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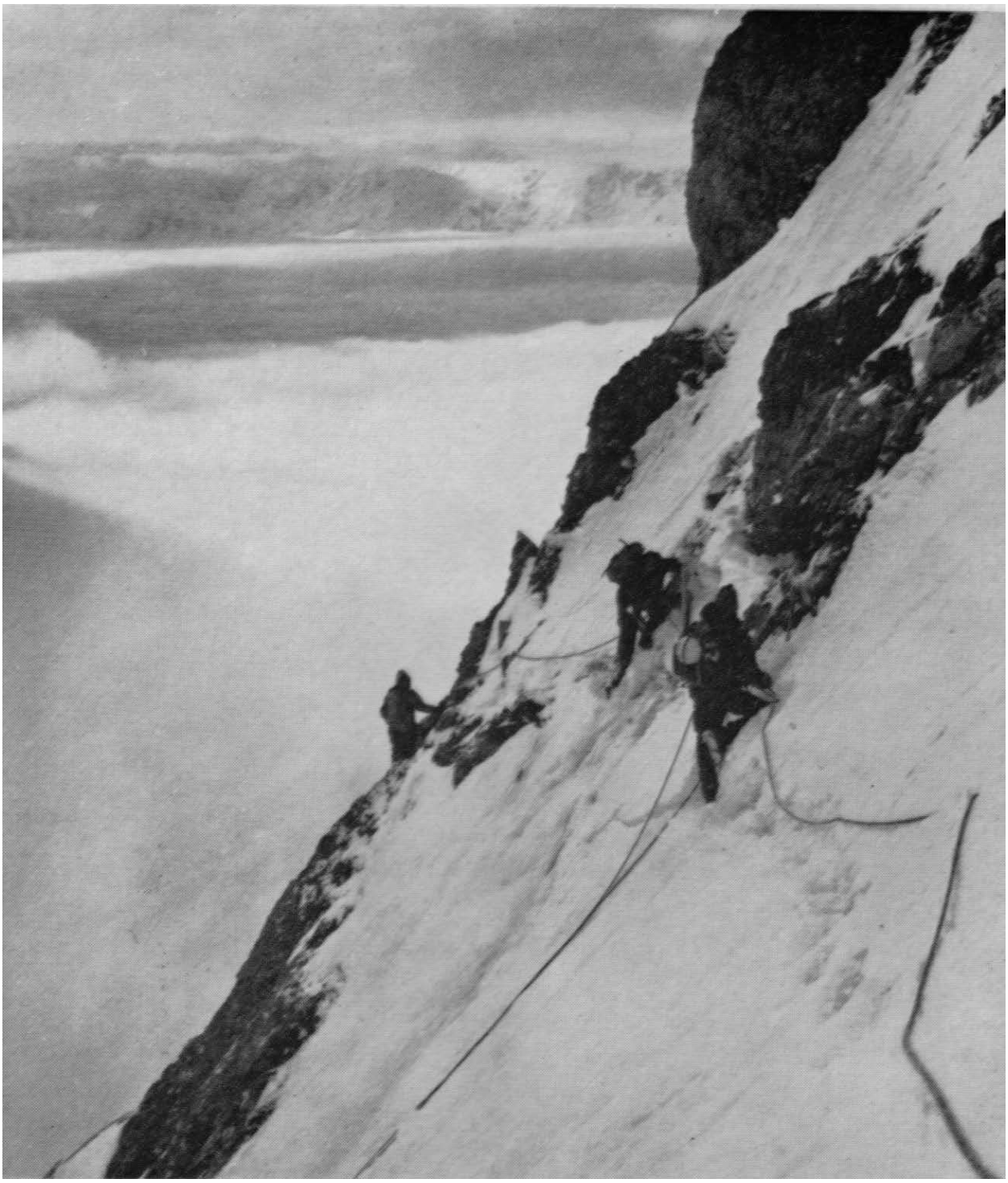

Photo: Fips Broda

On the approach to Centennial Peak

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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.).

THE YUKON ALPINE CENTENNIAL EXPEDITION

Foreword

By Roger Neave, President Alpine Club of Canada

Now that our Centennial Year is over, it is possible to look back on some of the activities that took place during 1967 with a more detached and objective view than was possible during the busy period when the events were being organized and carried out.

The Alpine Club of Canada's own contribution to our l00th Birthday, The Yukon Alpine Centennial Expedition, was far from an insignificant contribution to the Country's celebration, and should be remembered as something unique and original in the annals of mountaineering. As a sporting event and organizational achievement it should rank high among Centennial projects. What could be more sporting than for us puny mortals to challenge the thirteen unclimbed and unexplored Centennial Range mountains, to endeavour to set foot on the summit of the "Good Neighbour Peak", and to attempt the scaling of some of the giants of the St. Elias Range, as well as many lesser and unclimbed mountains in the Steele Glacier area?

The organizational achievement consisted in carrying out three separate, but overlapping operations, in which approximately 300 personnel with all the necessary equipment and supplies, had to be transported by air into, and out from, some of the most inaccessible country on the North American Continent. The weather was frequently unfavourable, and the Alaska Highway was washed out and impassable in several places at a most critical period. In spite of these difficulties, and also aircraft maintenance problems which put helicopters out of action for various periods of time, all phases of this project were carried out quite close to their originally planned schedules.

That the expedition was highly successful can best be judged by reference to its accomplishments. In all, 33 peaks were climbed, of which 27 were first ascents. Most of the peaks in the area of the Steele Glacier General Camp were ascended many times by different parties.

A point particularly worthy of note is that during these extensive operations which, in addition to the mountaineering activities, involved several thousands of hours of helicopter flying, no member of the expedition was seriously injured. Yet many difficult ascents were made, and climbing parties from the two successive groups of participants at the General Camp frequently contained people with little experience in the snow and ice type of climbing which was the rule on almost all climbs. Other small climbing parties in the St. Elias region were not so fortunate, and the Expedition helicopters were called on more than once to carry out rescue operations for others.

The articles and stories which follow in this Centennial issue of the Canadian Alpine Journal, record and illustrate most phases and activities of the Expedition. To those who took part, they will no doubt bring back memories and experiences of their Yukon adventure. To those who were not so

fortunate as to be able to participate, they will perhaps give some idea of this fascinating country, and in some, they may inspire a desire to go and see it for themselves.

Due to the nature of the Centennial and other Government grants, it was only possible for a national Club such as ours to carry out this project. Because of the scope and unique aspects of our contribution to the Centennial Year, and also because of its successful completion, the Alpine Club of Canada can be justly proud of its Yukon Alpine Centennial Expedition.

Yukon Alpine Centennial Expedition

By D.R. Fisher

1. Concept And Early Planning

Shortly after the 1963 Annual Meeting of the Club, Eric Brooks was asked to collect and evaluate different suggestions for suitable Centennial Year camps and projects. In the Fall of the same year, Fred Roots had several discussions with Dr. Walter Wood, Director of the Icefield Ranges Research Project at Kluane Lake, which resulted in the first proposals being made to the American Alpine Club for a joint mountaineering venture in 1967 to mark Canada's Centenary and also the Centenary of the Purchase of Alaska by the United. States of America.

On April 24th, 1964, Fred wrote a comprehensive letter to Eric making the first really concrete proposal for our Centennial Year camps. In this letter Fred made the following statement:

"I would like, therefore, to place before you a proposal that:

(a) The Club consider whether it might be desirable and feasible to organize a semi-expeditionary type of camp in the Icefield Ranges (St. Elias Mountains) in 1967 as part of the Canadian Centennial Celebrations; and,

(b) The Club approach the American Alpine Club to explore the desirability and feasibility of a joint undertaking in the Icefield Ranges (St. Elias Mountains) in 1967 to celebrate the 100th Anniversary of the Purchase of Alaska."

At that time 1967 still seemed a long way off to many people and nothing further of any consequence took place for a little over a year. Furthermore, Eric had found that due to his other responsibilities that he was unable to continue as the Club's co-ordinator of Centennial ideas. Fred was approached and asked to take over this work but due to pressure of business and lack of firm support for any ideas, he was unwilling at that time to undertake the job.

In June of 1965 Bob Hind, then President, received a sudden invitation to attend a Sports Governing Bodies Conference in Ottawa. Bob, in turn, asked me to attend as the Club representative. While neither of us knew who was actually sponsoring the Conference, I made immediate plans to attend. It turned out that the Conference was put on by the Athletic Division of the Centennial Commission and the Fitness and Amateur Sport Directorate of the Department of National Health and Welfare and was for the purpose of accelerating and clarifying the plans being made for Centennial Year by Canada's sports governing bodies. At this Conference, two important events took place:

(a) I first met Craig Hughes and Monty Alford from the Yukon.

(b) We got our foot in the door of the Centennial Commission bank vault with a plan for an expanded 1967 camp in an area inaccessible without aircraft support, conceived in ten minutes on the back of an envelope.

Craig Hughes, Legal Adviser to the Commissioner of the Yukon Territory and enthusiastic

booster of the Yukon, and Monty Alford of the Water Resources Branch of the Department of Energy, Mines and Resources, with his infectious smile and overflowing enthusiasm, had travelled down from Whitehorse to present their Centennial plan to the Conference. This plan consisted of the ascents of fourteen unclimbed peaks in an unexplored range forming a part of the St. Elias Mountains. Two would be named "Good Neighbour Peak" and Centennial Peak and the other twelve would be named after each of the provinces and territories. The former would be on the Yukon-Alaska border and was to be attempted by a joint American and Canadian team to mark the coincident centenaries of Confederation and the Purchase of Alaska. This plan formed one of the Yukon Centennial Committee's proposed projects for 1967. Their plan was bold and imaginative and it quickly appealed to the Conference delegates. They certainly had the mountains; what they lacked was mountaineers. They came to me and asked for the support of the A.C.C. and I readily agreed that we would co-operate in whatever way we could. In addition to this we placed our own project before the Conference.

The day the Conference ended, I visited Fred, told him about what had taken place and having thus had his will to resist broken down, he agreed to chair the Club's Centennial Co-ordinating Committee. A short while afterwards the following members were appointed to the Committee: Herbert Rayner, Tom Hyslop, Pat Baird, John O. Wheeler and myself. This committee, or rather four members of it, met at Fred's house in September and discussed the various ideas that had been presented up to that time. It was made quite clear by Fred that the Centennial Commission would only sponsor an event and not a capital item or continuing project. After much discussion it was felt that the Club should hold its annual camp in the Yukon and even at this early date, the area thought to hold out the best hope was the Steele Valley; the road up Quill Creek was even discussed as an approach route. While I had certain reservations about this plan, I also had great faith in Fred's determination once he was fired up.

In the next few months Fred worked tirelessly, convinced that the best solution was a combined project with the Yukon Government encompassing their plans and our general camp plan. In December of that year, Fred went to Whitehorse with Peter Vallance, Chairman of the Club's Camp Site Committee, and discussed the whole idea with the then Commissioner of the Yukon, Gordon Cameron, and his Executive Assistant, Dave Judd. As a result of these discussions the Club was formally asked to hold its camp in the Yukon in 1967 and the provinces were formally asked by the Commissioner for their support. The Commissioner also suggested the name "Yukon Alpine Centennial Expedition" and this title stuck from then onwards. All this time Craig and Monty were steering the Yukon Centennial Committee in the right direction. On January 19th, 1966, Fred submitted his magnificent Document covering the whole combined project to the Centennial Commission with a request for a grant of $84,000.00 which amounted to about one third of the total estimated cost of the Expedition. This Document placed the estimated direct cost at $134,000.00 and the total estimated cost at $236,000.00. The Document was laid out in the format required by the Commission and covered all the logistics in considerable detail; it also set up a provisional timetable for the whole event. While many changes, additions and deletions were made in the budget, it says much for Fred's thoroughness and experience on such matters that the final direct cost of the Expedition was within two percent of his figure. The timetable was also followed very closely.

The next six months was a very frustrating period. The Commission endorsed the idea of the Expedition in principle but was unable to grant us more than the $25,000.00 maximum allowed to any one event without making a special application to the Treasury Board, an action which the

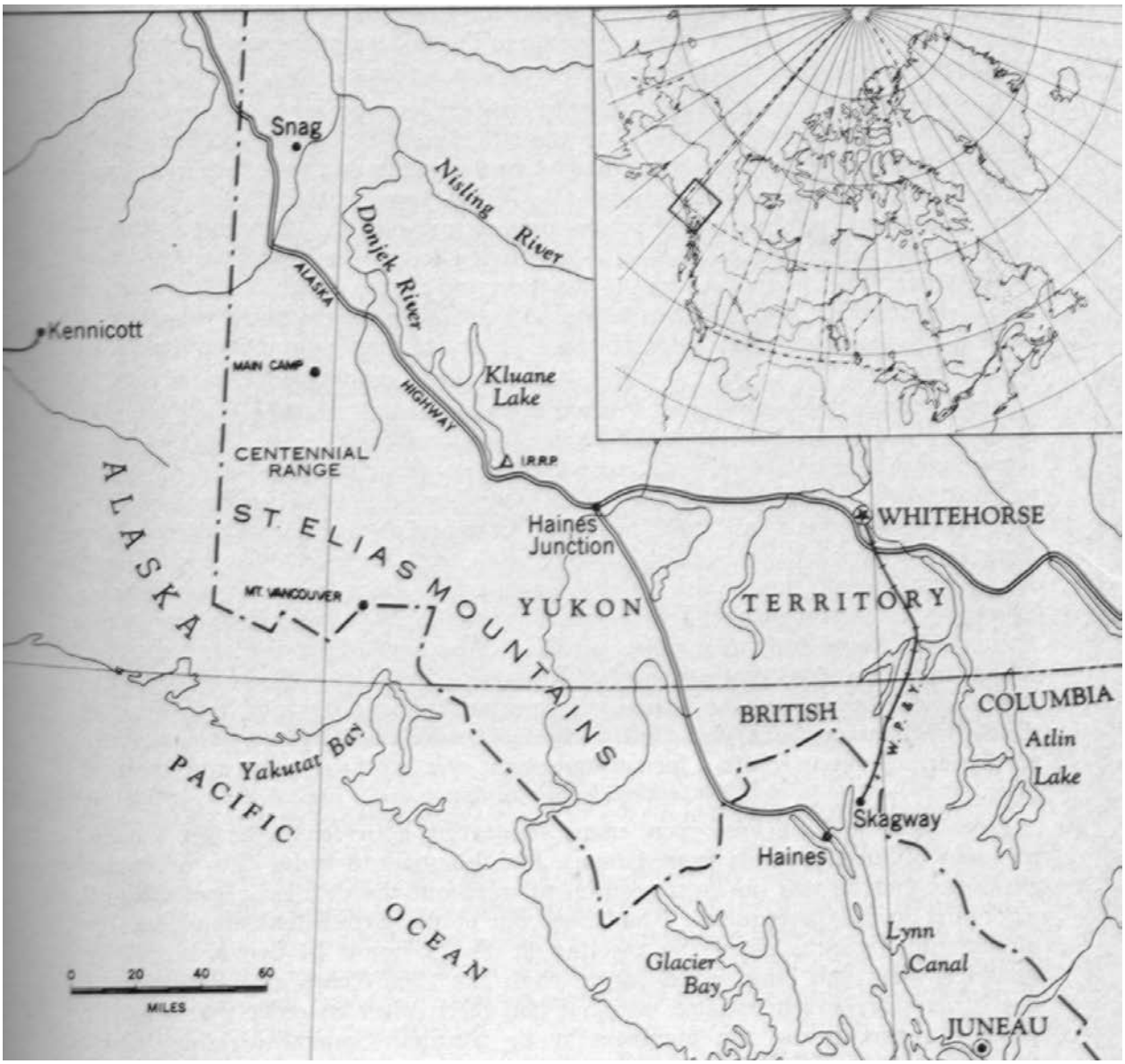
Commission was not willing to do for an event that included only about 250 participants. The other problem was that the Commission was not willing to formally write us a letter confirming the $25,000.00.

