbed up into a small side valley and established our base camp close to a small stream flowing rapidly through the marshy bottom. We paid off the mule drivers and they left with the donkeys as we pitched our tents. We had a small pyramid tent for cooking and eating, two even smaller lightweight tents for us to sleep in, and another for the porters.

The weather was fine virtually the whole time with glorious, clear blue skies which gave an intense sunburn after only a very short time out on the snow. The only precipitation we had was a scattering of snow one night which caused great amusement since our leader, a professor of meteorology, was the only one who had neglected to turn his boots upside down outside the tent!

We saw a few deer and their tracks near camp. They were small, but their leaps from tussock to tussock and up the mountainside were enormous. There were bear tracks too, but we did not see the bears. The small birds kept very close to the ground, but high overhead giant condors soared at over 20,000 feet, scarcely moving their wings but seeming to drift over the mountains at great speed as they search for prey; sometimes they swooped and hovered over us. Luckily, we failed to pass their inspection.

Acclimatization was a slow process. Eventually, after some days, the blood thickens and makes better use of the relatively small amount of oxygen in the rarefied air. We therefore chose some comparatively modest peaks for our first climbs. The Pilancos consist of a ridge with three widely separated 17,000- to 17,500-foot unclimbed peaks directly across the Alpamayo Valley from base camp. It was impossible from camp to guess which was the highest, so we began with the nearest.

Our porters helped us move a small advance camp over to the foot of the Pilanco ridge. They carried good 50-pound loads whilst we were still only able to carry relatively little. We crossed the moraines in the Alpamayo Valley and ascended a steep hanging valley which ended with two tiny lakes in a stony plateau, behind which were some scree and rock ridges leading up to a pass on a spur from the end of the Pilancos. We pitched camp between the lakes and made a short reconnaisance of the various routes up to the ridge.

We were up shortly after sunrise next morning. It was a cold campsite in the early morning because of the shadows cast by the ridges. We breakfasted quickly on dehydrated food and were off up the slopes to reach the sunshine on the col, where we got a fine view of the whole Pilanco ridge which proved to be a long rock chain with three snowfields each leading up to a snow peak.

We roped up and climbed along the rock spur towards the nearest summit. It was a sharp ridge and we had to make short traverses on either side, but rather sooner than we had expected we reached a flattening out of the ridge and the edge of the snow. Here we stopped to put on parkas and windtrousers, over-boots to keep our climbing boots dry despite the snow, and crampons on top of everything.

We climbed slowly up the last 500 feet to the summit, with the snow getting steeper all the way. We skirted two large crevasses just beneath the summit which was formed by the meeting of two sharp ridges from either side of us. It was the type of summit to look cautiously over rather than stand on, since the snow overhung quite a long way. Beyond and beneath us was an extensive icefield extending along the whole length of the ridge. Behind us a long spectacular ridge of ice and snow led up the base of Alpamayo, which turned its impressive north face towards us. Next to this was the massive, long, many-crevassed slope of Quita Raju, slightly higher than Alpamayo, and which we later climbed. Behind our base camp stood Abas Raju, sandwiched between the much bigger Quita Raju and the Santa Cruz group, but a very pretty mountain. It has sharp contrasts between very dark rock and extensive patches of snow, and some very intricate ridges leading to a glorious curved overhung summit; it is as yet unclimbed but a very challenging and picturesque mountain. Further off to the west were the summits of the Puchahirchas; seen from the Pilancos these are just a mass of ice flutings, and understandably the climbs on them have been from the far side; they form a very impressive group. There was a keen wind on the summit but after our examination of the peaks, we tarried to take photographs and make a brief set of survey notes for our map.[13] Then we descended to the rock to lunch on dried fruit and chocolate. Here the headaches caught up with us so we descended slowly to camp.

To climb the two further peaks of the Pilanco group, we moved our camp on another day's journey. First we climbed over the pass we had started from previously and then down into a high stony valley. We followed this down through a marsh and then steeply down beside a river, dropping down into the head of a long grassy valley. A bit farther down was a most inviting-looking lake; however, there were some fine bulls pastured up here. Our porters told us they were being bred for the bullfights, but we used some of our little red trail-marker flags to wave them off. We then ascended a very steep stony ridge, the remains of a lateral moraine, heading up under the central peak of the range. We had hoped that we would not have to drop right down into this valley but the high-level traverse was blocked by several rock faces. We pitched camp, after toiling up for about another hour, at the last place we could find water. It was a delightful situation, high up, but very dusty. Soon this red dust transformed our clothes and ourselves and covered everything; the porters aptly christened it "el campo Colorado".

Next day we were up early but just how early we did not appreciate at first. We were puzzled by the non-appearance of the dawn after cooking our breakfasts in the cold darkness, and the mystery was not resolved until we discovered that there had been a slight error in setting the alarm clock. We waited another hour until there was enough light to start by. We worked our way along ledges of loose scree and up a steep dusty slope, then up a short rock gully and another loose stony slope to the ridge. A final snow slope presented a most unusual formation since it had been melted out into a series of large bucket steps; unfortunately, these were about 3 feet high and, although very safe, they were a little awkward. On the summit we spent a leisurely time photographing, examining the view and making survey measurements. My rope-mate and I were

13 Ibid.

extremely careful not to cross the crevasse crack bisecting the summit as we had noticed the way the snow overhung from below and had no wish to break it off by stepping on it. The pair on the other rope preceded us by a few minutes and then descended a little way for lunch; we found later that they too had taken care not to cross the summit crack, but it was the other side of it that they had kept to! We are still not sure who were the wise ones.

The next day we climbed up quickly to the ridge again, making excellent time. We then had a very long ridge traverse to the northern summit. We first climbed over a rock gendarme blocking the ridge, and shortly afterwards reached the snow. Gradually the slopes steepened and our tracks became more winding as we avoided the crevasses and cornices. We continued on the ridge until it had cornices both ways and ahead there were holes in the middle too; further progress along this route was obviously impossible so we retreated a short way and descended into a snow bowl beneath the ridge. We traversed this and then puffed our way, a few steps at a time, up a steep snow slope, over a very big crevasse, which was partly covered, and then up an even steeper snow slope. This led us to a snow shoulder just beneath the summit itself, which was a huge snow mushroom with a wide crevasse in front. We crossed this by a small snow bridge at one end and kicked our way up the loose snow to the top, where we perched and stared around us.

Two days later, we were back once more at our base camp, where we celebrated such occasions with a small ration of pisco (the excellent Peruvian brandy) and tried our skill at pancake tossing, while we discussed plans for the next climb.

There was an interesting rock ridge beside camp and from its summits we got excellent views of Alpamayo and its even bigger neighbour, Quita Raju. To approach the latter, we first climbed up a nasty rock gully behind camp; then over a ridge and down onto the Apamayo glacier, where we had our first camp. We then climbed up smooth rock slabs beside the glacier. At the headwall we crossed the glacier and then up a very steep snow slope before we could hoist ourselves over the edge and onto a high snow plateau. It was heavy work getting the packs up there and the clouds came low that afternoon so that, when we stepped onto the plateau, there was a complete white-out. Luckily it soon blew away and then we had grand views of Alpamayo and Quita Raju. We pitched our camp and speculated on the route.

Despite an early breakfast in the dark, we were a little late getting away in the morning because of delays in thawing out our frozen boots. We crossed the plateau and then zig-zagged up a big snow slope and traversed to a higher one by a steep soft snow bridge separating some big crevasses. It was very heavy going, but by now we were able to look down on Alpamayo and only the biggest of the Santa Cruzes was still a little higher. We stopped just below the ridge itself to reconnoitre a route but we were reluctantly forced onto the ridge, as the snow on either side was too steep to negotiate. The ridge itself was split by a big crevasse and beyond we could see monstrous snow cornices overhanging first one side and then the other. We managed to climb over the crevasse on a rather weak snow bridge and then crawled up a very steep snow slope. The ridge then sloped relatively gently up towards the summit about half a mile further on. The ridge itself was just a sharp edge of snow. We knocked off the crest of the ridge with our ice axes so that we could kick steps into it and worked gingerly forward. It was a slow process and it was soon clear that we were already too late to read the summit in safety that day, so we turned back towards camp. Climbing down the ridge was a slow cautious business and luckily the only slip was quickly held.

Next day, two of us descended to base camp because we were short of high-altitude food and because we felt that having reached the ridge of Quita Raju had satisfied our ambitions. The

other pair spent a day resting and with a very early start the next day, reached the ridge soon after dawn and completed the traverse to the summit. The day after, they rejoined us in great triumph at base camp, from where we had seen part of their descent.

We made one more first ascent, that of a most impressive snow spire called Taya Pampa. This was reached by carrying another camp from our Pilanco camp along the rock ridge towards Alpamyo, up a small icefall and part way along the snow ridge. The next cay Richard and Don continued along the ridge and crossed a very big crevasse by climbing through it to reach the base of the spire; the last bit was a very delicate climb and the porters set great tracts of the lower hillsides on fire to celebrate the success.

The donkeys arrived next day as the fires burnt out and we packed up camp for our return. By now we were more used to the altitude and were better able to enjoy our homeward trek, though the last bit of the climb up to the passes seemed as steep as ever. On the second day we descended 9000 feet and our legs were very weak by the time we reached the Santa Valley. On the following day many of the benefits of our modern civilization could be appreciated: motor transport after five weeks walking, hot baths much needed by now, and fruit; too soon though, the drawbacks were noticed. The Peruvian Andes were very demanding but also very rewarding

Mount Kinabalu - 13,455 Feet

R. P. Forster

Mount Kinabalu, in Sabah (formerly North Borneo), is the highest mountain in Southeast Asia. Rather majestic, like Fuji (12,389 feet), Kilimanjaro (19,595 feet), and Elgon (14,136 feet), it stands alone and like them it is a long walk—possibly "graded" as a scramble. It is a great granite tooth worn bare by the storms of countless centuries. U-shaped, the arms are roughly 4 miles in length. The summit region is a fantastically eroded area of pinnacles and vast rock slabs almost bare of vegetation.

Kinabalu is sacred to the Dusuns and Kadazans as the resting place of the souls of their dead. Its name, freely translated, means "revered place of the gods". Until recently, in addition to a guide, one had to take a pagan priest, who on the summit at Low's Peak propitiated the spirits by a proper offering of seven eggs and seven slain chickens.

One goes by car from the capital, Jesselton, to Tamparuli, 23 miles, and from there 25 miles by jeep to the power station at 6000 feet. This rough road was a "death march" route for white prisoners of the Japanese. Leaving the power station to 10,000 feet, one passes over and through primary and secondary rain forests and a moss forest. The route must be unique in that it starts up a staircase, a "stairway to heaven", made of slippery, corduroy-type logs and branches. This extends for nearly 1000 feet, the first third largely suspended. One has an eerie feeling looking down at the rain forest and wild orchids beneath the slats. At Panar Labah (11,000 feet) is a modern aluminum hut. Here the granite begins. Sayat-Sayat hut at 12,500 feet is about l 1/4 hours further walking and from there to reach Low's Peak takes about another l 1/4 hours.

Although not unfamiliar with tropical rain, I have never seen anything like the deluge at the Panar Labah Hut during this trip I made in January 1966. The heavens opened and for two hours the whole granite mountain side was one huge waterfall.

ALPINE NOTES AND TECHNICAL CLIMBING

To Chilko Lake, 1966

Earle R. Whipple

After weighing various choices for a short trip into the B.C. Coast Mountains, our group (Paul and Nina Wisnicki, Peter and Franz Kellerhals, and I) decided to visit the area of Good Hope Mtn., a region possessing definitely better than average weather in these mountains.

After flying under lowering clouds via Southgate River, our plane burst into the clear skies of this area, and Chilko Lake. Our pilot, cautious after seeing a tail wind on Glasgow Lakes, landed us instead on the Franklyn Arm of Chilko Lake, where we bushwhacked on the east side of Glasgow Creek to a good, wooded campsite beyond Glasgow Lakes. The packing, which was never extremely difficult but seldom easy in the thick forest, required about 6 hours and was sometimes easier on the rock slides below the valley wall.

South of camp rose the summits of Mt. Merriam and Glasgow Mtn. The latter had eluded the Farrow Creek party in 1964 by suddenly producing an overhang only 50 feet from the summit on the southwest ridge.[14] This time we tried Glasgow Mtn. by the northern glacier under its east ridge, ascending toward the wall of Mt. Merriam and then by easy ice climbing directly toward the ridge, until we could traverse very easily to the right to the rounded glacier spur midway between the two peaks. It was late in the season (Aug. 30) and very thin snow covered much of the spur, necessitating the cutting of several hundred feet of steps, largely in hard ice. The final slope to the ridge was much steeper and would have required ice pitons, save that it was short. The ridge was easy, the final rise done on rock, for a first ascent. Good Hope Mtn. bashfully hid behind shifting clouds. We looked at the southwest ridge of our mountain, and then, descended the way we had come. Everyone had enjoyed this pleasurable route.

Three days later we ascended Good Hope Mtn. via Glasgow Glacier, a very easy approach to this peak. From the col southwest of the peak, we differed from the 1953 route[15] and ascended an easy direct line from the col, utilizing a zig-zag route largely on granite dikes when near the top, which was probably the route of the first ascent. Again the mountain hid itself, this time behind corners and slopes, but it was a magnificent viewpoint.

Other climbs were the first ascent of a small unnamed peak above camp, just north of the large peak on the north ridge of Good Hope's east peak (Paul, Nina, and Franz on Sept. 1) and an attempt on Mt. Merriam by Peter and Franz by the Kese-Merriam col ("Exhaustion Pass") and Merriam's east glacier, returning by the north ridge. They were not pleased by the quality of the rock on this ridge.

It is interesting to note that the explorers Malcolm Goddard and Kese did not climb Mt. Kese, but the first peak south of "Exhaustion Pass" (photo, CAJ, 1913, p. 30) on Mt. Merriam's north ridge.

14 CAJ, 1965, pp. 43-51.

15 CAJ, 1954, pp. 20-26.

First Ascent Of Warden Peak, Vancouver Island

P. D. Guilbride

This 6500-foot rock tower just north of Victoria Peak some 35 miles west of the town of Campbell River remained unclimbed until July 9, 1966, more because of its inaccessibility than its difficulty. This fact was not known to Kurt Pfeiffer, Peter Perfect, and myself as, after flying in to Stewart Lake (about 5 miles east of Victoria Peak), we left our camp at the 4500-foot level on the southeast slope of Victoria Peak at 7 a.m. in perfect weather. From all sides—from the highway or from Victoria Peak—the summit tower appears to rise unbroken and nearly vertical for 700 feet.

The normal route to Victoria Peak was followed to the east spur at 6000 feet. Here we roped and began a traverse across the east face of Victoria to the glacier in the Warden-Victoria Col. The next quarter mile took nearly 4 hours of step kicking. The route is nearly level across a 40-degree snow ledge, with a sheer drop of never less than 500 feet always just on your right. The face above sends down rocks to relieve the monotony of step-kicking in the hard snow. We moved one at a time, always keeping two axe belays on the rope. The col was reached at 1 p.m. after a roped glissade down the glacier.

Scree and more steep snow brought us under a gully leading to the west ridge of Warden about 300 feet below the summit. Some scrambling up very good rock on the north face resulted in our reaching the summit at 4 p.m., where a cairn was built and names deposited.

Thinking that we would surely be benighted somewhere on the traverse, we did not linger. Thanks to our steps of the morning, now frozen and secure, plus a few short-cuts on rock rather than snow, we made it back to camp before darkness.

Drizzle next morning, but sunshine by the time we reached Stewart Lake, and we had the afternoon to spend in fishing (fruitless), swimming, and sunbathing. The Alert Bay Airlines floatplane finally arrived at 8 p.m. The shortness of the lake and possibility of down-draughts necessitated very careful checking of the weight-load for a safe take-off.

Second Ascent Of Mount Colonel Foster

Ralph Hutchinson

The first ascent of the South Peak of Mt. Colonel Foster in Strathcona Park, Vancouver Island, was made in 1957 by a party that climbed a couloir up the west face. On joining the summit ridge, which runs north and south, they said a route looked feasible from the south if the descent could be made from the subsidiary summit to the south (1957 Canadian Alpine Journal, page 30).

On August 1, 1966, six climbers from the Island Mountain Ramblers' camp on the ridge that divides the watershed of the Elk River and the Wolf River, set off to traverse the subsidiary summit to the south (known in this article as the East Peak) and climb the ridge route to the main South Peak. By 11:15 a.m. all members of the party were on the summit of the East Peak after an interesting and pleasant grade 3 rock climb. The weather was beautiful and for half an hour the party considered the route off to the north which looked both exposed and difficult.

The ridge to the South Peak from the East Peak is obvious in that there is only one practical route. After rappelling 25 feet to an insecure stance, three of the party, Ron Facer, Mike Hanry, and I proceeded gingerly along the knife-edge ridge. This is spectacularly exposed and dips to a notch where a gully joins the ridge before rising up to the South Summit. The rock was firm and provided

good holds and good grade 4 climbing.

At the point where the ridge ended, there were alternative routes; one was northerly up the rock face which was probed by Ron Facer. The alternative route led down to the west in the gully for 200 feet, and then by a traverse to the north joined a branch of the same gully. This latter route was chosen and led up, first under a colossal chock stone and then onto a point on the ridge to the south of the summit. From there an easy scramble took us onto the pinnacle that forms the summit tower. It was now 2 p.m. and we dug into the cairn and found the 1957 record in excellent condition. Our ambition had not been sated and as the centre peak on the ridge is almost as high as the South Peak, we investigated the route along the ridge off to the north. We were now some distance from the campsite and did not have any bivouac equipment so we felt no more than mild curiosity to see if the ridge would go; on finding difficult climbing ahead, we retraced our steps and rejoined our friends, Mike Walsh, Ray Paine, and Bob Tustin.

Mount Colonel Foster has a remarkably dramatic east face. This forms an arc around a lake at 3000 feet and the face rises to the summit ridge at 7000 feet in an uninterrupted sweep. There are several small couloirs up the face and towards its southerly side are two snowfields perched somewhat precariously on the rock. The three of us who had been to the South Summit decided to make a bid for the centre peak by traversing between the two snowfields. If that could be achieved, then the ridge could be gained from the top of the upper snowfield without too much difficulty, and lead to the base of the centre peak. The Bitterlich brothers had tried this route in 1955 although we did not know this at the time. We were able to gain the top of the first snowfield without untoward difficulty although the climbing was interesting and exposed. From there we made several false leads in our endeavours to get over to the second snowfield. Some hours later the attempt was abandoned after some extremely difficult leads had been made by Ron Facer. At this point it is most difficult to see the route as parts of the mountain overhang and the mountain is very broken up partly as a result of the strata and partly as a result of a large earthquake about 20 years ago. The earthquake had its advantages as there is very little loose rock on the east face of the mountain.

The route chosen across the east face is feasible and when mastered will provide a varied and excellent ascent to the unclimbed centre peak.

The Squamish Chief - New Routes

Fred Beckey

The year 1966 should become a landmark for the rock climbing history of The Chief, near Vancouver, B.C., in that more difficult and long routes were accomplished than during any other season. Three routes of grade 5 to 6, namely the University Wall, Western Dihedral, and Tantalus Wall, were completed in spring, as were Crescent Ramp (grade 4) and three fine direct routes on Bullethead.

Tantalus Wall was climbed on April 2 and 3, with a bivouac, by Leif Patterson, Mark Fielding, and me, after several “work” sessions on the lower portions. The route is very obvious as seen from the Squamish Highway, and for this reason the final climb attracted a good deal of tourist attention. The crux of the climb is a 10-foot ceiling, and the two difficult ensuing pitches. Iron used was 103 pitons and 11 bolts.

Crescent Ramp strikes off left from midway on the Tantalus Wall route, and uses 19 pitons in addition to the 56 used to the high point. The route was done in winter (March 3) by Eric

Bjornstad and me. The crux of the climb is a 110-foot slab-wall, where a difficult traversing ascent is made on a disconnected portion of the ramp. Higher, difficult but enjoyable chimney climbing adds to the pleasure of the ascent. Two bolts were used to get over a flawless slab above Crescent Block, on the final pitch.

Western Dihedral is the 1,000-foot open-book just north of Crescent Block, and is a very direct route pattern to the highest portion of The Chief in this area. Dan Tate and I made the ascent on June 2, 3, and 4, after some preliminary explorations. We used about 152 pitons and seven bolts on the ascent. The climb has four hanging belays, and a number of pitches of tricky direct aid climbing. We did a great deal of cleaning, getting loose dirt and heather patches off the open-book; this will be of great help to future parties.

The 600-foot high section of The Chief south of Tantalus Wall, set out perhaps 100 feet closer than the remainder of the walls, has been called "Bullethead" because of the smooth, round corner at its northern end. Three new direct routes were climbed this year, each of these being mixed direct-aid and free climbing on excellent crack systems. No bolts were used. "Bullethead West" was climbed in the spring by Eric Bjornstad and me, using 44 pitons. David Beckstead and I scaled "Bullethead Central" with 52 pitons; "Bullethead East" was climbed by Jim Sinclair and me, with 33 pitons. All these routes should become one-day classics, once repeats begin to be made.

On The Apron area, at the northwest corner of The Chief, David Beckstead and I climbed "Calculus Crack", a new route, in October. The route follows a low-angle solitary crack up the glassy slabs; 15 pitons were used. The adjacent "Math Crack" was climbed directly for the first time by Bob Phelps and me.

Mount Alverstone And First Ascent Of Mount Seattle

Fred Beckey

Mt. Alverstone — First Ascent Of The Northeast Face

Four of us spent the last half of July 1966 at the head of the Lowell Glacier, Yukon Territory, having been landed at the 7,500-foot level by helicopter. Our group, Hank Mather, John Rupley, George Lowe, and myself, had interests in climbing the north face of Mt. Kennedy, but gave up this project after spending 3 days watching dangerous rockfall and finding blue ice on all the slopes. We then moved camp, in two relays, to the head of an arm of the Lowell Glacier that is just 3 miles east of the summits of Mts. Hubbard and Alverstone. A pitch of blue ice, three ropes in length, required cutting, and fixed ropes.

From this camp we ascended a 2000-foot névé slope, steep at times, to a lovely but spectacular camp spot perched at the edge of great crevasses. This was the only site we spotted on the entire wall of ice and hanging cliffs. From this camp we set out for the summit on July 25, Rupley and I breaking trail to the top, which was reached about 2 p.m. The climb involved careful route finding, but in general was not too difficult. However, the final quarter mile along the north summit ridge was spectacular, and demanded careful belaying attention. At one point it was necessary to cut and dig one's way up an overhanging schrund, with the help of a spare ice axe, then, scramble up steep exposed ice to the ridge crest. View from the summit was marvellous: we could clearly see virtually all the major peaks of the St. Elias Rage, as far north as Mt. Lucania and beyond Mt. Logan to the northwest.

Two days later we began the long trek out on snowshoes, following a route out that had apparently not been used before. We crossed the badly crevassed sections of the Lowell by instinct when a fogbank cut visibility, and were finally forced to pitch camp in a cold wind late at night, just between very dangerous crevasses. The route out, about 60 miles to Kluane Lake, was made in 3 busy days.

Mt. Seattle — First Ascent

Earlier, on a 3-week expedition to Mt. Seattle, a boundary peak on the Yukon-Alaska border, six of us reached the 10,185-foot highest summit on May 16, 1966. Our group was composed of Don Liska, Eric Bjornstad, Art Davidson, Herb Staley, Jim Stuart, and myself.

We began the expedition at Yakutat, Alaska, and used a power barge to make base camp on the tidewater shores of Russell Fjord. From here, we snowshoed along the edge of the Variegated Glacier, over Upham Col onto the 7200-foot southeast shoulder of the mountain. From the fourth and last camp, the summit was reached in one long, stormy day. Winds may have reached 70 miles per hour at camp the night after the climb.

Three Guardsmen And Glave Peak

George W. Whitmore

Three Guardsmen Mtn. rises directly above the Haines Highway in the northwest corner of British Columbia. It is a well-photographed mountain, with views of it appearing frequently in highway guides and tourist brochures. In early July of 1965 my wife Frances and I made the first ascents of the north and middle peaks. These are, respectively, the highest and second-highest summits. The name Glave Peak appears on some maps and refers to the highest summit, while the name Three Guardsmen refers to the mountain as a whole.

Well up the northwest ridge, at a point where the scrambling became distinctly more involved, we found a wood post with a remnant of rotten fabric attached. We speculated that this "flag" might have been left by some adventurous road-construction worker attempting an ascent during the war. The ridge terminated at a snow-saddle, from which we traversed out to the right (south) on rock slopes. Coming to a snow couloir, we ascended directly up this for a couple of hundred feet to the ridge crest once more, and found ourselves directly below the final 400-foot northwest face of the peak.

This face was surmounted with four roped pitches, the first being the most difficult. Pitons were used for protection on it as well as on the final pitch. After descending the face and snow couloir, we resumed our southward traverse across the rock slopes, and came to another snow couloir. Much longer than the first one, this took us to the notch between the north and central peaks. Touchy clambering soon landed us on the middle summit.

We descended the mountain by leaving the northwest ridge at the snow-saddle. A minor glacier on the north side provided a tremendously long sitting glissade, and within a matter of minutes we were traversing easy heather slopes toward the road.

Shrieks Of Delight Echo From The Bear Garden[16]

In British Columbia's Coast Mountains lies a region of jagged rock peaks and glittering icefalls, of foaming rivers and sparkling lakes. Exotic plant life ranges up from the dense valley bottoms to terminate in a beautiful park-land of alpine firs, verdant meadows, and a profusion of flowers. Over this domain the grizzly reigns supreme, for this is an inviolate wilderness sanctuary of the type he requires to survive. Like the grizzly bear, we also turn to this mountain fastness for survival. Remote in its tranquil beauty and pristine wildness, it has drawn us repeatedly for the spiritual renewal and inner peace it offers.

Returning once again, we stepped onto the shore of our wilderness lake. In the sand lay a rotting pair of rubber overshoes! A few steps and we were in the midst of an incredible profusion of rubbish. Tangled masses of poles, wire, and string had once been tables and tarpaulin frames. Already showing signs of decay, other poles were scattered freely over the ground. Countless tin cans, glass jars, and metal foil radiated out from an ugly mound of ashes. More cans and bottles lay heaped against a boulder. Large coils of wire were dumped into a nearby bush. Over the whole area lay a veritable carpet of candy and film wrappers, used band-aids, and bits of string.

Nearby we found a privy constructed right at the water's edge, directly in the path that must be followed when walking around the lakeshore. Investigating the source of the numerous poles, we soon found that axemen of medieval intellect, instead of cutting selectively farther back from the campsite, had demolished entire groups of small firs at the forest's edge. And this in a timberline area where the forest is establishing itself very slowly and with great difficulty.

A familiar story, you think, for we are all accustomed to seeing the havoc wrought by prospectors, loggers, and others who are found in beautiful country through no choice of their own. But this desecration of our Canadian wilderness was the work of a group of mountaineers! They went there of their own free will, but why? Was it to seek an improved perspective and spiritual renewal amidst the beauty of the natural world? Their utter disregard for those who will follow rules this out. Was it to gratify their egos with "first ascents"? If so, they apparently failed, for they complained that they had subdued only fifteen peaks during a 10-day period. Seeking only to conquer, they grumbled that the peaks were "too far apart", that the area was unsuitable for hiking, and that the flora and fauna were not of particular interest. The grizzly bears and other kindred souls can breathe more freely now, for all the mountains have been climbed, and this fact alone will possibly spare the land from further desecration.

The words of John Ruskin, commenting upon the Victorian climbers, come once again to mind: "You have despised nature; that is to say, all the deep and sacred sensations of natural scenery. The French revolutionists made stables of the cathedrals of France; you have made racecourses of the cathedrals of the earth . . . you look upon [them] as soaped poles in a bear-garden, which you set yourselves to climb, and slide down again, with 'shrieks of delight'. When you are past shrieking, having no human articulate voice to say you are glad with, you fill the quietude of their valleys with gunpowder blasts, and rush home, red with cutaneous eruption of conceit, and voluble with convulsive hiccough of self-satisfaction."

How much longer can the scenic resources of Canada withstand the onslaught of Victorian attitudes?

16 Editor's Note: Although names and circumstances have been deleted from this article, the guilty climbers may recognize themselves, for the facts related are true. It was not the author's intention to single out these individuals for criticism, for their shortcomings are unfortunately very commonplace. How many of us will recognize ourselves in this article?

Climbs From Fairy Meadow

William Lowell Putnam

After our trips into Assiniboine and then to Dolomite Pass Graham and Corky Matthews, George Bell, "Judge" David (Georgia) Michael, Rob Wallace, Moses Goddard, and I assembled at the Hotel Fridhem, Revelstoke, on July 26, 1966. We charged down to Bush River that noon. Here the Okanagan Helicopter was waiting and by mid-afternoon had lifted us all to the ACC cabin[17] at Fairy Meadow in the Adamant Mtn. area of the northern Selkirks, B.C. I really love this beautiful spot and do hope that our having made this cabin possible and all the effort we have put into building it will not ultimately result in such overuse and misuse that the massive natural beauty found here in such magnificence will be ruined by careless "tourists".

We found (as expected) that Jo Kato was in residence with Robi Fierz, Skip Merler and that prince of guides, Hans Gmoser. They had just completed the first ascent of the Spire, east of Quadrant, and had previously come over from a few days' residence at the Great Cairn. Later they tried to repeat Whitmore's route on Adamant but ran into the same snow problems we had on Assiniboine a week earlier. They did follow our route on Austerity, though.

First morning after arrival we set out for Austerity—by Sterling Hendricks' route but because of heavy snow we varied it by traversing from the Ironman east ridge over to the col—thus saving the effort of going over Ironman. We would have been up and back in very quick time except that we decided to try for Turret and maybe Adamant too, knowing that Hans had his people going up the east ridge of Adamant that day and we would have a route to follow down through all the crevasses under the Stickle. But the north ridge of Turret was too hairy and after much milling around in the fog we went back over Austerity and down the Granite Glacier for "home".

We had a couple of days of bad weather after that which allowed us time to finish the little odds and ends left undone from last year. Our guests had repaired the privy roof and done some of the other projects but we had longer jobs to do—relocating the water line, finishing some masonry work on the west side and a vast clean up and trail placement program. The ground cover here is mostly heather, and it can't take much traffic so we have tried to make our trails quite specific and limited.

From Cycle Peak on July 31 we spotted a possible route up the Turret Glacier. The Judge and others had spent much time in past years milling around in the séracs and holes there, so I was anxious to find a way that would go.

All seven of us went up with Dr. Bell and Judge Michael on one rope, Rob and myself on another and the Matthews family with Moe on the third. This arrangement was designed to give us two fast ropes to alternate the lead and pack trail. We left at 4:15 a.m. Around 7 a.m. we came to a horrible set of crevasses which we passed easily on the right (under Austerity). We crossed the schrund and reached the Adamant-Turret col over very thin snow on steep ice. If the snow hadn't stuck, I would have had to chop for over 200 feet. That was the key pitch of the day. We thus made a new route on Turret and an hour later arrived on Adamant thus making the first traverse of that summit. Quite a day—14 hours round trip and one of the finest days I have ever had in the mountains.[18]

On August 3 we put two new routes up Pioneer. Both of them were noteworthy, but Bell

17 Described on pages 139-40 of CAJ 1966.

18 See Frontispiece to this Volume.

W.L. Putnam

Fairy Meadow Cabin, August 1966

and Michael did the better of the two. Three years ago they suggested I try the northwest arête of Pioneer (2000 feet of rock). I did, but we ran out of time. This time we left at 4:30 a.m. and I ultimately took a rope of four with the others only two. My ridge went easily—a faster party than before, and I knew what to avoid. We made the summit by 11:30. Thunderstorms were brewing all around so we pushed hard along the Gothics Glacier to get down below a few summits, and made it back to the cabin by 1:30. The others were on a much tougher route; we have since called it the Elegance Arête, and it took them 4 hours longer, but they survived two storms and put in a real performance. I used no pitons but they used about 40, their ridge being much steeper and tougher.

Other ascents were made of Outpost, the Spire, and Sentinel—an easy hill from the Gothics side but by the northerly approach it's tougher. We hoped to do the northwest face direct, but it was too hairy so we ducked back to the north ridge and went up quite rapidly. On the way down we did both Gog and Magog—a couple of rock bumps below Friendship Col—five leads on Gog and three on Magog. We flew out August 8.

The Northernmost Cariboo Mountains

Dick Culbert

The Cariboo Mountains of British Columbia lie south of the Fraser River, and are separated from the Monashees to the east by the North Thompson River. Mountains of Wells Gray Park and Quesnel Lake area arc known to a few climbers, but the Premier Group appears to have so dominated mountaineering interest that one may easily be led to feel there is little else in the Cari-

boo Range worthy of attention.

In the summer of 1966, a Geological Survey of Canada party under Dr. R. B. Campbell mapped part of the McBride map sheet, including the northernmost Cariboo Range and some of the adjacent Rocky Mountains. A great many summits were ascended, traversed, or otherwise visited by two-man traverse teams during the course of this work, approximately thirty of the climbs being worthwhile mountaineering first ascents. These climbs were not often technically difficult, seldom reaching even a class 4 on rock or snow. Helicopter support relieved many of the problems of lengthy approaches by eliminating most of the travel below timberline.