In April 1966 an aerial reconnaissance of the proposed activity areas in the St. Elias Mountains was carried out from the Icefield Ranges Research Project base at Kluane Lake in a Turbo Beaver chartered from Great Northern Airways Limited. On April 23rd, a flight was made in excellent weather around the Centennial Range and another into the Steele Valley on the same day. On April 26th Walter Wood made another flight into the Centennial Range in the Helio Courier aircraft owned by the Arctic Institute of North America and piloted by Philip Upton. This was followed four days later by a flight to the south side of the Mt. Vancouver massif. As a result of these flights, on June 14th Walter Wood wrote a very comprehensive and valuable report giving his recommendations for activity areas for the Yukon Alpine Centennial Expedition. While originally the plan was to select the first phase objective, or "Good Neighbour Peak", from among the unclimbed border peaks in the Centennial Range, it became very apparent that the unclimbed south summit of Mt. Vancouver, 15,720 feet, was without question too compelling an objective and no other summit was considered from then onwards. The summit was a Boundary point, Peak No. 181, and the route would be from the south, the opposite approach to that taken when the main or north summit was first ascended in 1949 by Walter Wood's party. The range lying between the Walsh and Chitina Glaciers just east of the Yukon-Alaska border was agreed on by everyone as being ideally suited for the purpose of the Centennial climbs. The summits were going to be a real challenge and were well laid out for naming, with the highest in the centre being suitably placed for Centennial Peak. It was hoped to observe the area in the summer without the winter snow and to land by helicopter to locate suitable bases for the proposed climbs.

There was a difference of opinion as to the best location for the general camp site. One school of thought was that the site should be in the middle of the Icefield Ranges on snow, and a suitable area was thought to exist in an unexplored group of peaks lying between the Walsh, Logan and Hubbard Glaciers. The site would have the added advantage that some of the Centennial Range peaks would be close enough to climb with the help of a helicopter stationed at the camp. The other idea was to put the camp in the Steele Valley on grass at an elevation of 5700 feet beside the Steele Glacier where there were many unclimbed peaks and also some of the highest St. Elias summits available to the participants.

At the time of the April aerial reconnaissance several meetings were held in Whitehorse and an Expedition Working Committee was formed to replace a seven-man Steering Committee that had been set up a the time of Fred's visit to Whitehorse with Peter Vallance. This Working Committee consisted of Mr. Arnold Charbonneau, of the Centennial Commission Athletic Division, Mr. Ken de la Barre of the Arctic Institute of North America, Montreal Office, Mr. Kurt Koken, Chief Clerk of the Engineering Department in the Yukon Territorial Government, and Fred Roots. The Arctic Institute had suggested that they would be willing to manage the Expedition and Ken was appointed as Manager at that time. Unfortunately, the terms of reference, financial arrangements and details of the work involved were not fully understood by either the Arctic Institute or the Alpine Club and considerable revisions were to be made to this arrangement before a formal agreement was executed some nine months later.

From April to June Fred spent many frustrating hours trying to get a commitment of further funds from Ottawa. He also made it quite clear on many occasions that he was not in a position to carry out the detailed organizational work that would be required. I had been out of the Expedition



Location of the Centennial Range, Mt. Vancouver, and Main Camp.

discussions for almost nine months since the meeting at Fred's house in September 1965; however, after Bob Hind asked me to chair the 1966 Camp at Assiniboine, I felt it necessary to get updated on what had taken place in order that I might place a report before the members at the Annual General Meeting. Consequently, I wrote to Fred to get the details and received a lengthy letter from him written in Mould Bay, Prince Patrick Island, N.W.T., dated June 23rd, in which he asked me to take over the Expedition organization. He felt that, regardless of the fact that no additional funding was in sight, we should continue with the proposed August ground reconnaissance and send several people to Whitehorse to show our good faith in the venture. We had also received assurance that our expenses would be covered by the Centennial Commission if the Expedition did not materialize.

Immediately after camp, Jim Tarrant, Ken de la Barre and I flew to Whitehorse to meet

Fred who had come south from the Arctic. Four days were spent in most fruitful discussions both at Whitehorse and Kluane. While the weather did not permit us to fly into the Centennial Range, we were able to fly into the Steele Valley both by Helio Courier and helicopter. Ken and I landed in the trench on the south side of the Steele Glacier immediately west of the Peak 1-Peak 2 (Gibson) Glacier at 5300 feet. We walked up to the top of the valley for about three miles and turned around at the point where Walter Wood had his "Surge" Camp located this past summer at 5900 feet. We were impressed with the location, and while the top of this trench did not provide enough space for our camp, we found an excellent site in full view of Mt. Steele about a mile further down at 5700 feet. At this time Fred and Monty also agreed on which peaks in the Centennial Range should carry which names, thus enabling Fred to make formal application to the Permanent Committee on Geographical Names for approval of the names chosen for each peak. Walter also agreed at this time to write a history of the St. Elias Mountains to be printed by the Expedition and issued to every participant. A ground reconnaissance of the Government camp grounds at Mile 1064 and Mile 1105 on the Alaska Highway was made and we also drove by car as far as we could up the Quill Creek mine road. We got as far as the junction with Nickel Creek and were quite convinced that, because of tracks seen earlier from the air, this road could be pushed another three or four miles to the head of Maple Creek.

During these meetings and reconnaissances many questions were answered and afterwards we were much clearer as to how to proceed providing the funds were forthcoming. We were almost certainly assured of $25,000.00 from the Centennial Commission and the Yukon Government had agreed to contribute $15,000.00 so long as the Commission grant was approved. This meant that we could carry out the first two phases of the project anyway, involving the 60 climbers on the "Good Neighbour Peak" and the Centennial Range peaks.

Arnold Charbonneau was dropped from the Working Committee since he was no longer employed by the Centennial Commission and I took his place to represent the A.C.C.

2. Detailed Planning

From this point onwards the Expedition planning gradually accelerated because of the shortage of time and the mass of work still to be completed for this, perhaps the most ambitious mountaineering adventure ever undertaken. I have chosen to cover this phase of the organization by subjects rather than by chronological order because I feel that in this way it will be easier to understand what took place.

Budget and Funds

The first thing we did on returning from the Yukon in August was to get right after Mr. Robbins Elliott, Director of Planning at the Centennial Commission, and point out the urgency of raising additional funds right away if the Expedition, as planned, was to stand any chance of coming off. He made repeated approaches to the Directors of the Commission but we could not get the nod on additional funds. On Friday August 19th he called me and asked if there was any way we could reduce our grant requirements. I said that there was a good possibility that we could as a result of the reconnaissance. The original budget prepared by Fred and given in the submission to the Centennial Commission was based on the Expedition's anticipated requirements with the general camp being in the centre of the Icefield Ranges. After we had decided to use the Steele Camp site, the logistics of supplying this camp changed somewhat. He asked that we produce a new budget for him by Monday for presentation to the Commission Executive Committee. I

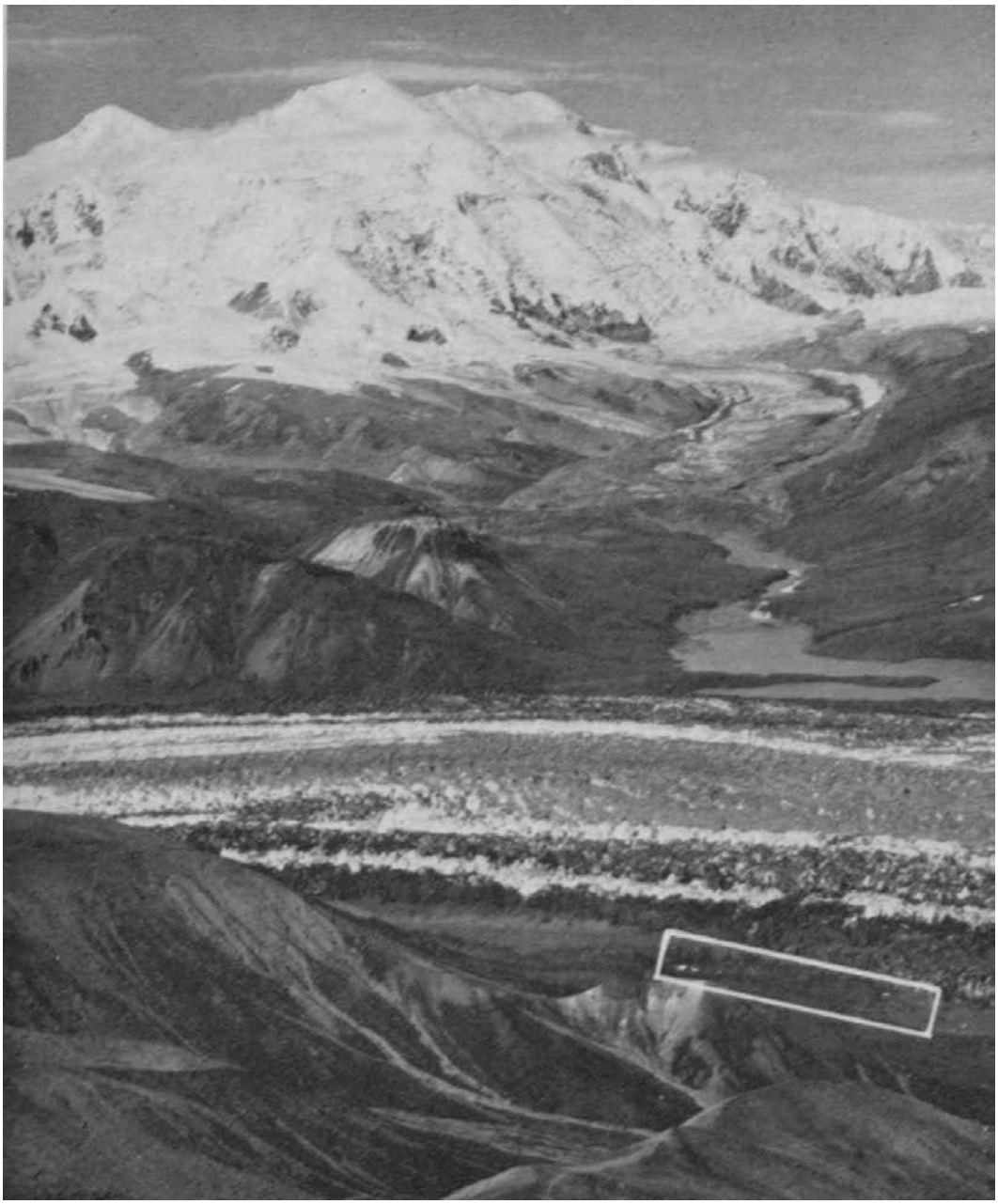


Photo: Walter Wood

Mt. Wood, with Hazard Glacier draining into "Drum Lake" beside Steele Glacier.

The white rectangle indicates the location of the Steele Glacier General Camp.

called Fred and Ken and took off for Ottawa to see them over the weekend. We reviewed the whole budget, taking out certain items and adding others, and came up with a required grant of $68,000.00 instead of $84,000.00, a saving of $16,000.00. On Monday morning this was all typed up in Fred's office. We then found out that Robbins Elliott was unable to see us until Tuesday. I had to return to Toronto but Fred saw him the next morning. We still were given nothing concrete to go on. Robbins said that if we could get $20,000.00 out of the provinces, he would go after the Fitness and Amateur Sport Directorate of the Department of National Health and Welfare

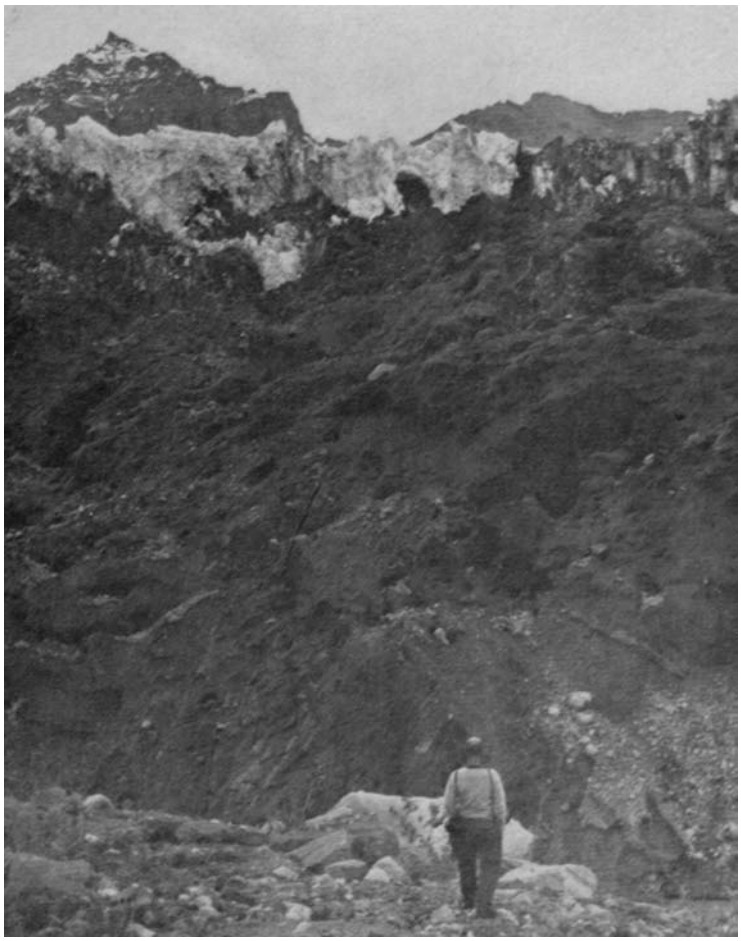


Photo: Courtesy of the "Whitehorse Star"

Steele Glacier dumping debris
as it over-rides a morainal spur while passing by near the General Camp.

for $23,000.00 which, with the $25,000.00 from the Centennial Commission, would make up our required $68,000.00. This request for funds should have been made in the summer, but the Commission staff had indicated that they would take care of the application and so we had taken no action on this path to possible extra funds. The Directorate then indicated that it would take months to review the application since their special committee set up to review applications for financial assist¬ance in Centennial Year had been disbanded. All these negotiations had been going on in September. At the end of September I indicated that the Alpine Club was to have a Board meeting in early October and that it might cancel the project if we didn't get any further assistance. As a result, a meeting was quickly convened in Ottawa and I discussed the problem with Ray Boucher, the new Athletic Division Director at the Centennial Commission, John Macdonald, Director-General of Special Programmes at the Fitness and Amateur Sport Directorate, and Robbins Elliott. As a result of the meeting it was decided to ask the Centennial Commissioner to draft a letter for the Secretary of State to pass directly to the Minister of National Health and Welfare. I agreed that if they could get the additional $23,000.00 in this way that we would proceed with the Expedition. While unbudgeted items had arisen, I knew of ways that we could reduce certain items without prejudicing the arrangements.

A telegram to the Secretary of State further speeded up matters and by the third week in

October verbal approval was given for our additional funds by the Minister of National Health and Welfare. Many things could now be started and once again I honed the budget into shape, dropping some items and adding others. We had increased the number of Centennial Range participants from forty-two to fifty-two which added slightly to the aircraft costs. As time passed, our budget began to take final form and by the end of 1966 it was almost complete. In late November we got final written approval on the Ottawa funding and at the same time I applied to the ten provinces and the Northwest Territories for $2,000 each. When we realized how many applicants we had for the Expedition, we increased the size of the general camps to 115 each from 100. Taking into consideration the anticipated extra revenue from this source and the savings that were brought about by carrying out most of the organization work ourselves within the Club, the final budget was prepared and presented to the Yukon Government, the Centennial Commission and the Department of National Health and Welfare. In this it worked out that we only needed $7,000.00 from the provinces to break even. In addition, we knew our estimates were safe on some items and there were further places where savings could be made in the field if necessary. In this final budget we had included an allowance of $3,000.00 for documenting the Expedition in book form since it was felt that we might have to contribute to publishing costs.

In the final analysis, the revenue from fees was about $10,000.00 below budget, but the revenue from the provinces and magazine articles was about $8,000.00 above budget, giving a final Expedition income of $131,645.53 instead of $133,500.00. Items that went over budget were compensated for by some that were under budget, the latter being mainly food costs, which we thought would be much higher this far north. About $1,600.00 remained when the audit was completed to cover the Expedition expenses in producing the book and to cover miscellaneous outstanding management expenses. Altogether the Expedition received $77,000.00 in grants, the major ones being from the Centennial Commission, the Department of National Health and Welfare and the Yukon Territorial Government. The Northwest Territories and all the provinces except Prince Edward Island, Nova Scotia and New Brunswick contributed to the Expedition.

Brochure

In early July, 1966, Ken de la Barre who was acting as Expedition Manager at that time, drafted an outline for the Brochure to be sent out to all known mountaineering clubs in the Country. In August, after our return from the Yukon reconnaissance, we went over this and Fred and I both suggested variations. The final material was completed with maps and photographs ready for printing by the end of September. We were anxious not to print this until we were reasonably assured of funds. If the general camps could not be financed we would delete the portion that referred to this phase of the Expedition. At the Board meeting of the Club held in Calgary on the second weekend of October, it was decided to go ahead and print the brochure anyway and just issue a supplementary slip if the general camps were cancelled. Consequently, the final material was gone over with the printer and 4,000 copies were printed by late in October. These were then sent out to all Club members as well as to other clubs and interested parties.

Maps

In the early Fall of 1966 Fred made formal application to the Permanent Committee on Geographical Names for approval of the provincial and territorial peak names. This application was presented to the Committee meeting in Vancouver on September 26th. Formal approval of these names was almost certainly going to be given as a result of some preliminary discussions that

Fred had had with the Committee Secretary. Early in the Expedition planning, Fred had indicated that there would be a special map of the Centennial Range produced for the Expedition. This special map was to cover the area from Mt. Logan in the south to the upper part of the Steele Glacier, where the general camps were to be held, in the northeast. The map was to be coloured with the relief shaded and it would also show the first ascent routes of all peaks on the map. The final result, Map M.C.R. 7, was a masterpiece and a great credit to Fred and the staff at the Map Compilation Office in Ottawa.

In addition to this special map it was decided to make up a preliminary map of the upper part of the Steele Glacier on a 1:50,000 scale showing all the peaks behind the general camp site and including Mt. Steele. This was completed just in time for the Expedition and was absolutely invaluable to the participants at the general camp.

The other maps used were the two regular sheets on a 1:250,000 scale, these being the Mt. St. Elias and Kluane Lake sheets.

Selection Committee

In the early summer of 1966, Bob Hind asked Eric Brooks whether he would act as Chairman of the Selection Committee which would have to be formed to select the teams for the Centennial climbs as well as the participants for the general camps. Eric had worked on this sort of task previously and was obviously a good person for the job. He in turn asked Hans Gmoser, who knew the young climbers well, and Bob Hind to act with him. Fred was also to help in an advisory capacity.

During the Assiniboine Camp I was able to have some discussions with Eric and to pass on some of Fred's comments, which I had received from him in a letter. The Centennial climbs application forms were drafted and printed. The general camps forms followed a short while afterwards. The forms were different colours so that they could be easily distinguished from each other. As soon as we decided to proceed with the whole venture at full speed, Eric had pads of these application forms sent out to the Club Sections and to other interested parties. These reached people about the same time as the Brochures. Because of the enormous amount of work involved in selecting the participants for fourteen teams and the general camps, Eric asked Frank Smith to help with the typing and clerical work involved. Eric and Frank did a magnificent job and Emmie Brooks was very patient about having her dining room table out of commission for so long. The work of this Committee involved making some unpopular decisions and since there were about two applications for every place in the Centennial Range, many applicants were unable to take part in this phase of the project. Doctors were included for each of the three Centennial Range bases which we had decided to use as well as for the "Good Neighbour Peak" and the two general camps. The work of the Committee was continually hampered by people who failed to reply to letters and by last minute cancellations. The Committee also had the doubtful distinction of getting through more letterhead than anyone else. I was anxious to get a good idea by early May if possible of how people would be arriving in Whitehorse so that arrangements could be made for the buses. I spent several hours with Eric in Calgary during my weekend there on March, llth and 12th and we set up a final schedule for participant lists at that time.

Throughout the work of this Committee it was made quite clear that the Club Board of Management and the Expedition Working Committee would support all the Committee's decisions regarding participant selection.

Peter Fuhrmann checks his party loading up for "B Camp".

Professional Climbing Guides

It was decided quite early that because of the big and unknown mountains in the Steele Valley, it would be desirable to have three guides at the camp for the full four weeks. When we moved into high gear at the end of October I wrote to Hans Gmoser, Hans Schwarz and Peter Fuhrmann and asked them to attend the camps. They all accepted with enthusiasm. Hans Schwarz arrived a few days early as arranged with me previously to help erect the Steele Camp. We had arranged to take Hans Gmoser into the Centennial Range for movie taking at the time the participants were flown in and to fly him over to the Steele Camp to help us with the camp erection also. We had also agreed that Hans could spend a few days filming at the general camp and in return for this he was to provide the Expedition with a film of the project. As it turned out because of bad weather, we were unable to get Hans over to the Steele Valley until the morning of July 15th after most of the camp erection was completed.

Publicity and Documentation

After the October Board meeting it was decided to ask Vera Norman to take on the job of Publicity Co-ordinator and to carry out any promotional work. We were considerably hampered right up to the end of 1966 because the Centennial Commission would not allow us to state that the Expedition was being financially assisted by them or that it had been finally approved until their grant had been through the Treasury Board. It seemed incredible to us that this still had not been done. The only possible explanation was that the Commission wanted to be assured of the Expedition proceeding and until final approval had been received on the $23,000.00 grant from the Fitness and Amateur Sport, this was not possible. We were, however, certain this money would be forthcoming. On the advice of several Club members we drew up Publicity Agreements which were reviewed in Vancouver in January 1967 and sent to all participants after they had been accepted. This form was not very popular with some applicants and after the Expedition all participants were released from certain parts of it. Releases were sent out at regular intervals to all the press across the Country and to the radio and television stations. While some of them gave the Expedition coverage, many did not. In the Spring of 1967 we were informed that Expo would

be commanding the majority of the available newspaper space. During the Expedition we had a Centennial Com¬mission reporter staying either at the Staging Camp or at the general camp site for about three weeks, who sent out almost daily reports and we also had an official Commission photographer at the camps for several days. Vera also arranged for the sale of an illustrated article to the "Canadian", a national magazine.

Vera was also involved in the arrangements for the items of equipment that were donated to the Centennial Climbs team members. Terry Williams Swea¬ters Limited in Kitchener, Ontario, gave us sweaters for the 60 climbers, Photo Importing Agencies Limited of Toronto gave us fourteen 35-mm. cameras, one for each team, and seventy rolls of colour film, and the Norton Company Limited of Hamilton, Ontario, gave us 60 space blankets and 60 rescue blankets. The details of the sweaters were worked out by my wife, Mamie, and it was decided to have a Yukon blue background with the Alpine Club colours in three thin strips across the front. Each team had its provincial or territorial crest on the front of the sweater.

Ruth Page, in Toronto, acted as a sub-committee to Vera and arranged with all the provinces and territories to have their flags and four crests sent in for use on the mountains and sweaters.

The documentation of the Expedition was a difficult question. Until we knew what funds were available at the completion of the Expedition and until we knew what sort of a story would be available, it was almost impossible to approach a publisher and expect him to say "yes" to our requests to do a book on the project. Joan Greenwood, in Vancouver, kindly agreed to act as temporary historian and to collect material until something definite could be decided. She also made the suggestion that resulted in my including $3,000.00 in the budget as an allowance for a book. As it turned out this amount was exactly what was required to get Thomas Nelson & Sons (Canada) Limited to publish our book which is expected early in 1969.

Aircraft

The choice and availability of aircraft formed perhaps the most important aspect of the Expedition logistics. In the early plans and in the submission to the Centennial Commission we had planned to use a large nine-passenger Bell 204B helicopter to transport people in and out of camps, a small machine for local flying, and a fixed-wing Beaver for most of the freighting. The estimated cost of the flying at that time was $61,100.00 including fuel. When the general camp site was changed from the centre of the Icefields to the Steele Vally, and at the time of the August 1966 revisions to the budget, we re-evaluated the whole question of aircraft logistics. Because of the difficulty of obtaining helicopters as large as the Bell 204B and in particular for short term use over weekends when people would be arriving and leaving, it was decided to use a combination of small helicopters and fixed-wing aircraft. We planned to use a Beaver or Otter to fly both passengers and freight and one, two or three helicopters as required. In early November I had further discussions with an aircraft company and was advised that it would be virtually impossible to get any helicopters in the summer on a short term basis and that we would have to term charter all our aircraft for a minimum period of one month for anyone to be interested.

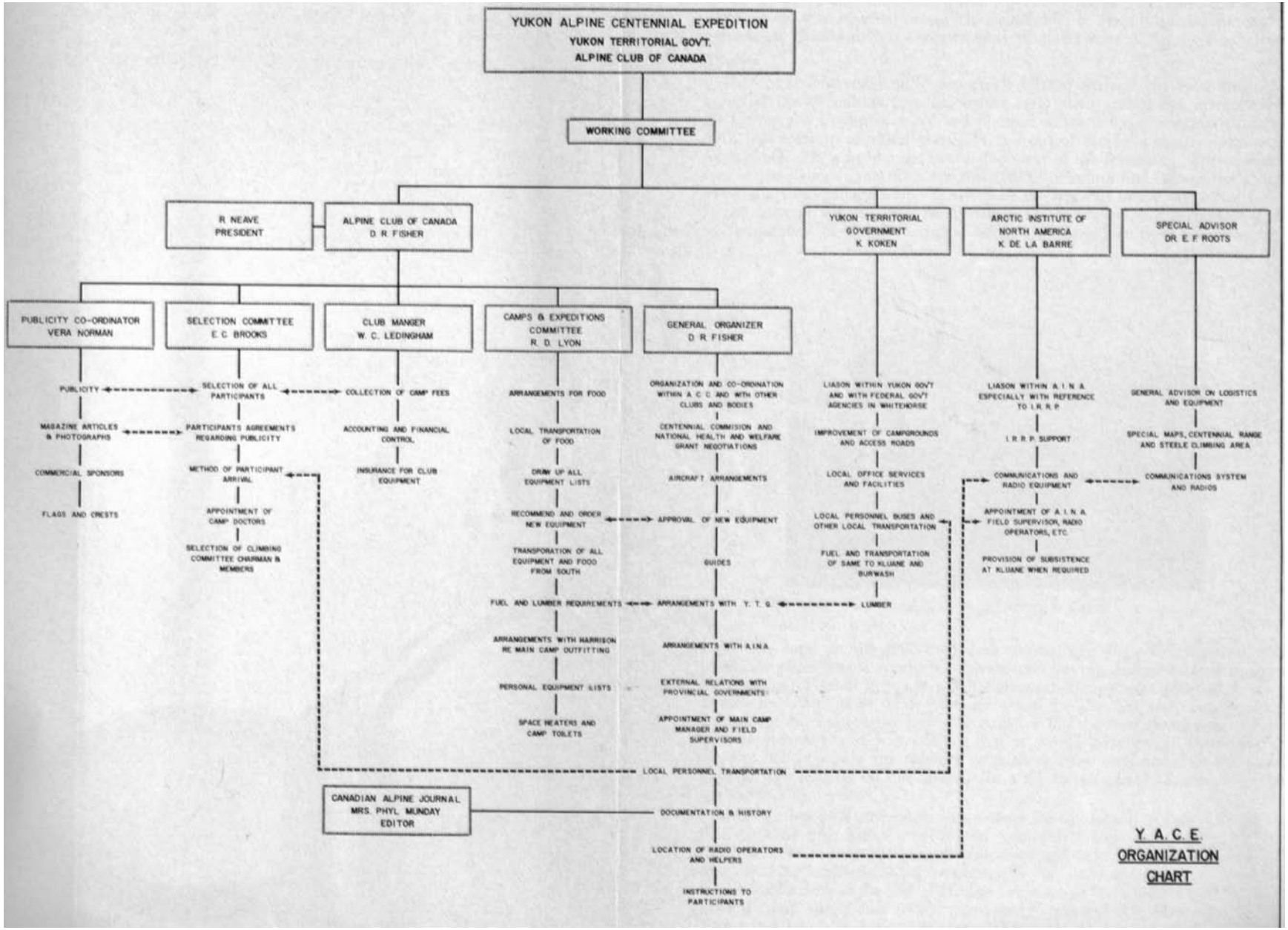
In November I called tenders on an Otter for the month of July and on two Bell 47G-3B1 high altitude helicopters from July 7th to August 20th. At this time, in order to keep the general camp weekend flying within tolerable limits that could be handled by two machines, it was decided to try and develop a fixed-wing landing at the foot of Hazard Creek across the Steele Glacier from the general camp site. I had several discussions regarding this plan with Walter Wood and his chief pilot, Phil Upton. The only flaw was that we would not know for sure whether it would be possible

to land in this location with a fixed-wing aircraft until after the Spring thaw in early May. What we decided would affect our plans regarding quantities of fuel and location of fuel caches in the Steele and Donjek Valleys; leaving the decision until May also meant that we would not be able to place fuel under winter conditions.