Country north of Haggen Creek and west of Bowron Lake Park provides pleasant hiking, but is not sufficiently alpine to be of mountaineering interest. The Park itself must surely be one of the best conceived in B.C. A parallelogram of lakes and rivers (measuring about 20 by 15 miles) provides a first rate wilderness canoe circuit, and encloses a range of peaks extending to over 8000 feet. Most of the summits within Bowron Lake Park have been climbed, some by Alex MacGrady and family, presently of Prince George; some by George Gilford and companions of Wells, B.C.; and others by Dr. A. Sutherland Brown of the B.C. Department of Mines. These last two have also pushed exploration into the mountains north of Betty Wendle Creek and southeast into Mt. Roberts country.

One of the most memorable of our outings was a 16-day backpack made by Ron Nichols and myself through country north of Goat River. The "chopper" put us out at the western of two lakes at the head of Snowshoe Creek, and a line of five caches was strung out across country to the mouth of Wolverine River on Isaac Lake. The trip was plagued by bad weather, and the route descriptions suffer here as elsewhere from a lack of official names.

There are four summits over 8000 feet in the region south of Snowshoe Creek. The northernmost of these ("Whitespine," 8100 feet) was circumvented on the east via steep snow, and

Dick Culbert

"The Boxcar"

its southern col gained on rotten rock. Both "Whitespine" (class 3) and "Slog Mountain" (8100 feet) were reached from here. Another peak ("Blackspine") just slightly lower and standing to the southeast of "Slog" may well prove interesting. On our descent, a geological cross-section was taken down "Whitespine's" north face (class 3). A 7300- foot summit out toward Zig Zag Ridge was also traversed during work from this camp.

It was an extremely unpleasant day-and-a-half bushwhack westward across Ptarmigan Creek's east fork to our second food drop at a beautiful lake northeast of Mt. Hammell (7800 feet). Mt. Hammell was the only named peak in this area; but it was a neighbor, "The Boxcar", which rose in such an inspiring manner above our lake. These great, white, ridge-mounted blocks had caught our interest when working earlier among the peaks of Bowron Lake Park. In the long run, they proved of even greater geological than mountaineering significance, although the ascents were quite enjoyable. Approach was from a camp to the south, via a scrambly buttress to the main divide. "Boxcar" (7900 feet) provided a class 3 to 4 summit, and Mt. Hammell was easier. Two other class 3 to 4 ascents were recorded during work in this area. One of these was the highest in the region (8200 feet) located at the head of Ptarmigan Creek's east fork and reached by traversing its lengthy northwest ridge. The other climb was on two sharp summits (both 7700 feet) north of Mt. Hammell. This route went up the east ridge of the southern summit, thence north to the second peak across an important (and rotten) fault. The traverse was terminated on the second peak by technical difficulties. (Tackling difficult and time-consuming climbing problems can seldom be defended on a geological traverse.)

Dick Culbert

"Mt. Cochran"

Our third cache was in a cirque northeast of the lake at the head of Macleod Creek. Unaware, we were here entering an area abounding in big game far exceeding any concentration I had encountered before. All about the head of Haggen Creek, grizzly, caribou, and moose are

exceptionally common, the most impressive being the grizzly. After several years in the Coastal Ranges I had concluded that anyone but a crack marksman is safer without a gun than with one. It is much to Dr. Campbell's credit that on some premonition he had joshed me into taking a 357 sidearm, for in less than a fortnight I was charged by grizzly three times. Luckily the first encounter was not decisive, and I wore the gun from then on. Just beyond the third cache we walked smack into a grizzly with cubs in thick bush. She charged point blank and it was a classic case of quick draw. The bear was hit at a distance of 8 feet and happily elected to retreat upon being wounded. She died within seconds, and one of her cubs then put on a truly sobering display trying to awaken its dead mother. (This 8 feet was measured from my stance to the nearest blood stains, and in retrospect I was foolish to risk a shoot-out that close in.) The cubs were first year, and thus doomed—it would have been kinder to shoot them also. We named the 6800-foot summit overlooking the scene "Orphan Rock" before packing on southward.

On the following day we climbed "The Broken Arch" (7700 feet) from a camp near the head of Haggen Creek. It was class 4 from the south, and our traverse ran afoul of an electrical storm. From our fourth cache we travelled eastward, visiting peak 7180 feet among other things. On our route to the final cache we packed over the west ridge of "Pinstripe Peak" (7800 feet) to southwest of the head of Macleod Creek. This was a class 3 climb in itself and done mainly in a blizzard. We scrambled up to the summit, but instead of a view we were greeted by the buzzing of static electricity. Time to vacate! That evening we reached our final cache north of Caribou Mountain. By far the dominant summit in this region was later called "Mt. Cochran" (7900 feet) after a trapper who had built cabins in the area. We climbed it on our last day via pink and white quartzite on the south ridge (class 3). On top was a cairn left by Jim Buckingham and Ron Savelieff, another of our traverse teams. They had made the ascent two days before via the west face. That afternoon we dropped down Istsi Creek to Wolverine River. The trail supposedly here never materialized, but by next evening we were united with Buckingham and Savelieff at Isaac Lake, waiting for the floatplane to end isolation. Other important traverses are listed below in note form only:

From Base Camp at Bowron Lake

1. North face of Clear Mtn. (A. Murray, J. Buckingham). A long ascent, featuring scrambling with some class 3 on buttress between the two western cirque lakes on north side of Clear Mtn.

2. McCabe Ridge traverse (B. Abraham and myself) was not difficult. The high summit on the east end wore a survey cairn, but Mt. Lesage didn't.

3. Mt. Foreman (7500 feet) was climbed from the west by Nichols and Buckingham, who had trouble with double cornices. Likely easier later in season, and possibly not a first ascent.

From Camp at Mouth of Betty Wendle Creek

1. North Star Mtn. (8400 feet, Nichols and myself). This mountain has impressive walls to north and east, but the south ridge was not difficult. The 7500-foot peak to the south was class 3 to 4 by its northwest ridge.

2. Two summits immediately north of Betty Wendle Creek are over 8000 feet in elevation. The western of these was traversed (class 3) from north to south by A. Murray and myself, while Ken Kirland joined me in a stormy west-east traverse of the other.

3. Peak 7500 feet shown on the lower border of the McBride map sheet, and about 8 miles southeast of McLeary Lake, was reached by J. Buckingham over snow from the northeast. The 8500-foot summit 3 miles south of the head of Betty Wendle Creek was climbed by its class 3 east ridge by myself.

From McBride

1. Mt. Halvorson (9123 feet) was ascended via its easy western buttress by myself and A. Murray—descent was to the north. Nichols joined me on the east face (class 3) of the 8600-foot summit 4 miles northwest, descent being again to the north. Some of the nicest peaks left are southeast of Mt. Halvorson.

2. The highest summit climbed was 9700-foot "Mt. Chevron", also known as "Dore Peak", which lies on the divide between Castle Creek and Dore River. It may be seen from McBride. Ascent was on ice and rotten rock from the west (class 4) by Buckingham and Nichols, who then traversed lesser peaks north to timberline above the Fraser River.

Later Nichols and I traversed several miles southward along this divide, ascending the 9500-foot partner of "Chevron" and another peak (9000 feet) standing farther south. Between Castle Creek and the Raush River lies some of the best unexplored country left in the Cariboo Range. It is also some of the most accessible.

3. The Rocky Mountains here are a bit lower than the Cariboos, but nevertheless provided some good scrambles. Mt. Rider (8244 feet), for instance, was climbed by R. Savelieff and myself via its class 4 northeast ridge. Descent was to the southeast onto Haggard Glacier, likely a route of equal difficulty.

New Climbs In The Rockies

Fred Beckey

Northpost Spire From The North —First Ascent

Rumors of a large unclimbed face on the eastern end of the Bugaboos turned out to be that of Northpost Spire. While at Bugaboo Forks in late August 1966, my companion, Jerry Fuller, and I hiked to the crest of the pretty alpine ridge near Cobalt Lake. From a camp at this point, we crossed a pass to the Vowell drainage, and then descended to the edge of the Vowell Glacier, all the time peering left to get a look at the face of Northpost.

We made the climb in a direct line to the summit. There was nearly 2000 feet of climbing, on granite that ranged from mediocre to fair. We used about 15 pitons for safety. Some of the pitches were difficult largely due to insecure rock, though several sections really had some interesting rock climbing problems. The view of the north side of Bugaboo Spire, dusted with fresh snow, was inspirational.

East Face Of Barbican Peak

The great faces of the Ramparts are well known to both active and armchair climbers. At the end of August Jerry Fuller and I spent 5 days camped at the north end of Amethyst Lake, hoping to scale several more of the big faces of the group. Blustery weather kept us in camp most of the time, but a sudden clear spell prompted us to climb the east face of the last Rampart—Barbican Peak. The route first went up a steepening snow and ice couloir between Geikie and Barbican, then veered right up quartzite faces and ledges. Short steep walls proved to be difficult at times, requiring piton protection. High on the face, about 500 feet beneath the summit, we traversed right up a broken ramp, to find it ending in a very wet, vertical section. A snowpatch from higher up was dripping water on the route, making climbing treacherous.

We climbed a difficult chimney, then made an exposed traverse on unstable blocks to the

left. Then, a truly vertical wall proved to be an exit. This section was free climbing with two pitons being used for partial direct aid. Higher, we climbed along an airy ridge crest that was very alpine, with little ice patches and steep rock steps. The top of the peak was reached just before darkness, and it was an effort to make a descent unknown to us in the remaining light. Starry skies helped pilot our way on rockslides and grass to Barbican Pass and back over to the north side, where we bivouacked in the trees until daylight.

East Face Of Mt. Verendrye — First Ascent

The night of August 15 found Jerry Fuller and myself camped at trail's end on Verendrye Creek, several miles off the Kootenay Highway not far from Vermilion Crossing. We had seen an imposing east face, of grey-black limestone, from the highway, and from maps identified it as Mt. Verendrye, one of the most important peaks in the Kootenay Park region, B.C.

Reaching the base of the 2000-foot wall proved to be a difficult undertaking, with a long cliff slope and then a fractured glacier barring the way. Once on the rock, we found that the first few hundred feet, which looked very doubtful from below, went well. The rock was excellent. Reaching a sub-arête on the face, the route veered left and then went along its knifed crest. For three pitches the climbing turned severe, with holds being questionable and the rock very friable. We used 20 pitons for safety in this area. Some of the climbing was really quite hard, and belay stations were difficult to make secure. Two more pitches of moderate difficulty took us to easier ground. Then we followed a long crest of the southeast buttress to the top. A snowstorm blasted us on the summit, and it was an unpleasant task that faced us on the descent. Luckily, we found the best route, then had a long but uneventful trek back to base camp. Seeing a herd of agile goats above us on the cliffs broke the monotony of the return to camp. Rain pelted us on the hike back to the road that night.

First Winter Ascent Of Mt. Lefroy

Surprisingly little winter climbing has been done in the Canadian Rockies, and even less seems to be known of such climbing in the summer-popular Mt. Victoria region than in some others. Two other alpinists from Seattle, Ron Burgener and Jim Madsen, accompanied me on a snowshoe trek across Lake Louise, then up deep-snow slopes to Abbot Hut. Here we spent 1 1/2 days within the stormy confines of the hut, temperatures being so low that spilled tea froze instantaneously on the oilcloth on the table. March 24 was still cold, but the wind slowed to about 35 miles per hour. In drifting snow, we roped and then cramponed up the slopes to the summit, taking no more than 21/2 hours. We took what is probably the normal summit route from the hut. Scenery of the Bugaboos and Selkirk Peaks was beautiful, all peaks being draped in spectacular winter whiteness. There was time to make the entire descent to Lake Louise by darkness that day. While the climb was not difficult, one had to be careful and belay at several places; we placed one ice piton for protection, but did not find it necessary to make rappels on the descent. Given good weather, climbers should find rewarding ascents in the winter in this region.

The Left Armrest Of Throne Mountain

H. F. Microys

After a traverse of Mt. Edith Cavell I commented to my friends how easy the ascent of Throne Mtn. appeared via its left armrest, namely the more northerly of the two ridges which give the mountain its peculiar shape and very appropriate name. To my surprise I discovered that the guide book mentioned nothing about this obvious and apparently easy line. Two days later I found myself temporarily without a partner while camping below Mt. Edith Cavell, so Throne Mtn. seemed a logical choice.

August 4, 1966, promised a fine day as I set out on the Tonquin Valley trail south of Jasper, Alberta. Shortly before the trail crosses Astoria Creek I left it. Mostly over boulders, I reached the base of the buttress. Some short steep sections of rock can be avoided. The armrest proper, which is strewn with huge boulders, was easily reached. My further progress was only interrupted by two notches in the ridge. The first, about 60 feet deep, was descended via a wide chimney. The second was more difficult; the drop was some 100 feet and climbing down at the ridge appeared impossible. Descending in a southeasterly direction along the top of the face for about 100 feet I spotted a weakness: a steep wall with good holds on solid rock. Mostly on the ridge now, the summit was reached without further difficulties.

However, the weather had taken a turn for the worse during the ascent. Heavy clouds moved over the Ramparts and suggested a quick retreat. I descended the same way. The rain on my heels, I reached the Cavell tea house just as the sky opened up.

The route offers the simplest and shortest ascent from the Cavell viewpoint. The rock is solid, and difficulties, confined to the two interruptions in the ridge, never exceed grade 3. The total time for the return trip was under 8 hours.

"Watermelon Peak"

William Lowell Putnam

One of the advantages of being an editor is that you know some things before they are set in print for all to see. In the case of our 1963 edition of the Interior Ranges guidebook I knew much about the unclimbed summits before working on a manuscript. But in the case of the 1966 guidebook to the Rocky Mountains of Canada I had minimal prior knowledge of where the new areas might be. Thus it was not until Dr. Thorington and I had been over the pages of typescript and corrections for the final time—in mid-March—that I felt sure I could count on really finding no cairns on a few places that looked attractive from our literary researches.

After correspondence with "Judge" David Michael of Aspen, Colorado, our other long-time mountaineering associate W. V. Graham Matthews of Carmel Valley, California, and Dr. George Bell, of Los Alamos, New Mexico, I arranged for other companions on a preliminary warmup before a visit at Fairy Meadow. This warmup was to take the form of a couple of hopeful first ascents in the frontal area of the Rockies east of Dolomite Pass in the Clearwater Group.

We arrived in various stages at Helen Creek on the Jasper Highway to find the trail well marked and carefully laid out as far as the north end of Lake Katherine, 2 miles beyond the last timber. From here on to our camp site below Lake Alice all was easy going over heather and alpine grasses interspersed with marmot colonies. In years past much horse traffic has used this route, so

even when returning a few days later in dense cloud over this 8 miles of unfamiliar going we were able to note the general area of travel without much effort. Some distance beyond the end of our clearly marked or travelled route we came upon a sign "Lake Alice, 1 mile".

We stayed three nights at this spot, limestone country with sink holes, disappearing streams and sudden springs. Matthews had trails to mark and dams to build, for he has a hemispheric reputation in irrigation and reclamation to maintain. The rest of us felt a greater urgency in climbing a couple of the peaks we could see rising east and northeast of Lake Alice.

I had neglected to remove a 10-pound watermelon from my pack when leaving the highway. Faced with my reluctant heroism at having carried this gin-filled gem as far as Lake Alice, David consented to carry the burden to the nearest unclimbed summit with the promise that he not be required to lead or kick steps. This offer was cheerfully accepted by Moe Goddard and Rob Wallace, who thereupon did a masterful job of running off to the summit while we aged porters labored slowly in their tracks.

Our route lay up past the Matthews waterworks, then north around Lake Alice to a most interesting jumble of boulders which in part resembled a moraine, but in some ways appeared to be a result of cave collapse. This would appear to have been the result of glaciation in limestone country for a great degree of water sorting had apparently taken place nearer the surface levels, but we could hear water running only at some depth below.

Soon we reached the true and easily recognizable moraine of the glaciers draining the western slopes of our peak. As we mounted the crest of the moraine we saw tracks far above on the snow. An hour later we had the answer—a bear, which had crossed the col and descended. Our racehorses had gone up so we followed, pausing on a very exposed area for a passage with the rope. Five hours after we left camp we reached the summit over the relatively easy snow of the west face after only a few hundred feet on the southeast ridge. It wasn't really watermelon weather, for we all felt the need of extra sweaters and gloves as well as our parkas; but it had to be eaten, and the peak as definitely had to be named in honour of such a unique first ascent.

The morning of July 23, 1966, found us again on the move. This time only the Judge, with Moe, Rob, and myself set out for the other summit we came in for. It lies north of "Watermelon Peak" and appears to be a few feet lower, but still significantly above 10,000 feet. A prominent gully, largely filled with snow, lies immediately north of Lake Alice. We followed this all the way to its highest basin where we took to the slabs on the east side. This led us along a subsidiary ridge running northerly toward our peak. Much loose rock at the other end forced us to employ one of our ropes as a fixed line to rappel down to the col separating this ridge from our peak. From here it was but a 15-minute stroll to the summit where we enjoyed a bit of warm sunlight and lunch, only 4 hours from the lake. Since this peak has such a dominating view of the Siffleur valley to the east we have tentatively called it "Siffleur Mtn."

Future visitors to this attractive area should count on at least half a day by trail from the highway to Lake Alice, and would do well to plan on a pleasant visit with the marmot colony near the head of Lake Katherine. The trail is not well marked beyond the height of land west of Lake Katherine, thus we advise taking along the latest maps, which are quite helpful. For this area the code is 82N/9W. Other lesser unclimbed summits are nearby and a variety of interesting new route possibilities meets the eye at every turn.

To The Royal Group And The Second Ascent Of Mount Prince Edward[19]

William J. Hurst

With hopes of reaching a small lake shown on the map at the head of Queen Mary Creek, and possibly finding an interesting site there for the Kootenay Section centennial camp, Gerry Brown and I reluctantly left the Browns' summer home at sun-drenched Wasa Lake, B.C., at 5 p.m. on August 23, 1966. Very speedy time was made over much improved highway 93 to Canal Flats where a not quite so smooth road was taken up the Kootenay, Palliser and Albert Rivers, arriving at Crestbrook lumber camp, 37 miles from Canal Flats, at 8:00 p.m. We had originally planned to walk a mile up Albert River from the Crestbrook camp and then ascend a tributary, coming in from the southeast, to a height of land whence Queen Mary Creek is accessible. But happily, on arriving at the lumber camp we learned that a logging road climbing high on the west side of the ridge, between Albert River and the above-mentioned tributary, was still passable and, in turn found ourselves camped that night on a landing about 1500 feet above the valley floor.

The next morning we were able to gain another 500 feet in elevation in the car before shouldering very pleasant 40-pound packs made up under Gerry's watchful eye for excess baggage, and after following road and skid trails as long as possible ascended a burn on a quite steep slope reaching the top of the ridge in 2 hours. A short walk along the top of the ridge, through a flower carpeted grove of larches, brought us to the end of the mountain, which we skirted to the left on a rock slide before coming around on the east slope to our first view of the Royal Group. From here a slowly descending traverse over grass and slide rock brought us back into the timber at the head of the Albert River tributary where except for the numerous deer flies, a pleasant lunch spot was found at the spring-fed source of the creek (4 hours from car). One of what turned out to be many well-worn game trails in the area was found soon after lunch which took us quickly to the summit of the pass (7000 feet). Here the contour line was followed through timber for a short distance before picking up a blazed but apparently little used trail which we were able to follow to the lake at the head of Queen Mary Creek (an hour from lunch).

Camp was set up at the west end of the lake in a very beautiful setting and after a slightly reduced supper resulting from the stew pot tumbling into the fire after nearly two hours of preparation (wouldn't recommend dehydrated stews to anyone in a hurry), we decided there was still time enough left to hike up a conspicuous knoll to the south which promised an excellent view of Mt. King George. From earlier views in the day we had held out hope that we would be able to make an attempt on this massive and highest peak (11,226 feet) of the Royal Group from our camp at the lake. On reaching the top of the knoll, just as the sun was setting, we could soon see that this was not going to be so, what with the depth of the next tributary of Queen Mary Creek which separated us from the mountain, coupled with the length of the few visible routes we could see. On returning to camp we decided that the best bet for a climb tomorrow would be Mt. Prince Edward, 10,590 feet, immediately to the east. It was climbed in 1929 by Miss K. Gardiner and W. Feuz, and so far as we know the climb had not been repeated.

Getting away from the camp at 7:20 a.m. a short walk brought us to the far end of the lake and foot of the first of two headwalls which break up the basin between Mt. Prince Edward and Mt. Prince Henry. This was quite easily surmounted by scrambling up a rock slide to the right of the wall then following goat trails on ledges sloping upward to the centre of the crest. Crossing over

19 Reprinted by permission from the A.C.C. Kootenay Section's Kootenay Karabiner.

huge piles of moraine and climbing up scree slopes to the foot of a multi-waterfall cascading over the second wall, a scree covered ramp rising to the right took us up to a point where a large crack goes up about 20 feet. After making our way up through the crack a number of scree covered ledges were crossed which brought us out into the upper basin. Crossing over the foot of a very long snow slope, which we hoped we would be able to make use of on our return, another scree slope was tackled which took us to the top of the ridge (4 hours from camp) where a wonderful view of the upper Palliser River valley stretched out below us with the quite spectacular north and west faces of Mt. Prince Albert to our right. A sheltered and very warm ledge was found on the east side of the ridge where we decided to have lunch before coming to grips with the final peak of Prince Edward which from this point looked quite interesting with a large overhanging block at the very top threatening to keep us from our goal. Leaving the very comfortable lunch spot at 12:30 p.m. we made our way along the ridge to the peak where we traversed under the east face on scree until coming to a promising rock couloir. This we followed for two rope lengths on somewhat unstable rock (Gerry, being spoiled on West Kootenay granite, thought it was terrible) before traversing out to the northeast ridge which we ascended easily for another rope length. We then worked our way back to the centre of the face where a rock-and-snow-filled gully was followed until coming out on southeast ridge. Dropping over onto the south face, with considerable daylight showing below, the most interesting pitch of just over one rope length was encountered which brought us out onto the summit at 2:50 p.m. An even more spectacular view than that seen during lunch awaited us; we were able to see Mt. Assiniboine clearly to the north, the North and South Kananaskis Passes to the northeast, Mt. Joffre to the southeast and the formidable Mt. King George, with its unusual necklace-like snow bands running across the northwest face, immediately to the south. While on the summit two T 33 jets passed very low overhead, which gave one a funny feeling to think they would be landing in Calgary in a few minutes, while we would be several hours yet just getting back to the bottom of the mountain. With this in mind we knocked off the picture taking and started down at 3:20 p.m., reaching the lunch spot at 5:30 p.m., and after a very long glissade in the upper basin, made our way happily back to camp, arriving at 7:20 p.m.

With the thought of possibly wanting to return to the area in the future for a try at Mt. King George, a trip was made over to a high grassy knoll at the end of the west ridge on August 25. We found what appears to be a very good approach at the head of the third from last tributary of Queen Mary Creek, which should lead quite easily up over the southwest ridge and into a cirque on the south side of the mountain at the head of Fynn Creek. On nearing the top of the grassy knoll (8000 feet) a cow elk was sighted very beautifully silhouetted against the sky and on approaching to within about 200 feet three more stood up and looked down at us for a minute or two before deciding it was time to take off. They had no doubt climbed to this height hoping to get away from the flies.

On August 26, feeling that we had exhausted what could be done from our camp (with their long scree slopes and rotten-looking rock Mt. Prince Henry and Mt. Queen Mary did not look the least bit interesting), we retraced our incoming route to the car in 6 hours. Although we had failed to find a site for the centennial camp, Mt. Prince Edward being the only rewarding climb available from the lake campsite, we nevertheless enjoyed the trip very much for the climb and for the lush unspoiled beauty of the area. The latter has become hard to find in this comer of the province, with roads having been pushed up almost every creek over the past 15 years.

Mount Stephen-North Side

Charles Locke

The mighty north ridge of Mt. Stephen rises over 6000 feet from the highway to the summit. While working near Field last year my attention turned often to its colossal line and my heart was imbued with an unyielding desire to scale it. In early July 1966, Chic Scott and Gerry Walsh accompanied me on what was perhaps the first ascent of this ridge.

In the early morning light we parked the car opposite the railway tunnel four miles east of Field, B.C. Skirting the tunnel on the left we climbed up some scree slopes for a short distance, then cut diagonally right up some slanting ledges to the base of a wide crack where we roped up. What a change this was! We were roping up a mere 15 minutes after leaving the car. No long or tiresome scree slopes or hot sun to dampen our enthusiasm for the forthcoming climb!

This 30-foot vertical crack brought us up to the ridge where we traversed left to a spot opposite the old Monarch Mines shaft. Belaying from an old post embedded in the rock, we climbed this wall direct and five pitches brought us to the top of this first steep section. The second pitch was the most difficult of this series and in this we used two pitons for protection to give us psychological support to surmount two small overhangs.

From the top of the first buttress, 1500 feet of enjoyable scrambling brought us to a levelling out of the ridge. An old stove and other rusty chunks of iron told us that others had been on these meadows before. In all likelihood they were brought up either the east or the west face during the days of the old Monarch Mines. If one wanted to cut out the bottom third of the ridge and thereby be assured of completing the climb in one day he could easily ascend either of these faces.

After a bite to eat we crossed the meadows and scrambled upwards about 200 feet, traversed right and climbed five pitches until once again we were on the ridge. Two more pitches put us on top of the buttress where we switched leaders. Below us, to our left, the wrinkled glacier gorged its way through a gulch to the depths below.

We then traversed left about 30 feet and worked our way up a couloir until we reached the ridge. Still roped we climbed a dozen pitches of mixed snow and rock to the base of an ice couloir which we ascended until we once again attained the ridge. This short section proved to be the crux of the climb and once on the ridge we were home free.

We kicked our way up some snow until our passage was blocked by seemingly impossible overhangs. Leaving the ridge we traversed right, crossed under these overhanging walls, and then picked our way back to the ridge through mixed rock and snow. This last 600 feet offered us some difficulty as the snow had not yet consolidated and water ran freely over some of the short rock pitches we had to climb. This section would be relatively easy later on in the summer or on a cold day when the snow is frozen and therefore solid. We burrowed our way through a cornice and after a few minutes of walking found ourselves on the summit.

It was late now and the sun had already set. We quickly unroped and began our descent down the ordinary route. A heavy bank of clouds covered the western sky and we hurried lest these would blot out the starlight which guided us down the scree sloped to the Stephen—Dennis pass. Unfortunately these clouds moved in, blocking off the faint light the stars offered us. We therefore felt our way down to timberline where we sat out the night under a tree before descending via the fossil beds trail in the early morning light.

The above description is not meant to be a pitch-by-pitch report. Rather it is intended to

inform the readers of what to expect should they attempt it. Two climbers should have no trouble finishing it in a day and a rope of three could easily do it if they got an early start and had good snow conditions for the final 1000 feet. This was one of the most enjoyable climbs that I yet have made in the Rockies and I heartily recommend it to the climber who seeks something different and challenging. The rock throughout was generally good and climbing on it was sheer delight.

We roped up for perhaps 35 pitches and the two or three difficult sections were welcome relief from the enjoyable scrambling. I would grade this climb as NCSS II, F6.

Mount Temple - North Face

Charles Locke

"We had lost contact with the ground. It was as if we were completely and seemingly forever part of an environment of vertical rock, ice and cloud."—John Harlin

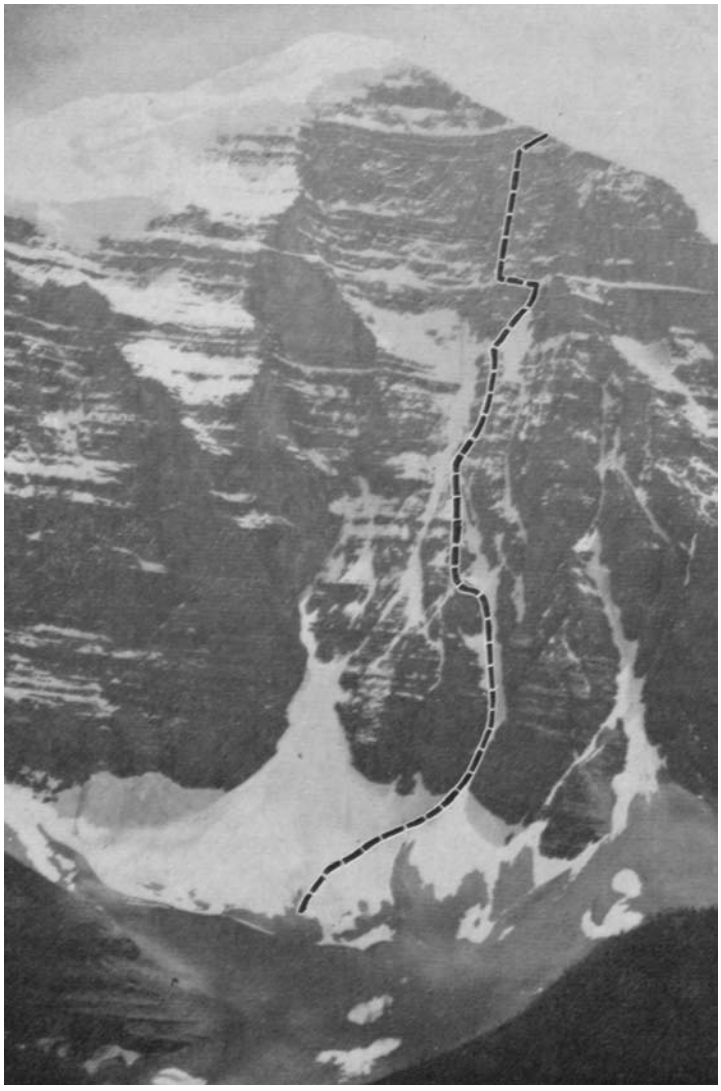
Even before I began climbing, the reputation of Mt. Temple's north face reached my ears. Her sneer of cold command and the icy shadow of her cold gray walls invested in my heart a feeling of tinyness and helplessness; and yet within my body the secret coals of desire flared up whenever I heard people talking about it or whenever I studied it while riding up the Whitehorn sedan lift across the Bow River Valley not far from Lake Louise. I wanted desperately to be one of the party to make the first ascent. As each day of the summer of 1966 passed, I kicked myself for procrastinating and worried constantly that someone would attempt it while I labored away the sunny summer days.

While in the Bugaboos during the first weekend in August, Brian Greenwood approached me and asked me to accompany him and Heinz Kahl on an attempt on this north face. I needed no persuasion, and gave up my job.

The 5000-foot high north face could be broken down into three rough sections. A large and conspicuous ice couloir, named the Dolphin, dominates the lower half of the face. Above this icy section the face immediately steepens into a seemingly vertical rockwall which Brian, in his article in the American Alpine Journal, calls the depression. This depression is capped for over half its length by a hanging glacier through which the possibility of exit remains uncertain. The upper section consists of a glacier which flows down from the summit and hangs even further down to the left of the depression.

On the evening of August 2 we met in Banff to formulate plans. Brian and Heinz had differing views as to which route we should follow. Heinz swore that the only route up the face was to climb the rocks to the right of the Dolphin until the lower edge of the depression. From there he proposed to traverse across to the hanging glacier along one of the ice ledges which cross the face. He then proposed we climb through the glacier and from there work our way up the easy snow slopes to the summit. Brian remained adamant in his belief that we should climb up the right-hand side of the depression and traverse leftwards across the depression then push our way through the glacier on what appeared to be a ramp. I had no preferences myself.

We decided to postpone our start until Thursday August 4 in order to give us more time for preparation. Wednesday afternoon we walked into Lake Annette to reconnoitre the face. Soon after we arrived thunderstorms poured rain upon us and lightning raked the ridges. It rained more or less continuously throughout the night but by 4 a.m. the clouds appeared to be breaking and we started.



Glen Boles

North Face Of Mt. Temple, Showing Route

We realized we had to move swiftly so as to avoid the rockfall on the lower face. This we did as we headed toward the right-hand and smaller of the two prominent couloirs that sweep down from the Dolphin. Brian and I rapidly ascended the firm snow and then traversed onto the rocks to the left. Heinz followed somewhat more slowly. On stopping to wait for Heinz, Brian and I recalled that he had not been feeling well the previous day. Upon reaching us Heinz told us of his discomfort and decided to descend. It must have taken great courage to do this and I admired him for it; I am certain he wanted this climb as badly as anyone.

The sun had now begun to wake up the mountain. Serenaded by the hum and clatter of almost continuous rockfall, we climbed swiftly up these rocks. On a small ridge, perhaps halfway up the face and a little below the top of the Dolphin, we roped up. I'm afraid I cannot remember each pitch but a few remain vividly in my mind. Brian started up. We "leapfrogged" for four pitches until the ridge was blocked by a seemingly vertical buttress. The only feasible thing to do was to traverse left on a ledge or at least what appeared to be a ledge. Soft snow on 45-degree

smooth ice didn't give us a great deal of confidence in the ledges which the face seemed to offer.

Brian was able, by carefully packing down the snow, to form steps that held his weight. But often these precarious steps would not be adequate and he was forced to chip out steps in the underlying ice. Following the upper rim of the ledge, he continued his traverse; his hands on the rock and his feet on the ice. The idea of continuing this slow procedure all the way across the face seemed ludicrous so at the first opportunity Brian left the ledge and ascended diagonally upward for a short distance. I joined him, retrieving the occasional piton he was able to insert into the loose rock to retard a swing should either of us fall. Lucky thing he did, as I slid a few feet while working my way up to the top of the ledge. I led up one rope-length then Brian joined me and traversed a few feet to the edge of the depression. On returning he seemed heart-broken. We had that sudden realization that we could not do the direct route. The snow ledges we had looked upon for years proved to be more formidable-looking than the ones we had just crossed. The chimneys we viewed from the bottom were water-worn corners, the rock appeared devoid of cracks, the ramp through the ice was non-existent. We were not about to turn back although small cirrus clouds foretold the coming of a low-pressure area.

We climbed up a not too prominent buttress, occasionally venturing into the depression. The quality of the rock made the grade 5 climbing quite pleasant and helped shield our disappointment. We used a few pitons—some for protection, others for aid—as we slowly worked our way upwards.

Toward mid-afternoon a small plane flew by the face four times. We realized that someone was looking for us and I began to doubt the fact that I was in the Rockies and visualized myself struggling up the north face of the Eiger. The next day we learned that it was Bill Smythe, from the Moraine Lake Lodge, and Heinz checking on our progress.

Just as we reached the small ledge where we spent the night an ominous roar deafened us and a large amount of snow and ice parted company with the glacier, swept the depression, shattered on a small ledge we had just traversed, and crashed into the depths below. We were thankful that we had veered from our intended route and succumbed to the safety the buttress offered.

It began to rain as we cooked soup and made ourselves as comfortable as we could. The rain later turned to snow but as we were huddled under an over-hang we kept relatively dry. Dawn came and we found ourselves enveloped in a sea of mist. Wet snow was falling as Brian prepared to lead the first pitch. Above, the climbing seemed difficult but not excessively so. Whereas on the previous day Brian and I alternated leads, today Brian led all but two short pitches of the final 500 feet. The continuous tension of the never ending grade 5 pitches, unrelieved by easier climbing, was beginning to have its psychological effect on me and I was only too glad to let him lead.

A final steep section, requiring aid for a short distance, ended with a strenuous pull over an overhanging bulge. We were now nearly on top of the face and after two short ascending traverses over rock and snow were standing on top of the wall. Unroping, we continued to the summit.

During the previous day and a half we encountered some difficult climbing but at no point did we go to our limit. We used about 35 pitons (not including those used for anchors). Most were used for protection with the exception of the one short stretch where we resorted to direct aid. Brian grades this climb as NCCS III, F7.

Even though we veered from our proposed route, we felt a great sense of achievement. The centre of the face, continually swept by rock and icefall and capped by a glacier through which the possibility of exit appears uncertain, remains unclimbed. Perhaps some day its lure will attract some climbers who will push the perfect route up the north face.

The Ottawa Revisited

Dick Dorling

Inspired by Dr. Pat Duffy's article in the 1957 Canadian Alpine Journal, Imre and Yvette Micbalik, Leon Hawes, my wife Sylvia and I decided to return to Pat Duffy's "rock gardens" over the Ottawa River on the 1966 Dominion Day weekend.

After studying a large-scale map of the area our main problem seemed to be the inaccessibility of the cliffs. Whilst the Quebec shore on which the cliffs were situated was happily still completely undeveloped country, the Ontario southern shore had reached the other extreme, being blessed with a nuclear power station and Petawawa Camp, a large military reserve. Access by way of the power station or the army camp was out of the question, especially for rock-climbers who, here in Eastern Canada, are considered a very strange breed.

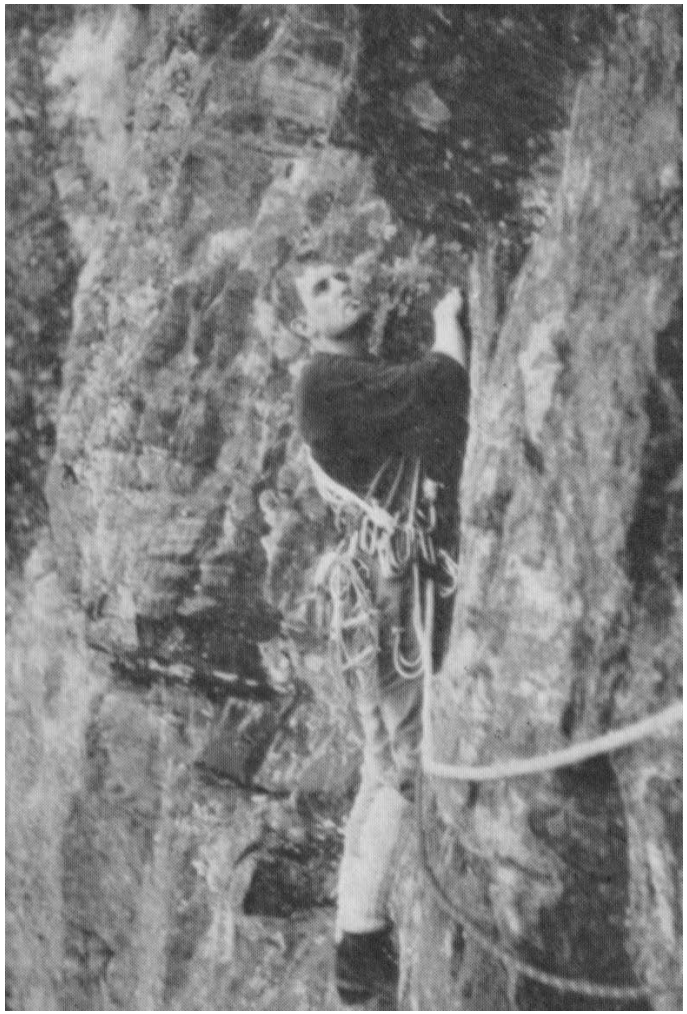
The five of us left Toronto on the Friday evening and some 4l/2 hours later arrived at Chalk River. After an abortive attempt to persuade the Atomic Energy guards to "lift the drawbridge" we found a suitable field for the night and pitched our tents, much to the delight of the Ontario insects, which were particularly thick at that time of year.

Early on Saturday morning we arrived at Deep River in the hope of hiring a craft to transport us across the Ottawa River to the cliffs. With some despair we found not a single boat available, in this the largest town in the area. However, on heading further west toward North Bay, we found a boat for hire at Point Alexander some 14 miles up river from our objective. After a 90-minute journey two prominent-looking cliffs were sighted, one directly across the Ottawa from the power station and a second some two miles east, namely the Oiseau Rock. Our first impressions were that both cliffs offered several lines that would "go" as we had come well prepared with "hardware" and all felt in good spirits.

Having set up camp in a delightful cove between the two cliffs, Leon, Imre, and myself set off in the hopes of making the first ever ascent of the Oiseau Rock, by way of the face. A pleasant-looking line was chosen towards the left side of the face. After an initial pitch of 100 feet up some vertical rock, the etriers were produced. Half a dozen pitons were placed in the doubtful-looking overhang above before our old friend "negative-thought" set in. With the help of a temperature in the middle nineties and the pungent aroma of a dead deer directly below our dangling leader, the retreat was sounded. After our somewhat blasé comments earlier in the day we sheepishly returned to the ladies.

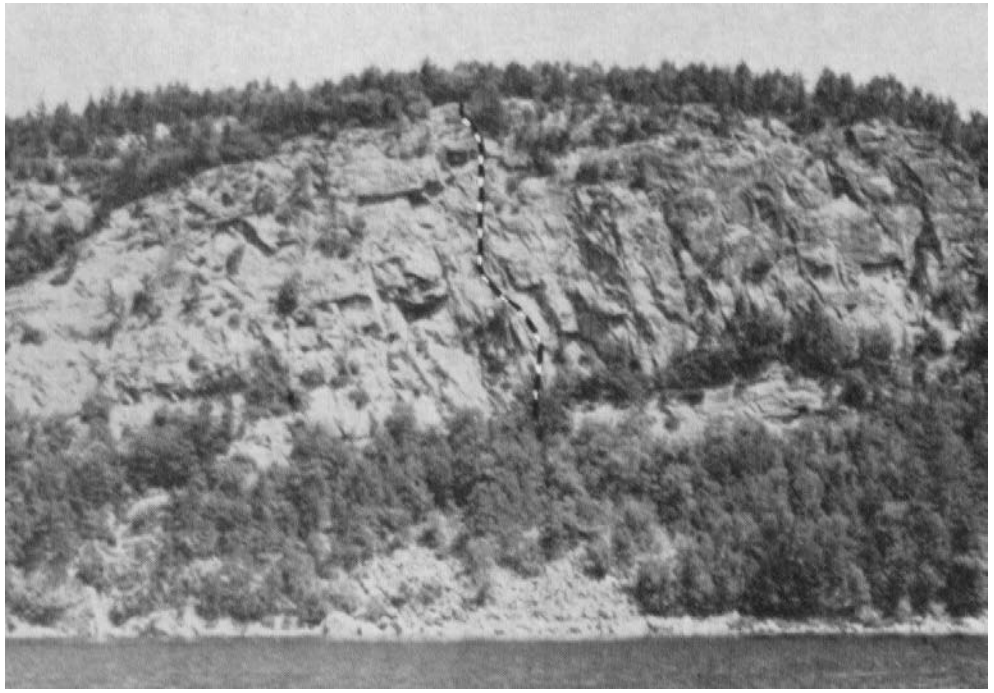
The Sunday morning we returned to the Oiseau Rock and picked out the easiest-looking line on the cliff, seemingly around grade 4. After 100 feet of vegetated rock the wall steepened and we were rewarded with two delightful pitches of grade 5 climbing. At noon the summit was reached. The route we name "Cent-et-Un," which we later learned was the temperature reached in Deep River that day. Due to the dehydration we experienced it was agreed to start climbing the following day at first light.

At 6 a.m. Monday we found ourselves at the base of the nameless cliff directly opposite the nuclear plant. An ambitious line was selected up the centre of the wall but none of us was aware of the treat that lay in store for us. For the East, the climb was long, some 450 feet on rock of the highest quality. Two 130-foot pitches of grade 6 climbing were encountered and also two short sections requiring aid climbing. The climb we named "Toronto Wall" and again the summit was reached in a rare state of dehydration. After a record descent to the boat we arrived back at camp



Imre Michalik

"Toronto Wall"



Imre Michalik

Pitch Three, Named "Cent-et-un"

to learn that our wives had been visited by a herd of white-tailed deer in our absence.

A leisurely swim and lunch were enjoyed before the arduous task of reloading our boat, in the heat of the day, for the return journey. One last look at the two crags which had offered us such excellent climbing during the long weekend and we were heading up river to Point Alexander once again. So ended a memorable trip.

Bon Echo (Mazinaw Lake), Ontario

Brian Cook

The clergy appear quite frequently in climbing literature as participants in first ascents, and Mazinaw Rock provides a further example. In the late 1920's, the Reverend George Passmore attempted a solo climb and "clung immobilized half way up the face of the precipice for hours until his plight was discovered by cottagers across the lake". Today, Mazinaw Lake, (or Bon Echo as it is usually called) has become the most active climbing area in Eastern Canada and the focal point of the rock-climbing activities of the Toronto Section of the Alpine Club of Canada.

Located 170 miles east-northeast of Toronto, Bon Echo is accessible to residents of Toronto, Ottawa and Montreal. The Toronto Section has acquired some property, built a cabin, and operates a boat; the cliff and cabin being on the side of the lake remote from the road. Total annual attendance is the equivalent of twelve climbers each weekend for 30 weeks. The Toronto Section climbing guide (available at $2.50 per copy) lists nearly fifty established routes.

The first attempt by a climbing party on Mazinaw Rock was in 1956 by four members of our Club. The following awe-struck account from a local newspaper recorded the event thus:

"canadian gibraltar, conquered by quartette from alpine club" "The sheer 350 ft. granite face of the famed Bon Echo Rock on Lake Mazinaw, north of Cloyne, was climbed for the first time, over the Labour Day weekend, by four Toronto members of the Canadian Alpine Club. Dr. Allen Bruce-Robertson, David Fisher, Marnie Gilmour, and Katherine Starr. Using mountain climbing gear belonging to Fisher, that had seen service in the Alps, Alaska, The Rockies and Himalayas, the quartette of young Canadian Alpinists, made their first ascent Saturday afternoon in three hours and eighteen minutes. A second ascent was made the next day by a more difficult route in about the same time. Drawn by news of the unique event, two score or more cottagers watched the daring climb from a small flotilla of outboards at the base of the towering cliff."

From 1956 to the present time, Bon Echo has become increasingly popular with Toronto Section members. Not only is the climbing excellent, but the lake is one of the most scenic in Ontario. By the autumn of 1962, it had become evident that the camp-ground in the Provincial Park on the opposite side of the lake from the cliff was not an ideal base for climbing activities, and the Section decided to purchase and develop some property a mile north of the cliff and on the same side of the lake.

In 1963, a single-room, frame construction cabin with a 16- by 24-foot floor area was erected in the space of three weekends. A lone professional carpenter supervised the activity of some thirty members. At a later date, the roof and walls were insulated and a kitchen unit installed. No sleeping facilities are provided and camping is encouraged in the summer months.

To reach the cabin from the road involves a l 1/4mile crossing of the lake, and the centre of the cliff is a further l 1/4 miles by boat from the cabin. By the end of 1964, it was realized that small hired boats were too slow and unsafe in rough weather. It was decided, therefore, to purchase

a 14-foot fiberglass boat with an 18-horsepower motor, and defray operating expenses with a $1.00 boating fee. This boat has proved a real work-horse and can safely carry ten climbers in calm weather. The acquisition of the boat led to the construction of a dock supported by a stone-filled crib. The filling of the outer crib was undertaken early in the year and several members deserve a distinguished service award for carrying heavy rocks in the icy water.

The property, cabin, boat and dock represents an expenditure of approximately $3,500.00. Of this, some $1,500.00 was raised by donations from Section members and the remainder from Section funds and the proceeds of a ski movie sponsored annually by the Section. Ownership of the cabin and property was vested in two trustees appointed by the Section.

Turning now to the climbing: Mazinaw Rock rises abruptly from the lake and its height exceeds 300 feet for over a mile. The lake provides easy access to the foot of the cliff; nearly all the climbs have to be reached by boat and the first move out of the boat is not without its hazards as several wet climbers have discovered. No slogging up interminable scree slopes here. On the other hand, it is a sobering thought that we are using only the upper half of the cliff because the lake is 475 feet deep close to the foot of the cliff. The rock is steep granite which has a pronounced tendency to form ridges and ramps which slope diagonally from low right to high left. Cracks, grooves, open faces and over-hangs are plentiful but there is only one true chimney climb. A number of trees and bushes provide good belays and shade in the summer months, but only a few routes are spoiled by an excess of vegetation. The established routes are mostly grade 4 or 5 but there are a half-dozen grade 6 climbs and some artificial pitches. John Turner was the first climber to force harder lines up the cliff in 1960 and 1961. His "Vertigenous", "Sweet Dreams", and "The Joke" have become classics. It was not until 1966 that what is believed to be the original finish on "The Joke" was repeated. "Sweet Dreams" with its sensational descending traverse and tough final crack has seen numerous ascents but retains its reputation and grading. On occasions, Ottawa and Montreal Section members are welcome additions to the climbing fraternity at Bon Echo. Two Ottawa climbers put up the Ottawa route in 1960, an excellent climb that was not rediscovered until 1964. In terms of good hard routes, the present generation owes much to a well-matched pair of "Tigers" —Helmut Microys and Mike Rosenberger. In 1964 this combination established half a dozen new routes including the "Punchline Variation" to "The Joke", and "MF"[20] which is possibly the finest climb on Mazinaw Rock. In the past three seasons, Dick Dorling has been responsible for several new climbs, his best probably being "The Dangler". Dick also has a remarkable knack of persuading other climbers to tackle things which they considered beyond their capabilities. Three and four years ago, Alf Muehlbauer had a similar catalytic effect on fellow climbers at Bon Echo.

Bon Echo climbing is not necessarily limited to the summer months. A Winter Meet in February has become a regular Toronto Section event. Winter Meets have been well supported and in 1966 even provided a new route.

It is hoped that climbers whose travels take them to southern Ontario will not lose the opportunity to visit this interesting and attractive place. Perhaps the following extract from the CMC journal will whet your appetite; it is taken from a description of "Sweet Dreams" by Brian Rothery.

"I went up fast to the top of the ramp and looked out over the edge at the traverse. I saw a dreadful sight. The whole face fell inwards to the water. The whole expanse of lake started at the tips of my left toe and finger, one hundred and fifty feet below. There were two elements sur-

20 "Mike's Farewell".

rounding the traverse—air and water. The thin ribbon of distant shoreline, that faint suggestion of solid land, merely set off the precariousness of the situation in horrible contrast. The traverse itself involved hanging backwards from poor high handholds with back arched and feet perched on an incut shelf. There is one particular climbing move that I must admit, with no false modesty, to being rather good at. It is driving a piton in, in a tricky place. I drove one here to my left and followed it with another from which I hung a sling—almost my undoing. When I hung from this sling, and stepped under it. I found that I dared not let it go without plunging downwards. After a few swings, I let go and stood for a terrible second on one toe, spreadeagled like a prospective suicider. It was one of those moments when sober thoughts cross one's mind. Eventually I reached the end of the overhanging traverse and scrambled up to an overhanging ledge under the next overhang. The situation was impressive."

Ski Camp Recce In The Gaspe

Dorothy Peck

The objective of this expedition was to find an interesting and challenging site for an Eastern Ski Camp. In March 1966, two Ottawa Section members, Colin and Doreen Ramplee-Smith were good enough sports to accompany me on the venture.

Mount Logan in the Shickshocks had been written up in a 1964 ski publication as offering skiing until the end of May and the name alone was sufficiently enticing to warrant investigation. A letter of enquiry to the writer of the article qualified the area as "undeveloped", just what we were looking for. A modest 3740 feet high, it takes its name from the same source as Canada's highest mountain, in the Yukon.

The Shickshocks are on the Gaspe Peninsula on the south shore of the St. Lawrence River, and are reached from Cap Chat which is 600 miles from Ottawa. Transport by car is recommended as the air and bus connections entail a good many transfers. The driving in early March was good.

Atop of Mount Logan there is an up-to-date TV transmitting station and this was our goal. To reach it we drove 11 miles inland rising about 800 feet to St. Octave de 1'Avenir where we left the car and met the three skidoos. On these our packs and 5 days' provisions were loaded and tow lines fixed for four of us, one visitor. We set out on the 22-mile trek and registered at a Ranger Cabin soon after leaving St. Octave. We were off and on the tow lines frequently, as often the incline was too steep for the additional weight. It took us about 5 hours to get in; part of this was spent at an old cabin in fear of being caught in a severe storm. We arrived at our destination in the dark and were greeted by the station operator, his wife and small child. The accommodation was excellent, a large room with six folding cots, mattresses and blankets, a well equipped kitchenette and a private bathroom. Radio telephone connects the place both with Cap Chat and Matane.

The first day the storm was on and visibility was nil; it would have been foolish to go out. The next day was beautiful with blue skies, and the tops of small spruces, glistening with frost, stuck about 4 feet above the snow, making it close to timber line. On the first ski we found a natural bowl with a 1500-foot drop close at hand. This was formed by Mt. Logan in conjunction with Mt. Fortin and other neighbouring peaks. Everywhere were slopes ranging from intermediate to expert and runs of up to 2 miles in length. Two days of skiing showed us long runs always within view of the TV station, not too much variety, although some of our ski camp members from the Rockies

would have explored the "bowl" more than we were able to. Each run required a long hard climb where skins were an asset, but to any nature lover the surroundings

made up for it.

On the last sunny day we had a magnificent run out, 22 miles easy downhill which was the most delightful if less exciting part of the whole trip.

Although I would hesitate to recommend this area for a ski camp it would be highly suitable for a small group who can live without tows. Going in April or May would shorten the skidoo trip. We were delighted to have become that much better acquainted with Canada's potential ski country and felt that not one minute of our short holiday had been wasted.

Further enquiries could be sent to myself or to Mr. Yvon Fortier, TV Station CKBL, Matane, P.Q.

1966 Published Or Advance Map Sheets, British Columbia And Yukon Territory

Neal M. Carter

A note on pages 145-150 of Vol. 49 of this Journal (1966) introduced the intention of publishing annually in the Journal a list of new or revised Canadian map sheets of possible alpine interest that became available during the past year from the Canadian Federal or Provincial Governments. That note explained the Canadian National Topographic System of designating map sheets, illustrated portions of some Map Sheet Indexes for locating the areas covered by the various map sheets, gave information concerning scales and nature of the various types of maps, and indicated which detailed maps of alpine areas were not yet available up to the end of 1965.

It is not feasible to re-publish each year in the Journal the data and illustrations given in that introductory note, which should be referred to in conjunction with this supplementary note that summarizes information concerning additional maps that became available during 1966.

Map Sheet Indexes for all parts of Canada are available free upon request from the Map Distribution Office, Department of Energy, Mines and Resources, Ottawa; Map Sheet Indexes for the individual Provinces are similarly obtainable from appropriate Provincial Departments (e.g. for British Columbia from the Surveys and Mapping Branch, attention: Geographic Division, Department of Lands, Forests, and Water Resources, Victoria, B.C.) These annual Indexes indicate all areas already mapped, and give prices of the maps. Copies of Map Sheet Indexes, and of many of the maps themselves, are also available from, or may be consulted at, certain local Government offices (e.g. Canadian Geological Survey; Government Agents; Provincial Land Commissioners; Canadian Government Queen's Printer Bookshops in Montreal, Ottawa, Toronto, Winnipeg and Vancouver).

The following are among the new British Columbia map sheets that have become available during 1966 and to March 1, 1967. The Canadian National Topographic System Map Index key reference is followed by the map sheet name, and the type of map edition in parentheses (pr. = provisional; st. = status).

1/250,000 scale, published (* indicates Federal series)

*82L	—Vernon (1st)	93E	—Whitesail Lake (2nd st.)
*82N	—Golden (1st)	93G	—Prince George (1st st.)
*92F	—Alberni (3rd)	*93H	—McBride (1st)
93A	—Quesnel Lake (1st st.)	*93I	—Monkman Pass (1st)
93B	—Quesnel (1st st.)	93M	—Hazelton (2nd st.)

1 inch to 2 miles scale, published

82 K/NE	—Invermere (1st st.)	92 H/NW	—Yale (2nd st.)
82 K/NW	—Beaton (1st st.)	92 I/NW	—Ashcroft (2nd st.)

1/50,000 scale, published as separate East and West Half sheet

82	E/1	E&W-	Grand Forks (1st)
82	F/1	E&W-	Yahk (1st)
82	F/14	E&W-	Slocan (2nd)
82	M/13	E&W-	Raft River (1st)
82	M/14	E&W-	Messiter (pr.)
83	D/13	E-	Kiwi Creek (1st)
83	E/6	W-	Twintree Lake (1st)
92	P/12	E&W-	Gustafsen Lake (1st)
93	B/3	E&W-	Alexis Creek (1st)
93	B/4	E&W-	Redstone (1st)
93	B/5	E&W-	Loomis Lake (1st)
93	I/1	E&W-	Jarvis Lakes (1st)
93	I/2	E&W-	Herrick Creek (1st)
93	I/3	E&W-	Gleason Creek (1st)
93	I/11	E&W-	Monkman Pass (1st)

93	I/15	E&W-	Kinuseo Creek (1st)
93	P/14	E&W-	Favels Creek (1st)
93	B/6		Nabesche River (pr.)
94	B/11	E&W-	Christina Falls (pr.)
94	G/3	W-	Marion Lake (pr.)
94	G/11	E&W-	Minaker River (pr.)
94	J/3	E&W-	Tenaka Creek (pr.)
94	K/8	E&W-	Chlotapecta Cr. (pr.)
94	O/9	E&W-	Trail Lake (pr.)
94	O/10	E&W-	Tightfit Lake (pr.)
103	B/2	W-	Lyman Point (2nd)
103	B/5	E-	Gowgaia Bay (2nd)
103	C/9	E-	Tasu Head (2nd)
103	C/16	E&W-	Moore Channel (2nd)
103	F/12	E-	Cartwright Sd. (2nd)
103	F/7	E&W-	Rennell Sound (2nd)
103	F/9	E&W-	Port Clements (2nd)
103	F/10	E&W-	Awun Lake (2nd)
103	F/14	E-	Frederick Island (2nd)
103	F/15	E&W-	Naden River (2nd)
103	F/16	E&W-	Masset Sound (2nd)
103	G/12	W-	Tlell (2nd)
103	G/13	E&W-	Eagle Hill (2nd)
114	P/15	E&W-	Parton River (2nd)

2 inches to 1 mile scale, advance ozalid prints

83	D/4	E&W-	Murtle Lake
83	D/5	E&W-	Angus Home Lake
83	D/12	E&W-	Azure River
93	D/13	W-	Kiwi Creek

93	J/5	E&W-	Great Beaver Lake
93	J/6	E&W-	Youngs Creek
93	J/11	E&W-	Weedon Lake
93	J/12	E&W-	Carrier Lake
93	J/13	E&W-	Salmon Lake
93	K/11	E&W-	Cunningham Lake
93	K/12	E&W-	Pendleton Bay
93	M/1	E&W-	Old Fort Mountain
93	M/2	E&W-	Harold Price Creek
93	M/8	E&W-	Nakinilerak Lake

British Columbia Provincial Parks Series

P.S.A. 2—Mt. Assiniboine Park. 2 inches to 1 mile.

P.S.B. 2—Bowron Lake Park. 1 inch to 1 mile.

P.S.R. 2—Mt. Robson Park. 1/2 inch to 1 mile.

In connection with the Yukon Alpine Centennial Expedition (see page 1) the Canadian Federal Government has recently published a special map designated as M.C.R. 7—Centennial Range, Yukon Territory, on a scale of 1/125,000 (2 miles to 1 inch), contoured and shaded, with glaciers in blue, showing 13 of the 14 peaks to be climbed during this expedition in the Centennial Range of the Icefield Ranges of the St. Elias Mountains. An additional special map showing the region of the Centennial Camp by the Steele Glacier, just northeast of the Centennial Range, is also expected.

Mountain And Other Geographical Names In Canada

The above title and the information following this paragraph may lead you to think this note was intended for the Book Reviews section. It wasn't. It is here so that if you think you may have a climb or expedition you would like to write up for our next volume of this Journal, we would like to draw your attention to the following Canadian Government publications that deal with the correct names (and their spellings!) of geographical features in Canada. At least three of them deal with alpine regions. We use these in checking authors' submissions, with results that sometimes surprise not only us but some authors as well. Now we don't suggest you must buy a set before you write your article, because as mentioned below they can be referred to in public libraries across Canada. An alternative is to check with the names and spellings on recent government maps. For instance, in British Columbia it is possible to climb both Mount White (Mt. White) and White Mountain (White Mtn.)—the difference in the form of the name is because in the first case the mountain was named after someone whereas in the second case the mountain

looked white to someone. And unless the name is official, please put it in quotes the first time you mention it in your article.

The Geographical Branch of the Department of Energy, Mines and Resources Gazetteer of Canada series now covers eight of the ten Provinces and the Yukon and Northwest Territories (the Quebec and Newfoundland volumes are in preparation). The first volume for a whole Province (B.C.) appeared in 1953, and several have been revised or reprinted. They alphabetically list all geographical features (mountains, glaciers, lakes, rivers, creeks, etc.) and populated centres (cities, towns, villages, post offices, etc.) whose names have been approved by the Canadian Permanent Committee on Geographical Names. Each name is followed by a very brief description of the location, and a latitude and longitude reference is given. Supplements to the Gazetteer of Canada are issued semi-annually.

The British Columbia volume, one of particular interest to alpinists, has just been completely revised and became available in early 1967. Its 739-page alphabetical list gives some 35,000 names (about 8000 more than the 1953 edition); 18 preliminary pages include interesting historical information about some B.C. place names; rules and procedures for suggesting new names; and other useful information.

If the prices of these volumes are any indication of the distribution of geographical names across Canada, it is interesting to note they range from 75 cents (Prince Edward Island) through $1.30 (Yukon and Northwest Territories) and $1.65 (Alberta) to $7.50 (British Columbia). These publications are for sale by the Queen's Printer, Ottawa, also at the Canadian Government Bookshops in Montreal, Ottawa, Toronto, Winnipeg and Vancouver. Deposit copies are also available for reference in public libraries across Canada.

New (Canadian) Ascents And Various Expeditions

Don G. Linke

St. Elias Range, Yukon

MT. ALVERSTONE (14,500 feet) . New route via northeast face; July 25, 1966. Fred Becky, Hank Mather, John Rupley, and George Lowe.

MT. SEATTLE (10,185 feet) . First ascent; May 16, 1966. Fred Becky, Don Liska, Eric Bjornstad, Art Davidson, Herb Staley, and Jim Stuart.

Haines Highway Region, B.C.

THE THREE GUARDSMEN (GLAVE PEAK) (ca. 6250 feet) . First ascents of north (highest) and central summits; July 10, 1965. George and Frances Whitmore.

Vancouver Island

WARDEN PEAK (ca. 6500 feet) . First ascent; July 9, 1966. P. Guilbride, Kurt Pfeiffer, Peter Perfect.

MT. COLONEL FOSTER (ca. 7000 feet) . Second ascent; Aug. 1, 1966. Ron Facer, Mike Hanry, and Ralph Hutchinson.

Coast Mountains, B.C.

Bella Coola Area:

SNOWSIDE MTN. (ca. 9500 feet) . New route via east ridge; Aug. 4, 1966. George and Frances Whitmore, Joe and Joan Firey, Gary Rose, and John Chichester.

MT. JACOBSEN (ca. 9000 feet) . New route on west peak via north ridge and face; Aug. 6, 1966. George and Frances Whitmore, Joe and Joan Firey, Gary Rose, and John Chichester.

"MT. GENGHIS" (ca. 9000 feet; map shows 8500 feet) . First ascent; Aug. 11, 1966. George and Frances Whitmore, Joe and Joan Firey, Gary Rose, and John Chichester.

Pantheon Range:

See articles starting on page 1 of this Volume for a detailed account of several first ascents listed below which were made from the B.C. Mountaineering Club 1966 expeditionary camp. Climbers were Alice Purdey, Bob Cuthbert, Judy Horgan, Martin and Esther Kafer, Paul Plummer, Sheila Pilkington, Sieg Werner, Dick Chambers, Jack Bryceland, Bill Wortman, and Jim Craig.

"MT. ASTARTE" (ca. 9800 feet) . First ascent; July 20, 1966. Two routes.

"MT. BYAMEE" (ca. 9800 feet) (north peak) . First ascent; July 21, 1966.

"MT. DANAUS" (ca. 8700 feet) . First ascent; July 22, 1966.

"MT. SIVA" (ca. 9800 feet) . First ascent; July 22, 1966.

"MT. OSIRIS" (ca. 9000 feet) . First ascent; July 24, 1966.

"SEPTENTRION SPIRES" (Highest spire (ca,. 9500 feet) . First ascent; July 24, 1966. Two southern spires, first ascents; July 26, 1966. Northern spire, first ascent; July 26, 1966.

"MT. JUNO" (ca. 9000 feet) . First ascent; July 27, 1966.

"MT. ZEUS" (ca. 10,000 feet) . First ascent; July 27, 1966. Second ascent Aug. 3.

"MT. HERMES" (ca. 9800 feet) . First ascent; July 27, 1966.

"MANITOU PEAK" (ca. 9300 feet) . First ascent; July 30, 1966.

"MT. THOR" (ca. 9800 feet) . First ascent; Aug. 1, 1966.

"KALI PEAK" (ca. 9000 feet) . First ascent; Aug. 1, 1966.

"HEPHAISTOS PEAK" (ca. 9300 feet) . First ascent; Aug. 2, 1966.

CHILCO LAKE AREA:

GLASGOW MTN. (9700 feet) . First ascent; Aug. 30, 1966. Earl Whipple, Paul and Nina Wisnicki, and Peter and Frank Kellerhals.

UNNAMED PEAK (8700 feet) . Located north of Good Hope Mtn. First ascent; Sept. 1, 1966. Paul and Nina Wisnicki, and Frank Kellerhals.

Raleigh Glacier Area:

MT. FALCON (9300 feet) . First ascent; July 5, 1966. D. Boyd, G. Fish, and G. Suddaby.

UNNAMED (ca. 9600 and 9500 feet) . First ascents of 2 rocky peaks located around the upper basin of the north arm of Raleigh Glacier between the 9700-foot southeast outlier of Mt. Raleigh and "The Cleaver"; July 4 and July 7, 1966. D. Boyd, G. Fish, and G. Suddaby.

Tantalus Range:

PANDAREUS PEAK (6800 feet) . Second ascent of the west ridge; Aug. 1966 by a party from the A.C.C. Vancouver Section's 1966 Tantalus camp.

Garibaldi Park

VEEOCEE MTN. (ca. 7000 feet) . First ascent; Sept. 1966. Peter Macek, Roland Burton, and Peter Thompson. (Varsity Outdoor Club Journal, 1966.)

The Squamish Chief

Seven new routes during 1966 by Fred Beckey. See article in this Volume.

Cariboo Mountains, B.C.

During the summer of 1966 a geological survey party under Dr. R. B. Campbell mapped part of the McBride map sheet. Some 30 mountaineering first ascents were made in the northernmost Cariboo Range and some of the adjacent Rocky Mtns. during the course of this work, and some of these are listed below. See the article in this Volume. Climbers included Dick Culbert, Ron Nicols, Jim Buckingham, and others.

"MT. FORMAN" (7500 ft.)
"MT. CHEVRON" (9700 ft.)
MT. HAMMELL (7800 ft.)
"PINSTRIPE PEAK"(7800 ft.) NORTH STAR MTN. (8400 ft.)
"WHITESPINE" (8100 ft.) "THE BOXCAR" (7900 ft.)
"MT. COCHRAN" (7900 ft.) MT. HALVORSON (9123 ft.)
"SLOG MTN." (8100 ft.)
"BROKEN ARCH" (7700 ft.)

Monashee Mountains B.C.

Gold Range:

MT. THOR (96/3 feet) . Second (?) ascent; Aug. 7, 1966. Dave Parfitt, Graham Hollins, Chris Kopczynski, and John Roskelley.

Northern Selkirks, B.C.