Shortly before Christmas, 1966, I had a telegram from Trans-North Turbo Air in Whitehorse saying they wanted to bid on our helicopters even though they did not have any machines at that time to offer us; they expected delivery in April or May, 1967. They offered Hiller 1200's with small turbine engines. This again would affect our fuel requirements since jet fuel would be necessary. Shortly afterwards I was happy to receive the bid from Bullock Helicopters in Calgary for the two machines I had asked for. They had suggested the possible use of two four-passenger Alouettes, also a turbine machine, if these had been available. However, the Bell machines were what we had asked for and I quickly wired them to confirm the contract.

Coming in for a landing at Camp

In early February I decided to abandon the Hazard Creek fixed-wing landing, since it was too unreliable, and to finalize all our aircraft plans, fuel quantities and cache locations on the basis of flying into the general camp by helicopter from the Donjek River valley. The final budget was prepared on this basis. Freight would be flown into the general camp partly by helicopter and partly by fixed-wing free drop. The Centennial Range climbers would be flown with their freight by fixed-wing aircraft to the Icefield Ranges "Divide" camp and then on by helicopter. Fuel caches would be placed under winter conditions in the Donjek valley by sleds from the Alaska Highway and near the general camp site and at "Divide" by ski plane. As it turned out, the last cache was not


YUKON ALPINE CENTENNIAL EXPEDITION
YUKON TERRITORIAL GOV'T.
ALPINE CLUB OF CANADA
WORKING COMMITTEE
R. NEAVE
PRESIDENT
ALPINE CLUB OF CANADA
D. R. FISHER
YUKON TERRITORIAL GOVERNMENT
K. KOKEN
ARCTIC INSTITUTE OF NORTH AMERICA
K. DE LA BARRE
SPECIAL ADVISOR
DR. E. F. ROOTS
PUBLICITY CO-ORDINATOR
VERA NORMAN
SELECTION COMMITTEE
E. C. BROOKS
CLUB MANGER
W. C. LEDINGHAM
CAMPS & EXPEDITIONS COMMITTEE
R. D. LYON
GENERAL ORGANIZER
D. R. FISHER
PUBLICITY
SELECTION OF ALL PARTICIPANTS
COLLECTION OF CAMP FEES
MAGAZINE ARTICLES & PHOTOGRAPHS
PARTICIPANTS AGREEMENTS REGARDING PUBLICITY
ACCOUNTING AND FINANCIAL CONTROL
COMMERCIAL SPONSORS
METHOD OF PARTICIPANT ARRIVAL
INSURANCE FOR CLUB EQUIPMENT
FLAGS AND CRESTS
APPOINTMENT OF CAMP DOCTORS
SELECTION OF CLIMBING COMMITTEE CHAIRMAN & MEMBERS
ARRANGEMENTS FOR FOOD
LOCAL TRANSPORTATION OF FOOD
DRAW UP ALL EQUIPMENT LISTS
RECOMMEND AND ORDER NEW EQUIPMENT
TRANSPORATION OF ALL EQUIPMENT AND FOOD FROM SOUTH
FUEL AND LUMBER REQUIREMENTS
ARRANGEMENTS WITH HARRISON RE MAIN CAMP OUTFITTING
PERSONAL EQUIPMENT LISTS
SPACE HEATERS AND CAMP TOILETS
ORGANIZATION AND CO-ORDINATION WITHIN A. C. C. AND WITH OTHER CLUBS AND BODIES
CENTENNIAL COMMISION AND NATIONAL HEALTH AND WELFARE GRANT NEGOTIATIONS
AIRCRAFT ARRANGEMENTS
APPROVAL OF NEW EQUIPMENT
GUIDES
ARRANGEMENTS WITH Y. T. G.
ARRANGEMENTS WITH A.I.N.A.
EXTERNAL RELATIONS WITH PROVINCIAL GOVERNMENTS
APPOINTMENT OF MAIN CAMP MANAGER AND FIELD SUPERVISORS
LIASON WITHIN YUKON GOV'T AND WITH FEDERAL GOV'T AGENCIES IN WHITEHORSE
IMPROVEMENT OF CAMPGROUNDS AND ACCESS ROADS
LOCAL OFFICE SERVICES AND FACILITIES
LOCAL PERSONNEL BUSES AND OTHER LOCAL TRANSPORTATION
FUEL AND TRANSPORTATION OF SAME TO KLUANE AND BURWASH
LUMBER
LIASON WITHIN A. I. N. A. ESPECIALLY WITH REFERENCE TO I.R.R.P.
I.R.R.P. SUPPORT
COMMUNICATIONS AND RADIO EQUIPMENT
APPOINTMENT OF A. I. N. A. FIELD SUPERVISOR, RADIO OPERATORS, ETC.
PROVISION OF SUBSISTENCE AT KLUANE WHEN REQUIRED
GENERAL ADVISOR ON LOGISTICS AND EQUIPMENT
SPECIAL MAPS, CENTENNIAL RANGE AND STEELE CLIMBING AREA
COMMUNICATIONS SYSTEM AND RADIOS
LOCAL PERSONNEL TRANSPORTATION
CANADIAN ALPINE JOURNAL
MRS. PHYL MUNDAY
EDITOR
DOCUMENTATION & HISTORY
LOCATION OF RADIO OPERATORS AND HELPERS
INSTRUCTIONS TO PARTICIPANTS
Y. A. C. E.
ORGANIZATION
CHART

placed until summer because there was snow at this location all year round. In April, a contract was executed with Great Northern Airways to carry out all our fixed-wing flying by standard Beaver. Thus our aircraft requirements were finalized and the fuel quantities could be established.

The final estimate of cost for the aircraft given in the February budget was $57,000.00 including fuel and drums. While this figure was only $4,100.00 less than the original one in the Commission document, both Fred and I felt that perhaps the first figure had been low and that the true saving effected by moving the general camp site and using more fixed-wing aircraft was nearer to $10,000.00. The aircraft estimates were very close to the final costs.

Organization Chart and January Meetings

In order that the people involved in the organization of the Expedition could follow the work of others and know what they were responsible for, a chart was made up showing the Working Committee members and the responsibilities of each group. In the case of the Club's duties, which were by far the most numerous, the chart (opposite) showed the detailed breakdown of items to be covered.

The middle of January, 1967, seemed like a good time to hold a meeting to go over many questions and details. Roger Neave was in Vancouver on business and Hans Gmoser was going to be lecturing near Seattle about that time so the weekend's work could also include a meeting of the Selection Committee. I had many details to go over with the Yukon Government, and the Club's Camps and Expeditions Committee was just beginning the work of selecting the equipment for the Expedition.

I travelled to Edmonton on the evening of January llth and early next morning flew to Whitehorse where we held very profitable meetings almost continuously for 24 hours. Many plans were made as to how to proceed with various phases of the work ahead. Craig Hughes, Kurt Koken and Monty Alford were all most helpful at these meetings and formed the essential Yukon working element so necessary for the successful completion of the organization.

On the evening of January 13th I was back down at Vancouver. Since Hans would not be available until Sunday, Eric and Bob Hind together with Roger, Don Lyon, Cam Ledingham and myself went over a number of details that had to be discussed and resolved. It was agreed that Cam would take care of all accounting matters and the financial control of the Expedition. On Sunday the Selection Committee got on with its business and Roger, Don, Cam and I went over equipment. Bob and Don left for Calgary that afternoon and I left with Hans in the evening. Phil Dowling, Don and I went over a few more details of the equipment requirements. On Monday morning before leaving for Toronto I went in to see Bullock Helicopters to discuss fuel and oil requirements with them and also the possible use of one three-passenger machine that we eventually decided against because of altitude limitations.

Selection of Camp Sites

The base camp site for the "Good Neighbour Peak" climb was to be chosen by the party when they landed.

From the aerial reconnaissance into the Centennial Range and from the maps and photographs available, it was decided that the thirteen peaks could best be reached from three base camps. In the west, a glacier flowing north to the Chitina Glacier and shaped like a T-Bone appeared to give access to Mts. Northwest, Yukon and British Columbia. This base camp became known as "T-Bone". In the centre of the Range there was a glacier flowing south from Mt. Ontario

to the Walsh Glacier with many arms reaching up to the peaks in this area. The glacier has been given the preliminary name "Prairie Glacier" and the base was known as "Prairie". The peaks to be climbed from here were Mts. Alberta, Saskatchewan, Manitoba, Ontario, and Centennial Peak. In the east there was another broad glacier flowing south to the Walsh Glacier, which has been given the preliminary name of "Fundy Glacier" since it lies between Mts. New Brunswick and Nova Scotia. The peaks to be climbed from here were Mts. Quebec, Prince Edward Island, New Brunswick, Newfoundland and Nova Scotia. This base was known as "Fundy".

In the Steele Valley, apart from the main camp site, it was decided to place high camps for Mts. Walsh, Steele and Wood with other ones to be determined later if they were found to be necessary. We planned to move the radio from the "Good Neighbour Peak" to the Walsh Col when this camp was established.

On the Alaska Highway, we had at first planned on using both the Government Camp ground at Mile 1064 and the one at Mile 1105. However, after studying the situation more carefully it was decided to abandon the idea of using the one at Mile 1105. It could only be used for the general camps, was right beside the road in the dust, would need more tentage and another supervisor, and was after all only 41 miles further up the Highway. Furthermore, the camp at Mile 1064 was adjacent to the Bayshore Motel with telephone and other facilities, making it easier to co-ordinate operations from this one point.

Arctic Institute of North America

Since the early planning of the Expedition, it had become obvious that the Expedition would be closely associated with the Icefield Ranges Research Project, which is carried out almost completely under the auspices of the Arctic Institute of North America, the other sponsoring body being the American Geographical Society. Walter Wood has been director of I.R.R.P. since its inception and was an ardent supporter of the Yukon Expedition as well as being an Honorary Member of the Club. His intimate knowledge of the St. Elias Mountains was of continual assistance to us and his generosity made the early planning and reconnaissance work much easier than it might have been without the facilities of I.R.R.P.

As I mentioned earlier, at the time the Arctic Institute made the offer to manage the Expedition, it was not clear what would be done by them and what would be done by the Club or what the financial arrangements would be for these management services. On the 2nd of March, 1966, Brigadier Love, Director of the Montreal Office of the Arctic Institute, wrote a letter to Walter Wood setting down a basic management framework but giving no specific details. The Arctic Institute of North America is not a philanthropic society and clearly the Expedition would have to pay the going rate for any services rendered. Throughout the summer of 1966 it became obvious to me that much of the organization work not only could but should be done by the Club for the Expedition. The saving in management costs might make the difference between being able to finance the Expedition soundly and not having one at all. In addition, any savings that could be made in this way would be passed on to the participants in reduced fees. Much of the work would involve selecting new equipment and running the general camps, all of which we were used to doing. In September 1966 I had a meeting in Montreal with Brigadier Love and Ken de la Barre and we decided what items they could best look after for us. The big item was the aircraft and since their management charges were based on a percentage of the actual cost of the aircraft, the possible fees on this item were substantial. However, at this time we agreed that they would make a proposal including the aircraft, the radio operators, staging camp supervisor, subsistence

charges for staff and other miscellaneous items. This proposal was received and reviewed at the October Board meeting. It was decided at that time that we could not justify the considerable expense of the management fees on the aircraft and that the Expedition should carry out this work, the arrangements falling to the Club to look after. At the end of the year Walter Wood set out the basic requirements of an agreement between the Arctic Institute and the Club on behalf of the Expedition. These were gone over in detail by Brigadier Love, Ken de la Barre, Fred and myself at Brigadier Love's house in Montreal one evening between Christmas and New Year. The final arrangements were that the Arctic Institute would supply the radio equipment to tie in with their network, the radio operators for the Steele Camp as well as the ones at "Divide" and Kluane that we would use jointly, that they would let us use their Helio Courier aircraft for the "Good Neighbour Peak" team and that they would provide subsistence for our staff members when they stayed at Kluane or "Divide".

We agreed to keep out of their way as much as we could so as not to interfere with the research work of the I.R.R.P. Base unless an emergency arose.

We had previously agreed on the frequencies to be used and the aircraft had been given one of these so that we could monitor them at all times. Our contracts with the aircraft companies called for radios to be provided. The radios were manufactured by Spilsbury and Tindall in Vancouver and those chosen for our use were excellent. The ones at "Steele", "Divide" and "Kluane" stations were of the single sideband variety, Model SB-60, and those for the Centennial Range bases and the "Good Neighbour Peak" were Model PRX-30. At most times of the day the SB-60's were as good as a telephone.

Fuel

Once the final decision had been made regarding our aircraft logistics, I sat down and undertook a careful study of all passenger hours to be flown and also of all freighting to be done. The fixed-wing aircraft contracts called for the carrier to supply fuel and oil since the flying would all be from Kluane and

Burwash on the Highway and no fuel caches would have to be established. For the Centennial Range, the helicopter fuel estimates were based on flying the fifty-two participants and their gear and also the freight from "Divide" to the three base camps. There was a possibility that the transfer from helicopter back to Beaver on the return flights might be made at the location designated as "Divide West", which was at the divide between the Walsh and Hubbard Glaciers instead of at "Divide" which was between the Hubbard and Kaskawulsh Glaciers. However, the fuel was worked out on the further helicopter haul. We planned to fly 930 gallons of gasoline here initially in 45- and 12- gallon drums, enough for 55 hours flying, and to fly any extra fuel needed from our store at Kluane up to "Divide" as required. The cache was to be establishedin July.