Adamant Group:

QUADRANT SPIRE (ca. 9600 feet) . First ascent; July 27, 1966. Jo Kato, Scipio Merler, Robi Fierz, and Hans Gmoser. Also new route via north face direct; Aug. 6, 1966. G. I. Bell, and D. Michael Jr.

OUTPOST MTN. (ca. 9000 feet) . New route via northwest ridge; Aug. 6, 1966. Mr. and Mrs. W. V. G. Matthews.

AUSTERITY MTN. (10,960 feet) . A variation of Hendricks' route (1948) but bypassing Ironman on east snow. W. L. Putnam, G. I. Bell, D. Michael Jr., M. B. I. Goddard, and M. Matthews.

TURRET PEAK (10,600 feet) . New route via Turret Glacier and east ridge; Aug. 1 1966. W. L. Putnam, D. Michael Jr., G. I. Bell, Mr. and Mrs. W. V. G. Matthews, L. R. Wallace Jr., and M. B. I. Goddard.

ADAMANT MTN. (10,980 feet) . New route — west-to-east traverse from Turret; Aug. 1, 1966. W. L. Putnam, D. Michael Jr., G. I. Bell, Mr. and Mrs. W. V. G. Matthews, L. R. Wallace Jr., and M. B. I. Goddard.

PIONEER PEAK (10,760 feet) . New route via "Elegance Arête"; Aug. 3, 1966. G. I. Bell and D. Michael Jr. Also, new route via northeast arête; Aug. 3, 1966. W. L. Putnam, M. Matthews, L. R. Wallace Jr., and M. B. I. Goddard.

Selkirk Mountains, B.C.

Albert Icefield Area:

See the article in this Volume for an account of the following first and second ascents. Some of the climbers were Robert and Peggy West, Art Maki, Tom Fiebig, Mike Petrilak, and Bill Taylor.

"MT. JUSTICE" (9400 feet) . First ascent; Aug. 3, 1966.
"PRIMROSE PEAK" (8600 feet) . First ascent; Aug. 4, 1966.
"BAIN PEAK" (9900 feet) . Second ascent via a new route (south ridge) ; Aug. 6, 1966.
"FAITH PEAK" (9300 feet) . First ascent; Aug. 9, 1966.
"CHARITY PEAK" (9500 feet) . First ascent; Aug. 9, 1966.
"FULGURITE PEAK" (8600 feet). First and second ascents; Aug. 12 & 18, 1966.
"PRUDENCE PEAK" (9000 feet) . First and second ascents; Aug. 15 & 17, 1966.
"SOUTH ALBERT PEAK" (9800 feet) . First ascent; Aug. 18, 1966.

Purcell Mountains, B.C.

Bugaboo Group:

NORTHPOST SPIRE (9500 feet) . New route from the north in a direct line to the summit; Aug. 1966. Fred Beckey and Jerry Fuller.

Rocky Mountains, B.C. - Alberta

BARBICAN PEAK (10,100 feet) . New route via east face; Aug. 1966. Fred Beckey and Jerry Fuller.

THRONE MTN. (10,144 feet) . New route via "left armrest"; Aug. 4, 1966. H. F. Microys.

(1) UNNAMED PEAK 2 1/2 miles northeast of Dolomite Pass (ca. 10,150 feet) . First ascent; July 22, 1966. W. L. Putnam, D. Michael Jr., W. V. G. Matthews, M. Stearns, L. R. Wallace Jr., and M. B. I. Goddard.

(2) UNNAMED PEAK 3 miles north-northeast of Dolomite Pass (ca. 10,100 feet). First ascent; July 23, 1966. W. L. Putnam, D. Michael Jr., L. R. Wallace Jr., and M. B. I. Goddard. (Editor's note: W. L. Putnam has suggested the name "Watermelon Peak" for the first unnamed peak and "Siffleur Mtn." for the second unnamed peak climbed by him. There already is a Siffleur Mtn. (10,266 feet) located 16.6 miles almost due north of Dolomite Pass — see Mistaya 1 inch := 2 miles map 82 N/NE.)

MT. STEPHEN (10,495 feet) . New route via north ridge; July 1966. Charles Locke, Chic Scott, and Gerry Walsh.

MT. LEFROY (11,230 feet) . First winter ascent; Mar. 24, 1966. Fred Becky, Ron Burgener, and Jim Madsen.

MT. TEMPLE (11,636 feet) . New route via north face; Aug. 4-5, 1966. Brian Greenwood and Charles Locke.

STANLEY PEAK (10,351 feet) . New route via east face; July 22, 1966. Heinz Kahl and Nick Ellens.

MT. VERENDRYE (10,125 feet) . New route via east face; Aug. 16, 1966. Fred Becky and Jerry Fuller.

MT. PRINCE EDWARD (10,590 feet) . Second ascent; Aug. 25, 1960. Bill Hurst and Gerry Brown.

The Kootenay Karabiner

The Kootenay Karabiner is published twice yearly by the Kootenay Section of the Alpine Club of Canada. Under the editorship of Chris Penn and Jack Oswald, it contains articles and sketches on the mountaineering activities of the small, but active, climbing group in this area.

It is interesting to note that countries such as Nepal which have previously been inaccessible because of political and transportation factors are now relatively easy for the enterprising tourist to visit. This is evidenced by Kim Deane's article in the Fall 1966 issue, describing his hiking tour through the villages and valleys of remote Nepal.

Our Job

Getting out a paper is no picnic. If we print jokes, people say we are silly. If we clip things from other papers, we are too lazy to write them ourselves. If we don't print every word of all contributions, we don't appreciate genius. If we print them, the columns are filled with junk. If we make a change in the other fellow's write-up, we are too critical. If we don't, we are blamed for poor editing. Now, probably, same guy will say we swiped this from some other sheet. We did—from C.A.R.S. Bluebird with Thanks.

SCIENTIFIC SECTION

The Valley Of The Rocks

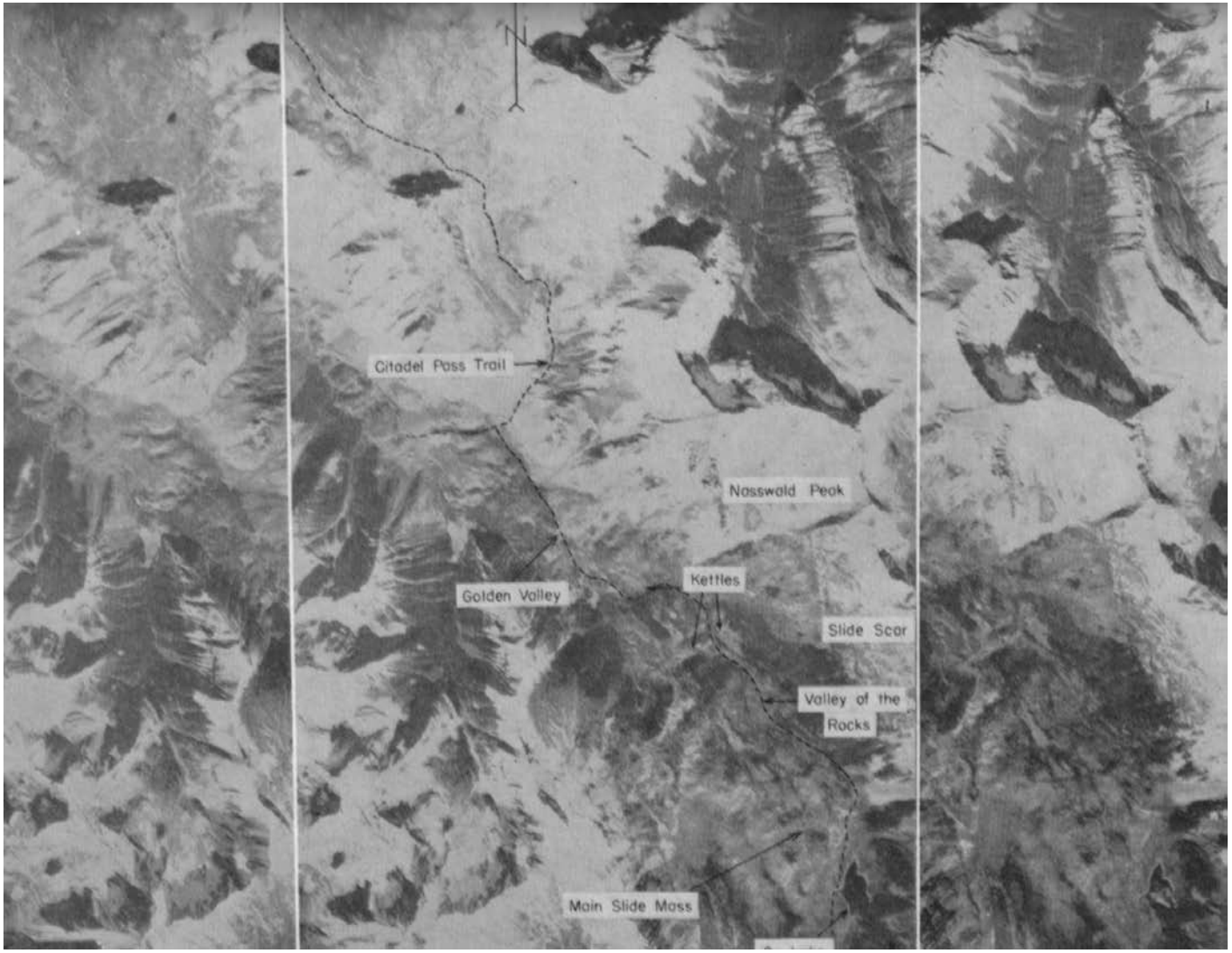
P.J.B. Duffy

Following the 1966 Alpine Club of Canada Summer Camp in Mount Assiniboine Provincial Park I walked to Sunshine Village via the Valley of the Rocks, Golden Valley and Citadel Pass. The 25-mile walk led through a variety of beautiful landscapes but the most interesting for me was the Valley of the Rocks.

The trail from Strom's leads from the spreading meadows of the Assiniboine area through a narrow gulch to Og Lake. Here the landscape changes markedly, being jumbled and hilly with rocks of great size perched in chaotic array. There is a complete absence of soil and the fine material underfoot is seen to be made up of fine gravel and rock flour. The forest is made up of Engelmann spruce and alpine fir with some willow. At timberline the Lyall's larch is seen.

Northwest of Og Lake the trail leads down through broken terrain which is sparsely wooded and almost devoid of life. The silence is complete, being broken, only by the wind in the trees or an occasional rock fall on the cliffs above. The passer-by senses an eerie quiet. The weird jumbled landscape stretches on down to the Golden Valley and beyond with deep pits and eroded ridges as prominent landmarks.

In seeking an explanation to the origin of the Valley of the Rocks, I turned to the interpretation of aerial photographs of the area. The photos yielded some suggestive evidence (see accompanying stereotriplet). Certain features indicate that a large landslide occurred at the site. The chaotic distribution of blocks and the hummocky terrain northwest of Og Lake are similar to conditions at the Frank Slide near Crowsnest Pass and the Hope—Princeton Highway Slide in British Columbia. Another feature is the slide scar on the southwest slope of Nasswald Peak. The scar is 100 to 150 feet deep, a mile long and half a mile wide. It seems to be terminated by an east-northeast-trending fault along the gully which leads just south of the summit of Nasswald Peak. Finally a comparison



Prepared by Z. Nemeth; aerial photos supplied courtesy of the National Air Photo Library, Ottawa

Stereotriplet Aerial Photographs Showing Og Lake, The Valley Of The Rocks, And Golden Valley, Near Assiniboine Park

Scale: approximately 3/4 inch = 1 mile

of the valley cross-section (at the slide site) with those of adjacent valleys shows that the typical glaciated U-shape is not present. The abrupt ending of the smooth side-valley slopes can only be explained by the presence of a slide. These features lead to the conclusion that there was a massive landslide off of Nasswald Peak. Judging by the broken topography in and below Golden Valley, it is assumed that the slide moved northwest along the valley to a point about 3 miles past the Porcupine Cabin site at the beginning of the trail to Fatigue and Citadel Passes.

There is evidence that the slide may have covered a valley glacier which occupied the valley floor at the time of the fall. Large hummocks and pits (kettles) are to be seen on the slide surface. These were probably formed by ice melting under the slide material with resulting caving and settling of the land surface. One such pit is seen just before the Sunshine Trail descends to Golden Valley. It is a conical depression (about 100 feet deep and 300 feet wide) with no outlet. These signs indicate that the flow of the slide material down Golden Valley was aided by the movement of the underlying ice.

The slide is of impressive size. It would be interesting to have a geologist make the necessary observations to estimate the size of the rock mass that dislodged from Nasswald Peak and obliterated the valley landscape. Further study might reveal the approximate date of the incident and whether or not a valley glacier occupied the valley bottom at the time.

At present the Valley of the Rocks offers a sharp contrast in terrain and plant and animal life. The traveller who journeys to Sunshine Village from the lush green meadows of Mount Assiniboine Park will find much of interest in this quiet and uncanny landscape.

Notes On Avalanches, Icefalls, And Rockfalls In The Lake Louise District, July And August, 1966

J. Gardner [21]

This paper presents a few thoughts and preliminary results of the continuation of a study started in 1965, and described in the 1966 Canadian Alpine Journal (Vol. 49) pages 173—178. The over-all study is concerned with observable geomorphic, or landscape-forming, processes and the landforms they have produced in what might be called an "alpine environment". Rather than repeat many of the remarks that appeared in the 1966 paper, it was thought that a few of the preliminary results of the observations on avalanches, icefalls and rockfalls might be of more interest to readers of the C.A.J. These observations on mass movements are but a small part of the study that was carried out during July and August, 1966.

Most people who frequent the high mountain country have, through intuition or cursory observation, developed many ideas of their own regarding mass movements. Indeed many a mountaineer's actions are partly governed by these ideas. The results of this paper would seem to confirm many of the notions that people have developed. Under the term "mass movements" are being considered such phenomena as snow avalanches, falls of ice, and rockfalls. It should be noted that less perceptible movements, such as solifluction and soil creep, are of some significance to the geomorphologist but they will not be directly dealt with in this paper. Snow avalanches, falls of ice and rockfalls are of varying significance in the movement of earth materials down the mountain slopes, and in the sculpture of the mountain slopes themselves. It is not this geomorphic significance that is dealt with in this paper; rather it is the frequency distribution of mass movements

21 Department of Geography, McGill University, Montreal 2, Quebec.

over the period of a day and over the period of the summer, which is taken to include July and August of 1966.

The methods that were used in the actual field observations of avalanches, icefalls and rockfalls are relatively simple, while those that were used for the treatment of the accumulated data are a little more devious. During the time spent in the field an inventory of directly observed mass movements was kept The notation in this inventory included the data, time, the location, and the type of mass movement observed. If the mass movement was a rockfall the number or fragments, size of fragments, and the distance they moved downslope were noted. The study or observation location was restricted almost entirely to the Valley of the Ten Peaks and vicinity. The result of the observations is therefore a great amount of detailed data for a relatively small area of the Rockies.

The collection of data commenced on July 1 and finished about August 25. For obvious reasons, direct observation was limited almost entirely to the daylight hours; however some data were collected for the evening hours. In some cases the data are very weak, particularly in the early and late daylight hours (i.e. 0300-0700 and 1800-2100 hours). This is due to the small number of sample days accumulated over the summer for these time periods, and it is something that should be kept in mind while reading the results. It should be noted that those mass movements recorded are representative of only one location within the study area at any one time. Thus, what is being dealt with here does not represent the total mass movements in the Lake Louise district for the summer of 1966, but is only a sample. Therefore the results are not to be taken as an exact reproduction of reality as it existed at any one time; rather, it can only be hoped that they will focus our image of that reality a little more clearly.

A brief definition of terms is probably in order at this point. The term “avalanche” refers to any rapid or easily perceptible downslope movement of material, the major portion of which is snow. An “icefall” involves the free or rapid down-slope movement of ice fragments, normally from a hanging glacier. By “rockfall” is meant the freefall or bounding fall of rock fragments. A rockfall normally originates from a point on a free face. The movement of rock fragments from one part of a scree or debris slope to another part is referred to as a “shift”, and is not being considered here.

In treating the frequency characteristics of the mass movements, a number of quantitative summarizing measures were utilized. Of primary importance is the frequency distribution of mass movements on the average day in the summer. For this analysis the “average day” was divided into twenty-four 1-hour intervals, and each observed mass movement was replaced in its appropriate time interval. The total mass movements occurring in each 1-hour interval over the two months was calculated. This resulted in an absolute value for each interval but this was felt to be an unrealistic value in that some intervals had a considerably greater accumulated observation time than others. As a result, the total number of mass movements for each 1-hour interval was divided by the number of hours that that interval had been under observation during the two months. The resulting value is the mean number of mass movements per 1-hour interval of the “average day” (see accompanying Table). As noted before, the values for the early and late daylight hours are weak because of their small number of accumulated observation hours.

During July and August about 1400 mass movements were observed, the majority of which were avalanches. Part A of the accompanying Figure represents the frequency distribution of all mass movements on the “average day”. A cursory glance tells one that there is a marked concentration between 11 a.m. and 4 p.m. What concerns one most when looking at such a distribution is the degree

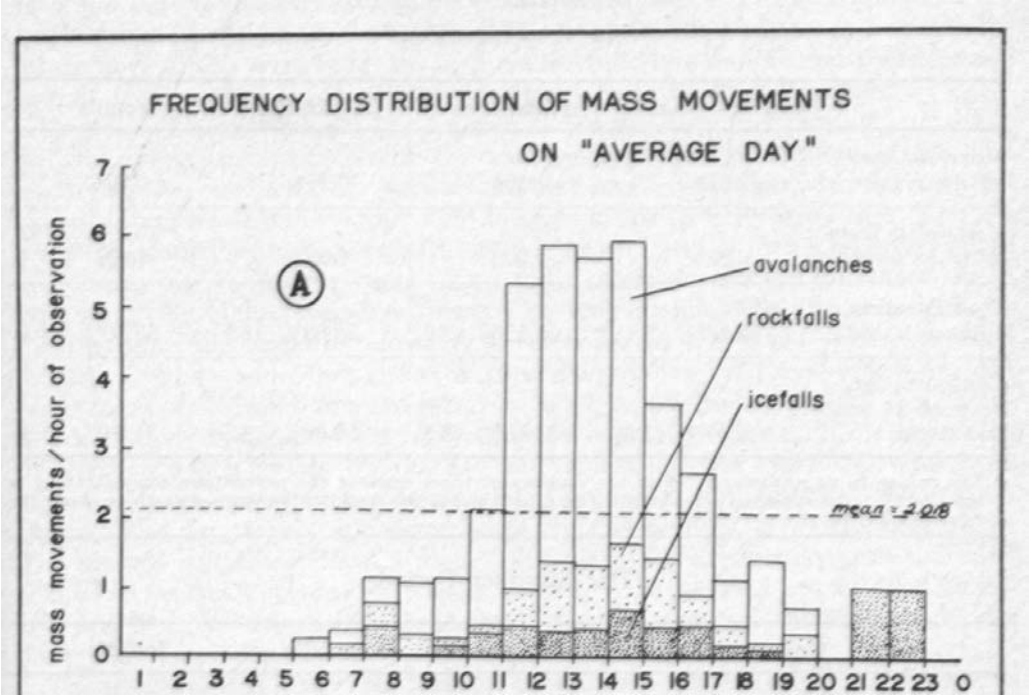


Table A - Frequency Distribution Of Mass Movements On "Average Day"

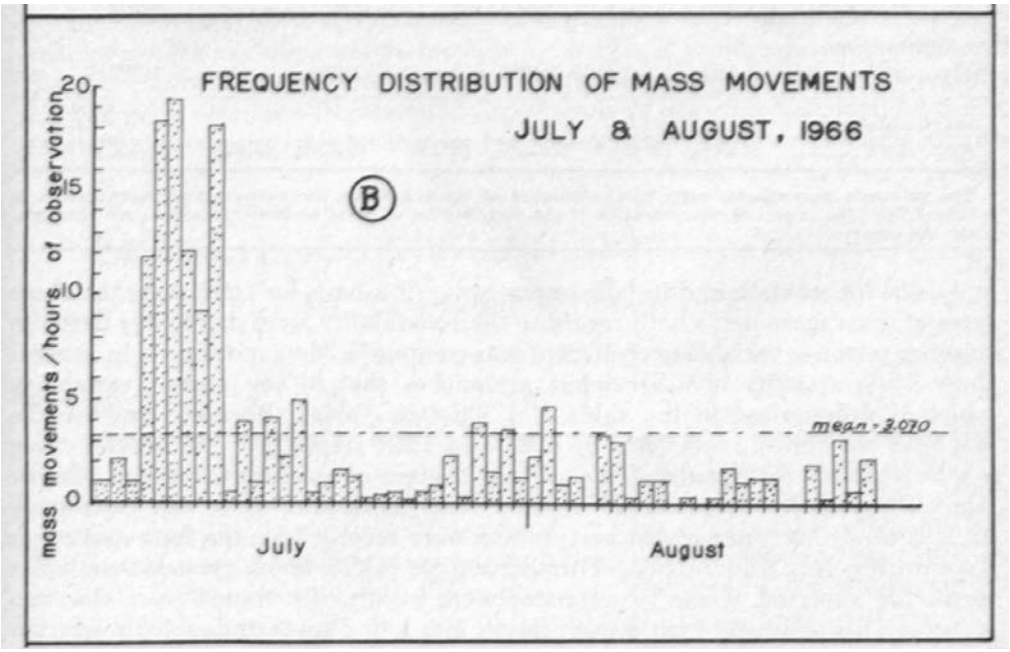


Table B - Frequency Distribution Of Mass Movements July & August, 1966

to which the mass movements are concentrated in this time period. Several statistical summarizing measures are available to quantitatively express the degree of dispersion or concentration. Most of these, however, were not found to be strictly applicable to the case under consideration. Therefore,

the percentage concentration of mass movements in the four 1-hour intervals with the maximum number was computed. This value could then be compared with the percentage concentrated in the four mid-day hours (i.e. 11 a.m. to 3 p.m.) and could also be related to the number of mass movements in the four hours if the distribution had been even throughout the day. In the case of all mass movements, 56.47% were concentrated in the four maximum hours which correspond to the four mid-day hours. This value is 3.4 times the number of mass movements we would expect to be in this time period if the distribution was even throughout the day (see Table). On the average day the mean number of mass movements per hour was 2.018. The variability in the number of mass movements from one hour to the next was also of interest and is a measure that could give some insight into the nature of the frequency distribution of mass movements throughout the day. For example, if the variability measure is very low one might expect the distribution to be relatively even over the time period being considered. The variability measure being used here is referred to as the "variability coefficient" and is derived from the standard deviation about the mean number of mass movements per hour on the "average day", divided by the mean number of mass movements per hour.

To this point mass movements have been discussed in general, and the types of summarizing measures have been roughly explained. Of more interest however, are the frequency characteristics of the individual components, namely avalanches, icefalls and rockfalls. On the "average day" a mean of 1.353 avalanches per hour was observed with a variability coefficient of 1.203. The concentration of avalanches in the four mid-day hours was very marked with an average of 65.15% occurring at that time or 3.9 times the expected number in an even distribution. In this case, as with mass movements generally, the four maximum hours corresponded to the four mid-day hours. There was only 0.364 rockfall recorded per hour on the "average day" and there was considerably less variability from hour to hour (1.050) than was experienced with avalanches. It was found that 58.88% of all rockfalls, or 3.5 times the expected number if the distribution were even, occurred during the four maximum hours which again corresponded to the four mid-day hours. The pattern of icefall distribution on the "average day" was somewhat different than that exhibited by avalanches and rockfalls. A mean of 0.291 icefall per hour was noted, and a variability coefficient of 1.083 was derived. Again there was a relatively high concentration (55.76%) during the four maximum hours but only 31.64% of all icefalls came during the four mid-day hours. This value is only 1.9 times the value expected if the distribution were even.

To summarize the foregoing analysis it might be said that mass movements during July and August, 1966, showed a marked concentration in the hours between 11 a.m. and 3 p.m. The first significant activity on the "average day" began about 8 a.m. and carried on until about 8 p.m. The most frequent occurrence was between 2 and 3 p.m. Significant avalanche activity started somewhat after 9 a.m. and continued until about 7 p.m. (see Part A of Figure). The most frequent occurrence of avalanches was between 1 and 2 p.m. but occurrences were almost as frequent during the other three mid-day hours. It was found that significant rock-fall activity commenced as early as 6 to 7 a.m. on the "average day" and continued until 8 p.m. The concentration of rockfalls into any one hour was less marked than in the case of avalanches and it was found that they were more or less evenly distributed in the four mid-day hours. The study of icefalls revealed that they were more evenly spread through the day with significant activity continuing until midnight in many cases.

These data collected for one summer period certainly do not provide us with a sound basis for predicting the occurrence of mass movements on any given day in the future. The pattern for

another summer could be quite different. The techniques of observation still require considerable improvement and this in itself may alter the frequency distributions as they appear in this paper.

Besides the frequency distributions of mass movements on the "average day in the frequency distribution of mass movements over the two months are also of interest. Many of the summarizing measures used in the treatment of the "average day" are also used in the analysis of the two-month period. Part B of the accompanying Figure shows a very marked concentration of mass movements during the first ten days of July. This is largely due to the high frequency of avalanches during the period. The mean number of mass movements per hour of observation per day was found to be 3.070 (see Table). About two-thirds of these were avalanches which showed a mean of 1.947 as compared with means of 0.617 and 0.454 for rockfalls and icefalls respectively.

Summarizing Table
The "Average Day"

	Mass Movements	Avalanches	Rockfalls	Icefalls
Mean no./hr. of observation	2.018	1.353	0.364	0.291
Variability from hour to hour	0.985	1.203	1.050	1.083
Concentration in max. 4 hours	56.47% (3.4)*	65.15% (3.9)	58.88% (3.5)	55.76% (3.3)
Concentration between 11 a.m and 3 p.m	56.47% (3.4)	65.15% (3.9)	58.88% (3.5)	31.64% (1.9)

* The values in parentheses refer to the number of times greater the percentage concentration is than 16.7% (the expected concentration in four hours if the distribution were even throughout the "average day").

The Summer Period

	Mass Movements	Avalanches	Rockfalls	Icefalls
Mean no./hr. of observation	3070	1.947	0.617	0.454
Variability from day to day	1.501	2326	1.088	1.227
Concentration in max. 4 days	42.24 (5.48)*	62.27% (8.09)	29.27% (3.8)	31.76% (4.13)

*The values in parentheses refer to the number of times greater the percentage concentration is than 7.7% (the expected concentration if the distribution of mass movements were even throughout the summer.

As a basis for comparing the three types of mass movements with regard to their variability from day to day over the summer period, a variability coefficient was computed. Mass movement in general showed a variability of 1.501 while avalanches showed the greater variability which is summarized in the value of 2.326 (see Table). Rockfalls and icefalls exhibited variability coefficients of 1.088 and 1.227 respectively. In order to give a somewhat clearer picture of the various degrees of concentration, the percentage of movements represented by the four maximum days was

calculated. 42.24% of all mass movement occurrences were recorded on the four maximum days during July and August. This percentage is 5.5 times greater than what would be expected if the occurrences were evenly distributed over the two months. This relatively high concentration into four days is undoubtedly affected by the avalanches, which showed 62.27% of all occurrences on the four maximum days or 8 times the expected figure for an even distribution. Rockfalls and icefalls represented 29.27% and 31.76% of all occurrences during the four maximum days respectively. These concentrations for rockfalls and icefalls are only 3.8 and 4.1 times the expected concentrations had the distribution been even. In summarizing, it is apparent that avalanches were markedly concentrated at a time of the summer when one would expect a considerable amount of snow to be still lying on the high mountain slopes. This is not to say that avalanches did not occur at other times in the summer. They occurred to a greater or lesser degree all summer in this area. From the analysis it would also appear that rockfalls and icefalls occur with more or less equal intensity throughout the summer.

Analysis of environmental factors such as temperature, precipitation, sunshine, etc. that might be responsible for the occurrence of mass movements is only just beginning. No one factor has yet shown a very high correlation with the distribution of occurrences. This would seem to suggest at this early stage that there are numerous contributing factors, each of which varies greatly over a relatively small area in this high mountain country. One could intuitively suspect that there would be a relatively high correlation between amount of snow and avalanche activity during the summer months. However, this complex system is not to be unravelled as easily as that, and much more detailed field study is required before we can point to any one environmental factor as being especially significant. The "average day" analysis suggests that rockfalls and avalanches, with their marked peaks of occurrence at a certain time of day, are related to some factor that undergoes strong daily or diurnal fluctuations. Icefalls, with their more scattered distribution through the day, would appear to be partly independent of daily fluctuations. The marked concentration of avalanches early in the summer suggests the presence of an over-riding factor such as snow amount, as previously mentioned. Rock-falls and icefalls, with their more scattered distributions over the summer period, are probably independent of such an over-riding factor.

The results of this little study indicate that some periods of the day and summer during 1966 were safer from the mountaineering point of view than others when avalanche, rockfall and icefall danger is considered. Whether these results are valid or not for any other season remains to be seen. It should also be remembered that environmental conditions in high mountain country are remarkably variable from place to place and from time to time. Not only does this statement hold true for such elements as temperature, but for avalanches, rockfalls and icefalls as well.

Medical Science And Mountaineering - An Annotated Bibliography

Charles G. Roland, M.D., B.Sc.(Med .)[22]

Introduction

From the days of Doctor Michel Paccard, one of the first conquerors of Mont Blanc, physicians have had an extraordinary affinity for mountains and mountaineering. Of course, it is easy to understand that physicians love to climb mountains —surely everyone does! But happy is the man who can combine avocation and vocation; increasing numbers of doctors are able to do so,

22 Senior Editor, Journal of the American Medical Association, 535 N. Dearborn St., Chicago, Illinois 60610.

as more and more medical research is conducted into both the normal physiology and the diseases and disorders of high altitudes. Perhaps one of the most notable instances of a physician combining interests in this way is epitomized in the work of Paul Bert (1833— 1886). In 1874 and 1875 this French physician performed pioneer investigations into high-altitude physiology, both in low-pressure chambers he designed, and during balloon flights. Needless to say, doctors were not alone in studying the effects of high altitude. Edward Whymper, for example, published an appendix to Travels Amongst the Great Andes of the Equator which contained some personal observations on mountain sickness, as well as a typically Whymperian attack on Bert's theories and suggestions. During the twentieth century such studies have been carried out almost entirely by scientists, and the reports have increased markedly in both quantity and quality.

The results of these researches are published in scientific journals, naturally. During the summer of 1966 it occurred to me that the members of the Alpine Club of Canada probably would be interested in knowing something about the results of such investigations, and their possible implications for climbers in general. Consequently, I have searched the indices of medical literature for relevant articles. I did not examine the literature prior to 1960,[23] and concentrated especially on the period 1964-1966.

You will note that the material varies from anecdotal accounts of expeditions to formally organized physiological experimentation, and even includes a satire on climbing accidents. Every major reference located has been reported. This was deliberately done, in order to convey some impression of the gamut of material published. The whole project is an experiment. If the Editor, and the readers, feel the results are helpful, the experiment could possibly be repeated on a yearly basis, as a shorter paper, of course, since it would cover one year only. I would deeply appreciate hearing of any criticisms and suggestions, positive or negative.

Bibliography

Kreider, Marlin B.: "Death from Cold", Appalachia 33: 1-13, 1960.

The author presents no original research, but he has prepared an excellent summary of contemporary knowledge about the control of body temperature, especially emphasizing the mechanisms whereby exposure to non-freezing temperatures causes death.

Trott, Otto T.: "Primary Medical Care for Mountain Accidents in Summer and Winter", West] Surg Ob Gyn 68: 18, 19, 22, 25 (Sept-Oct) 1960.

Prolonged cooling, Trott points out, is the single factor distinguishing mountain from other accidents. Consequently provision of heat in some form should take top priority in treatment; if an injured climber has been exposed to cold for any lengthy period his own ability to produce heat will be curtailed, and wrapping this person in the traditional "warm" (actually cold) blankets provides him with no heat and lulls rescuers with a false sense of having been helpful.

Trott believes that the Thomas splint, so often recommended for use in many types of leg fracture, may do more harm than good. Traction, which is an integral part of the correct use of the Thomas splint, may constrict tissues and decrease blood supply to the foot. Coupled with cold, especially cold and wet, conditions may produce serious damage to the foot. Unfortunately, while Trott's arguments are convincing, he buttresses his position with examples which are probably

23 Included in the material not surveyed are two references from the CAJ which readers may wish to examine. These are: (i) Duff's "The Acclimatization of Mountaineers to the High Altitudes of the Himalayas", CAJ, 1959, pp. 75-87; (ii) a brief discussion of acclimatization on pp. 2&-27 of Ricker's "The All Canadian Mt. Logan Expedition", CAJ, 1960, pp. 1-29.

only instances of post hoc ergo propter hoc reasoning.

Other portions of this essay deal with treatment of sprains, dislocations and lacerations. The author, who obviously holds definite and iconoclastic opinions, feels that lacerations should be repaired in First Aid Rooms, not delaying closure till a large hospital is reached.

Trott closes by urging greater physician participation in ski patrol and related activities, a viewpoint with which no one will disagree.

Nevison, T. O., Jr.: "Snowmen, Medicine and Mountains", Harvard Med Alumni Bull 36: 14-20 (Christmas) 1961.

Dr. Nevison reports here on his second Himalayan venture, in 1960-61, when he represented the USAF on Hillary's expedition. The members planned to search for the Yeti and conduct scientific research as well as climb. An elaborate instrument enabled Nevison to collect large numbers of data on respiration, heart function and brain wave activity; in a ludicrously typical example of the sort of dilemma in which we can find ourselves in these "computer days", Nevison comments that he has collected far more data than he can handle, and he asks for suggestions for additional use.