The bulk of the gasoline needed for the general camps flying was placed in two locations. The first was in the Donjek River valley and the second was across from the main camp site at the bottom of Hazard Creek. The Donjek cache was established on the snow by sleds and a caterpillar tractor in March. We arranged a contract with Mr. LeMoigan at Mile 1128 to do this work for us. This cache consisted of 52 large drums containing 2,340 gallons and was for the passenger flying into and out of camp and also for transporting most of the freight that could not be free dropped or was not to be flown from the end of the Quill Creek mine road at "Maple". The cache was placed near the location from which we planned to fly the participants.

The location of the cache for the local flying to be done out of the general camp was much

harder to decide on. We had ordered all this fuel in the smaller 12-gallon drums so that it could be easily handled in the Beaver, which was to establish the cache. Monty Alford was making regular flights up the Steele Valley all winter photographing the glacier surge. Most of these flights were made in a Beaver with the pilot that we would be using in the summer, but some of the flights were made by helicopter. We weighed up the possibility of free dropping the drums at the camp site, but after establishing that the drums were not made of too heavy a gauge of metal and that there was barely 15 inches of snow on the ground we decided against this method. Monty then said that the frozen lake at the bottom of Hazard Creek, formed by the Steele Glacier surge, seemed like the best bet. It would mean flying the drums the short distance across to the camp but there was a mile of frozen lake that we could land on comfortably with the Beaver on skis. Monty's only fear was that the lake level would rise in the Spring; consequently he wisely instructed the pilot to place the gasoline drums about 20 feet above the ice level. The cache was duly placed in April and all seemed well until I got a call from Craig Hughes in the Yukon informing me that the water had risen about 35 feet! Since this was only a week or so before I was due to leave for the Yukon we decided to leave the drums floating in the lake until I got up there. Walter Wood had indicated that he felt fairly certain that the lake would not out at this time, This cache consisted of 150 of the small 12-gallon drums, totalling 1,800 gallons. balance of our fuel was kept at Kluane except for the odd drum at "Maple" and at the Burwash Airstrip. Altogether we placed 6,375 gallons of gasoline, 99 drums of 45 gallons and 160 drums of 12 gallons.

The fuel was all purchased in Whitehorse by Kurt Koken, who did a most efficient job, and was delivered up the Highway to the various jumping off points through the generosity of Don Merrill, Superintendent of the Yukon Forest Service and Mr. Earl McArthur, Manager of the Transport Division of United Keno Hill Mines. These two gentlemen made their staff and vehicles available to us at no cost.

Equipment Selection and Food

The work of selecting the food and equipment fell to Don Lyon, Chairman of the Club's Camps and Expeditions Committee, with the able assistance of Phil Dowling and Peter Fuhrmann in Edmonton and Calgary respectively and of Kim Deane in Vancouver. This work was a major task and quite clearly the first thing to be done was to get an inventory of the existing equipment at the Clubhouse in Banff; such a list had never been made as far as we could tell although George Wallis had made a very valuable list of our tentage during the Assiniboine Camp. We had to have enough, gear for the "Good Neighbour Peak" team and for the Centennial Range teams (this would mostly be new), for the main camp and its satellite high camps and also for the Staging Camp at Mile 1064. We planned to use all the Club equipment that we possibly could with the limitations imposed on us by the terrain. For example, we decided to take only bell tents and new umbrella tents to the Steele Camp for sleeping purposes, so that the five two-by-fours needed to erect a wall tent would not have to be flown into the camp. Because of the lack of timber, we also had to buy all new stoves and heaters.

The first thing to be done was to select the new tents and ropes so that these could be ordered. After due consideration it was decided to acquire modified Blacks four-man tents, mostly for the Centennial Range teams, Everest Meades for the "Good Neighbour Peak" team and for the Steele high camps, and umbrella tents made by North West Tent and Awning in Edmonton for the extra sleeping tents needed at the Steele Camp. We cut down the equipment to what we considered was the minimum necessary, since most of it would have to be flown in to the camp

site. It was decided, after much investigation, to buy the new ropes from Mammut in Switzerland. Their new "Dynamic" rope was held in high regard and we obtained an excellent price direct from the manufacturer.

It was decided quite early in the organization work to purchase virtually all the general camp food in Whitehorse. Some specialty foods would be brought from the south and the pre-packaged high camp food also. All the expeditionary food for the Centennial Climbs teams was pre-packaged in Calgary, with Peter Spear and other Calgary members of the Expedition doing much of this work.

All through the Spring of 1967, equipment and food of one sort or another was being ordered and re-packed or sent straight to Edmonton where the packing was to be done for the trip to Kluane.

Packing

The whole of this work except the food pre-packaging fell to the Edmonton Section it being nearest to the Alaska Highway up which the freight would be shipped This work was in charge of Phil Dowling, Chairman of the Edmonton Section and a member of Don's Committee, who did an outstanding job all round. This work involved taking the preliminary inventories, trying to find a piece of equipment or a box of food that looked vaguely like the item in question, wrapping it in a suitable way for the journey north and finally giving it a number and stencilling this on the article in the prescribed colour. The work was hampered by the very late arrival of some of the items to be packed and it was only by working long hours with his devoted followers that Phil managed to meet the shipping deadlines. The number system set up for packing consisted of seven series of numbers in four different colours. These were as follows:

Good Neighbour Peak	100 onwards	Green
Staging Camp	200 onwards	Black
Centennial Range T-Bone Base	300 onwards	Red
Centennial Range Prairie Base	400 onwards	Red
Centennial Range Fundy Base	500 onwards	Red
General Camp	600 onwards	Blue
Steele area high camps	700 onwards	Blue

Thus the numbers designated the final destination and the colour indicated the phase and initial routing from the Highway. The system worked excellently in the field and it was always easy to track down an item or to make reference to a particular tent or box

Staff and Accommodation

As soon as we decided to move right ahead with the detailed organization of the Expedition, I set down some basic requirements and wrote to Bill Harrison asking him to run the camp in the Steele Valley. We knew that we could not be in better hands and, providing the camp was on grass and not on the ice, he had assured me at the Assiniboine Camp that he would be most interested in going north with us. I suggested to him that a reduced staff consisting of Gordon and himself together with three cooks and four girls would be adequate as there would be fewer participants than at a regular camp and there would be no firewood to cut. We were glad to receive his acceptance

Photo: Mary Fallis

Dining tents at Steele Glacier Camp.

and finalized his contract. Bill planned to arrive at the Staging Camp about July 8th or 9th, one week ahead of the first general camp.

We had always known that a general supervisor with broad authority would be needed near the Staging Camp on the Alaska Highway. There would be many decisions to make at this location regarding transportation, food orders and shipment, accounting etc. Originally this responsibility was to be part of the Arctic Institute management function but when their work was reduced and the Agreement finalized, the appointment fell to us. When it came to selecting the right person for this duty, we could think of no one who could do the job better than Cam Ledingham, our Club Manager. He had a broad knowledge of the requirements of the job, already had Club signing authority for paying accounts and was already looking after the accounting and financial control for the Expedition. We were delighted when Cam accepted and at the same time very grateful to Jean Ledingham for looking after the Club business so efficiently in Cam's absence up north.

We obtained a room at the Bayshore Motel within a quarter of a mile of the Staging Camp at Mile 1064, which became our field office with telephone as well as accommodation for Cam for two months.

When I was in Calgary at the beginning of March going over many organi¬zational matters, one of the things I did was to have a good talk with Bill Harrison about a suitable person to look after the Staging Camp. When he said that he thought his brother Harold might like to take on the job of camp supervisor, I was delighted, since he knows the work of running this sort of camp as well as Bill does. Harold accepted the position and planned to arrive up there at the beginning of July.

David Vallance was most anxious to act as a general helper during the Expedition and I knew that we would be needing someone to help with the many chores in various areas, particularly at the beginning of the Expedition. As soon as our plans were completed I readily accepted Dave's offer. He was to arrive about June 25th and stay until the end of the Expedition in mid-August. Art

Photo: Mary Fallis

Bill Harrison, A.C.C. Camp contractor, takes a turn at carving

Schwartz, who was planning to attend the first general camp, also volunteered his services and I was pleased to accept his offer to help during the busy period before the camp started.

I agreed to do whatever management work was required around the general camp in addition to keeping all the other phases of the Expedition under control, and this just left the radio operators to complete the staff requirements. The radio operators were appointed by the Arctic Institute and we were very fortunate that they were able to get Ian MacGregor for us to run the "Steele" station at Camp. Ian had been up on Devon Island for the Arctic Institute in 1966 and was well trained in the routine.

The pilots stayed at Kluane, Bayshore, Burwash Lodge or the general camp, whichever suited the operations best at any time. The same applied to the other staff although they did not move around quite so much.

Medals and Badges

It had been decided early on in the work of the Expedition that a commemorative medallion should be designed and struck and presented to the Centennial climbers, certain key organizational

personnel and also to the provinces and territories. The medallion was designed by an artist in Toronto and struck in Vancouver. The medallion depicts the thirteen peaks of the Centennial Range, the Centennial symbol and the words Yukon Alpine Centennial Expedition on one side, and the Yukon Territory and Alpine Club crests, the dates 1867 and 1967 and the words Expedition Alpine du Centenaire au Yukon on the reverse. It was struck in gold on bronze.

It was also decided to issue a cloth badge to all participants and others connected with the Expedition. This was a three-inch circular badge of light blue to represent the Arctic Institute of North America, with the Centennial symbol in the colours of the Yukon (blue, red, gold and white) and the Alpine Club (white, grey and green). The Expedition name, crossed iceaxes and the dates 1867 and 1967 completed the badge.

History

Walter Wood finished his manuscript on the history of mountaineering in the St. Elias Mountains in early Spring, 1967, and after some minor editing it was printed rather quickly in Toronto and despatched to the Yukon for issuing to all participants. This was a great job by Walter and we are very grateful to him for the work he put into the finished product. The basic history, some-what condensed, will form a part of the book to be published on the Expedition, hopefully in the first few months of 1969.

Campgrounds and Miscellaneous Items

One of the reasons that we decided to only use the Campground at Mile 1064 was that the Yukon Forest Service, which has the responsibility for these facilities in the Yukon, had already decided to enlarge this campground because f its popular location near the lake. All that was necessary was for the Forest Service to advance their work slightly. We had wonderful co-operation from Don Merrill, the Forestry Superintendent, and they enlarged the campground and built a second cookhouse entirely for our use during the Expedition. They also provided us with all the firewood we needed.

There were many other miscellaneous items taken care of in Whitehorse by Kurt Koken, who did a magnificent job for the Expedition. He purchased the aviation oil, ordered the propane for the general camp, arranged for two noticeboards to be made for the Staging Camp and for the Forestry people to erect four flagpoles, ordered all our lumber after first obtaining quotations, and arranged for all the local transportation.

Don Lyon did a wonderful job taking off all the lumber needed for erecting the tents at the general camp and the staging camp and for all the tables and other odds and ends. Once we were in the Steele Valley it would be hard to get extra material sent in and a lot depended on Don's correct assessment of the necessary lumber.

Kurt arranged for a stationwagon to be rented for the two months that Cam was to be in the Yukon. We got a good rate on this, thanks to Kurt, and the vehicle proved to be absolutely invaluable. Kurt also obtained prices on buses for us after I sent up a complete timetable for these based on the arrival and departure dates for each phase of the Expedition. The round trip bus fare that was charged amounted to about half the regular Canadian Coachways fare.

Kurt also arranged for a local truck at the Bayshore Motel to be available to transport all our gear up and down the Highway and to drive the participants for the general camps up the Quill Creek mine road from where they left the bus. This was a very old truck driven by a prospector-cum-odd-job man, who became known by us as "Fuzzy Fingers" for some reason unknown to me.

Operational Working Schedule

Finally, after establishing all the remaining schedules and details, I produced a document containing all the information pertaining to the Expedition and covering all the work that was to be done. This document also contained all the estimated flight times, fuel estimates, drum placings, bus schedules, equipment inventories etc., and was issued to all field personnel and other parties connected with the organization work.

3. Field Operations

On June 15th Cam Ledingham flew to Whitehorse and it was to be two months and a day before he flew back to Vancouver after the completion of the Expedition. Cam had many things to do in Whitehorse—meet Kurt Koken, pick up the Expedition stationwagon, check on food arrangements and deliveries, etc.

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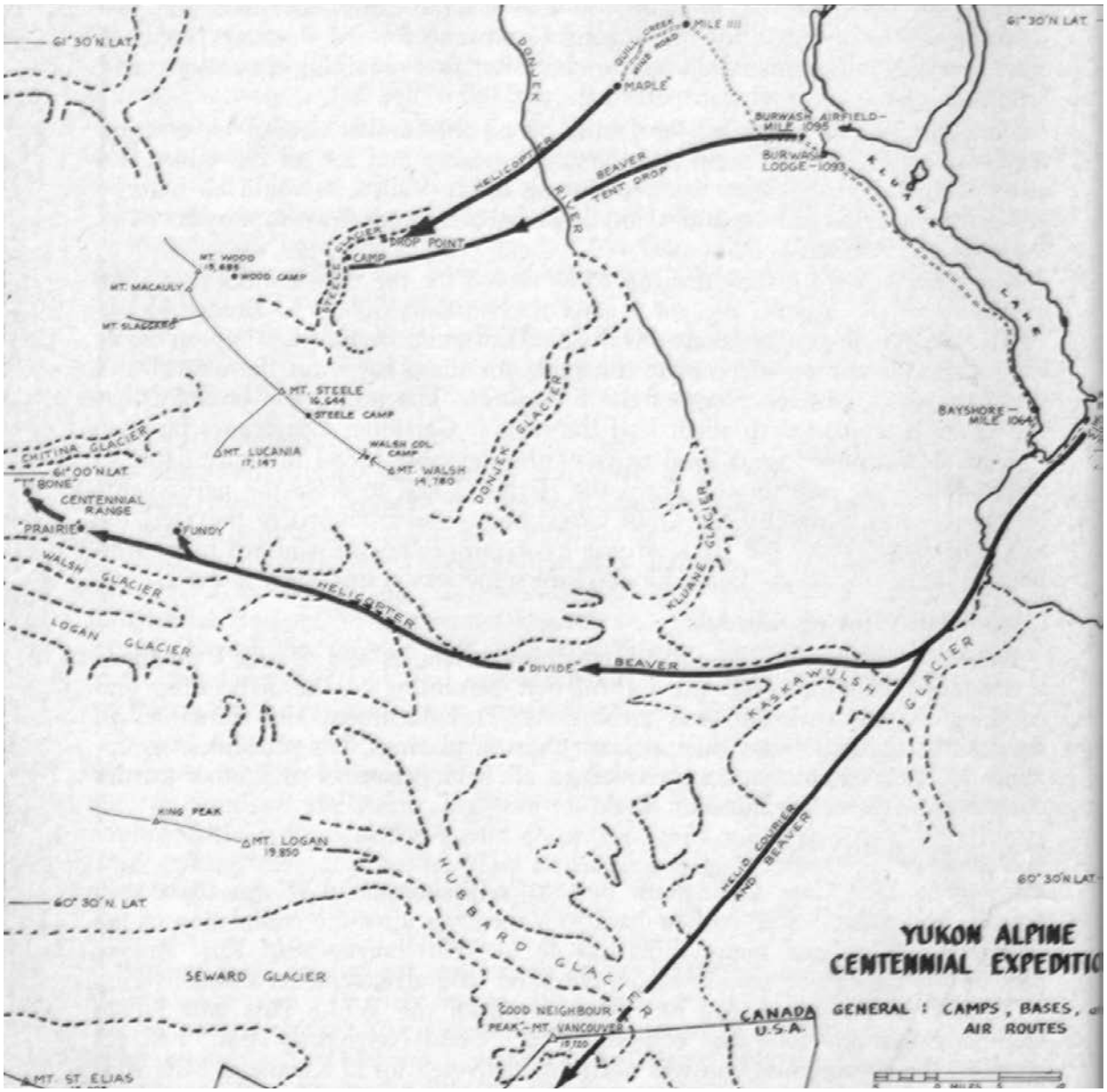


More or less by chance he found out from the White Pass and Yukon Company that the food and equipment for "Good Neighbour Peak" had got stuck in their warehouse and was not to be delivered up to Kluane at Mile 1054 until the next regular run, which was Tuesday, June 20th. We had been assured in Edmonton that Canadian Freightways would have the food and gear transhipped without delay and sent right on up the Highway without having to wait for a regular truck. It was fortunate that this hold up happened only to the small amount of gear needed for the eight-man team since Cam was able to get it all in the back of the stationwagon, and on June 17th he drove it up to Kluane and checked into the Bayshore Motel at Mile 1064.

The Good Neighbour Peak team was to have been flown to the south side, of Mt. Vancouver on June 19th but since the weather was good on the 18th and some of the party were already at Kluane, it was decided to fly the first four members in that day, together with some of the gear. This flight was made entirely by fixed wing aircraft; the two Helio Couriers owned by the Arctic Institute at I.R.R.P. were used. The party set up their base camp, carried out a good reconnaissance and set up the radio and checked it back to Kluane before remaining four members of the team left to fly in. The weather was not good enough to fly on June 19th, but it cleared again next day and the remaining members of the team, together with the balance of the gear and food, were flown in on June 20th. The two Helio Couriers were used again and on the return flight back to Kluane unfortunately the older one of the two, 53 Delta, had an engine seizure and was forced to land on the south branch of the main Kaskawulsh Glacier. Many attempts were made to get the aircraft off again once a new engine had been installed but because of a lot of bad luck, the aircraft was still there at the end of 1967.

After the members of the "Good Neighbour Peak" team were safely installed in their base camp, Cam turned his attention to other important matters. The most urgent of these was to finalize the arrangements for getting to the Steele Camp. The final details with "Fuzzy Fingers" Osborne for trucking freight and personnel had not been made and could not be made until we had decided on the best method of approach to the Donjek Valley. If the Quill Creek mine road was in good enough condition and no better way could be found, we planned to take the climbers and freight by truck up this road from Mile 1111 to the head of Maple Creek, which was later to be given the name "Maple"; the freight would be flown from here to camp by helicopter and the climbers would walk down beside Wade Creek to the Donjek River, where we had established the gasoline cache. From there they would be flown to camp by helicopter. A possible alternative would be to take the freight to the Donjek gasoline cache, using a partially constructed road that followed the east side of the Donjek River starting at Mile 1128. This was the road that Cam first investigated. He carried out this reconnaissance with Terry Kennedy, the Forest Ranger from Haines Junction at Mile 1016, and they decided that even for transporting only freight the road would be impassable and, besides which, it did not go beyond Arch Creek. They then turned their attention to the approach up Quill Creek. They drove up the good road to Nickel Creek and on along the rough road to "Maple". This rough section was the road I had seen from the air in 1966. It proved to be passable in a truck and it was therefore decided to use this road for equipment and climbers. Cam, Kurt Koken and Craig Hughes later walked from "Maple" as far as they could towards Wade Creek. They got to the beginning of the canyon and found it would be impossible to walk down this to the Donjek because the water reached almost right across the canyon floor from wall to wall.

Final arrangements were made with "Fuzzy Fingers" to take our gear to the end of the Quill Creek mine road when it arrived at Kluane. All the camp equipment except the tents was to be moved to this point for freighting in by helicopter. The tents were to go to the Burwash

Airfield since they would be free dropped at the camp site by Lloyd Ryder in the Beaver after the Centennial climbers had all been flown in to the mountains.

The lumber for the Staging Camp and the Steele Camp was delivered from Whitehorse to the campground at Mile 1064. This was sorted out and when Dave Vallance arrived the Steele Camp lumber was taken to the end of the Quill Creek road where the gear was going to be placed.

Shortly afterwards the Staging Camp tents and gear arrived from Edmonton together with the Centennial Range equipment and food, and everything was sorted out at Kluane. The Staging Camp gear was taken round to Mile 1064 and when Harold arrived he made short work of erecting a very comfortable camp with the help of the others. The cooking shelter was magnificent and we were certainly very grateful to Terry Kennedy and his men for providing all the firewood and making such an attractive place for us.

On July 1st Lloyd Ryder arrived at the Kluane airstrip with the Beaver and immediately started ferrying gas drums up to "Divide" for the helicopters. On July 3rd Lloyd had a big day flying a total of almost ten hours. The weather had cleared at the "Good Neighbour Peak" base camp after being poor for several days, so he flew gas drums to "Divide" then crossed to the south side of Mt. Vancouver and started flying out the eight-man team after a bit of excitement when he narrowly missed a crevasse. By the time he had finished flying for the day the whole team had been flown out with their gear and six large drums and ten small drums of gasoline had been flown to "Divide", together with virtually all the Centennial Range equipment and food. On the next two days Lloyd completed the gasoline and equipment ferry to "Divide".

On July 5th I left Toronto and after spending the night in Edmonton went to Whitehorse the next day. The afternoon was spent going over the final details of the organization with Craig Hughes and Kurt Koken and in the evening I met Major Chris Thompson from the army survey. He was to carry out the ground control survey in the Steele Valley in connection with the Federal Government's work on the Steele Glacier surge. He planned to have a group of about five or six stationed near our base camp for about ten days during our first general camp, and wanted to arrange for the crew to eat with us. It would certainly be an advantage to both of us if we could work together so I willingly agreed and set a daily charge for the use of our facilities. They had two Hiller 1100 helicopters and we might well be able to take advantage of these during the time they were in the valley.

On July 7th I took the bus up to Mile 1064 and after settling in at the Bayshore, I drove round to Kluane to see the pilots. Jim Davies and Derrick Ellis, our two helicopter pilots from Bullock, were at I.R.R.P. together with our service engineer Peter Peachey and Lloyd Ryder the Beaver pilot. We held a council of war and made our plans to start ferrying the participants into the Centennial Range early next morning, weather permitting. The general camp gear had also arrived and, together with Art Schwartz, Dave Vallance had sorted this out for transporting to Burwash and the end of the mine road at "Maple". Art was going to look after this with "Fuzzy Fingers" while Dave helped me at "Divide". That evening the first Centennial climbers arrived at the Staging Camp on the special bus and received a short briefing from Jim Davies on helicopter procedures.

Early next morning Dave Vallance and I took off for "Divide" in the two helicopters together with Ron MacDonald of Canadian Press and John Kierstead of Public and Industrial Relations, the latter company having been engaged by the Centennial Commission to report on the Expedition. The first four members of the Mt. Northwest and Mt. British Columbia teams followed in the Beaver. About forty-five minutes later we arrived at "Divide" and introduced ourselves to the I.R.R.P. staff.

The "Divide" camp was one of I.R.R.P.'s main weather stations and also served as a staging point for other research programmes in the centre of the Icefields, in particular, the physiological project at 17,200 feet on Mt. Logan. Hank Kreiger, who was in charge and also operated the radio, was a great help to us, and since he was a ham radio operator at home, he carried out very efficient radio transmissions. On the first helicopter flights into the "T-Bone" Derrick took two passengers to locate a good site for the camp and Jim set off with a baggage net. After waiting for what seemed like ages, Derrick appeared over the horizon in his machine, CF-RLE, with Jim as a passenger. We were quickly to learn that Jim's supercharger had failed on CF-BHC and he had to land on the "Prairie Glacier". Derrick had spotted him and picked him up. This was a real blow since we were immediately reduced to one machine Jim went down to Kluane with Lloyd in the Beaver, picked up Peter Peachey, and a new supercharger and headed back up to "Divide".

In the meantime there was further excitement at "Divide". Shortly after lunch we received a radio message from Jack Wilson flying his Cessna along the north wall of Mt. Logan saying that there was a message stamped out in the snow at 10,300 feet which read "INJURY HELICOPTER". Jack is one of the best known of the American glacier pilots and operates out of Gulkanna on the Alaskan side of the Range. He had placed some parties out on climbs and was carrying out one of his routine check flights flying up the Logan Glacier. The sign he saw was made by Jim Craig's party trying a new route on the north face; this party had not been placed by him. We were unable to determine from the radio description given by Jack exactly where the climbers were located, so since he was only about fifteen minutes flying time from "Divide", he decided to come over and show us on a map. In the meantime Derrick had been ferrying people into "T-Bone", and after Jim and Peachey arrived back at "Divide" he took them both in to where Jim's downed machine was so that they could start working on it. He then crossed to Mt. Logan to try and find the injured man. I had been reluctant to send Derrick off to Mt. Logan until Jim had been taken into his machine in case anything happened to Derrick. Derrick had no difficulty finding Vince Bauer, the injured man, and after managing a tricky landing on the ridge they were on, he brought him safely back to "Divide" only fifteen hours after he had been injured. Later on in the afternoon Jim came over the horizon with Peachey; they had fixed the machine in about three hours, a terrific job. Both Derrick and Jim then continued flying people in together, but the weather at the T-Bone base closed in shortly afterwards, leaving the four Mt. Yukon members still to get in. After hastily getting Lloyd to bring up the first Prairie people, Jim and Derrick managed to make one flight each into this base with two Mt. Alberta and two Mt. Manitoba people before finishing for the day. Leaving the four Mt. Yukon members at "Divide" for the night we headed back down to Kluane. We had only flown twelve people in instead of the twenty-four we planned on, but it was a good start considering the problems we had encountered.

On July 9th we again set off early for "Divide" and after flying in the Mt. Yukon team to the T-Bone base we carried on all day with the other teams. The other members of the Mt. Alberta and Mt. Manitoba teams were flown into their base and also the Mt. Saskatchewan, Mt. Ontario and Centennial Peak teams. Starting on the Fundy base, we managed to get two of the Mt. Nova Scotia team and two of the Mt. Quebec team flown in before we got grounded by fog at "Divide". The other members of the Mts. Nova Scotia and Quebec teams and one of the Mt. New Brunswick team were all still at "Divide". While these five people set up one of their tents for the night, the pilots kept an eye on the weather waiting for a break. We had no engine heater up there and with the temperature dropping well below freezing it would be necessary to keep starting the machines to ensure that the engines would be warm enough to start if a clearing was to appear. After about

two hours, at about 9 p.m., a small break occurred and Jim, Derrick, Dave and I took off in a hurry. Jim leading went up through the break to about 16,000 feet looking for a clearing from above while Derrick and I only climbed to about 12,000 feet and then flew ahead. After about fifteen minutes I spotted a large glacier directly below us through a break in the cloud. It could only be the Kaskawulsh by its size and position so we dropped down quickly. Jim saw us from above and followed. We came out under the cloud in a light rain and, following the glacier down to the Slims River, got back to Kluane a little before 10 p.m.

Next day it poured with rain and Jim and Derrick decided to move to Burwash in the morning. They would be staying there while we put in the main camp and could easily fly down to ferry the last Centennial Range people when the weather cleared. That evening the weather cleared up to about 6000 feet. This was inadequate for flying to "Divide" at over 8000 feet even if the clearing went up the Kaskawulsh, so I decided to start flying the main camp lumber into the Steele Valley. We flew for about four hours from 6 p.m. to 10 p.m. and got all the lumber into the site I had selected the year before. Having got this task out of the way the camp could be erected more quickly and time was going to be very important if we lost some days because of bad weather.

It was still raining on the llth and if anything the rain seemed to be steadier than on the day before. About the middle of the morning the Highway was washed out at Mile 1057 and at the Silver Creek bridge at Mile 1053 leaving a four-mile stretch of highway with cars stuck in between the washouts. This section was between the Bayshore and I.R.R.P. at Kluane. Jim Davies was telephoned about mid-day and flew down from Burwash to lift bus passengers across the Silver Creek washout so that the southbound and northbound buses could change over. The bus that became the northbound one was stuck until the evening when the washout at Mile 1057 was cleared.

Next morning the weather cleared again and July 12th saw us pass several milestones. The two choppers flew down from Burwash, picked up the remaining Mt. New Brunswick team members and flew directly to the Fundy base. I flew to "Divide" with the Mt. Newfoundland team in the Beaver. The Mt. Prince Edward Island team brought up the rear in the last Beaver flight.

I had been approached by Dr. Charlie Houston and some of the other doctors at I.R.R.P. to see if we could rescue three of their men on the west side of Mt. Logan who were camped at about 16,500 feet. They were part of a six-man team that had been climbing from the King Trench to the Logan base at 17,200 feet and had not been able to go either up or down because of exhaustion. From the radio reports they were giving it appeared that they had pulmonary edema in varying degrees and Charlie was anxious to get them out. Because we were far behind in our programme I was certainly reluctant to send the machines to Logan if there was any alternative machine available. However, it appeared that either no other machine was available or that the alternative pilots would not fly that high in the choppers so I asked Derrick to pick up an oxygen set at "Divide" and go over to Logan on his return flights from the Centennial Range. On his first two flights he picked up the three men who certainly didn't look too bad on arrival at "Divide" but I later understood that they definitely did have pulmonary edema.