Of course, he did reach some conclusions from his experiments. The EEG studies of brain-wave activity gave surprisingly negative results; that is, the low oxygen content of the air did not produce the sort of EEG changes which the researchers anticipated. Also, the heart rate, measured at 19,000 feet with the study subjects exercising vigorously, rarely reached 150—another surprise.

Nevison describes the stunning combination of illnesses and accidents which affected five members of the expedition, including Hillary, and prevented the successful ascent of Makalu.

Ferris, B. G., Jr.: "Mountain-Climbing Accidents in the United States", New Eng J Med 268: 430-431 (Feb 21) 1963.

The author analyzes accident data on US mountaineering from 1951 to I960. Although the figures are rough, some conclusions seem reliable. During each of these 10 years, an average of 43 persons were injured and 12 killed in mountain-climbing accidents. Ferris arrives at a figure of 2.04 accidents per 1,000 man-mountain days, a figure comparing favorably with those for skiing and football, although we must keep in mind that the proportion of deaths in the accident rate is significantly higher for mountaineering than for the other sports. i. Ferris, B. G., Jr.: "Mountain-Climbing Safety", New Eng J Med 268: 662-664 (March 21) 1963.

This report is a collection of basic information which will seem platitudinous to the readers of this Canadian Alpine Journal. Perhaps the most important portion is the discussion of the relatively unrecognized danger of severe exposure during summer months. Unfortunately, even here the author passes on, after a brief comment, to other subjects. 5. R., A.: "Night Injuries", Cambridge U Med Soc. Mag 38: 10-12 (Easter) 1963.

Humorous, even satirical, discussion of climbing accidents is rare indeed. Perhaps the author of these fictional case reports may be related to Whipplesnaith, the pseudonymous author of The Night Climbers of Cambridge (1952) . At any rate, here are collected six of the most unlikely climbing accidents imaginable.

7. Pugh, L. G. C. "Deaths from Exposure on Four Inns Walking Competition, March 14-15, 1964", Lancet 1: 1210-1212 (May 30) 1964.

Geoffrey Pugh, physiologist to the 1953 Everest expedition, investigated the deaths of three Scouts during a British 45-mile walking competition. The Weather for the 1964 meet, held in mid-March, was unusually bad, with temperatures on the moors ranging from 45° to 32 °F, and winds exceeding 25 knots. Heavy rain fell most of the day.

A total of 240 participated in the competition; only 22 finished. All three of the lads who

died were experienced hikers; two were 21 years old, one 19. Witnesses reported that all three showed similar symptoms, of which the earliest were slowing of their rate of progress, clumsiness, and stumbling. Then came repeated falling, inability to continue, incoherence, unconsciousness, extreme pallor, and death. Pugh emphasizes that only about 2 hours elapsed between first symptoms and collapse. The clothing of the dead men was not waterproof, and the trousers were not windproof. The insulation value of clothing is, of course, greatly decreased when the clothing is wet (see item 15), requiring a greater production of body heat—that is, more exercise—to maintain body temperature.

There were no significant autopsy findings. The cause of death was given, at the inquest, as exposure to prolonged cold.

8. Sumiyoshi, K.., Sumiyoshi, M., Otani, N. and Kurono, T.: "Changes of Blood Elements and the Circulatory System in Climbing (Report II) ", Jap Circ J 28' 661-668 (Sept) 1964.

The authors performed experiments on climbers before, during and after expeditions in the Northern Alps of Japan, up to an altitude of 3200 metres (about 9500 feet) . Results were interpreted as indicating increased adrenal function (not unexpected, and presumably a part of the stress reaction), with little significant change in blood elements or kidney function. Also unchanged was the blood pressure. Commenting on earlier research done by the same investigators, they suggested that the swelling of feet and ankles sometimes reported by climbers at high altitudes is caused by temporary heart abnormalities and not by poor kidney function.

9. Sumiyoshi, K., Sumiyoshi, M., Olani, N., and Kurono, T.: "Changes of Blood Elements and the Circulatory System in Climbing (Report (III) : Examination of Guides Immediately after the Mountaineering Season", Jap Circ J 28: 669-675 (Sept) 1964.

The investigators report results of studies on 30 Japanese guides. The research was performed at the end of the 2-month climbing season in the Northern Japan Alps. Parameters measured included a variety of blood components as well as blood pressure and electrical activity of the heart; all measurements were within normal limits, suggesting that these 30 men, exposed to high altitudes regularly for long periods, have adapted extremely well.

10. Singh, I., Kapila, C. C., Khanna, P. K., Nanda, R. B. and Rao, B. D. P.: "High-Altitude Pulmonary Oedema", Lancet 1: 229-234 (Jan 30) 1965.

Considering that less than 100 cases of high-altitude pulmonary edema have been reported previously, it is astonishing to note that these authors describe findings in 332 patients. All were Indian Army men. The condition did not occur under 11,000 feet; about three-quarters of the cases were seen in individuals with acute mountain sickness (see item 11) , and the edema was heralded by malaise, unusual difficulty in breathing, and a dry cough which was often worsened rapidly. Many of the patients became quite blue from cyanosis, and had obvious difficulty in breathing. Heavy exertion seemed to predispose the men to pulmonary edema, even if they were already acclimatized to high altitude.

The cause of high-altitude pulmonary edema is not known. These authors speculate that long-term hyperventilation may aggravate hypoxia to trigger off the edema. Treatment consists of rest plus both oxygen and morphine; other drugs did not seem helpful. In severe cases evacuation to lower altitudes may be necessary, and is rapidly curative.

11. Hall, W. H., Barila, T. G., Metzger, E. C. and Gupta, K. K.: "A Clinical Study of Acute Mountain Sickness," Arch Envirn Health 10:747-753 (May) 1965.

Acute mountain sickness commonly includes headaches (most severe on arising) , nausea and vomiting, breathlessness, and impaired capacity for exertion. The syndrome occurs in persons

transported rapidly to altitudes of 11,000 to 12,000 feet or greater. All symptoms except the poor work-capacity improve spontaneously in 2 to 5 days.

The authors set out to test the hypothesis that administering potassium to individuals prior to exposing them to high altitudes would protect them from acute mountain sickness. Ten men in the study group received supplemental potassium by mouth for 5 days before being rapidly transported from sea level to 17,000 feet; an additional ten subjects did not receive the potassium, but did travel to high altitudes with the other men. The investigators observed no difference in signs or symptoms between the two groups. Consequently, we would probably be safe in concluding that potassium, at least in the amounts used, is useless in preventing acute mountain sickness.

12. Pearl, M.: "Kiwi in the Khumbu", New Zeal Med J 64: 584-588 (Oct) 1965.

Pearl spent several months in the Khumbu Valley area with a New Zealand group having the major task of building schools for the Sherpa inhabitants. However, the group also climbed one previously unascended peak, performed some high-altitude physiological research, and provided medical care for the Sherpa communities.

The only medical observation of particular note was the completely successful prophylaxis of dysentery during the visit to Nepal. All expedition members took daily doses of hydroxyquinolone derivative; none developed dysentery, a welcome occurrence in sharp contrast with previous expeditions.

13. Pugh, L. G. C.: "Accidental Hypothermia in Walkers, Climbers, and Campers: Report to the Medical Commission on Accident Prevention", Brit Med J 1: 123-129 (Jan 15) 1966.

Analyzing 23 exposure accidents, including 25 deaths and 63 other persons involved but recovered, Pugh records a number of causes. Weather conditions, not unexpectedly, frequently were named, as was the hazard of being benighted. Wet or insufficient clothing, when combined with the previously named conditions, was particularly unfavorable. Inexperience or lack of training contributed to accidents, although these also involved fit and experienced parties. Pugh also reports on the often-observed but still inadequately studied superior chance of survival of women compared with men. Wet clothing and walking to the point of collapse, Pugh concludes, were the two principal factors in fatal cases. Furthermore, he supports the use of so-called "slow" or spontaneous rewarming prior to movement of casualties.

14 Kirkman, N. F.: "Mountain Accidents and Mountain Rescue in Great Britain", Brit Med J 1: 162-164 (Jan 15) 1966.

A brief review of mountain rescue equipment and arrangements in Great Britain, as well as a cursory analysis of mountain accidents in 1963 and 1964.

15 Pugh, L. G. C.: "Clothing; Insulation and Accidental Hypothermia in Youth", Nature 209: 1281-1286 (MaVch 26) 1966.

Pugh here reports highly technical measurements on the clothing worn by one of the lads who died in the Four Inns Walk in 1964 (see item 7). The essence of Pugh's findings is that the insulation value of the dry clothing fell by almost 90% when the same clothing was wet and worn by an exercising subject in a 9 mph wind. Furthermore, he determined the thermal insulation of the body tissues, and noted how "apparently small changes in oxygen intake and insulation can have disastrous effects on body temperature under conditions of severe cold stress."

Glacier Research In Canada, 1966

J. O. Wheeler

The following is summarized from the annual report of the National Research Council sub-committee on Glaciers edited by Fritz Müller—the new sub-committee Chairman. The following synopsis stresses glacier studies in Western Canada—the region best known to Canadian mountaineers—with briefer descriptions of studies in the Canadian Arctic.

WESTERN CANADA

1. Southern Cordillera, British Columbia And Alberta (Glaciology Section, Water Resources Branch, Department of Energy, Mines and Resources: A. D. Stanley).

In 1966 the programme included five glaciers located along an east-west transection of the southern part of the Canadian Cordillera—Ram River and Peyto glaciers near Lake Louise, Woolsey Glacier near Revelstoke, and Sentinel and Place glaciers north of Vancouver. For each the winter accumulation was measured m mid-April. From early June on, parties of two or three men made continuous observations until the first week of September. Data collected included daily meteorological observations, ablation measurements every 5 to 10 days according to weather conditions, and continuous gauge records of melt water streams. When parties left the field the net budget was positive for most glaciers, but summer weather continued for 2 to 3 weeks and final ablation figures cannot be calculated until the glaciers are again visited in November.

In preparation for more extensive studies next year automatic stream gauges were installed at Peyto and Sentinel glaciers.

Ground control was established and low-altitude aerial photographs were taken of the three eastern glaciers in mid-August. High-altitude photographs were obtained for several parts of the transect to record the state of glaciers and establish the snow limit at the start of this long-term glaciological programme.

During the winter the collected data will be processed and a comparison made of various methods of mass balance measurement in order to ascertain the most accurate and economical one.

A glacier map for the northern part of British Columbia will be prepared. Work on the inventory of glaciers in Canada is being continued. Presently, 1:10,000 scale maps of Sentinel and Place glaciers have been prepared for reproduction and initial work has been completed on maps for the remaining glaciers in the transect

A joint study with the Water Resources and Topographic Surveys will be undertaken to determine possibilities for more extensive use of terrestrial and aerial photography to obtain volumetric measurements, particularly within accumulation areas.

2. Rocky Mountains, Alberta

(a) Drummond Glacier (University of Calgary: J. G. Nelson and I. Y. Ashwell).

Continued measurements indicate little or no recession of the Drummond Glacier from 2 September, 1965, to 21 July, 1966. Geomorphological studies and discharge measurements were continued in Red Deer River valley.

(b) Athabasca Glacier (California Institute of Technology: Charles Raymond).

A study of the deformation on the Athabasca Glacier was initiated during the summer of 1966. Nine holes, eight of which reach the bottom of the glacier, were drilled thermally below the lowest ice-fall. The configuration of these holes was determined by standard survey and inclinometry techniques. A weighted aircraft cable was lowered down each hole to implement recovery in the following field season.

3. Coast Mountains, Stewart Area, British Columbia (University Of British Columbia: W. H. Mathews)

Glaciological studies in the Granduc area of the northern Coast Mountains of British Columbia, initiated in 1965, were continued in 1966. Wire-netting mats were laid in 1965 at 12 sites on the snowfields to mark the surface at the end of the melting season, and targeted with, among other things, lengths of drill pipe mounted vertically in the snow. Most of these were successfully relocated in September 1966, with the aid of a magnetometer in most cases, and depths and densities of the snow overlying the nets determined. Stakes set in drill holes were used to measure melting in areas below the firn line. Although the stake record is incomplete, reasonable figures for specific net budget for the year were obtained for altitudes of from 1000 to 2000 m., within which range is concentrated most of the glacier-covered area. An analysis of the dynamics of Berendon Glacier was undertaken to establish what increase in net mass budget, compared with the present budget, would be necessary to develop an ice advance such as could interfere with operations of the Granduc mine during its expected life. W. H. Mathews supervised field operations; N. Untersteiner (University of Washington) and J. F. Nye (University of Bristol) performed computations of the response of the glacier to an assumed extreme increase of the net mass budget in the next few decades.

4. Glacier Mapping In British Columbia And Alberta (Water Resources Branch, Department of Energy, Mines and Resources: I. A. Reid)

During July and August, 1964, the Bugaboo, Kokanee, Nadahini, Sentinel, and Sphinx glaciers were surveyed by stereoscopic terrestrial photogrammetry and subsequently maps were prepared at 1:25,000. The same glaciers were resurveyed in August 1966 by terrestrial photogrammetry. Once the maps from this survey are completed volumetric changes and other measurements may be made. of Saskatchewan and Athabasca glaciers are currently in preparation from surveys made in 1965.

5. Icefield Ranges, Yukon Territory Icefield Ranges Research Project (American Geographical Society and Arctic Institute of North America: R. H. Ragle)

The IRRP continued its sixth consecutive field season under Walter A. Wood, R. H. Ragle, Melvin G. Marcus, and J. Peter Johnson. Around the Divide Station, which has marked climatic contrasts, snow samples were taken for determination of absolute concentrations of Ca, Na, Mg and K ions in the annual snow layer— particularly the winter layer to assess any systematic changes in ion concentration with elevation, and to determine the amount and extent of chemical migration in snow and ice. In addition standard pit observations were made of snow temperature, density, hardness, and stratigraphy. Samples were also taken for analysis of Pb210 to establish the chronology of the accumulated snow and world-wide distribution of this isotope.

A terrestrial photogrammetic study of the terminal area of Kaskawulsh Glacier was also undertaken as part of a continuing surveillance programme to recognize any significant changes

in the form of the ice body which might precipitate capture of the Slims River by the lower-lying Kaskawulsh River.

Morphological studies were continued on the nature and pattern of glacier surface streams and initiated on the distinctive medial moraine at the confluence of the north and middle arms of Kaskawulsh Glacier.

In July and again in late August, 1966, parties were flown by helicopter to the Steele Glacier to observe the surge which was seen to have started in 1965. Gross surface features were plotted, the rate of surface movement was measured, and the qualitative observations were recorded. The Canadian Surveys and Mapping Branch, Department of Energy, Mines and Resources, flew two vertical air-photograph runs in August and in September. Later, in early November, an oblique photograph reconnaissance flight was made by the Water Resources Branch, Whitehorse, Yukon, to observe and estimate activity of the Steele Glacier.

A project of photography cloud sequences was undertaken to aid weather forecasting across a major glacier-covered mountain range, which involves defining the climatic or "weather" divide and its relation to the snow/hydrologic divide. A final report is being published on O18/O16 ratios in snow and ice of the Hubbard and Kaskawulsh glaciers by D. S. Macpherson and H. R. Krouse of the University of Alberta. The isotope ratios have a mean value which correlates with latitude on the basis of studies by R. P. Sharp and others. The precipitation appears to be derived from the Pacific Ocean rather than inland sources.

CANADIAN ARCTIC

6. Southern Baffin Island: Recent Glacier Fluctuations

(Geological Survey of Canada: W. Blake, Jr.)

In August 1966 special air photography flights at 9000 m. were made to cover all the ice caps between Cumberland Sound and Hudson Strait. The new air photographs provide a basis for comparison with those taken in 1948, 1952, and 1958-59.

7. South Central Baffin Island : Penny Ice Cap (Observatories Branch, Department of Energy, Mines and Resources: J. R. Weber)

Observations carried out in 1962 and 1965 were continued. The relative positions of the 14 aluminum poles across the crest of the ice cap were resurveyed, the gravity differences between the poles and the "gravity base" were remeasured, and the gravity change along the direction of movement of the centre pole was observed.

Stratigraphic snow analysis, density and temperature measurements were carried out at the centre station, elevation 1838 m. above sea level. The accumulation from fall 1962 to May 1966 was 254 cm. of snow, 116 cm. water equivalent, and the temperature was -13.1° C. at 9.6 m. depth on May 15.

The 15 stakes across the outlet glacier were recovered and movement and ablation measured. The average yearly rate of flow was the same as the rate determined for April and May, 1962.

8. Central Baffin Island (Geographical Branch, Department of Energy, Mines and Resources: J. D. Ives)

A party under O. H. Løken continued investigations on Barnes Ice Cap. Mass balance studies indicate that the winter's accumulation was less than that of the preceding year. Moreover

the northern part of the ice cap continued as in 1965 to have less accumulation than the southern part, which was featured by a northeast—southwest asymmetry of accumulation. Stakes were inserted near the ice margin to determine the pattern and rate of ice flow.

Glacio-hydrological measurements on Decade Glacier and River by K. Simpson and W. Rannie indicate that the glacier had a strongly negative budget year. Accumulation was slightly less than in 1965 but ablation was twice as great. This was reflected in a 74% increase in run-off in Decade River.

Glacial geomorphological, lichenometric, and meteorological studies were continued.

9. Devon Island (Arctic Institute of North America: R. M. Koerner)

Mass balance and daily ice movement measurements were continued on Devon Island ice cap and on some of its outlet glaciers.

10. Melville Island (Polar Continental Shelf Project: W. S. B. Paterson and F. P. Hunt)

Mass balance measurements were continued on the four ice caps, all of which had positive budgets for 1965—66. Accumulation in the 1965-66 budget year until mid-April 1966 was about the same as in the previous budget year.

11. Meighen Island (Polar Continental Shelf Project: W. S. B. Paterson and R. M. Koerner)

Mass balance measurements were continued on the ice cap and indicated a slight gain for 1964-65. Temperatures measured in the borehole through the ice cap agreed closely with those of the previous year. Samples of the ice core were taken for ice structure studies. Results so far suggest that the ice cap at the deep core site has not been very much thicker than it is now. There is no evidence of past or present ice movement.

12. Axel Heiberg Island (McGill University: F. Müller)

A snow survey was carried out in the expedition area during May. Continuation of mass balance studies indicates that remarkably little snow fell during the preceding winter—most of it during May 1966. First melting had been observed on the White Glacier before the heavy snowfall (12.7 cm.) of 10 May. The 1965-66 gross accumulation was less than that of the two preceding years. The ablation quantities were about average in spite of the delaying snowfalls in spring and the early end of the melt season. The equilibrium line on the White Glacier was at approximately 1000 m., i.e. several hundred metres higher than in the three preceding years. The glacier was thus reverting to a slightly negative budget having taken the 1965 year to recover from the strongly positive season experienced in 1964.

A joint programme of the Scott Polar Research Institute and the Defence Research Board under G. de Q. Robin and S. Evans of Cambridge University, used high-frequency radio echo equipment from an "Otter" aircraft to measure continuous profiles of glacier depth on the McGill Ice Cap, the Thompson Glacier and the Hidden Ice Field. (For further comments see report on Northern Ellesmere Island.)

The automatic weather stations established in the summer of 1965 at the base camp and at the equilibrium line of the White Glacier operated well through their first winter. The six meteorological parameters (temperature, humidity, wind run and direction, sunshine duration and air pressure) recorded every sixth minute for the period 10 August 1965 to 25 August 1966, are

presently being analyzed.

Some 40 old and 8 new points of the White Glacier were twice surveyed for movement, once in May and once in August. The stadia levelling of the White Glacier tongue was repeated for the seventh year.

Both the snout of the Thompson Glacier and the push moraine in front of it are still advancing at approximately the same rate as observed during the last 6 years. A second new rim of outwash gravel is being added to the periphery of the push moraine. In May overthrusting was observed and measured. Two stadia levelling profiles were each surveyed twice and the movement of cairns was measured three times from base lines. A repeat of the 1960 low-level aerial survey, from which the 1:5000 map of the push moraine was produced, is in preparation for the 1967 summer.

A series of field tests and experiments to study the relationship between glacier temperatures and the dielectric properties of snow and ice were carried out by Julian Paren of Cambridge University during the months of April and May in three profiles in the ablation area of the White Glacier. The aim of this investigation is to develop a technique of temperature measurement in glaciers by studying the relaxation spectrum with electrodes placed on the surface of the ice body.

13. Northern Ellesmere Island (Defence Research Board: G. Hattersley-Smith).

(a)Radio Echo Sounding—Between 10 and 20 April, 1966, very-high-frequency radio echo equipment was successfully used to sound the depth of glacier ice, and provide a complete profile of the bedrock surface by continuous recording from the "Otter" aircraft. The same equipment had been used in Greenland in 1964 from a vehicle moving over the ice, but not from an aircraft. A number of flights covered some major glaciers and included several crossings of ice caps in areas of Ellesmere Island north of lat. 80°N. Measured depths ranged from 660 m. in the deepest section of the Gilman Glacier to 40 m. in the Ward Hunt Ice Shelf.

(b) Tanquary Fiord Area—The results of mass balance studies of Per Ardua Glacier, undertaken for the third consecutive year, are being analyzed by computer. An attempt to gauge the run-off at a weir in the melt stream from the glacier was frustrated by the large amount of sediment. Observations were made of drainage phenomena of the ice-dammed Rollrock Lake; the level of the lake was shown to have been lowered by about 25 m. since the early spring 1965 and most of this lowering is believed to have taken place during a period from the end of July through August. The lowering continued after the onset of freezing weather and seepage resulted in Aufeis in the river bed about 12 m. thick and 3 km. long.

(c) North Coast—Snow cover and ablation measurements were made at a total of 42 stakes, which have been standing on the Ward Hunt ice rise and adjoining ice shelf since 1960. A number of additional stakes were installed on the ice shelf for future measurements. Observations from the "Otter" aircraft in April showed that the M'Clintock and Ayles ice shelves had completely disintegrated since 1962. Oceanographic stations were taken in both these fiords and in Disraeli Fiord, the mouth of which is still completely blocked by ice shelf. Whereas Arctic Ocean water occurs from the surface downwards in M'Clintock and Ayles fiords, in Disraeli Fiord a 45-m. layer of fresh water rests on the Arctic Ocean water.

GENERAL

14. Avalanche research (Photogrammetric Research Section, National Research Council: M. Van Wijk)

A joint project between the National Research Council and McGill University (M. Kahn) was undertaken in 1965 to study some physical and dynamical aspects of snow avalanches. Photogrammetric techniques were used to determine the snow volumes and velocities of the avalanche and to provide the maps of the slope before and after its descent. The investigations were carried out on an avalanche that was artificially released in Banff National Park.

The project was continued during the winter of 1966. Stereophotographs were made of snow-covered slopes, using black-and-white, colour and false colour emulsions. Unfortunately, attempts to release an avalanche were unsuccessful due to unfavourable snow conditions at the selected site.

The photogrammetric operations have been completed and the results are presented in a National Research Council report. A resume of the experience gained from the project is in preparation.

15. Experimental studies (Snow and Ice Section, Division of Building Research, National Research Council: L. W. Gold)

Avalanche Research—A programme of research has been undertaken on the properties of avalanches and their dependence on the characteristics of the site. Several avalanche sites at Rogers Pass, B.C., have been chosen for this study. Correlations are being sought between the amount of snow brought to the valley bottom by avalanches, and the size of the accumulation zone, amount of snowfall and other factors. It is hoped that these studies will provide a basis for estimating the extent of danger from avalanches in areas where few if any records are available; and for estimating the maximum size of avalanches that might occur at a given site and the maximum amount of snow that may be brought down by them in one winter. Attention will be given also to snow profile and weather observations, to improving methods of estimating and predicting the avalanche hazard and to improving techniques of building in deep snow areas.

16. Symposium On Glacier Mapping—1965

The proceedings of this very successful and informative symposium have been published as a special issue of the Canadian Journal of Earth Science (Vol. 3, No. 6, November 1966).

CLUB CAMPS, PROCEEDINGS, AND SECTION CAMPS

1966 A.C.C. Ski Camp - Little Yoho

Ted Mills

There can surely be no more pleasant experience, achieved with relatively little effort, than celebrating the first few days of spring in good snow at high altitudes under blue skies in the Little Yoho Valley. Such was the picture of the 1966 ski camp which must rate as one of the most enjoyable ever held at the Stanley Mitchell Hut.

Camp was under the direction of Bruce Fraser in his first year as Chairman of the Ski

Camp Committee. There can be nothing but praise for Bruce and the manner in which camp was conducted. Tours were well planned, food was excellent and enthusiasm ran high. The cooking was done by a young lady from Calgary named Myrna Collins whose culinary art is surpassed, if at all, only by her pleasant and cheery disposition. Those planning to again attend ski camp will be pleased to learn that Myrna will be in charge of the 1967 camp in the Eremite.

Those attending the 1965 ski camp voted in favour of having a professional guide at future camps and, as a result, the services of Leo Grillmair were obtained for this Little Yoho camp. Leo knows the Yoho valley in winter as well as or better than any other person and there is no doubt his presence at camp was a tremendous asset. He led all the major expeditions, including ascents of Mt. McArthur and The President, did most of the trail breaking and generally provided excellent leadership on the ski slopes. His geniality also added an air of good humour to all camp activities, both indoors and out. Leo will also be in attendance at the Eremite camp in 1967. Leo and Myrna are undoubtedly a winning combination whose presence at ski camps can do nothing but sustain a high level of enthusiasm and enjoyment for the participants.

Since Easter week fell late in April in 1966 and good snow conditions could not be predicted for that time, it was decided to advance camp to the third week of March in the hope of realizing more favourable snow and weather. Whether by luck or good management, the weather during camp was generally excellent. The temperature varied from 10°F below at night to 25 above during the day. The nights were always clear and bright with stars that one could almost reach out and touch. The days, except one, were warm and sunny and, although the snow became crusty towards mid-week, skiing was very enjoyable. Morning expeditions, including ascents of the various peaks, returned to the hut by noon each day.

On Saturday March 19, all but one or two late arrivals travelled (some with the aid of Ski-Doos) from the bottom of the switchbacks on the Yoho road to the bottom of the switchbacks at Laughing Falls. From there all made their way on skis to the hut. The late arrivals, together with additional supplies and some packs, were transported to the hut on Sunday. During both days the sky was overcast and snow was falling. By Sunday evening enthusiasm was running high for excellent skiing conditions. Nineteen members attended camp exclusive of guide, cook and camp boy. Most were from Calgary and Edmonton, some from Vancouver and others from Toronto, North Bay, Williams Lake, and Bozeman, Montana.

During the early part of the week enthusiasm was rewarded with beautiful weather and perfect snow. On Monday everyone ascended to the col on the north ridge of Mt. Kerr. On the return, evidence of true enjoyment could be seen everywhere in the form of huge powdery "sitzmarks", up-ended skis, wavering "S" curves and big snowy grins. After lunch, those with drowsiness slept, those with cameras clicked shutters, those with energy hewed wood and drew water, while some trusting souls skied the very steep slopes of Barometer Peak directly across the valley from the cabin. A small party also enjoyed a run down the lower slopes of President glacier.

On Tuesday, again under ideal conditions, an energetic party of eight led by Leo ascended Mt. McArthur by the usual east route to the summit whence they enjoyed a magnificent run down the south slopes of the mountain. The remainder, led by Jack Cade, travelled to Emerald Pass and had a most rewarding run back to the valley. Each party was able to observe the other's progress on the return trip, which added to the enjoyment of the morning. In the afternoon a small party skied the lower slopes of The Vice-President.

On Wednesday the weather turned partly overcast but in spite of this everyone climbed to the summit of McArthur, once again by the east route, and returned the same way. The weather

continued overcast, a cold wind was blowing on the ridge, the snow had become crusty, and flat light made visibility difficult. After lunch the weather improved and several hearty people practised on the avalanche slope just west of the hut. The first ‘”ski tow” in the Yoho Valley was established on those slopes that same afternoon. It consisted of a small portable winch tied to a sturdy tree 150 feet up the east side of the slope to which was fastened a 200-foot nylon climbing rope. With one person pulling on the upper end of the rope and assisted by the winch, the fastest rate of advance achieved was approximately 6 inches per second, or 5 minutes to travel the entire length of the tow. This rate of speed was considered unacceptable to the participants and the project was forthwith abandoned.

The weather improved somewhat on Thursday, although the snow remained crusty and heavy. A large group set out for Mt. Kerr hoping for a repeat of the highly enjoyable expedition of the previous Monday. All but eight hardy souls turned back at the half-way point in the face of a bitter wind and heavy crust. The smaller party traversed over steep crust to Kiwetinok Pass, thence back to the hut.

Thursday afternoon the weather cleared and a large party negotiated the lower slopes of Whaleback as far as the cliff band. The sun came out, the snow softened and, following a gentle trip down the upper slopes, there was a wild run down a canyon which meets the valley trail 1/4 mile below the hut. Some remarkable ski technique was displayed, particularly at the lower end of the canyon, and several very interesting up-ended positions were observed below a small waterfall.

Friday was one of those magnificent days that one experiences rarely during a lifetime. The opportunity of enjoying such a day in the Little Yoho must approach the ultimate in pleasurable experiences. The entire group climbed up to Emerald Pass where Leo and three others climbed the northwest face of The President to the ridge and thence to the summit, all on skis. This was felt to be perhaps the only time this ascent had been accomplished on skis. The party returned to the pass with a flawless performance down the very steep face. In the warm sunshine in front of the hut in the afternoon while some finished off the remainder of their coloured film, others lobbed snowballs up into the kitchen chimney in an attempt to douse the fire in the stove and so provoke the cook to retaliate. Towards mid-afternoon it was decided to hold the Little Yoho International Slalom and with eight entries the race was conducted on the switchback trail immediately behind the hut, starting in the upper meadows and finishing at the kitchen door. Since it was impractical for all to race at once and since each kept his own time, the race was declared a tie.

Saturday was another beautiful day and while a small party ventured for one last run on Mt. Pollinger, the remainder collected their belongings and reluctantly proceeded down the trail to the highway. It was a good camp and memories continually bring back the old clichés: the soft crunch of new powder snow, the clear still starry nights, the warmth of the cabin and the smell of wood smoke and of dinner cooking. One might under the circumstances even forgive Helmut Klughammer for snoring so loud every night or Jack Cade for continually cursing his new battery-operated Super 8 when it froze every time he got above 8000 feet.

1966 A.C.C. Mount Assiniboine Camp

Climbing At The Assiniboine Camp

Robert Kruszyna

The Assiniboine Camp was superbly situated amongst conifers on a bluff at the western end of Lake Magog at an elevation of 7100 feet. Behind the camp rose the cliffs of Wedgwood Peak, while across the lake the ramparts of Terrapin Mtn. and Mt. Magog provided an impressive view. And as a splendid centerpiece soared the magnificent spire of Mt. Assiniboine, plumed with cloud. The high elevation of the camp was ideal from a climbing viewpoint, as most ascents were made with a relatively late 8 a.m. start. This undoubtedly accounts for the high percentage of completed climbs—made in spite of considerable uncertain weather and heavy snow left from a late spring.

Access to the camp was by trail from the end of the Spray Lakes road at the Bryant Creek Ranger Station. Two alternatives were heavily patronized: from the Ranger Station, following Bryant Creek to Allenby Creek and thence to Lake Magog via Assiniboine Pass; or leaving Bryant Creek at the junction of Marvel Creek and proceeding up the valley of Marvel Lake, reaching Lake Magog by Wonder Pass. The distance in either case approximated 12 miles, requiring from 5 to 6 hours from the Ranger Station to camp. A popular choice was to go into camp by one route and return by the other.

The Assiniboine area offered a wide range of climbing possibilities, from moderate snow or scree scrambles to high grade rock climbing. An unusually large number of schools were conducted, including two advanced rock schools and an advanced snow and ice school. With the two professional guides as Principal instructors, these well-attended schools provided the camp with excellent training facilities. Sixty-seven percent of the posted climbs were completed, including two ascents of Mt. Assiniboine under adverse snow and ice conditions. The climbing statistics follow:

Climbs posted	103
Climbs completed	69
Climbs cancelled for lack of support	18
Climbs uncompleted due to weather, etc.	9
Schools …… …….....	7

A brief description of the routes followed on the ascents from camp is given below, with the round-trip time for an average party. The peaks are grouped in accordance with access routes from camp.

To reach Mt. Assiniboine and peaks to the west and north, two access routes up the headwall at the end of Lake Magog were opened. The “rock” route climbed a small snowfield to a diagonal (left to right) ramp on the cliffs below Wedgwood Peak. From the top of the ramp, a horizontal ledge led left to a hanging snowfield which was ascended diagonally to the easy rocks above and the Assiniboine north glacier. The second route, the “snow” route, ascended the steep, narrow snow couloir debouching from the Assiniboine north glacier. For the first few days of camp, both routes were utilized, the couloir primarily for rapid (sometimes too rapid) descent. Once a series of bucket steps and a hand line had been installed by Dave Fisher, reducing both danger and anxiety to tolerable levels, the couloir was used exclusively.