By early afternoon only two of the Mt. Prince Edward Island team were left, so, leaving them for Derrick to take in, Jim and I set off for the Fundy base with their last food load. We had been able to take virtually all of the food and equipment in on the racks with the personal gear, thus saving many slow baggage net runs. Dave had gone off with Lloyd Ryder and was to go to Burwash, pick up the main camp tents and make the necessary free drops at the camp site. I had also radioed down to Kluane to get Cam to send Bill and Gordon Harrison up the highway to "Maple."

After leaving the last load at Fundy, Jim and I crossed over to the Steele Valley passing close to Mt. Lucania and Mt. Steele. We descended over the lake where the gas drums were floating to see where they all were, picked up a few, which we left at the site of the camp, and headed off down to "Maple". We flew low over the Donjek River to locate the large gas cache and then up the Wade Creek canyon to check on the creek flow at the lower end; Cam, Craig and Kurt had only seen the upper end on their reconnaissance. We were somewhat surprised not to find Bill and Gordon there and carried on down the road. We found them just off the main highway stopped by Quill Creek which had become a raging torrent and taken the road out. We picked up Bill and headed back up to the Hudson Bay mine in Nickel Creek. Here we found the superintendent who was also the operator of the caterpillar tractor that was used to keep the road open. He went right off down to where Gordon was with some gear and we headed off for "Maple", more gas and the Steele Camp. When we got there we found that Lloyd and Dave had already made one visit dropping tents. There was a nice spongy area between the creek at the camp site and the side of the mountain and I had asked Lloyd to drop them here. The first lot had been dropped a bit too low but after frantic signalling I got them to make the next drops higher up the valley. Bill and I then stacked the tents in piles and as luck would have it one of the Army Hiller helicopters was there with a bit of time to spare. Furthermore, it was on floats, which were almost essential in the rather marshy drop zone. The pilot picked up the stacks of tents and shuttled them across the creek to a dry central location on the camp site. In four hours all the tents were dropped and stacked on the camp side of the creek. At the same time Jim and Derrick, who had joined him, were ferrying in gear from "Maple" where Art Schwartz was busy loading. They also brought in Gordon and the gear that he and Bill had brought up. It was very important to get things flown in in the right sequence so that we weren't kept waiting for anything and much attention was paid to this point, the article numbers and equipment inventories being invaluable. By evening Bill and Gordon had the kitchen tent set up and spent the first night at the camp.

Dave Vallance and Art Schwartz spent the night at Burwash while I returned to the Bayshore with Cam. Next morning some of the cooks and girls left with me for Burwash Airfield. Here we picked up Ian MacGregor, our. Steele Camp radio operator, who had flown up from Kluane with Lloyd Ryder in the Beaver together with a heater for the helicopter engines, which was to go into the camp. We got to the Quill Creek washout and found the caterpillar tractor still improving the road. Ian and I got into a truck from one of the mining companies and headed off up the road to "Maple". Here we found Dave and Art hard at work loading gear. Ian and I flew into camp with all our gear and the radio equipment and immediately got down to work with Bill and Gordon. At this time we had Dave Vallance and Hans Schwarz to help, while Art continued doing valuable work at "Maple". In very poor weather with much of the time spent in the rain we erected the two big dining tents, the recreation tent, the office tent and several other miscellaneous tents as well. The radio masts were put up and as soon as possible Ian made contact with Kluane. The radio set-up was excellent and the reception unbelievably good. We now had a good network tied into the Kluane base. Our reception with the Centennial Range bases, which had the smaller double-sideband radios, was not as good but nevertheless contact was made on many occasions and when we could not reach them we often got messages relayed from Kluane, who had been able to hear them. The radio at "Divide" was excellent also although they had trouble with the generator providing the power for it. Our radio was battery operated and we charged batteries on most days.

On Friday July 14th, fortunately after virtually all the gear had been brought into camp, Jim's machine again had a malfunction. This time it was faulty servo-systems on his controls,

making the machine very tiring to fly. While Peachey worked with Jim on his machine at Burwash, Derrick flew in the remaining gear and the first participants. Fortunately, Cliff Armstrong, who was flying another Bullock 3B1 helicopter, had some time to spare from another contract nearby and put in some time for us.

First thing on the morning of Saturday July 15th Jim came in from Burwash and took off for the "T-Bone" base in the Centennial Range. The Mt. British Columbia team had radioed that they needed to be moved over to the west side of their mountain, and Hans Gmoser had to be brought

Photo: Walter Wood

Looking down Steele Glacier from above "Drum Lake"
(foreground) towards Donjek Valley.

over from the Prairie base. Jim also went into the Fundy base on his way back and thus carried out a good check flight of all three bases. He then started flying in the passengers from "Maple". We had decided to fly them all the way from the end of the road at "Maple" but to put them out about four miles below the camp site and let them walk into camp rather than walk seven miles down the Wade Creek as advertised. Jim flew Derrick's machine and logged twelve hours actual flying and luckily Cliff was able to fly over nine hours for us that day also. On Sunday the 16th, Derrick flew his own machine again while Jim rested. Cliff and Bill Showalter from Trans-North Turbo Air together flew about seven hours to help us and Derrick did the longest day's flying we had on

the whole Expedition, amounting to over fourteen hours in the air. A few people were left behind at "Maple" for the night and picked up in the morning, having had food taken down to them on one of the return flights from camp.

Things then began to settle down a bit. On one of several trips to rescue gas drums from what became known as "Drum Lake", Dave Vallance took an inadvertent swim while trying to balance on our raft made from empty drums and the lumber remaining after the camp had been erected. Altogether we rescued 135 of these small twelve-gallon gas drums out of the 150 that Lloyd Ryder had placed there. We could see about five that were out in the middle and some must have been carried out of the lake, but most of them were around the edge.

The weather was unsettled to say the least, but on Wednesday July 19th we set up three high camps; the first was put in the trench between the head of the Steele and Spring Glaciers from which we hoped to climb Mt. Steele, the second on the Walsh Col for Mt. Walsh and the third at about 12,750 feet on the southeast ridge of Mt. Steele. The first of these was abandoned since it was found that the climb out of the trench onto the southeast ridge of Mt. Steele was steep and dangerous. A good camp was also established on the end of the ridge between the "A" and "B" glaciers which became known as the "B" glacier camp. This camp made some of the climbs much easier to reach.

For some time now we had been getting calls on the radio from the "T-Bone" boys who kept complaining that they didn't like the snow, the rock or the weather and that they were more than ready to come out. When we informed them that the two helicopters would be used by the Secretary of State the next day, July 20th, the reply came back "to hell with the Secretary of State, she's comfortable, we're not". We informed them that we would come for them on July 21st, a day earlier than planned, if the weather permitted.

On July 20th the Secretary of State, Judy LaMarsh, came in to pay us a visit together with her Parliamentary Private Secretary, her Executive Assistant and the Member for Northwest Territories, Yukon Eric being from the wrong party. Miss LaMarsh was given the tour around camp, had a turkey lunch and was then flown up to the top of a peak of nearly 10,000 feet before leaving for her trip back to Burwash.

We had set up Tuesdays and Fridays as the days to go down to "Maple" 'With the mail and to pick up the perishable food, and these days were also used to take out anyone who wanted to go out early. During this first week we got reports from the Centennial Range bases as to which peaks had been climbed, and these were posted by Ian with suitable comments.

I had decided to take both machines over for the ferry out from the Centennial Range so that the job could be done as fast as possible. This meant that only local climbing could be done from the Steele Camp until the Centennial Range climbers were out. I had always realized that this might be necessary unless we could shorten the helicopter run by flying further with the Beaver to "Divide West" which I had felt might be possible. This turned out to be impractical for several reasons, the chief one being that in the remote Centennial Range Jim and Derrick, had, quite understandably, expressed a desire to fly together. Jim had already been forced down once and Derrick had had to fly him out. Having decided to take both helicopters, it was felt inadvisable to place climbers in high camps where they could not be reached in an emergency without the use of a helicopter. Such an emergency arose later at the Walsh Col. If the machines got grounded at "Divide" for several days while the weather was good in the Steele Valley, we might not have been able to get hold of another pilot who was willing to fly to our high camps to rescue anyone. Certainly one of the other pilots in the area would not have been willing and the two Army helicopters had a ceiling of about

8500 feet. The weather conditions I feared did in fact materialize later in the Expedition. "Divide" was closed for nine days while the weather in the Steele Valley was excellent. This philosophy met with some opposition but since the problem was of a general logistical nature I felt it was in the best interest of the Expedition to make this decision, and I was pleased to find out later that several senior members present at the camp supported this theory.

On Saturday July 22nd the weather was slow clearing at "Divide" and we kept the radio on fairly continuously getting reports. Fortunately, the weather stayed fine at the "T-Bone" base from which we would start ferrying the climbers out. About mid-day Hans Gmoser and I took off for "Divide" with Derrick, and Jim flew directly to the "T-Bone" base down the Chitina Glacier. Hans was going to act as "gas boy" while also getting movies for the film. The ferry went well and by evening we had evacuated the "T-Bone" base and flown out the four members of the Mt. Alberta team and two of the Mt. Saskatchewan team. Two of the Mt. Alberta members spent until the 24th at "Divide" since the weather closed in down the Kaskawulsh and Lloyd was unable to fly them down having only just got out himself on the last run. We had fun and games trying to get back to the Steele Camp. We got back over the Walsh Col and as far as the head of the Steele Glacier but could not find any hole to go down through. After circling for a while we headed back for "Divide" and went down the south branch of the main Kaskawulsh Glacier. Jim coming over a short while later found a hole down onto the Spring Glacier, followed this down to the Donjek and, by flying with "in-ground-effect" all the way up the Steele Valley, got back to camp. The next day Derrick and Hans spent four hours sitting in cloud on the Kaskawulsh Glacier trying to get to "Divide" then returned to the Bayshore where they picked me up and headed back to the Steele Camp over the Burwash Uplands.

On July 24th we had a terrific day's flying moving six of the Prairie base climbers up to the foot of Mt. Lucania for a private trip and evacuating all the other Centennial Range climbers to Kluane by about 7:30 p.m. Thus ended the Centennial Range phase.

For a while we had had six helicopters going up and down the Steele Valley and a control tower was almost mandatory at times, but the army moved out and Cliff Armstrong went down to Dezadeash leaving the place more peaceful. During the next week Derrick's machine began developing a major oil leak which caused the oil to smoke on the supercharger. He had noticed the leak before we went over to the Centennial Range, but it was now much worse. On Wednesday July 26th Peachey would only certify the machine for a flight to Whitehorse for overhaul and they took off together leaving Jim to hold the fort.

The same Wednesday I planned to go up to the Walsh Col to climb Mt. Walsh with John Hunt and four other people. Peter Fuhrmann had climbed the mountain the day before and was waiting to come back down. Don Morrison with a party of six was also at the Col; he had attempted to climb the long southeast ridge of Mt. Steele but had been turned back by bad conditions. Towards the evening the weather got worse again and it was decided that we could not go to the Col. However, one member of Don's party had a hernia and we were just able to get Jo Kato up there to look at the sick man and to get him plus one other back down to the main camp, leaving eleven up there.

At the end of the week, on Friday July 28th, we learned by radio that the Alaska Highway had been washed out in about six places between Kluane and Burwash causing major disruptions in travel and communications. The phone lines from I.R.R.P. to the Bayshore were down, which meant we had no means, of contacting Cam and could only send messages to I.R.R.P. The phone lines were also down between Kluane and Whitehorse. Cam was at I.R.R.P. when we heard of the

problems and I asked him to try and get hold of Kurt Koken in Whitehorse and ask him to hold there for a day the people who were meant to come up for the second camp. They could not have got through to the Staging Camp if they had started. Cam got hold of a C.N. man with a mobile telephone and the message did get through. Kurt and Craig did a magnificent job of making all the arrangements to house this large number of people. Cam also tried to get all the C.P.A. air reservations put back a day.

We were able to find out the status on Derrick's machine in Whitehorse in spite of the phones being out. Derrick and Peachey had picked up Cliff Armstrong's service engineer from Dezadeash on their way down and he called Cliff at Dezadeash who in turn was able to contact I.R.R.P. by radio and they passed the reports on to us, also by radio. It appeared that Derrick would be ready to fly back again on Friday evening or Saturday morning.

On Saturday morning the eleven people were still at the Walsh Col. It was most important that John and Joy Hunt get out as soon as possible since they had a busy schedule of important engagements to keep, but I still only had the one helicopter to work with and we wanted to be ready to go after the people at Walsh Col as soon as the weather cleared. Since the weather still looked bad up the valley and the reports from the Col on the radio were not encouraging, I sent Jim off with the Hunts to the Bayshore in the late morning. The highway was still out between the Bayshore and Burwash but had been repaired south of the Bayshore. They were picked up there by Cam and driven down to Whitehorse just missing the plane because of an incorrect time on their tickets—most annoying for them.

I had asked Jim to intercept at the Bayshore the Friday perishables which we had not received because of the highway problems, and to bring these back on his return flight. Derrick then turned up there with Peachey so they both picked up food and mail off the truck which had just arrived, and then headed back to the camp. Shortly after they returned, we got more encouraging weather reports from Walsh Col and about 5:30 p.m. both helicopters went up to the Col to get the eleven people who had been there since Tuesday. Shortly after they were all down, the weather closed in again pointing up the need to take one's opportunities when they come. After supper six participants were ferried out to Burwash to take their chances on the highway.

On Sunday morning July 30th, the highway had been repaired and we started the ferry early since we had a backlog of people to change around. The day went well and about forty-four people were flown out and fifty flown in. Once again a few were left to fend for themselves at "Maple" for the night. Monday was a busy day again and the turn around was completed except for a few carry overs again.

On Wednesday August 2nd I went out to Burwash with Bill Showalter in the Trans-North Turbo Air helicopter since he had an empty seat and I wanted to go over several things with Cam. After supper at the Bayshore I got a call from Walter Wood from I.R.R.P. saying that Roly Reader, who was one of the six Centennial Range climbers who had gone off on a private party to Mt. Lucania, had been found with a broken leg. A party of four from our camp had been flown to the Walsh Col to climb Mt. Steele along the ridge attempted earlier by Don Morrison's party. Just to make sure that the Steele high camp was still there, Hans Schwarz had flown up there with Derrick. He found three of this private six-man (or rather four-man and two-woman) party there camped beside our camp. The three were Helmut Microys, Wendy Teichmann and Klaus Boerger. They had climbed over Mt. Steele from the southwest side. They informed Derrick that Roly had been down at their base camp below Mt. Lucania for eight days with a broken leg. Since Jim had flown them in there from the Centennial Range and Derrick didn't know where the base was located,

Helmut flew down with him to the camp. Helmut stayed there for the night with Stan Rosenbaum, and Derrick flew Roly and Andrea Rankin over the Steele high camp and down to the main camp where Dr. Cec Couves looked after Roly. Next morning Derrick flew Helmut and Stan back up to the Steele high camp site to join Wendy and Klaus for their ski trek to "Divide" and out down the Kaskawulsh while Jim flew into camp from Burwash to bring Roly and Andrea out.