WEDGWOOD PEAK (9900 feet)

After reaching the Assiniboine north glacier (infra), two routes were followed on this peak. Ascent was made over snow to the col between Wedgwood Peak and the Survey Peaks to the west. Thence the west ridge, offering pleasant scrambling, was followed to the summit. It was also possible, though less interesting, to strike directly from the glacier toward the peak, which was reached over talus and snow slopes. (6 hours)

SURVEY PEAKS (9920 feet)

From the Assiniboine north glacier, the route went west over snowfields, then led up a conspicuous snow bridge to the lower summit, from which the principal summit was attained by a short walk. (6 hours)

MT. STURDEE (10,450 feet)

From the Assiniboine north glacier snow slopes were ascended west to the high col between Mt. Assiniboine and the Survey Peaks. A descent on scree of some 400 feet was made to the glacier north of Mt. Sturdee. The glacier was followed to the Sturdee-Assiniboine col. Steep snow, or alternatively scree, led up the south slope to a depression in the east ridge. An ice-choked chimney on the north flank was climbed to the crest of the ridge, which was followed over interesting rock to a final cliff. This cliff was turned by a chimney leading again onto the north flank. Easy snow and rock were then climbed to the summit. A more difficult variation used by one party ascended directly the extremely steep ice slope on the north flank of the east ridge to the depression mentioned above. (8 hours)

MT. ASSINIBOINE (11,870 feet)

From the north glacier, the route ascended the north face over snow-covered rock diagonally left toward the prominent northeast ridge at the point where it is intersected by the "red" horizontal cliff band. The cliff band (about 80 feet high) was climbed via an ice-filled chimney immediately to the right of the northeast ridge. The route then closely followed the ridge, composed of snow-covered blocks providing good climbing. The upper "grey" cliff band was passed by a steep pitch to the right of the ridge. The ridge was regained and followed to the fore-peak, whence a gentle, corniced snow ridge led to the summit. Because of poor snow conditions the descent by the same route consumed as much time as the ascent. (12 hours)

WONDER PEAK (9300 feet)

From camp, parties followed the trail to Wonder Pass and then the scree-covered west ridge to the summit. (5 hours)

MT. TOWERS (9337 feet)

At least three different routes were used in climbing this Dolomitic-appearing peak. The easiest ascended the talus-littered southeast slopes from Wonder Pass. This was also the usual route of descent. A second route ascended the small glacier north of the peak to the col between Mt. Towers and Naiset Peak. From this col, the west ridge was followed to the summit, by-passing gendarmes on the southern slope. The formidable gendarme immediately west of the main summit was climbed by one party. The third route (probably a new route) ascended from Wonder Pass to the steep ice couloir splitting the north face. The route climbed the left side of the couloir, exiting onto a promontory just east of the main summit which was then easily reached. (5 to 7 hours)

M. R. Piggott

Lake Magog and Campsite from Slope of Mt. Magog

M. R. Piggott

Dunnage Arrives at Camp

NAISET PEAK (9050 feet)

This fortress-shaped peak was approached directly from Lake Magog. Grass and talus were ascended to the prominent horizontal ledge running around the northern side of the mountain. This ledge was followed south toward Terrapin Mtn. until a chimney provided access to the upper slopes and the summit. (6 hours)

TERRAPIN MTN. (9600 feet)

From Lake Magog, the route climbed the Terrapin Glacier to the Terrapin-Magog col. The west ridge was then followed over talus to the summit. (6 hours)

MT. MAGOG (10,150 feet)

The Terrapin-Magog col was reached over the Terrapin Glacier. The east ridge was climbed up exceedingly loose rock ("Golden Stairs") to the foot of a steep limestone slab which was surmounted by friction technique. Talus and short cliffs were then climbed to the fore-peak. The glacier separating the fore-peak from the summit was crossed to the buttress leading directly toward the summit. This buttress provided some pleasant rock work and a cornice just before the summit. On the descent, the summit ridge was followed north toward Lake Magog until a couloir on the west flank permitted descent to the Assiniboine east glacier. The glacier was traversed in a northwest direction to the head of the "descent couloir". This descent route was also utilized as an ascent route by some parties. (8 hours)

NUB PEAK (9016 feet)

Several parties ascended one or more of the summits of this peak via its southerly ridge. (5 to 6 hours)

SUNBURST PEAK (Goat Tower) (9200 feet)

Several different routes were climbed on this peak whose north face resembles those in the Dolomites. The most straightforward route ascended talus slopes and couloirs on the northwest slope, where innumerable variations were possible. Leigh Andrews and Don Forest opened a new route of high technical standard on the northeast portion of the north face. The climb started on the right-hand wall of the prominent couloir on the northeast face, heading for a large grassy ledge two rope lengths above the talus. Four rope lengths higher, a prominent overhang was turned by a traverse right onto the main north face. The route then ascended straight up this face for four rope lengths to a commodious ledge. The ledge was traversed to the right into a secondary couloir leading to the top of the face. The standard of this route was predominantly grade 4. An attempt by Leigh Andrews and the writer to force a route up the center of the formidable north face was thwarted after 600 feet by overhangs which would require extensive artificial aid climbing.

EON MTN. (10,860 feet); MT. GLORIA (9500 feet)

A party of eight climbers, led by Bob Paul and the writer, undertook a 3-day trip into the valley of Marvel Lake to explore a new route on Eon Mtn., namely its west ridge. Access to the head of the valley was gained by bushwhacking westward from Wonder Pass to the shores of Gloria Lake. During the bushwhack, the lone female member of the party flushed a grizzly bear, an encounter which necessitated an abrupt change of route. From Gloria Lake, the valley headwall was climbed in the direction of Mt. Gloria up a snow slope and a succession of shaley ledges. After

about 1000 feet the party reached the extensive semi-circular glacier originating from the slopes of Mts. Gloria, Eon, Aye, Assiniboine, and Magog. On a rocky area next the glacier, a bivouac was constructed, quickly taking on the dimensions of an ACC hut-building project. The northwest snow slopes were then climbed to Mt. Gloria's west ridge, along which the summit was attained by agreeable scrambling (new route).

The next day, the party traversed the glacier under the awesome north face of Eon Mtn. to the couloir leading to the Eon—Aye col. Because of unstable snow and several crevasses, considerable time was expended in reaching the col. The route then zig-zagged up the west ridge over steep ledges interspersed with talus slopes. About 500 feet above the col, a 400-foot cliff barred further direct progress. A traverse to the right (south) led to a chimney followed by steep limestone walls offering good rock climbing to the top of the cliff band (two pitons). Another cliff was turned by a long horizontal traverse on the south, followed by a diagonal climb back to the ridge crest. This portion of the route climbed a series of steep steps running with melt water. When within 500 feet of the peak, the party turned back because of the lateness of the hour. The descent followed the same route, requiring two rappels on the limestone cliff band. The descent from the Eon—Aye col was highlighted by an anxious leap over a gaping bergschrund.

On the following day, return to camp was accomplished by two routes, one essentially reversing the route from Wonder Pass to Gloria Lake, the other following the shores of Gloria and Terrapin Lakes to Marvel Lake and the trail over Wonder Pass.

First Impressions Of A Summer Camp

Micheal Piggott

This was my first visit to the mountains of the Canadian West, so my first impressions were of the magnificence of the scenery. After two years living in a fairly flat part of Ontario, and after a plane ride over a very flat strip of prairie, it was exciting to board the bus at Calgary and see those mountains rise out of the plains as we headed for Banff. An eye unused to big hills magnified them out of all proportion, and permitted itchy fingers to take photograph after photograph as the mountains got nearer. The results —pictures containing vast expanses of plains and sky, with a very thin strip of distant mountains—are not entirely disappointing. Looking at them now I can again re-live the excitement of approaching big mountains.

The camp itself, situated at the edge of an alpine meadow by greeny-blue Lake Magog, was overlooked by the shapely and impressive white pyramid of Mt. Assiniboine, with glaciers hanging around its sides that produced some very impressive ice avalanches while we were there. This was one of the most beautiful and spectacular spots one could imagine, remote and almost untouched by civilization.

The approach to it, 22 miles by bus on rough roads, and then a 12-mile walk over Assiniboine Pass or Wonder Pass, gave one the impression that one was leaving civilization far away. To arrive and be greeted by hot tea and cookies made one feel that maybe civilized comforts hadn't been left behind!

Having always climbed with small groups, I was impressed on my arrival by the large size of the camp. Something like 175 people stayed there, and that things ran smoothly (at least on the outside) says much for the organizing ability of those in charge. I was surprised at the range of facilities provided— tea and reading tent with stove for heating, drying tents with stoves, large marquees for main meals, to mention a few. One suggestion is that perhaps prompter starts of

morning trips would have been possible if there had been more latrines.

There were trips from the camp to suit all tastes; from gentle walks along the valleys radiating from the basin to two-day trips to outlying peaks; from peaks like Mt. Cautley and the Nubs which were an easy walk, to Assiniboine itself, the conquering of which was the aim of the ardent mountaineers. The high level of the camp (7100 feet) means that all the peaks surrounding the basin could be climbed in single-day trips, and only Assiniboine required a real early start.

Mt. Magog was a marginal case for an early start, and the first day after arrival I found myself in the company of about twelve other rather unfit climbers setting out for it at 5 a.m. The walk up the snow and glacier slopes to the col between Magog and Terrapin Mtn. seemed never-ending. We got there at last, and had a second breakfast looking apprehensively at the tottering piles of rubble which our humorous predecessors had named the "Golden Staircase". I had my first experience of the soft Rocky Mountain rock as we climbed gingerly up the "staircase". Those unused to loose rock soon learned that all those beautiful jug handles were a snare and delusion. Our leader, Bob Kruszyna, having already been two or three weeks in the mountains, found the party rather slow for his taste. However on the way down the other side of the mountain, in that steep snow gully between Assiniboine and the Survey Peaks, several members of the party went down as fast as anybody could have wished (and much faster than they had intended). The party barely made it back to camp in time for tea despite the early start, so it was with some chagrin that we observed Dave Fisher and Dotch Peck traverse the peak a week and a half later in good time for tea after a 10 a.m. start.

Lighter entertainment was provided in the evening by songs around the campfire, renderings by George Wallis from his tremendous repertoire of epics of the North concerning such characters as Dan McGrew, and the slightly less fanciful accounts of the exploits of the day by the climbers. Also much appreciated was an unexpected guest with a liking for soap and toothpaste (tube and all). He was a young moose, and was engaged by Bill Harrison's Alsatian in a fascinating combat of bark and chase. After two or three days the moose gave up and retired into the bush from whence he came. These occasions had provided a nature photographer's paradise; fortunately the moose didn't seem to appreciate that the humans weren't as nimble as the dog.

The trip I enjoyed most was an attempt on Assiniboine. The mountain was successfully climbed by two parties from the camp, a reconnaissance party of three at the beginning of camp, and a larger party at the middle of our stay. Two or three rainy days after that covered the upper slopes of the mountain with several inches of fresh soft snow, making it seem unlikely that the mountain could be climbed for the rest of the camp. On my last day for climbing at the camp I joined five people who were keen enough to attempt it despite the snow.

Led by Bob Paul we set off at 4:30 a.m. on a clear and starry morning. We made quite reasonable time up the infamous gully, now festooned with fixed ropes, and at this hour having excellent firm steps all the way up. Progress was also good as we made our way across the glacier, lit by the rising sun, and onto the rocks. Here we were assailed by a bitter wind, and as we reached the new snow we appreciated that the impressive plume being blown off the mountain contained a lot of ice. The climbing soon became quite interesting, but progress was slowed by the need, because of the new snow, to belay every rope's length. Ten o'clock came much too quickly, with the top still some way away. If we carried on we ran the risk of being benighted, a doubtful pleasure in that wind, and the clouds were rapidly descending. But the decision to retreat was a hard one to make. Despite being unsuccessful, the trip was enjoyable for the exhilaration of climbing above everything else in the area and being able to look over the nearby peaks to range upon range of

mountains extending as far as the curvature of the earth permitted you to see. Also the mountain provided the most interesting climbing that I encountered at the camp, so it was a fitting end for my stay.

It was with some regret that I packed and prepared to leave the camp and the interesting and warm companionship that only mountaineering provides.

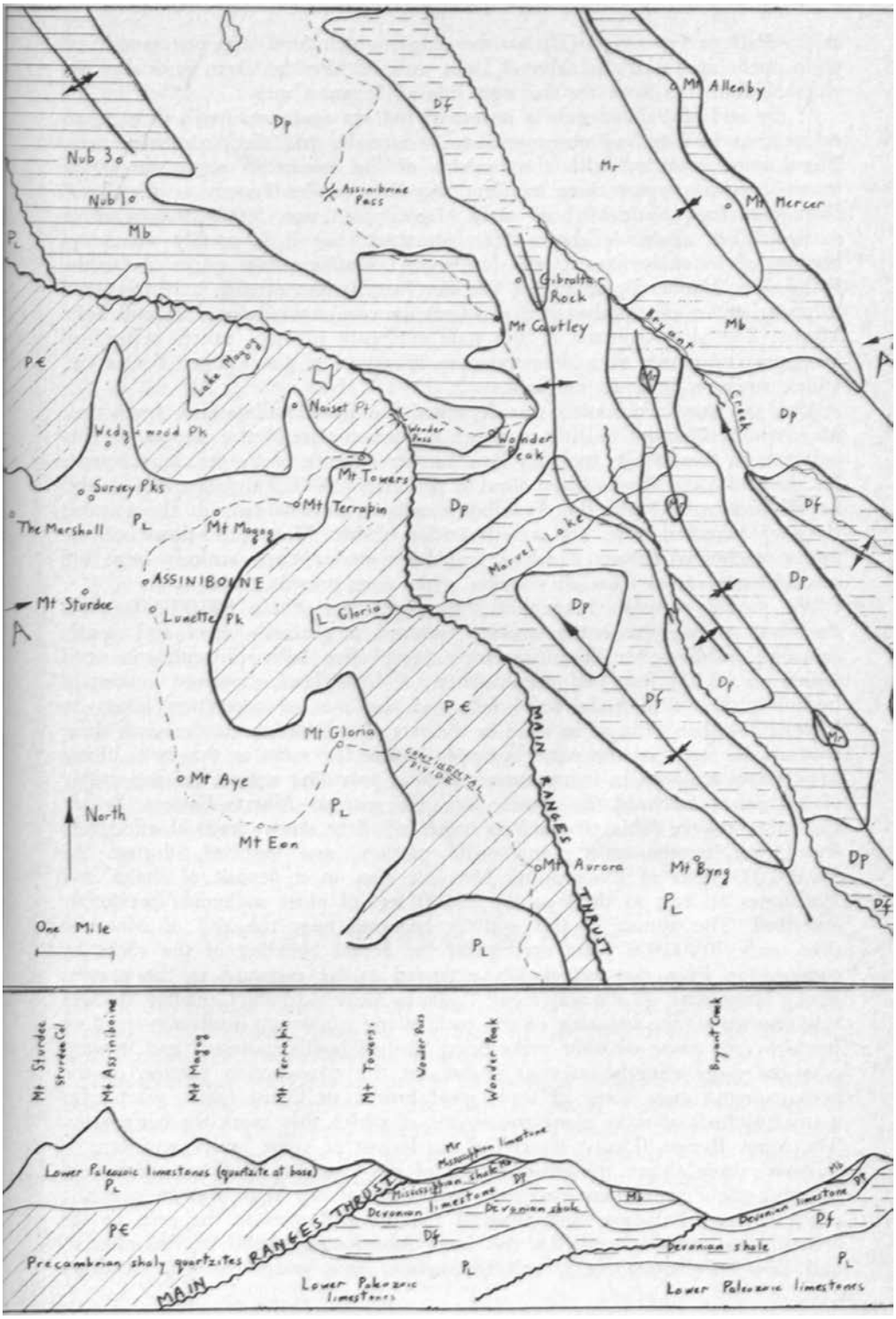
Geology Of The Assiniboine Area

Peter Verrall

It must have occurred to most of us, at some time, to wonder how those enormous masses of rock, which we so delight in climbing, came to exist and be where they are today. How was Mt. Assiniboine made, soaring into the sky above his attendant névés and lakes? Long gone are the days when we believed that it all happened at the crack of dawn in 4004 B.C., as Bishop Usher maintained, and we have since learned much about the lives of mountains. We shall try to describe, now, the geological history of the vicinity of the 1966 Alpine Club Summer Camp at Lake Magog below Mt. Assiniboine, in the light of this new knowledge.

If we multiply Bishop Ussher's figure by 200,000 or so, we arrive at 800,000,000 B.C., which is about the time at which presently discernible events in the Assiniboine area began. At that time Western Alberta and Eastern British Columbia were the site of a shallow sea, which extended southward across the Western States, northward into the Yukon, and westward to connect with the deep Pacific Basin. Further east, in Alberta, was a land composed of granites and metamorphic rocks of the Canadian Shield. Rivers were carrying fragments of those rocks westward as clay, sand and gravel into the sea, where they came to rest upon the bottom in layers or beds of sand and clayey sand until many thousands of feet had accumulated. Then the sea retreated slowly until the area became dry land, and suffered erosion for many years. Subsequently the sea again advanced across the area, and deposition recurred until a further 2500 feet of sands, now known as the St. Piran Formation, accumulated. Fragments of fossils found in this formation indicate that it was laid down in earliest Paleozoic (Dawn of Life) time, or nearly 600,000,000 years ago. The underlying older rocks are simply referred to the Precambrian (P-C on the accompanying map), and are characterized in part, by a lack of remains of erstwhile living creatures. These sands and clays, now hardened into quartzites and shaly quartzites, from the lower tiers of the Assiniboine Massif, and outcrop in the headwalls above Lake Magog and Lake Gloria, up to the castellated peaks of Wedgwood, Naiset, and Towers.

The particular advance of the sea that we are discussing eventually continued eastward far beyond the area, until most of the land areas that provided sand and clay detritus were covered by water, and hence preserved from erosion. The result of this state of affairs was, naturally, a cessation of deposition of sand in the Assiniboine area, and the presence of clear, shallow seawater there. The situation was ideal for the reproduction of lime-secreting animals and plants such as shellfish and algae which, accordingly, proliferated. Their remains, more or less broken up by the waves, collected on the sea floor until, by the end of Ordovician time some 160,000,000 years later, they had reached a thickness of the order of 6000 feet. Here and there among this calcareous debris, now petrified into limestones, were preserved the bodies of animals such as trilobites (which some of us found on Magog), bryozoans, and primitive corals. These Lower Paleozoic carbonate rocks form the great upper cliffs of Eon, Aye, and Assiniboine, and are grouped with the underlying St.



Upper Portion - Surface Geology of Mt. Assiniboine Vicinity

Lower Portion - Cross Section at A-A' Above

Piran Formation in the map unit pl.

There are no sediments in the area to represent the ensuing 60,000,000 years, and the next overlying rocks are of Upper Devonian age. The lack of Silurian and Lower Devonian rocks indicates that at some time during that interval the sea must have retreated from the area and a certain amount of erosion taken place. Even when the sea did return, the presence of land not too remote is recorded locally in the Upper Devonian Fairholme (map unit Df) sediments by their considerable clay content. Further north and northeast, though, near Edmonton, the Upper Devonian seas were clearer and conducive to the growth of reef-like masses of algae and corals up to several hundred feet in height. These were buried by later sedimentation and now form reservoirs for enormous quantities of oil now being exploited there, where they are known as "Leduc Reefs" after the area where the first discovery was made in 1947.

At Assiniboine, it was not until far into Late Devonian time that the sea's advance was sufficient to completely inundate the land and allow a return to pure lime deposition, which lasted for about 15,000,000 years. It resulted in a very massive, erosion-resistant limestone about 1000 feet thick, known as the Palliser Formation (Dp on the map), which forms the first prominent cliffs north and south of Marvel Lake, east of Wonder Pass, and also the cliffs of Gibraltar Rock on the west side of Bryant Creek.

At the end of Palliser time a retreat of the sea again occurred, to such an extent that land-derived clays were again brought into the Assiniboine area. These were deposited with the remains of the calcareous organisms living in the shallow water there to form the limy shales known as the Banff Formation (map unit Mb) of early Mississippian age, 300,000,000 years or so ago. This, again, is about 1000 feet thick, but it is readily weathered because of its shaly nature, and forms the recessive, shaly slopes above the Palliser on Wonder Peak, east of Wonder Pass. It also extends northwestward to underlie the green valley and meadows between Assiniboine Pass and Lake Magog. The shale content of the rock evidently provides much better soil for grass and plants than does the pure limestone of the Palliser Formation, which supports little or no flora.

After the Banff Formation was deposited the Rundle Limestone (map unit Mr), which, like the Palliser, suggests a redundation of the sources of clay sediment in the vicinity, possibly by a further advance of the sea. It represents Middle and Late Mississippian time, a period of 30,000,000 years, and is also a cliff-forming rock. In the Assiniboine area it remains only as the summit ridge of Wonder Peak, and on the ridge of Mt. Mercer, northeast of the upper reaches of Bryant Creek. It has been eroded away entirely from the rest of the area, as have all younger rocks once present there.

We should mention here that throughout the whole 500,000,000 years described so far, the entire region remained a generally level and gently subsiding shallow sea floor, acquiring layer after layer of sediment until 15,000 to 20,000 feet had accumulated. A little later, however, a certain instability began to make itself felt, and the rate of deposition began to increase together with an increase in the rate of subsidence. At the same time, stress in the crust of the earth began to buckle the rocks to the west, lifting them above sea-level in many areas and thus providing sources for the supply of sediments eastward, by rivers, into the general Alberta—Eastern British Columbia region. This tremendous influx of dirty sandy material effectively ended the former quiet limy sedimentation, and resulted, during the 150,000,000 years of the ensuing Mesozoic Era, in a deposit of shales and sandstones at least as thick as the 20,000 feet of older sediments previously described. The climax of this activity occurred near the end of Mesozoic time, only 70,000,000 years ago, when the actual buckling of the rocks by compression from the west finally extended as

far eastward as the present Rocky Mountains, all the way from Alaska to Mexico. In the Canadian Rockies this resulted in the breaking of the rocks along numerous northwest-trending fractures, the more westerly rocks being pushed bodily eastward and upward over the more easterly ones, as shown on the cross-section portion of the accompanying map. Some of these great breaks, or thrust faults, extend for many hundreds of miles along the ranges, of which they mark the boundaries. The Main Ranges Thrust is one of the largest of these faults, and can be followed along almost the entire length of the Canadian Rockies, everywhere bringing the Precambrian quartzitic sandstones of the Main Ranges over the much younger Paleozoic limestones of the Front Ranges to the east. In the area of our camp it underlies the huge Assiniboine Massif of Precambrian and Lower Paleozoic rocks, and its surface trace passes through Cerulean and Sunburst Lakes, directly under the campsite and Lake Magog, and on southeastward through Wonder Pass and Terrapin Lake. To the east of it are the meadows underlain by the Banff and Fairholme shales, and the lesser range of Palliser limestone to the southwest of Bryant Creek.

The present topography is actually much younger than the thrusting. The erosion of all the thousands of feet of younger rock, after the thrusting and consequent uplift of the Rocky Mountain Chain, took many millions of years. Softer shales were eroded to form valleys, and resistant limestones and quartzites remained as high mountain ranges, parallel with the thrusts along which they had been uplifted. Rivers took all the debris away to at least three (Pacific, Atlantic, and Arctic) of the seven seas, where it now forms another cycle of sedimentation, from which perhaps new mountains will yet be born.

The last touch, the literal icing on the proverbial cake, was the Pleistocene Age of the last million years, during which an enormous mass of glistening ice covered the entire Rocky Mountain Chain, flowing outward as glaciers along the valleys emanating from the region to deepen them, also to steepen their sides and heads to form gorges and cirques, like the Marvel Lake valley and the great Assiniboine—Eon cirque at its head. Mt. Assiniboine itself is, in fact, composed of the remnants of the headwalls of at least four such glacier-carved cirques, and to this it owes much of its grandeur of steep cliff and sharp arête. Such a mountain is known as a matterhorn, from the obvious type example.

During the last few thousand years, a mere drop in the bucket of time, the glaciers have been melting back up the valleys with the warming of the climate. They have paused occasionally, forming recessional terminal moraines, some of which have effectively dammed their valleys, and consequently formed lakes like Marvel and Magog for our delectation. The ice front has now receded back to the higher névés and nobody knows where it will be a short million years from now. Somehow they do not seem too concerned! Suffice it to say that it was in the ideal place to set off the landscape around our 1966 campsite, where one of the chief evening pastimes was watching the séracs crash over the headwall cliff, and trying to guess whether they would sweep across the route we took that day. The scene is manifestly still dynamic, but yet it seems a permanent joy to us. Long may it remain so.

Annual General Meeting, 1966

The Annual General Meeting of the Alpine Club of Canada was held at the Mt. Assiniboine Camp on July 24th, 1966 at 9:45 a.m. David R. Fisher, Eastern Vice President, acted as chairman in the absence of the President. Miss Elizabeth B. Walker acted as secretary.

The Chairman welcomed members to the 61st Annual General Meeting marking the 60th

anniversary of the Club. A special welcome was extended to Miss Michiko Tomii from Japan, and Willi Docharty from Scotland representing the Alpine Club and the Scottish Mountaineering Club. The latter brought greetings from these Clubs, and wished the Club success in its future activities.

Minutes of 1965 Annual General Meeting: Moved by Bruce Fraser and seconded by Helmut Microys, that the minutes of the 1965 Annual General Meeting held at Glacier Lake be adopted as printed in the 1966 Canadian Alpine Journal. Carried.

Honorary Members and Officers: A letter from the Honorary President, Dr. F. C. Bell, was read by the Secretary-Treasurer, the context is as follows:

"To: The Chairman and Members

Alpine Club of Canada, here assembled.

"There can be few of your members who know me personally, but in my capacity as the Club's Honorary President I venture to send you a mountaineer's greeting. I do this the more willingly as I have not been able to communicate with the Club membership at its annual meeting since my election to office. The latter is one which I must conclude to be an honor which has fallen to me, not by reason of personal attainments but perhaps in acknowledgement of the fact that I am now one of the very few remaining persons to have held membership and continuous interest in the Club ever since the days of its actual organization.

"Over these long years the Club has had its frustrations, as well as, happily, its rejuvenations, and has gone on from strength to strength. A thankful mind now senses a renewed vitality and memory brings into the picture the strong figures who have played their part in the Club's development and are without doubt worthy of your appreciation and gratitude. These were ones who showed not a little devotion to those ideals which have been basically of force and vigor to the Club in addition to the prowess which marked the breadth and depth of its mountaineering achievements.

"In spite of a world of change, the truth still stands that 'great things are done when men and mountains meet'. Your present assemblage will amply demonstrate the verity of Longfellow's well-known lines. Accordingly, it is for me to wish you noble exercise, refreshment of spirit and the fostering of comradeship. I trust these may all be engaging features of the happy holiday you seek—and find abundantly in Assiniboine's incomparable setting.

Yours sincerely, Signed: F. C. Bell, Hon. President, A.C.C."

Mrs. Phyl Munday was welcomed to the meeting, being the only Honorary Member present. Letters of regret at being unable to attend camp and the meeting were received from other members, and in particular Honorable Arthur Laing, Minister of Northern Affairs and National Resources.

President's Report:

In the absence of the President, R. C. Hind, his report was read by the Chairman.

President's Address:

"I am sorry that I am not able to be with you this year. My wife and I have been planning a trip in 1966 for the last ten years and we could not change our plans now.

"The last two years have been very active ones for our Club. There is a demand for change which seems to reflect the current unrest throughout the world and I believe there can be no standing still in any organization. One must progress or perish. However, the way that we should move is a most vital question and I would like you to make very sure that we choose the best

direction. I know that, in the very capable hands of your new President, the proper course will be steered and I wish him all possible success in his efforts to ensure the Club's wellbeing.

"Several important things have taken place in the last year. The Clubhouse Investigation Committee has sent in a further report recommending that we proceed with renovations to the Clubhouse on a much smaller scale than previously suggested. A very active and enthusiastic Clubhouse Committee is carrying out these suggestions. Donations for the Clubhouse were requested in the Gazette and I am pleased to say that several have been received. Special mention should be made of a most generous donation from Henry Hall.

"The Hut Committee has been active. Three fiberglass igloos in the Bugaboos are delivered and will be assembled this summer. The hut on Robson should be completed shortly. The Bugaboo huts will be built with money provided from the Kain hut bequest, the McCarthy bequest and the Green bequest and no expenditure will be necessary from general funds. Only part of the Kain fund will be spent and the remainder will be available to build a more permanent structure later if it is decided to do so.

"The biggest project at present before the Club is the Centennial Expedition. You will have read about our plans in the Gazette. We have agreed to assist the Yukon in a series of Centennial climbs in the St. Elias Range and we also hope to hold our summer camp in 1967 in that area. A great deal of work has already been done on this project and I hope it will come to a successful conclusion.

"I should like to thank all the Committee members who have worked long and hard on these and other projects for the last two years. In all my years of association with the Club, I do not believe we have ever had so many matters of importance to consider at the same time. Particular mention should be made of the monumental brief prepared by Fred Roots for the Centennial Commission. There is a copy in camp and I am sure any of you who wish to read it will be astonished at the vast amount of detail it contains and the skill and clarity with which it is set forth.

"Thanks are also due to the Executive Board for forwarding their views and suggestions on numerous controversial matters which have kept us busy and to the Management Committee for their recommendations and action on many matters.

"Last, but by no means least, I would not have been able to carry out my duties without the valuable assistance of our Secretary Treasurer who gathers up all the loose ends and keeps the Club on the track. I do not believe anyone but the President realizes how much work Cam does for the Club and I tender him my sincere thanks for his help.

"Best wishes to you all for a happy and successful camp. Good weather, good climbing and good luck. I hope to see you all in the Yukon in 1967.

Signed: R. C. Hind,
President."

Obituaries

The Chairman announced with regret the passing of the following Members: Poul B. Nielsen, Vancouver, B.C.; Forbes M. Hutchins, Pembroke, Ont.; Ernest Feuz, Golden, B.C.; and Rev. A. M. Gordon, Kingston, Ont. On behalf of those present the Chairman extended sympathy to the families of the deceased.

Club House Investigating Committee: The Chairman reported that the second report of this Committee had been approved by the Executive Board. The general feeling was that the Club House should be maintained and an appeal made for funds to improve facilities without changing

the nature of the Club.

Ski Committee Report

Bruce Fraser, Chairman of this Committee, reported a financially successful ski camp had been held in the Little Yoho in the spring of this year. Plans are being laid for the 1967 Ski Camp during the Easter holidays either at Mt. Robson or the Wates-Gibson Memorial Hut in the Tonquin Valley.

Hut Committee Report

"Report of the Hut Committee:

"This has proved to be a busy year indeed.

"The Edmonton and Vancouver Sections are contemplating huts in the Mt. Colin and Garibaldi regions. In the case of Vancouver, this is already an actuality.

"The Edmonton Section are very patiently awaiting helicopter time to erect the Mt. Robson bivouac shelter.

"Members of the Calgary Section have already given much time and aid to the Bugaboo Huts. Due to the late snow only one Igloo has been erected. It is hoped to erect the oblong Igloo in the first week of August. The remaining Igloo was damaged, the floor was lost in transit, by helicopter, from the sawmill at Bugaboo Forks. The solution to this is a replacement floor next spring in conjunction with Hans Gmoser's Ski School week.

"For those people not familiar with the present bivouac huts, they are fibre glass. This means at some future date they could be disassembled, and moved to an outer periphery in conjunction with a substantial hut.

"A stove is to be taken in to the Fay Hut.

"A possible tender has been approached to replace the porch on the Stanley Mitchell Hut.

"Hans Gmoser has built a sleeping loft and installed foam rubber sleeping mats in the Elizabeth Parker Hut.

"A volunteer group will be working on the Wheeler Hut, later this summer.

"Far from falling down, these are needed repairs, which must be made from time to time.

"Supplies are to be packed in for repairs to the Assiniboine Huts.

"The Hut Committee wishes to thank the members for their continued confidence and subscriptions to work parties.

"Respectfully submitted: The Hut Committee:

Miss D. Hartley
Mr. J. Atkinson
Mr. L. Grillmair
Mr. H. Matthews (Chairman)."

Camp Site Committee Report

"The President,
The Alpine Club of Canada.
Dear Sir:
Re: Report from Campsite Committee

"The members of the Alpine Club will be well aware of the efforts that have been made to have a camp in 1967 in the Yukon. A party was in Whitehorse before Christmas and another party went up to Whitehorse in the spring and was able to make an aerial survey of the general area. The whole idea of a camp in the Yukon is not only a great challenge, but offers a fantastic opportunity to Club members and others to see spectacular country.

"As at the date of writing this report a substantial brochure has been presented to the Dominion Centennial Committee and to our knowledge the camp has been approved in principle. However, unfortunately, as at this date the Dominion Government has not finalized the authorization of the necessary funds that will be required to assist the Club and make the camp possible. This is extremely unfortunate as every day of delay increases the difficulties in chartering aircraft and helicopters and commencing the necessary logistical work for such a camp. If the camp in the Yukon comes to fruition it will be for a four-week period, namely, the last two weeks in July and the first two weeks in August. The cost of the camp will be $200.00 for a two-week period.

"A base camp will be established on Kluane Lake which is on the Alaska Highway. All persons going to the camp will be ferried from base camp approximately 60 to 90 miles by helicopter to the camp site which will be a camp above the tree line and on ice.

"If the Yukon camp can be arranged it will be a once-in-a-lifetime opportunity for climbers to get into these mountains on a subsidized basis.

"The problem that must be met by the Club is the eventuality of the Government not authorizing the necessary funds. A substantial number of Alpine Club members have suggested as an alternative, the Freshfield Area which has not been visited for some years. Your Campsite Committee would respectfully suggest that the Club in its General Meeting authorize the Executive to make every effort to have the camp established in the Yukon. Failing this, it is suggested that a 1967 camp be held in the Freshfields.

"Your Campsite Committee made a brief exploratory trip up the White River in the summer of 1965. This year a more exhaustive trip is being made to give a detailed examination of the whole area. This area is east from Canal Flats and White Swan Lake. The mountains are the "Italian Group" and as previously reported, it is an area that we believe offers an excellent site for an Alpine Camp with good climhing and in an area that has never before been visited by the Club.

"It is hoped and expected that the Campsite Committee will be in a position to recommend to the Club that the 1968 Alpine Camp be held in the White River and in the Italian Group. All of which is respectfully submitted.

Signed: Peter S. Vallance, Chairman,
Campsite Committee."

Club House Committee Report

"The committee regrets the temporary loss of Dr. Peck's able chairmanship and he is leaving August 1st, 1966 on a sabbatic year to Europe. It is hoped he'll return to this committee when he comes back to Calgary. Presently the committee consists of Barbara and Walter Sparling, Dorothy and Douglas Hawkes.

"Your present committee would like to thank the former committee for their assistance and all the volunteers who so willingly gave of their time.

"On approval by the executive committee, propane heaters were installed in each of the four rooms of the staff quarters.

"The committee will do their best on the premise that the Clubhouse is to live on, and that

the market area, say Vancouver, Edmonton to Calgary at least, will increase in population some 150% during the terms of our lease by 1993, and that leisure time will increase, and that there will be a corresponding increase in the number of climbers.

"It has been a criticism that the Alpine Club is too staid and conservative, and that the feeling around the Clubhouse reflects this. It is our hope to do projects that will attract, as well, the more active climber. It is with this in mind that we have pulled out the obsolete, unused original men's washroom and are in the process of building a Climber's Kitchen. It is being built fireproof and insulated for temperature and noise control. The stove will be electric. Wiring will be a separate system allowing for adequate reserve for addition of more appliances if warranted.

"The kitchen will be for the use of those who choose to make some or all of their meals, simple or deluxe, at any hour of day or night, so as to make the meal hour adjustable to the climbing.

"The committee feels that this kitchen will attract some of our members climbing in the area, now presently using campgrounds. It appears that if one chooses to set out at 4 a.m. on a climb the Clubhouse is inadequate because no unscheduled meals are available. Coupled with this kitchen, it is planned, as money becomes available, to convert Seaver, Vermilion, and in off seasons even the staff quarters, to dormitory standard of accommodation.

"From the above changes we hope to get an indication that a change in style of operation results in a heavier volume of use, hence increased revenue. It is hoped to demonstrate that 'if you bait the trap they will beat a path to your door'.

"There is no doubt that the Club needs courage to make big plans to keep ahead. Ponder a moment what Mr. Wheeler and other pioneer members were thinking of, when in the early 1900's, with a population in Calgary of 10,000 to 20,000 they built the original buildings. Theirs was a decision that was far sighted. It is our responsibility to be as far sighted. Certainly we can observe the trend of recreation in the mountain area, when we notice that on July 1st, 1966, cars were backed up 5 miles and waited ll/4 hours to get through the gate. There were likely more cars in that line-up than there were in the whole of Western Canada when Wheeler and his fellow A.C.C. members decided to build the Clubhouse.

"It is your committee's recommendation that we be allowed some money to convert much of our present facilities to a style more compatible with the needs of the present day climber, as a test which will indicate whether or not a new style of building altogether is warranted.

"An Alpiner has no doubt observed that if he announces he is going to attempt a very difficult peak, most people in the valley will want to help. If he announces he's just going to the top of the pass, the usual attitude from his fellow man is that 'You'll make it'.

"If we announce that we are going to get maximum use out of our lease, which runs until December 31st, 1993, we'll get lots of help. To remain as we are we'll probably survive, without any feeling of accomplishment.

Signed: V. L. Doug Hawkes, Chairman."

Finance Committee Report

Reed Naylor, Chairman of this committee, stated that this committee had reviewed the finances of the Club and reports its findings to the Executive Board.

Editor of the Journal: Mrs. Phyl Munday thanked those who had contributed to the Journal and asked members to let her know of climbs in Canadian mountains so that reports could appear in the Journal. She emphasized the need to have all material sent in as early as possible so that the

Journal might be issued on time.

Honorary Librarian's Report for 1965-1966

"The year has been one of consolidation rather than of growth. Between 20-25 books have been accessioned. Some of our exchanges such as 'Canadiana' and the various bulletins and proceedings of the Smithsonian Institute were discontinued as it was felt that the subject matter did not fall within the scope of a mountaineering collection.

"All section newsletters—Chinook, Mountain Breezes, and Avalanche Echoes—have been bound. These files are likely the only complete ones in existence. The run of the Avalanche Echoes is particularly important as it is one of the sources for the new 'Climber's Guide to the Coastal Ranges'. A run of the B.C. Mountaineer has also been bound. I would appreciate it if members would let me know of any publications of other Canadian mountaineering clubs—newsletters, bulletins, etc. It is my hope that we will have the best collection anywhere on Canadian mountaineering.

"It has been a matter of regret to me that the collection which is housed in the North West History collection of the Vancouver Public Library has not always been available due to staff shortages.

"I have been pleased to answer several requests for information by mail and feel that this is one area in which the A.C.C. collection may prove valuable.

"The major problem facing the Club with regard to the Library is its future home. The Club has two years left of the 5 year loan agreement with the Vancouver Public Library and it must start considering re-negotiation of the present loan or a move elsewhere.

Respectfully submitted, Signed: Elizabeth Walker,
Honorary Librarian."

Honorary Photographic Secretary's Report—1966

"There were two innovations in the Club Photographic Competition this year. Award certificates were given for pictures which got first or second place or honourable mention in each Class. In the Section Class colour prints were called for, instead of black-and-whites; and this change was favourably received. There were three entries, which were judged at Camp by Beth Henson and Aileen Harmon, the winner of the Wates Shield being the Calgary Section. Sections are reminded that the pictures entered in this Class are retained and mounted in an album, which may be borrowed for viewing by those who are interested in the scenery and activities of former Summer Camps.

"The ninety-nine colour slides entered in the Competition were judged in Edmonton by Mr. Bill Lea, Dr. Andy Revell and Mr. Roy Usher. The report on this section of the Competition has been sent to all competitors; and the results will also be published in the Gazette. Since there were no black-and-white prints entered, this phase may have to be abandoned.

"The sets of training slides were borrowed by several Sections and individuals; but it is hoped that in future more use will be made of these aids for pre-season instruction of novice climbers.

Respectfully submitted, Signed: Sylvia Evans,
Honorary Photographic Secretary."

Report of the Editor of the Gazette—1966

"The Gazette makes definite efforts to come out on time three times a year, November,

February and May.

"When I write for contributions and give the deadline as October 1st, I would be very grateful if those with no report would send a post card saying so well before this time. The Gazette is to inform the Members of what is going on in the Club and also of what is to come, so anyone with matters of interest, please send them in—all suggestions are very welcome. Mrs. Gillian Deane of Vancouver is taking over from Mrs. Nelly Whellams as Assistant Editor.

Signed: Miss Dorothy H. Peck,
Gazette Editor."

Annual General Meeting, 1966

Climbing Committee: The Chairman thanked Jim Tarrant for his excellent work as Chairman of this committee at this camp, pointing out that this job requires a tremendous amount of work.

Journal Index Committee: Eric Brooks, Chairman of this committee, reported that the 1907-1966 consolidated index to the Journal will be completed and prin¬ted by the end of this year. In future, there will be an annual index incorporated in each volume of the Journal. By decision of the Executive Board there would be a charge of $2.50 to $3.00 for members desiring the consolidated index. Information regarding this would be circulated in the next Gazette.

Re-appointment of Auditors: Moved by Jim Tarrant and seconded by Walter Klinkhoff, that Clarkson, Gordon & Co. be re-appointed for 1967.

Centennial Plans: The Chairman outlined the plans for the Centennial Project to be held in the Yukon in 1967, pointing out that final approval of funds had not yet been granted. The project consists of the climbing by special teams of a group of peaks to be named after the Provinces and Territories, and also two main camps of two weeks each. A working committee of five consists of Mr. Ken de la Barre, Manager, Arctic Institute of North America, Mr. A. Charbonneau of the Centennial Commission, Mr. Koken of the Yukon Government and Messrs. E. F. Roots and D. R. Fisher of the A.C.C. The final location of camps should be determined shortly after the ground reconnaissance to be conducted by members of the Yukon Government, Arctic Institute of North America and the A.C.C.

Eric Brooks has been appointed chairman of the Selection Committee to select teams for the various phases of the Yukon Alpine Centennial Expedition. Application forms will be sent to all Sections and other Clubs and brochures sent to all members.

It is planned to invite 22 young people, age 16 to 18, from the Provinces.

Mrs. Anne Frantz asked whether Americans could take part. Mr. E. Brooks replied that in general, the policy of the Centennial Commission was that the project should be for Canadians but that consideration would be given to others.

Miss Sylvia Evans suggested that some young people might be sponsored by Sections who have junior members.

The Chairman pointed out that even if the general camps could not be held, that the 50-man Centennial Team would most certainly carry out that phase of the project.

By a show of hands the meeting supported the Y.A.C.E. plans almost unanimously.

1967 Summer Camp: Moved by Miss G. Hartley and seconded by R. E. Scholes, that in the event that the Yukon General Camps do not materialize that the 1967 summer camp be held in the Freshfields area.

Silver Rope Award: The Chairman announced that the Executive Board had approved the

recommendation of the Climbing Committee that the Silver Rope be awarded to Robert E. Scholes of Edmonton.

Constitution and By-laws Amendments: The Chairman read out the report of the scrutineers appointed to count the ballots, which was as follows: "We, duly appointed scrutineers for the Alpine Club of Canada hereby certify that the vote in the Ballot for amendments to the Constitution and By-laws submitted to members January 5, 1966, and the revisions thereto submitted June 7, 1966, is as follows:

For the amendments: 422. Against the amendments: 13.

Signed: Ralph Forster; Monica Godfrey; William T. Sharp."

The new Constitution and By-laws were declared adopted having received more than the two-thirds of the votes cast in favour.

Moved by Miss Dorothy H. Peck and seconded by Miss Sylvia I. Evans, that the ballots be destroyed. Carried.

New Officers: The Chairman announced that there were no additions to the nominations put forward by the Nominating Committee and the following were declared elected for the 1966-68 term:

President:	Roger Neave, Sarnia, Ontario.
Eastern Vice-President:	David R. Fisher, Scarborough, Ontario.
Western Vice-President:	Eric Hopkins, Edmonton, Alberta
American Vice-President:	Henry S. Hall Jr., Cambridge, Mass., U.S.A.
Honorary Secretary:	James F. Tarrant, Calgary, Alberta.
Honorary Treasurer:	Scipio Merler, Vancouver, B.C.
Honorary Librarian:	Miss Elizabeth B. Walker, Vancouver, B.C.
Honorary Photographic Secretary:	Miss Mary C. Beley, Vernon, B.C.

Under the new Constitution and By-laws the Western Vice-President now becomes the Central Vice-President; the Honorary Treasurer and the Honorary Secretary become Ordinary Members of the Board of Management. The Librarian and Photographic Secretary have the word "Honorary" dropped from their titles and become members of the Advisory Council.

Incoming President's Message:

"Greetings to all members and friends at the Assiniboine Camp. I am sorry that I cannot be with you, but commitments were made to lead a small climbing expedition to Switzerland long before I was asked by the Nominating Committee if I would let my name stand for the office of President. As I am unable to be at Camp, I have asked David Fisher, our Eastern Vice-President, to act for me during the second week of Camp. Having worked with Dave on Executive, Climbing and Organization Committees for a number of years, I have no hesitation is placing my responsibilities in such capable hands. I also want to extend greetings to the newly elected Executive Board. I am sure that it will be a pleasure working with you during the next two years.

"First, I want to express my thanks and appreciation for the honour you have conferred on me by asking me to be your chief executive officer. To be elected President of a truly national, or to be more accurate, international, organization such as the A.C.C. is indeed an honour. During the 35 years that I have been a member, the Alpine Club of Canada has meant a great deal to me. Not only has it provided climbing opportunities that would not otherwise have been possible, but much more important, through the Club I have acquired many good friends throughout Canada and the United States —real friends, always ready to offer hospitality or arrange on short notice

weekend climbing or skiing trips for my benefit. It is my hope that during my term of office, I can do something for the Club in return for the benefits I have received from it. I also hope that it will be possible for me to visit a number of the Sections during the next two years.

"By the time this message is read, you will know the results of the voting on the proposed new constitution. In writing this message I am going to be optimistic and assume that it has been approved by the necessary majority, as I believe it will make the operation of the Club easier and more effective. By means of the transition By-law the new organization can be put into effect immediately; and if it is passed, and if there is a quorum of the new Board at the Camp, I have asked David Fisher to do this. The new eight-man Board of Management will be composed as follows: The President; four Vice-Presidents, who will be David Fisher, E.V.P., Eric Hopkins, who becomes C.V.P., W.V.P. to be nominated, and Henry Hall, A.V.P.; two members of the Board, Jim Tarrant and Scipio Merler; and the non-voting Club Manager, Cam Ledingham.

"I cannot leave the subject of the new constitution without one more comment. I think we all owe Dave a great deal of thanks for the work he has put in as Chairman of the Organization Committee. Few people would have devoted the time, the painstaking effort, and the patience that Dave has contributed to this work over the last two years.

"There are several other matters that I would like to mention briefly. During the work of the Organization Committee, a few members expressed the opinion that the membership qualifications approved last year are too severe, and indicated that the matter should be raised again. The Membership Committee's investigations and the subsequent voting, indicate quite definitely that the majority of the Club members favoured the new requirements. I would therefore like to suggest that the new membership qualifications be given a trial for at least a year or two before any further action is taken. If they then appear to be having an adverse effect on the membership, the matter should be reconsidered.

"You will have already had a report on the Centenary Project. In any case Dave Fisher has been in closer touch with it than I have. I will therefore pass over this subject.

"Other matters that need consideration and development are the future of the Club House, a second camp for the more ambitious climbers, and the encouragement of junior activities. Last, but unfortunately not least, is the matter of Club revenues. Like living costs, the Club operating costs seem continually on the rise. I therefore believe that it will be necessary for the Board to give serious consideration to the need for recommending an increase in the annual dues. A study of the Club finances as a whole will probably be necessary to properly assess the need for, and the amount of, any such increase.

"The above are some of the more important items that seem to need attention. It looks like a busy year ahead for the new Board!

"Finally, I would like to add that constructive suggestions for improvements in the operation of the Club will be most welcome. These may be made through the members of the Advisory Council or directly to any member of the Board of Management. Wishing you good weather and good climbing,

Sincerely, Signed: Roger Neave."

Appointment of a Western Vice-President: Under the new Constitution and By-laws there needs to be a new Western Vice-President and the position will be left open until the return of Roger Neave, since Mr. J. J. Fairley of Vancouver, eligible under the transitional By-law, has declined the position.

Advisory Council: The Chairman then read the names of the 22 members of this council under the new Constitution and By-laws. A chairman of the Camps and Expedition Committee is to be appointed. The Chairman stated that copies of Minutes of all Board Meetings and General Meetings held at camp would be sent to all members of the Advisory Council in accordance with the new Constitution and By-laws.

Votes of Thanks: Moved by Miss D. H. Peck and seconded by Miss P. Wylie that a hearty vote of thanks be extended to Bill Harrison and his crew for their untiring efforts towards making the camp a successful one. Carried.

The Chairman extended a vote of thanks to Dr. Wm. L. Louie and Dr. Steve Navin for their ministrations to those who met with mishaps during camp.

New Business: Miss Mary Beley regretted that she would be unable to accept the position of Photographic Secretary. The Chairman stated that a resignation would have to be handed in to the Club Manager and a new appointment made by the Board of Management.

Dan Hale from Alabama reported on the Great Smokies National Park in the United States and asked for support of American Club Members and others to prevent desecration of this park area.

Steve Bezrushka reported that he had used the Bugaboo Igloo and felt that the floors should be reinforced and the base seal improved. Philippe Delesalle stated that there would be 2 or 3 years of use needed in order to assess improvements in the erection of the igloos. Bruce Fraser, who helped in the erection, said that one factor was the weight and size of sections that could be transported by helicopter.

Walter Klinkhoff asked if Pat Baird would be eligible for a Silver Rope Award. The Chairman replied that at present the Silver Rope is given for leadership on climbs at summer camp. If members wished to have anyone considered for a Silver Rope they should submit a request to the Board of Management.

Pat Duffy asked if consideration could be given to a camp for more active climbers. The Chairman replied that the new Camps and Expeditions Committee would be looking into the possibility of smaller, more expeditionary type of camps. Bob Kruszyna suggested that the Club could be "taken to the cleaners" in supporting these young climbers who would not necessarily return to support the Club. Helmut Microys replied that he felt that if a camp were organized that provided for both the expert and the novice, better use might be made of the younger climbers for leading.

Mrs. Gillian Deane asked why the Club was not spending money on expeditions instead of letting it sit in the bank. The Chairman replied that if investments were spent, the Club would be bankrupt because of the loss of interest and that with rising costs a raise in fees was a possibility. The funds also act as a reserve fund.

Steve Bezrushka asked what progress had been made in a union list of mountaineering periodicals. The Librarian stated that she had done ground work in writing to the National Librarian and drafting plans.

Jim Tarrant, Climbing Committee Chairman, thanked all the leaders of trips and in particular the two professional guides for the work they had done.

Miss Elizabeth Walker suggested that Members take an interest in conservation issues and parks policy in their areas and write their M.L.A.'s. Pat Duffy felt that A.C.C. Members should support a logical national parks policy. The Chairman replied that the Club had frequently offered its support to the National and Provincial Parks Association, but so far without response.

Eric Hopkins proposed a vote of thanks to David Fisher who acted as chairman in the absence of both outgoing and incoming Presidents.

Peter Fuhrmann, professional guide, reported that different systems of instruction were being used. He wondered if there was a possibility that rope leaders could use a uniform system and felt that there should be some standardization. Mr. Tarrant agreed with this if it could be worked out. Moved by Eric Hopkins that the meeting adjourn.

D. R. Fisher, Eastern Vice-President.

W. C. Ledingham, Secretary-Treasurer.

The Tantalus Camp, 1966

Milton Hicks With Basil Dunnell

The Vancouver Section of the Alpine Club of Canada was the organizing spirit behind a very successful week at the Club's Tantalus Hut in the Tantalus Range, some 40 "air" miles from Vancouver. Notice of the Camp had been given in the Gazette and participants came from as far away as Toronto, Chalk River (Ontario) and New York and two guests from a sister climbing club in Oregon. The majority of the 27 persons (including our professional guide Hans Schwarz and cook Nina Wisnicki) who attended came from Vancouver, Calgary, and Edmonton.

Supplies and three passengers were flown to Lake Lovely Water in a West Coast Air Services Beaver aircraft, and the remaining people and their gear arrived in the same plane in a series of short flights from Squamish on the morning of Monday, August 1st. The Tantalus Hut is built on a rocky outcrop in a forested area just above the point where the creek drains Lake Lovely Water.[24] The spring of 1966 had been a heavy snow season and even at the beginning of August one looked from the hut out across a lake in which were a few small ice-bergs that had broken off avalanche tongues which reached the lake (3800 feet). The lake is ringed with 6000- to 7500-foot peaks, mostly of good granite and with routes on them of all degrees of challenge from scrambles to grades 5 and 6. The north sides of the peaks are all glaciated at least slightly and one of the delightful aspects of the hut is the view south across the lake to a hanging glacier on Mt. Lydia.

Mts. Tantalus and Dione (8540 and 8500 feet) are beyond the circle of mountains to which the Tantalus Hut gives immediate access and Tantalus was climbed on a 2-day excursion from the hut. Our only period of doubtful weather came on the day Tantalus was being climbed by the first party of six and the second party of three was going up to the high camp. As a result, the first six did their climb in fog and their descent in rain, snow, fog, and lightning, and the second party returned to base. Glaciation on the north side of Tantalus, Dione, Serratus, and Alpha is extensive and impressive.

A row boat which would hold five made for very convenient access to some of the climbs and provided an idyllic relaxation for any who elected to stay near camp rather than climb. Generally excellent weather, with the exception already noted, glorious mountain country, and incredibly good food produced by a cook of unfailingly good humour made a marvellous frame for our "Mountain Seminar". Our climbing activities consisted of: two snow schools and a rock school; Niobe (6600 feet) by the north rib, by the east ridge, and by the glacier between it and Pelops; a Niobe, Pelops (6500 feet), Iota (6000 feet), and Omega (6100 feet) traverse; Lydia (6700 feet) by the southeast ridge; Pandareus (6800 feet), the second ascent of the west ridge; Alpha (7560 feet)

24 See sketch on page 184 of 1962 C.A.J.

by the west ridge and by the east ridge (traverse of Alpha); Omega by the northeast ridge (traverse of Omega); and Tantalus (8540 feet).

Another airlift on Saturday afternoon, August 6th, completed a very successful week.

Note Re: Robson Hut

Jo Kato

The Mt. Robson hut is now completed and ready for use.

It is constructed of non-insulated fibreglass panels in an igloo shape with an inside floor diameter of 13 feet 4 inches with 1/2-inch plywood flooring on 2 x 4 studs.

It sits at an altitude of about 8500 feet, and is 5700 feet above Robson Meadows which is now transected by the Yellowhead Highway. The location is on the standard south-southwest route climbing above Kinney Lake, and the bright yellow igloo sits on the ridge very close to the face of the lower icefall at the highest practical site on this side of the mountain.

Two fixed ropes have been placed at awkward places to facilitate descending with heavy packs.

Contents of the Hut include (1) a small table and two take-down-type benches; (2) a box-seat containing two-burner Coleman gasoline stove, three pots, set of six dishes and utensils, bucket, frying pan. The water supply is in the first or second gully to the west.

Cam Ledingham has a complete report, and Hut Chairman Ron Matthews has as well a marked map and photographs.

OBITUARIES

Mary Jobe Akeley

We regret to record the death of Mary Jobe Akeley, of Mystic, Connecticut, a life member of the Club since 1909, and member of the American Alpine Club. She was married to Carl Akeley, an African explorer, and was also a friend of Caroline Hinman, with whom she made some trips.

Anna Margaret Armstrong 1922-1966

Although a member of the Alpine Club of Canada for a relatively short time, Margaret Armstrong succeeded in making many friends. Because of pressure of numerous other activities, her mountaineering activities were curtailed and news of her death on August 4, 1966, came as a great shock and sorrow to all with whom she had become acquainted.

Margaret was born in Whitehorse and shortly afterwards her family moved to Dawson City where she lived for 12 years and was exposed to the history of the Klondike. As her father had come into the Yukon during the Gold Rush of ‘98, Margaret identified herself with the pioneers of the country.

After the death of her father Margaret moved to Toronto with her mother and brother where she attended high school and university. After brilliant academic achievements she gained her M.A. in chemistry and metallurgy at the University of Toronto in 1945.

While pursuing her studies, Margaret developed the instrument she studied and played so well, the piano. She found music to be an essential part of her life, and this interest was shared with

her husband. She became secretary of the Friends of Chamber Music in Vancouver.

Following her university graduation Margaret worked on research in Toronto until 1950, when she moved to Vancouver and took a teaching post in the Department of Metallurgy at the University of British Columbia. At this time she renewed a friendship she had begun in Toronto with William Armstrong, now Dean of Applied Science at U.B.C.

Margaret and Bill were married in 1951 and then began to find time to develop their until then latent interest in climbing, hiking and skiing; and after several years of exploring the country and investigating its flora and fauna on their own, both became active members of the A.C.C., graduating at the Fryatt Creek Camp in 1960, and then attended the camps at Ice River in 1961 and Maligne Lake in 1962. The great pleasure Margaret experienced at these camps is apparent when one sees the beautiful pictures she took while participating in the various activities of camp life. Birds, flowers and animals Margaret knew and loved, and these too are portrayed in her collection of photographs.

After the Maligne Lake Camp Margaret became so occupied with her teaching post at the University that she no longer had time to attend A.C.C. camps. Fortunately she and her husband found their interest and concern for their students so absorbing, that together they helped a tremendous number of devoted and grateful young people who now feel the great loss of one of the partners.

Many other talents and virtues could be attributed to Margaret: her talent for sketching, love of gardening, skill in writing, interest in new things, skill in cooking. It seemed that Margaret was interested in, and wanted to try and do everything in the short lifetime that was hers.

The Club extends its deepest sympathy to Margaret's husband, Dean W. M. Armstrong, and to her mother, Mrs. C. F. Johnson.

M.M.

Russell John Cuthbertson 1888-1966

We regret to report the passing of a member who for many years was very active and contributed much to the Club's success, especially during the difficult years which commenced in 1930. Mr. R. J. Cuthbertson (known to his contemporaries as "Russ") performed services of the utmost value at several annual camps.

He graduated as an Active Member of the Club in 1928; held the office of honorary treasurer from 1936 right through to 1950, was one of the instructors at the Pacific Command Training Camp in Yoho in 1943, and was elected western vice-president for the period 1950—1954.

A very fine climber, strong and quick; thoughtful and helpful to others on the rope; invariably cheerful and confident, his services were often requisitioned to take charge of base camps, and on one occasion he shouldered the responsibility for the main camp (Whirlpool). I remember how hard he worked at the base camp for the Freshfields in 1949. It rained most of the time at that Camp. He was an exceptionally able leader of climbing parties and in 1935 he gained the highest honour—the award of the Silver Rope—in recognition of ability as a guide, climber, route finder and map reader.

Mr. Cuthbertson was born in Perth, Ont., but spent most of his life on the prairies. Originally he was with the Union Bank, which was taken over by the Royal Bank. For many years he was manager of the Shaunavon Branch of the Royal Bank and continued in that capacity up to the time of his retirement. He eventually went back to Ontario and took up residence in Carleton Place, Ont., where he died on July 2, 1966.

He was active in the development of Shaunavon through the Board of Trade there and was appointed president of that body. He was also a member of the Associated Boards of Trade of Saskatchewan.

He became a proficient curler and a good golfer, doing much to promote interest in these sports in Shaunavon and district.

He is survived by his son, and a brother who lives in Victoria.

W.T.R.

Arthur M. Dewar

In the recent death of Arthur Dewar the Club has lost a little-known but deeply interested member. He joined the Club in 1917, becoming a Life Member in the same year, but his mountaineering activities did not extend beyond rambles in the local mountains around Vancouver and he was known personally to only a few members. For years he attended meetings of the Vancouver Section when they were held in private homes and he supported all schemes to promote climbing and build up the Club. Of a quiet retiring disposition he never intruded in Club affairs although for a time in the early years he was secretary of the Vancouver Section. He was one who loved the beauty of the hills at all seasons of the year and while others struggled and strove to attain unclimbed heights, he was content to belong to the company of those whose faithful support makes possible the achievements of others. May he rest in peace.

F.S.

Ernest Feuz 1889-1966

Ernest Feuz was born at Interlaken, Switzerland. In 1909 he came to Canada with his father, Edouard Feuz, Sr., one of the two Swiss guides who were the first to come to the Canadian mountains. His father did not settle in Canada, but made seasonal trips from his homeland. Ernest, with his brothers, Edouard Jr., and Walter, remained in Canada. He made two visits to Switzerland, in the winters of 1911-12 and 1924-25. On the first of these visits he passed his guide's examination at Grindelwald.

Ernest was for a number of years stationed at Glacier House and not only became the guide of many early climbers in the Selkirks, but a figure on Glacier station platform familiar to travellers on the Canadian Pacific Railway before the building of the Connaught tunnel.

It is not possible here to do more than mention a few of his achievements in his long career as a guide, which commenced before any trails were built and when climbing invariably involved exploration and bushwhacking. Ernest made many ascents with those pioneers in the Selkirks, Howard Palmer and E. W. D. Holway, including (in 1913) first ascents of Mt. Duncan and Beaver Mtn., on which climbs Christian Hasler, Jr., was also a guide.

In 1911, with V. S. Merle-Smith, he made the first ascent from the Sir Donald-Uto col to Uto Peak. The same year he was a member of the party which made a traverse around Uto and Eagle via the Sir Donald—Uto col, the Uto and Eagle glaciers and the col between Eagle and Avalanche.

In 1923 with P. R. Mclntyre he made the first east-face ascent of Mt. Sir Donald. Later Ernest climbed a lot with Mrs. Cromwell—Miss Georgia Engelhard, as she then was. With her, in 1933, he made the first south-north traverse of Mt. Victoria and in 1936 the first traverse of Hungabee Mtn. from Ringrose col to Prospector's Valley. Also with Mrs. Cromwell and F.S. North

in 1939 he made several first ascents in the Bobby Burns group, including Centre, East, North, Northwest and West Peaks.

In the late ‘40s and early ‘50s he climbed extensively in the Rockies and Selkirks with E. C. Porter, with whom in 1951 a new route was made up the North Peak of Mt. Victoria by the ridge from Watchtower Creek.

For several summers before his death Ernest climbed with A. R. Watzek and his parties in the Lake O’Hara area.

When accidents occurred or threatened, the Swiss guides for many years were the first to be called to the rescue. Ernest led on the rescue of the survivors of the Mexican party after the tragedy on Mt. Victoria.

Ernest and his brothers on many thousands of climbs were never involved in an accident entailing personal injury. He was one of the guides who attended the Club’s summer camps and for many years gave members the benefit and example of his know-how as first on the rope.

In July 1947 at the Glacier Camp, Ernest was elected an Honorary Life Member of the Club in recognition of his “unselfish services and friendship towards the Club” and was presented with an illuminated life membership certificate.

Ernest was my companion on many wonderful days in the mountains. On the high hills, when time permitted, he loved to pause for a while and enjoy the beauty all around us. Ernest will live in the memories of all who climbed with him as a gallant mountaineer and friend and as one to whom are owed countless happy days in the mountains.

Ernest Feuz died at Golden, B.C., on May 14, 1966. Robin Hind, then President, and other Club members paid a last tribute, attending his funeral. The sympathy of all who knew Ernest is extended to his wife, sons and daughter and brothers.

H.A.V.G.

Arnold Froebel 1909-1966

On July 27, 1966, the mountaineering fraternity were saddened to learn of the untimely death of Arnold Froebel, at the age of 57. Arnold was supervisor of the forage seed department of the Alberta Wheat Pool when he succumbed to a lengthy illness.

He was born in Zurich, Switzerland, attended school and the Agricultural College there, and became a member of the Swiss Army.

Prior to emigrating to Canada in 1932, Arnold had become a keen mountaineer. He settled in Stanger, Alberta, and farmed there until 1947, when he moved to Sangudo, about 65 miles west of Edmonton. He became a member of the Alpine Club of Canada in 1952 and climbed extensively with the Edmonton Section, of which he was a member, soon becoming an active and valuable member of the Club. When in 1960 he moved to Calgary, despite failing health, he became an active member of the Calgary Section.

Arnold was a big man, not only in stature, but because of his appetite for hard work and service to the sport of mountaineering. He was a man of many interests, spoke three languages, read voraciously, collected stamps, dabbled in painting, was a keen photographer, and although not a musician, he loved good music. His passing is a great loss to the Club. Arnold is survived by his wife and five sons.

B.F.

Reverend Alexander M. Gordon 1873-1965

The death of the Rev. "Alex" Gordon at Kingston, Ont., on July 5, 1965, at the advanced age of 92 years occasioned the severance of one of the very few remaining links between the founders of the Club and the succeeding generations of its membership.

For that reason as well as the fact that Alex had occupied a prominent place in the counsels which preceded the launching of the Alpine Club of Canada, it seems advisable to research his background to determine some of the salient facts in his life's story and which relate to his emergence as one of the chief founders of the Club.

Alex Gordon was the son of the Rev. Daniel M. Gordon, a native of Pictou County, N.S., which notably produced a number of distinguished men who contributed to the public life of Canada in and about the years of Confederation. In 1902 Dr. Gordon succeeded the Rev. George Grant as Principal of Queen's University. Both were friends of Sandford Fleming (afterwards Sir Sandford) the distinguished Engineer-in-chief for the construction of the Canadian Pacific Railway. Sir Sandford was the Club's first Honorary President. In 1879 Dr. Daniel Gordon accompanied Fleming on an inspection in which the party commenced their journey at Victoria, went by water to Fort Simpson and thence through the mountains and by way of the Peace River, reached Fort Edmonton and the prairies. In 1880 the interesting experiences of this party, as recorded by Dr. Gordon in his diary, were published in a little book entitled "Mountain and Prairie." This now makes an interesting little classic on Western exploratory travels.

Coming to Winnipeg in 1883 as minister of Knox Church, Rev. Daniel Gordon served as a chaplain to the 90th Battalion Winnipeg Rifles throughout the 1885 campaign during the North-West Rebellion. Alex Gordon's primary schooling was in Winnipeg but in 1889 the family moved to Halifax and Alex attended its well known Academy and subsequently Dalhousie University.

A suitable opportunity opened up for his move to Edinburgh, in whose University Alex took his M.A. degree and that of Doctor of Divinity. He followed up these academic successes by further extensive studies in Germany and it was during this period that he spent holidays in the Alps and became interested in mountain climbing. We do not know how extensively he carried out this pursuit but the record includes the ascent of Monte Rosa and it may be inferred from the context that other ascents were to his credit. At all events he acquired a sound knowledge of climbing techniques and usages in the company of professional Swiss guides. Leaving Germany, Alex went to London where he was the minister of St. Columba's (Presbyterian) Church for some years.

Eventually his homeland gave him an insistent call and it was not surprising that his father's experiences and connections should, by example, have attracted the son to the Home Mission Service of his Church. At that time Western Canada was entering upon the development which resulted from the completion of a transcontinental railway through the tremendous reaches of the country west of the Great Lakes. Pioneer occupations were springing up at widely scattered points over prairies, foothills and mountain valleys and in these conditions he found an excitement and a challenge as he rode about in the fashion of the country and made the acquaintance of the settlers. The full tale of his experiences would evidently make a compelling story if it were available. About all we know is that in 1900 he was occupied in missionary services to residents in the Bow Valley and along the railway to the divisional point at Field. In 1902 he was based at Lethbridge and his duties were drawing him into the mountains along the Crow's Nest Pass. In connection with these various contacts within the Rocky Mountains we do not know whether Alex had opportunity to again do some climbing, but we do know that at least he was personally acquainted with the Swiss

Alpine guides whom the C.P.R. drew into its service in accordance with its plans for developing a tourist traffic and, incidentally, the opportunities for mountain climbing. Alex was in touch with these developments and it seems, but without proof, that he made some ascents of peaks to which there was access from the railway.

In 1904 in company with Rev. Dr. Herdman of Calgary and Rev. S. H. Gray of Dundas, Ont., (both of whom had climbing experience) he made the ascent of Hermit Mtn. from Rogers Pass. The party was guided by Edouard Feuz Sr. and his son "young" Edouard; as there was no cairn and no record of a previous ascent Rev. Gray felt that "we were likely the first to gain the top." A week after this exploit Alex and Gray climbed Mt. Lefroy with the guide Hans Kauffman who afterwards obtained celebrity for guiding ascents in the Himalayas. The view from Mt. Lefroy was one of "inspiring grandeur"; the story is to be obtained in the first (1907) number of the Canadian Alpine Journal. It was also in 1904 that a movement originated for the formation of an Alpine Club as a means of promoting the sport in Canada and for Canadians to enjoy the advantages of the scenery and the opportunities for recreation. The account in this connection is furnished by an article in the 1938 issue of the Journal and need not be repeated here except to say that the C.P.R. expressed a sympathetic interest in the movement which was gaining publicity in the western press. Passes were issued for the assembly of delegates at Winnipeg in March 1906 and resulted in the enthusiastic organization of the Club. A photograph of some of the founding members supplements the Journal article referred to above and Alex Gordon is pictured in it. No later picture of him is available.

It is quite a remarkable circumstance that within three months of the appointment of its officers the activities of a climbing club became an actuality at a very successful camp held at Summit Lake in Yoho Park in July and a large number of novices were instructed and passed the climbing tests required to become active members of the Club. Prior to the Winnipeg meeting, Alex Gordon was one of those associated with Mr. A. O. Wheeler in the formation of plans and his attendance at the camp was of continuing assistance to its management. Following the camp closure three of its members, Messrs. Gordon, Dunn and A. O. McRae with "young" Edouard and Gottfried Feuz made what was considered to be the first ascent of Mt. Marpole. There was no evidence to the contrary and the party built the customary "stone man" on the top. However it appeared subsequently that the honour had belonged to Edward Whymper and his Swiss guides in 1901. The party in 1906 followed a ridge between Marpole and Carnarvon in making their descent. The ridge was surmounted by a small eminence to which the name Amgadamo was given. This title was improvised by joining portions of the first names of the climbers and it acquired an acceptance which was at the same time an enigma to members of the Club when its origin had become forgotten.

From Club records we learn that Alex attended the 1907 camp in Paradise Valley and was also at the Rogers Pass camp in the succeeding year. At both of these he assisted in the camp management and in the graduation of new members. He was a member of the party on Avalanche Mtn. in 1908 when a young lady lost her life through her own misadventure and provided the striking necessity of adhering to the climbing disciplines which were a feature of the instruction given to new members.

In 1909 Alex had returned to Eastern Canada and this new charge prevented his attendance at Lake O'Hara camp when a party of A.C. members who had come to Canada to attend the proceedings of the British Association held in Winnipeg were also able to accept the hospitality of the new Canadian Club. Alex was greatly disappointed at his inability to join this party in which he

had some friends. Subsequently his duties prevented him making any return to the Rockies. In the years 1914 to 1918 Alex served with distinction as a Chaplain with the Canadian forces in France and Belgium. He was seen in the field several times by the writer and later a shrapnel wound and its treatment resulted in his return to London where there was occasion for a pleasurable reunion. In the passage of time no further opportunity presented itself for a meeting of friends. On Alex's retirement from the active ministry he went to Kingston and made his home with his sister, Dr. Wilhelmina Gordon, who survives him and has given some of the particulars for this record. The condolences of the Club are extended to her.

In closing this sketch the writer experiences some feelings that the exercise has stimulated what had become dormant memories of Alex and his personality and of the character and qualities which made him an outstanding man amongst those who were associates or acquaintances. He resolves in the mind's eye as of superior intellect and simple faith, competent in taking the commonplace of life with an acceptance characterized by innate kindness and friendly ability of understanding. He exhibited selflessness when the needs of others were concerned and in particular gave generously of his knowledge and experience as a mountaineer in the early operations of the Club. He was a very capable man on rock and ice and a splendid companion on any climb. One recalls the reverent appreciation he found in nature as a manifestation of the Creator.

Although we must lament the passing of Alex Gordon the poignancy of it should lose its force in grateful memories of a mutual friendship.

F.C.B.

Donald Maurice Guild 1905-1966

A tragic road accident and resulting fire were responsible for the death of Don Guild of Jasper, on September 14, 1966.

Don, a noted outdoorsman, was born in Edmonton and went to Jasper in 1924, where he ran a big-game outfitting business with his brother-in-law, J. Hargreaves.

In 1930 he married Anne MacKinlay of Stoney Plain, and at the outbreak of World War II he left his trucking and fuel business and went to work in the shipyards in Vancouver. On his return to Jasper in 1945 he and his wife purchased the Mt. Edith Cavell Chalet which he had helped to build in 1928. At the time of his death he was still running its tearoom and his presence there will be much missed.

Don became an Associate Member of the A.C.C. in 1963. With Hans Schwartz he climbed Mt. Edith Cavell and it was at the foot of this mountain that his ashes were scattered following cremation in Edmonton.

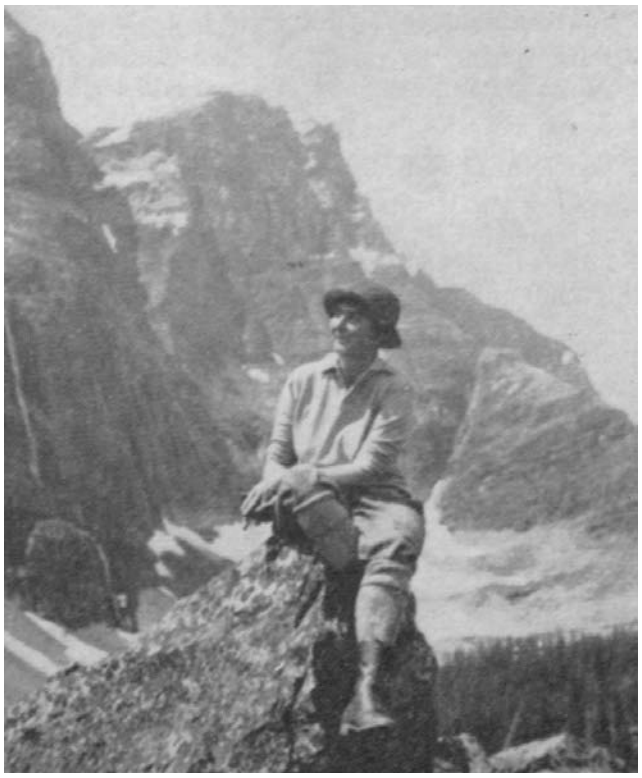
The sympathy of the Club is extended to his wife Anne, of Jasper, his son in Kamloops, and his sister, Mrs. Gladys Hargreaves, of Jasper.

Caroline B. Hinman 1884-1966

Caroline Hinman came to the end of the trail and passed over the Great Divide on July 12, 1966, after a long illness. She knew the Canadian Rockies as few people did, had ridden the trails from Glacier Park, Montana, in the south, to far north of Mt. Robson. By her horseback and camping trips she showed many persons, men and women, young and old, the beauties of these mountains and the joy and health they can give those who live, ride, climb and camp in them.

Although born in Cincinnati, Ohio, she lived most of her life in Summit, New Jersey.

She was educated at Kent Place School and took a B.A. degree at Smith College, Northampton, Mass., in 1906. She loved to travel, so her father sent her on a conducted tour to Europe for the purpose of learning how it was done so she could take her own parties later. This she did in 1914, but got caught there by the First World War. She already had been to the Canadian Rockies twice with friends, also attended the 1913 camps at Cathedral Mountain and Mount Robson; she was fortunate in counting among her climbing companions Albert and Bess MacCarthy, Julia Wilcox, and Mary L. Jobe, later Mrs. Carl Akeley. She is one of the figures in the picture of the descent of Resplendent Mtn. which was taken by Byron Harmon and has hung in the Harmony Drug Store in Banff for many years.



Miss Caroline B. Hinman

Cut off from travel in Europe, Caroline again turned to the Canadian Rockies and organized horseback and camping trips there every summer for many years. She was fortunate also in her guides and outfitters for she was led through Jasper Park and the north country by Donald (Curly) Phillips and from the Banff-Lake Louise area first by Jim Simpson and then for many trips by Jim Boyce and later by Charley Hunter, all among the best of mountain men. Her parties were made up mostly of persons from the east, young and old, for not a few of whom this was their first such experience, but many returned again and again. She led her parties between Banff and Jasper many times, always planning to take new routes and to traverse new country. A typical day with her parties involved breaking camp by 9:30 a.m., spending some 5 hours in the saddle, broken by a sandwich lunch in some lovely spot by a stream or lake and reaching a camping spot about 3:30 or 4 p.m. The work of setting up camp, cooking, etc. was done by the guides. Every few days there was a lay-over of a day or two, or more, and then Caroline was off with her energetic party members on hikes or climbs or fishing trips. She was particularly fond of camping near high passes

and earned the nickname of "Timberline Kate", a term which always seemed to please her.

Besides these Canadian Rockies trips she took a party to Switzerland in 1929 and in 1942 took a party to a Wyoming ranch and visited the Tetons. She also took many winter trips through Europe and in North Africa where in 1924 she had a 10-day caravan and camping trip on the Sahara Desert. Twice she conducted tours around the world, which included a 5-day horseback trip from Darjeeling out towards Mt. Everest, and once a week's trip around Fujiyama in Japan. She also took many trips to Guatemala, Mexico and South America.

Twice she was boating up in the Peace River country and accompanied friends on hunting trips north of Lake Louise. On one of these she and her guide had a thrilling encounter with two grizzlies—a tale she often told around the camp fire.

She joined the Alpine Club of Canada in 1914 having made a number of ascents. However, most of her climbs took place during her camping trips with members of her parties—her favourites being Mts. Ptarmigan, Castleguard, Mumm and Magog. Incidental to a walking trip in Europe, she climbed the Ortler in the Tyrol and the Jungfrau in Switzerland, being turned back on several others by weather.

With such an active travel schedule, one would think Caroline would have had little time for other activities, but such was not the case. She served as secretary of the Summit Board of Education 1915—1921; secretary, Volunteer Services in Overlook Hospital, Summit, New Jersey, during World War II; chairman of the Red Cross Roll Call for some 10 years, and was active in her church and in the League of Women Voters, apart from her constant interest in civic and welfare projects of Summit.

In her later years she gave up her camping trips in favour of automobile trips through the Canadian Rockies, taking her parties on the roads, traversing the area she first saw on her horseback trips.

She went to the camps of the Skyline Hikers of the Canadian Rockies on a number of occasions, and was president of that organization in 1950. She often stayed at the Club House in Banff. When at home, she was an active member of the Appalachian Mountain Club, New York Section.

Caroline took beautiful pictures of her various trips and showed them extensively. Her many friends and fellow travellers will miss her great enthusiasm for the mountains, for new places, for her trips. And we will miss her quick active step upon the trails of the Rockies which she loved so well.

L.G.

Forbes M. Hutchins

We regret to report the death of a member of long standing, Mr. Forbes M. Hutchins, who joined the Club in 1930.

Mr. Hutchins spent the summers of 1927, 1928 and 1939 in the Rockies with the Harvard Summer School, where he was a graduate student in geology and palaeontology and obtained his degree in 1930. He was connected with the Boston Museum of Natural History for a short time and then returned to Montreal to enter the family business of James W. Pyke. He was on the Museums Committee of the McGill University Museums, and Curator of Geology at the Readpath Museum for several years.

In the 1920's Mr. Hutchins climbed a little in the Rockies, amongst peaks such as Mt. Victoria and Mt. Edith Cavell, and in the 1930's in Austria and Switzerland.

Together with his wife and family Mr. Hutchins spent some very happy summers at the Clubhouse in Banff, and his interest in the Club and his love of the mountains have been passed on to his son Peter, now a member of the Club.

We extend the sympathy of the Club to Mrs. Hutchins and her family.

Heinz Kahl

Two strong hands firmly gripping the rocks, brown muscular arms, a torn white sweatshirt, knickers hanging loosely below the knees, the light grey shoes pressed against the smooth cliff. I'll always remember Heinz in that position, because at those times he would look over his shoulder, his two big brown eyes sparkling with joy and enthusiasm, and an enormous grin would fill his face. He seemed to have strength to burn, and out of this knowledge was born a tremendous drive with which he inspired everyone around him.

Many times I have gone to the mountains with Heinz, and even while walking up to the base of a climb his great enthusiasm and vitality overcame the drudgery. There was always time to tell a funny story. His eyes full of mischief, his white teeth flashing as he grinned, arms gesticulating, he would slap himself on the thigh, laughing out loudly. Once on the rocks he seemed to leap at the difficult places, shouting "that next pitch is mine, let me lead that overhang". He seemed to bubble over with life—and yet he is suddenly gone. For nearly three years he had leukemia. As a casual observer you would have never known it. On the surface he carried on as if nothing had happened. He took his parties on long, hard climbs, entertained them with his stories in the evening, made sure they had food and shelter at night, and made them partake in his enjoyment of the mountains. Yet he knew there was no cure for his ailment. The composure with which he stood up under this affliction will forever be a source of inspiration for all those who knew him.

Heinz grew up in the German climbing tradition, and contrary to what most may believe, there is little fanaticism in this tradition. Having known him quite intimately, I am convinced that his first objective in going to the mountains was to drink in the pure and aesthetic beauty of these places, to share with his friends the immense exhilaration these places inspire, and thirdly to derive great satisfaction out of pushing one's body and mind to the limit and to have the intense experience of being momentarily on the fringe. This last motivation, although it may have been important to Heinz, was not the most important. He foremost enjoyed the beauty of the mountains and the company of people who would appreciate and share this feeling with him.

Contrary to those climbers who come intense and serious to do great things in the mountains, Heinz came always with a big smile. He did great things too, but you never had the feeling that this was, or should have been, a world-shaking event. I think his first concern was that he and the people with him had a good time.

Before coming to Canada in 1955 Heinz climbed the north face of the Cima Grande in the Dolomites. In this country he made first ascents of some of the hardest routes on the south face of Yamnuska and must have climbed hundreds of peaks, including Mt. Assiniboine, Mt. Alberta, Brussels Peak and Mt. Robson. Most of these climbs were done in his capacity as a guide. Many Club members will remember him from the Fryatt Camp in 1960. Even last summer, already weakened from his long illness, he still made the first ascent of the ice face on the north side of Stanley Peak and afterwards attempted the north face of Mt. Temple. But here his strength gave out and he turned back whilst his two companions went on to successfully complete the climb.

Heinz Kahl

As a guide he was well liked and respected. He was one of the few people who even in tense situations kept their good humour; he was untiring and had the great ability to keep his party going no matter how long the trip. He had great compassion for the people around him because he simply liked people, no matter who they were. He was one of the most unselfish men I ever knew. Those who have never been to the mountains with Heinz are the poorer for it, those who have will always treasure it as a memorable experience.

It is hard to believe that Heinz is no longer with us and I am sure when I next go to the mountains I will see those two big brown eyes looking back over his shoulders sparkling with that great love for life and vitality for which I will always remember him.

H.G.

David Winfield Measuroll 1905-1966

David W. Measuroll, a member of the Club since 1940, passed away suddenly on September 26, 1966, in Dorset, Vermont, while on a pleasure trip with his wife, Helen. He had retired from his position with the First Pennsylvania Banking and Trust Co. early in 1965 because of ill health.

He was born in Hightstown, New Jersey; attended the University of Pennsylvania where he took a B.S. in Education in 1928, followed by a M.S. in 1938. He also served as lecturer and instructor there in the University's Wharton School of Business and Finance from 1932 to 1938.

He entered the service of the First Pennsylvania Company in 1928, became a trust investment officer and in 1957 was named vice-president. When he retired he was head of their Investment Research Division. He was also on the Board of Directors of several industrial and commercial

companies.

Dave was a skilled musician and played the piano like a professional. For several winters he gave talks at his home on musical appreciation for a group of his friends. He was at one time treasurer and director of the Musical Fund Society, and served as president of the Philadelphia Conservatory of Music.

He was also interested in civic and welfare organizations; was a member of the Thornbury-Westtown and West Chester Jointure School Boards and was very active and one-time president of the Sunnycrest Farm for Boys, a home for dependent negro boys. Another very active participation was in the Bethlehem Methodist Church in West Chester.

Dave spent his vacations for many years either in the Canadian Rockies or in the Alps. He loved hiking and climbing and was a member of the Philadelphia Trail Club. He was elected to the American Alpine Club in 1946 and served as its treasurer from 1950 to 1955. He was chairman of that Club's Finance Committee up to the time of his death.

The Measurolls' first trip to the Canadian Rockies was in 1935 and they returned some twenty times, the last being in 1961. During these years Dave climbed some of the well-known peaks around Lake Louise, Lake O'Hara and the Little Yoho. In 1944 they accompanied Dr. J. Monroe Thorington on a horseback and camping trip up the Howse River when they made the first ascents of Aries and Stairway Peaks. They also measured the Freshfield and southeast Lyell Glaciers. In 1948, he and Helen attended the Peyto Lake Camp and with Lillian Gest repainted the markings on the rocks which show the recession of the Peyto Glacier previously measured by Dr. Thorington over a period of years.

More recently the Measurolls often joined the Thoringtons in Switzerland where Dave first started climbing in the thirties. In these years too he took up painting and delighted in depicting mountain scenery and the peaks he loved both in Canada and in the Alps. On his last trip he had had a happy time painting the New England landscape in the lovely brilliant colours of the autumn.

Dave was of a friendly nature and enjoyed showing others the mountains and scenes he knew so well. He gave freely too of his knowledge of finance to the organizations he served and they profited greatly by his work and interest. We are sad at his passing. To Helen Schofield Measuroll the Club extends its heart felt sympathy. L.G.

Dorothy E. Mitchell

The diminishing group of Alpine Club members with a standing of fifty years or more has suffered a further loss in the passing of Miss Dorothy E. Mitchell. She was the elder daughter of Mr. H. B. Mitchell, well-known to many old-time members of the Club, and a niece of Mr. S. H. Mitchell, its long-time Secretary-Treasurer.

In 1914, at the camp in the Upper Yoho, she graduated on The President, and while she attended several subsequent camps in the early years, she had not been at camp for a very long time, though she always retained a warm interest in the Club.

Her home was in Winnipeg, where she held an appointment under the Winnipeg School Board, but later she left for New York in order to complete her degree requirements at Columbia. She then proceeded to China, where she served the Anglican Mission in Peking for many years. She came home frequently on furlough, but on the last occasion it was considered that conditions in China were such that it was inadvisable for her to return.

By this time her family circle in the west was much reduced, but in spite of a large connection in the east, she decided to settle in British Columbia. She acquired property at Sooke, Vancouver

Island, where she continued to live until her death in the Royal Jubilee Hospital, Victoria, on June 28, 1966. She is survived by one sister, Barbara, in Toronto.

Lyla Doreen Norgren 1931-1966

Lyla Doreen Norgren, C.A., died September 28th, 1966. Born in Edmonton, she became a member of the Alberta Institute of Chartered Accountants, and was with the Dominion Income Tax Division. After she wrote her examinations in 1959, she was one of only six women chartered accountants in Alberta.

Lyla became an Active Member of the A.C.C. at the 1956 Jubilee Camp, Glacier, B.C., graduating on Mts. Tupper and Rogers. Impressed with the spirit of the A.C.C. climbing, and the many friendships formed, she regularly attended camps until 1965. She also held various offices on the Executive of the Edmonton Section.

As former secretary of the Edmonton Youth Hostel Association, she encouraged young people to participate in outdoor activities in the mountains, through her weekly articles in the press.

A member of the Edmonton Ski Club, she took part in an instructor's course in the Rockies, becoming an accomplished mountain skier.

With great courage, knowing she had terminal cancer, Lyla carried on with her profession and activities until a month before her death.

Never happier than when in the mountains, she had looked forward to being at the Mt. Assiniboine camp. To those who knew her, she will be remembered as a delightful companion on a climb, or skiing, with a keen sense of humour, and tremendous enthusiasm for anything she undertook. Her many friends sincerely regret her early death.

Dr. A. H. Rolph 1880-1966

Dr. A. H. ("Bert") Rolph was drawn to mountains, and so to the Alpine Club of Canada, by his fondness for flowers. This love continued to play a major role throughout his life, although he came to enjoy other aspects of mountaineering after joining the A.C.C. in 1924.

He attended most of the camps in the succeeding fifteen summers, and many at these annual events will recall this shy, ever courteous and quietly humorous bachelor as an interesting and restful companion. That he was truly an expert gardener was attested to by the fact that the American Iris Society accepted his introductions, "Timmy's Pink" and "White Herald", in 1959. He played the violin well enough to be a member of the Toronto Arts and Letters Club, a club whose membership is generally limited to artists of professional ability. His wide knowledge of horticulture and music belied his occupation. From his reticence, few would have guessed he was a diagnostic radiologist with the Hospital for Sick Children in Toronto, or even that he was a physician at all. It was characteristic of the man that a large measure of his reason for leaving general practice in his early years, was his dislike of charging a fee for his services.

Bert Rolph was one of probably the only three or four drops of "fresh blood" the A.C.C. received from eastern Canada in the dozen years following the First World War. He last attended camp in 1946. Shortly after this, just when professional retirement gave him more time, family care problems largely hindered him from attending camp again. He died peacefully on the 19th of December, 1966, almost 87 years of age, after four months of increasing lassitude from occult malignant disease. To surviving nieces and nephews, we extend our sympathy.

A. B. R.

Peter Whyte 1905-1966

The death of Peter Whyte occurred on December 3, 1966, at the age of 61 in Banff, Alta., the town where he was born. The son of early pioneers, he was one of the first native-born Alberta artists. He studied at the Museum School of Fine Arts, Boston, Mass., and became well known for his Indian life portraits and landscapes. During the second World War he served with the RCAF and was appointed official war artist.

Peter Whyte pioneered skiing in the Banff area and joined the A.C.C. in 1950 as an Associate Member.

He is survived by his wife, Mrs. Catherine R. Whyte, to whom the Club extends sincere sympathy in her loss.

We regret we have been unable to obtain an obituary of the late L. C. Lay, Member since 1963.

BOOK REVIEWS

A Climber's Guide to the Rocky Mountains of Canada.

By J. Monroe Thorington. Sixth Edition, with collaboration of William Lowell Putnam. The American Alpine Club, 1966. 377 pp., sketch map of routes on Yamnuska, key sheet drawn by A. T. Andrewes to available maps of areas covered. $5.50 to A.C.C. members.

This new revised edition includes description of some 150 more peaks and routes than the 1953 edition. In Part 1 there is an entirely new section on the Harrison Group, the minor southwest wing of the Joffre Group. The elevations of a number of peaks have changed—the Lyells 1, 2, 3, 4, Forbes, Willingdon and Recondite. Three new ascents of over 11,000 feet have also been recorded— Mt. Harrison, East Stutfield, and centre summit of Mt. Bryce. The general information on each group of peaks has been updated, taking into account that with new roads, helicopter service etc., new trails and new routes have been established.

The Canada Department of Energy, Mines and Resources has completed preliminary mapping on the new scale of 1:50,000. In most of this edition these excellent maps have been listed exclusively. Following the introduction to each group of peaks there is a list of the quadrangles covering the peaks mentioned, and immediately following the index there is a key sheet showing all available maps.

The National Climbing Classification System (NCCS) has been included for a small number of ascents in the higher ratings. There is a good explanation of this system in the general introduction. Also included in the general introduction is information on professional guides and the address of the Association of Canadian Mountain Guides.

The Alpine Club of Canada huts in the Rockies and three huts of other ownership have been listed, with notes on their location, accommodation and use.

The reputation of the Climber's Guide is upheld by this latest revision. The book should prove of great value to anyone continuing or beginning to climb in the Rocky Mountains of Canada.

The Mountain World 1964/65.

Directed By Hans Richard Muller on behalf of the Swiss Foundation for Alpine Research, Zurich. London: George Allen and Unwin, Ltd. Chicago: Rand McNally and Company. 215 pp., 64 plates. Map supplement. $6.95 (U.S.).

The latest issue of this annual publication upholds its previous high standard of quality in format, photographs, and wide variety in the field of mountain exploration. Several articles should be singled out for special mention. William Unsoeld describes the Everest West Ridge climb in a brisk, straightforward narrative, sparked now and then by a dry sense of humour and by moments of genuine emotion, which for the serious climber makes better reading than the somewhat melodramatic prose of the official account in Americans on Everest. Two articles on climbs in the Hindu Kush call attention to this area, which has only recently become of interest to climbers but which, with its relatively easy access, offers many prospects for smaller and less luxuriously equipped expeditions. Among other climbing accounts, Lionel Terray describes the first ascent of Mt. Huntington in Alaska; and Felix Largiader tells of climbs on Baffin Island during the summer of 1963 with members of the Canadian Alpine Club. Scientific articles include reports of geological research in the Ellsworth Range of Antarctica and the Bhutan Himalaya, and mapping in the Antarctic and the Cordillera Vilcabamba (Peruvian Andes); the latter is supplemented by an insert map. A departure from the usual scope of this publication is a centenary article by Hans Richard Müller on Whymper's first ascent of the Matterhorn. Although the story is familiar, the present account is given added interest by extracts from contemporary letters and reports of the disaster.

As usual, the book as a whole has something for everyone with an interest in mountains: the scientist, the expedition climber, and the "armchair climber", for whom the photographs alone are worth the purchase price.

A.W.

Eiger Direct.

By Peter Gillman And Dougal Haston. Photographed by Christian Bonington. London: Collins, 1966. 183 pages, illustrated. Accounts of climbs on the North Face of the Eiger have provided much exciting and dramatic material for mountaineering literature, and they all record in one way or another the amazing mental and physical stamina of men pitted against the most incredible odds it seems nature can provide. Eiger Direct does not let the reader down in this respect, and at the same time is both a concise and factual account of a direct route on the Eiger's North Face by a British-American team in conjunction with a German team. John Harlin headed the British-Americans until his untimely death in a fall. It was in tribute to this climber that both teams went on together to complete their direct route to the summit, which they named the John Harlin Route.

This book is well illustrated with both colour and black-and-white photographs, which realistically portray the text, presenting all the steepness and magnificence of the climb. Individual pictures of the climbers serve to introduce the reader to the characters involved in the narrative. An important picture is the one indicating the routes marked on the mountain to which the reader needs to refer constantly. A technical description of the route and a glossary of climbing and skiing terms are also included.

This publication can be considered to be a neat work on a tremendous achievement in mountaineering and certainly makes interesting reading.

V.S.

High Country Names: Rocky Mountain Park.

By Louise Ward Arps And Elinor Eppich Kinsey. 236 pages, 10 maps and 34 pictures. Colorado Mountain Club, $4.95.

The authors are both of pioneer Colorado stock who have climbed and travelled extensively in the Colorado Rockies, hence are well qualified to write this history of the names in the Rocky Mountain Park and vicinity. The history of the people, the geology and natural history of the area becomes an important part of the book.

Written in dictionary format, this book is not intended nor could it be used as a climbing guide. It would however serve as an excellent companion volume to a guide book.

Routes and Rocks—Hiker's Guide to the North Cascades from Glacier Peak to Lake Chelan.

By D. F. Crowder And R. W. Tabor. Published by the Mountaineers, Seattle, Washington, 1965, 235 pages, illustrated, 3 maps in cover pocket.

This guide is intended for hikers and those with geological interests. It covers the area east of Darrington, Washington, including Glacier Peak and as far as Lake Chelan.

Routes are listed as trails and high routes. Trails show distance, elevation changes and whether or not they are maintained (yearly, periodically or not at all). High routes are rated as easy, intermediate and difficult, and show the estimated hours as well as giving distances and elevation changes. A difficult high route is for experienced hikers (knowledge in use of compass, altimeter and map) as an ice-axe may be required and on one route a rope is recommended.

The trails and routes are named and shown in red on the three topographic maps: Glacier Peak, Holden and Lucerne (scale 1 inch = 1 mile). Points of geological interest are numbered on the maps and referred to in the text. The text is well illustrated with line drawings. Routes are quite detailed due partly to the generally poor condition of the trails.

A chapter is devoted to the geology of the area and an Appendix on Mountain Climbing covers the routes up the major peaks in the area. Bibliography and Index are included.

Hikers, campers and others not primarily interested in peak bagging will find this guide very useful in planning either short or extended outings into the North Cascades.

J.B.

On Snow and Rock.

By Gaston Rebuffat. English edition by Nicholas Vane. England.

In reviewing this book the main problem is to avoid superlatives but in fact it is impossible to do so, because On Snow and Rock provides excellent technical advice and excellent photographic illustration of the text, as well as superb mountain photography. This might well become the classic handbook of modern mountaineering.

The first main chapter deals with clothing and equipment. The subject matter is not only well described but beautifully illustrated. For instance some ten photographs are employed to show how a rope should be coiled. All comparisons are indeed odious but this is a far cry from the "bible" of mountaineering, Mountain Craft by G. W. Young, excellent in its way, but attempting to describe all without the use of drawing or camera.

Roping, Rock Technique, Snow and Ice Technique, and Climbing as a Team are the main

chapters of the book. All are provided with first-class instructions and photography. For instance a series of about ten photos illustrate rappelling and as many as five illustrations are used to demonstrate the cutting of a single step with the ice-axe.

But all this technical instruction does not allow Gaston Rebuffat to lose sight of the purpose of mountaineering: "Technique must be the servant of enthusiasm, otherwise it reduces the magic world of the mountains to the proportions of a gymnasium." ". . . the barren kingdom begins, wild, inanimate, but in its extreme poverty, in its total nakedness, it bestows riches beyond price: the happiness which one sees in the eyes of those who make their way there."

On the question of pitons, a point of some controversy for years, and in some quarters perhaps even today, I must again quote Rebuffat: ". . . one may, if absolutely necessary use pitons, but one should never misuse them. The use of pitons, whatever else it may be, is first and foremost a moral question, in the sense that it is climbers and not pitons that can desecrate a mountain."

With Rebuffat we receive instruction which is invaluable without being dogmatic.

From philosophy of mountaineering and instruction on grade 6 on both rock and ice he returns to earth to remind us to wriggle our toes to avoid frostbite. And above all the master of Technique on Snow and Rock is humble. He concludes his book thus:—

"But even if I had climbed every mountain by every route, I should never know everything about this world I love. I shall always be on my way."

J. L. Bachrich

"Bataille Pour Le Jannu."

Par Jean Franco Et Lionel Terray. Gallimard, 1965.

This book, written in French, belongs to the class of books on Himalayan expeditions. It vividly describes the whole history of the French attempts to conquer Jannu: from the birth of the idea, the reconnoitering (1957), the first expedition (1959) and the second expedition (1961).

One could ask himself why the Jannu specifically? The French decided to adopt the criterion of intensity of technical difficulties rather than altitude alone in selecting the Jannu. They were well rewarded because the Jannu presented difficulties of an almost unknown severity, intensity and continuity even for the elite of the French climbers who had previously conquered Annapurna and Makalu.

The book is divided into thirteen chapters. The first six chapters are devoted to the first expedition led by Jean Franco. In the first chapter, Jean Franco introduces the reader to the Himalaya, Nepal, Darjeeling and the birth of the idea to conquer the Jannu. In the second and third chapters, the author outlines the expedition journey through India and Nepal. The members of the expedition are presented to the readers in such a way as to make them very much alive. Indeed whether the expedition's members are trying to solve problems with customs or indulge in the pastime of discussion on every possible subject, there is never a dull moment. Chapter four describes the planning of the initial route and the reconnoitering of the different alternatives. An avalanche of gigantic proportion forces a change of plan. In the fifth and sixth chapters, we are introduced to the technical difficulties of the climb. After conquering many unusually severe sections, camps are established at higher and higher altitude. Unfortunately, lack of time, bad weather, extreme severity of the difficulties, faulty oxygen mask, team up to make a successful ending impossible.

The last seven chapters cover the second expedition (1961), led by Lionel Terray. Chapters seven, eight and nine introduce the team and describe the difficulties of organizing the second expedition such as: the clearing of customs, the crossing of India with the expedition's material and

the hiring of sherpas to cross Nepal with all this load. In chapters ten and eleven, the expedition, drawing on its previous experience, loses no time in establishing Base Camp, and Camps 2, 3, 4, and 5. The climbing difficulties are of such severity as to be almost unknown even in the most difficult ice climbs of the Alps. Chapter twelve describes the establishment of Camp 6. Technical difficulty, heavy snow storms, avalanche danger, and altitude all attempt to block progress but man's will is stronger. Chapter thirteen outlines the team's assault on the summit. The difficulties do not diminish for this last step but almost all team members reach the summit.

In summary, the book is very well written and very much alive. The evolution of the action is well sequenced and sixty-one excellent pictures make for at attractive presentation. If you read French and enjoy reading climbing adventures, you owe it to yourself to read this book.

Jean-Paul Rondeau