Jim had further servo trouble and was awaiting spare parts at Burwash when Roly was found. I arranged to be at Burwash Lodge with Cam at the time Jim arrived so that we could all get Roly into the stationwagon together. After we had seen Roly and Andrea off safely to Whitehorse hospital with Cam, Jim and I flew back into camp.

On the weekend of August 5th and 6th, Craig and Kurt managed to get into the camp for the night. They had both done so much for us that it was a great pleasure to have them with us for the weekend. We had received many most enjoyable visits from Walter Wood, his charming companion and other members of the "Surge" camp located about a mile above our camp. It was so rewarding to see Walter, who had supported the whole project so enthusiastically for the last few years, mixing with all the people at the camp and enjoying their presence in this valley known so well by him for over thirty years. It was also good to have Phil Upton, the chief pilot from I.R.R.P., coming in to land on the little gravel strip just above camp now that it had dried out a bit.

In the last week we had fine weather and fine climbing, several ascents being made of the big peaks including the one and only ascent of Mt. Wood made from the camp. Many interesting stories could be told about the Expedition and the camps but space does not allow that I go into all these. In particular one remembers Jim Davies being referred to by the camp staff as the Stainless Steele Stud and Derrick as Romeo because of his registration letters RLE (Romeo-Lima-Echo). Peachey was just Peachey. He would work long hours, after we had all quit for the night, maintaining and checking the two helicopters so that they would be ready for us the next morning. Jim created quite a stir one day when he put two of the girls down right beside their privy in answer to a request. Many amusing radio conversations took place between Kluane and their stations on Logan and at "Divide". When we had nothing to say ourselves these were very entertaining, but sometimes we waited a long time just to get a weather report.

At the end of the second week of the second camp we made our plans to leave. The lumber and any spare food would be stacked and left for I.R.R.P. to use; it would cost us more to fly out than the salvage value and besides, the I.R.R.P. people could put the material to good use building a hut and for other purposes. We struck the high camp tents, having to go back for the Walsh Col ones since the weather had closed in too fast to get them down earlier when we had brought the people out.

Early on Saturday morning, August 12th, we started flying people out. The ferry went very smoothly and by about 5:00 p.m. the day's job was done. We started early again on the Sunday and by flying tents on the baggage racks at the same time as the people, we were able to get all the sleeping tents out that day. The only tents left standing on Sunday night were the office tent with the radio, the kitchen tent and three staff sleeping tents. On Monday we flew out the remaining tents, gear and propane bottles. We left behind a good pile of lumber, a miscellany of food, some empty gas drums which I.R.R.P. had asked for, and our last seven little drums of gas. We had eighty-four gallons left, which amounted to five hours flying time, so there was not much to spare. The weather had been very kind to us at the end of camp and all the tents were dry, making the packing up job quite easy. Wet tents would have cost us time and money because of the extra weight to be flown. I can only remember about two days when it was not possible to fly up or

down the Steele Valley because of bad weather. This fact, together with the fine climbing in the area made the choice of camp site a very wise one.

I was the last to leave the site and sat on the moraine for a long time waiting for Derrick to come back for me. He had decided to get Peachey to do an oil change before leaving Burwash. Derrick and I took off about 5:00 p.m. on the Monday evening and flew directly to the Bayshore with a heavy load of personal gear. Jim had made his last flight out to Burwash and then flown down to the Bayshore with Peachey. That night the whole staff had a little celebration of their own. I headed out to Whitehorse on the bus next morning, Tuesday August 15th, and home from there the next day with Dave Vallance. Cam and Harold packed up the gear at the Staging Camp and it was picked up by the truck on Tuesday afternoon. Cam drove down to Whitehorse on August 16th and headed back to Vancouver early on the 17th.

Thanks must go to many people for making the whole Expedition so successful but in particular I would like to pay tribute to Cam Ledingham, Kurt Koken, Bill Harrison and the pilots. We certainly had a first class staff working in Whitehorse, at Mile 1064 and at the main camp site and our pilots were superb. Certainly few others could have done the job they did with such skill and precision and we would not have got very far without them.

South Summit Of Mount Vancouver

("Good Neighbour Peak")

15,720 feet

By Monty Alford

Canadian Team: Monty Alford (leader), Les McDonald, Glen Boles, Dr. Alan Bruce-Robertson.
American Team: John (Vin) Hoeman (leader), Dan Davis, John (Jed) Williamson, George Denton.

To celebrate the joint centenary of the date of purchase of Alaska and the Confederation of Canada, the first phase of the Yukon Alpine Centennial Expedition involved the ascent of a Yukon-Alaska border peak by a party of four Americans and four Canadians.

The summit selected was the virgin South Peak of Mt. Vancouver located at Latitude 60°20'N, Longitude 139°41'W. As indicated, I am speaking of a large massif and like the Hubbard and Logan massifs it is a dominating feature of the grandiose St. Elias Mountains. Our particular giant supports three prominent peaks which may be referred to geographically as South, Central and North. The North Peak, the highest and true Mt. Vancouver, was first ascended in 1949 by a group of four approaching from the northwest. The elevation indicated on the 1:250,000 map sheet for Mt. Vancouver is 15,700 feet, both name and height being given, it is thought in cartographic error, to the South Peak. A recent Alaskan survey gives an elevation of 15,683 feet to the South Peak and from our observation we believe the North Peak to be approximately 150 feet higher. The Central Peak would, I feel, have an elevation somewhere between the values so indicated for the north and south summits.

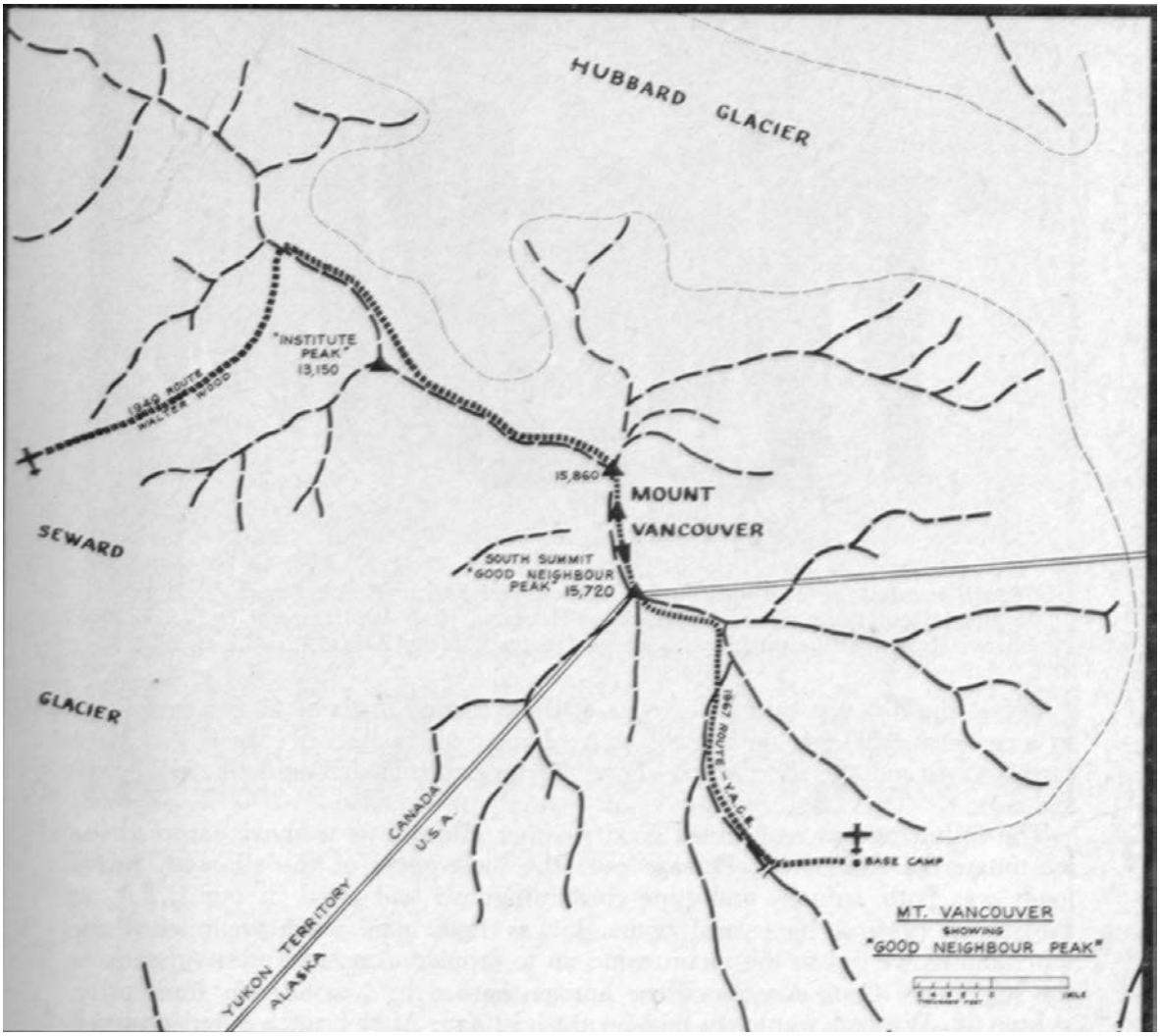
While the idea of co-leadership might raise the conventional eyebrow from the point of view of efficiency, practicability and organisation, the character of those involved served to eliminate any chance of discord or disadvantage. Vin not only sets a terrifying pace that few will wish to follow but obviously enjoys so much being in the fore. Secure to Vin by 60 feet of rope someone with the strength and ability of Les McDonald and hey presto! we had our recce rope. Alternating

the lead, the pair worked well. By nature one to tend to details, I felt responsible for the logistics, weather, radio communication with Kluane and rear rope. In this manner the co-leadership worked very well. Vin and I shared the larger (Black's Centennial) tent and with it the job of cooking for the duration of the expedition. All ate in our tent at which time we discussed the climb and listened with amusement to Les McDonald's never ending repertoire of stories. Our M.O., Alan, quickly qualified as the most useful man in the party, forever volunteering for all the menial tasks associated with expedition routine.

We climbed as two ropes of three and one of two. Rope relationships changed only slightly during the climb. Vin and Les or Les and Vin as lead rope of two, Dan, Jed and Glen as second rope, and myself, Alan and George as rope three. Partnerships resulted, as they often do, from a compatibility of pace and a coincidence of readiness to depart.

Our tentage consisted of the one 7x7 Black's Centennial and three Meades. All withstood the blows and inclement weather very well although most of us felt the Meades to be rather heavy for two-man tents.

On June 18th the two Arctic Institute of North America helio-couriers were joined by Phil Upton and Henry Brecher, deposited Vin, Alan, George and me on an unnamed glacier on the south side of Mt. Vancouver. The contour pattern defining this glacier on the map is indicated incorrectly,



giving a wrong impression of drainage; the map also neglects to show a ridge due east of camp. Bad weather followed, so that on the 19th Vin, Alan and I wended a route through the ice fall while George manned base radio. On June 20 we were joined by Glen, Dan, Les and Jed.

From our base camp at 7000 feet we could see most of the route. The right road to the South Peak was obvious, would we have the signals in our favour. The route was not an unusual one: ice fall guarding upper basin, bergschrund and the low col which gave access to a ridge of badly shattered rock that is so typical of the St. Elias. The rock rib terminated at the toe of an ice tongue which formed a convenient ramp leading to the large snow-ice apron that covers a large part of the southeast face. Ascending this could readily gain the southeast buttress which led directly to the summit ridge.

Before the day was over, two ropes of three carried loads of 60 lbs. from base to a cache at 9200 feet on the col. A fixed rope was placed in position to assist carries to ascend the short pitch above the bergschrund and immediately below the col.

The following day, continued good weather allowed us to move camp to the ice tongue at 10,300 feet. Passage over the loose rocks of the rib with heavy loads was both arduous and time consuming; we had erred in our E.T.A. at the site of camp 1 by several hours. It was 11:00 p.m. when we pitched the tents and as we did so the moon came up to provide a most impressive scene to the south. Mt. Cook dominated the horizon bathed in a wondrous luminosity.

Photo: Monty Alford

South summit of Mt. Vancouver ("Good Neighbour Peak") team.

Left to right: Glen Boles, Dan Davis, Vin Hoeman, Jed Williamson, Dr. Alan Bruce-Robertson (crouching), George Denton, Monty Alford, Les McDonald.

June 22. We had wantonly laid-in until 10 a.m. After brunch seven returned to the 9200-foot cache to bring up the remaining food and gas. More familiar with the rib, we made the round trip in 3 hours. After supper Vin and Les went off light to lay-in a route to camp 2. The remainder of the party followed at 11:00 p.m. with loads to cache on a shelf 1000 feet above camp 1.

June 23. Moved camp to 12,000 feet to establish camp 2 in a snow filled crevasse. Vin and Les marked route above while remainder of party returned to cache at 11,300 feet to bring up all supplies. We had secured three fixed ropes between the two camps. Climbing in the evening, as we were, the St. Elias scene was spectacular. The clarity of the mountain silhouette presented an atmosphere that was almost unreal—like a picture on which the artist has drawn foreground and background with equal definition.

The skies remained cloud free and the constant thought was, could it pos¬sibly hold long enough to enable us to complete our assault?

We had reason for concern the following day as strong south winds came up quite suddenly. We vacated camp 2 and established 3 at 14,000 feet in one of the few level areas that are created by snowfilled breaks in the apron surface.

As we climbed that day, one more fixed rope, the visibility decreased until white-out conditions prevailed. The wind had changed to southwest and had increased in strength. That night it stormed with an inch or so of fresh snow, and heavy drifting at the camp.

June 25. As the day grew older so the weather cleared. By 10:30 a.m. the last rope left for the crest of the southeast buttress and reached the South Peak by 2:00 p.m. The summit ridge was in excellent condition with firm snow. Blanketing the great glaciers which surround the Mt. Vancouver massif from view was a layer of cloud; an undercast at 10,000 feet.

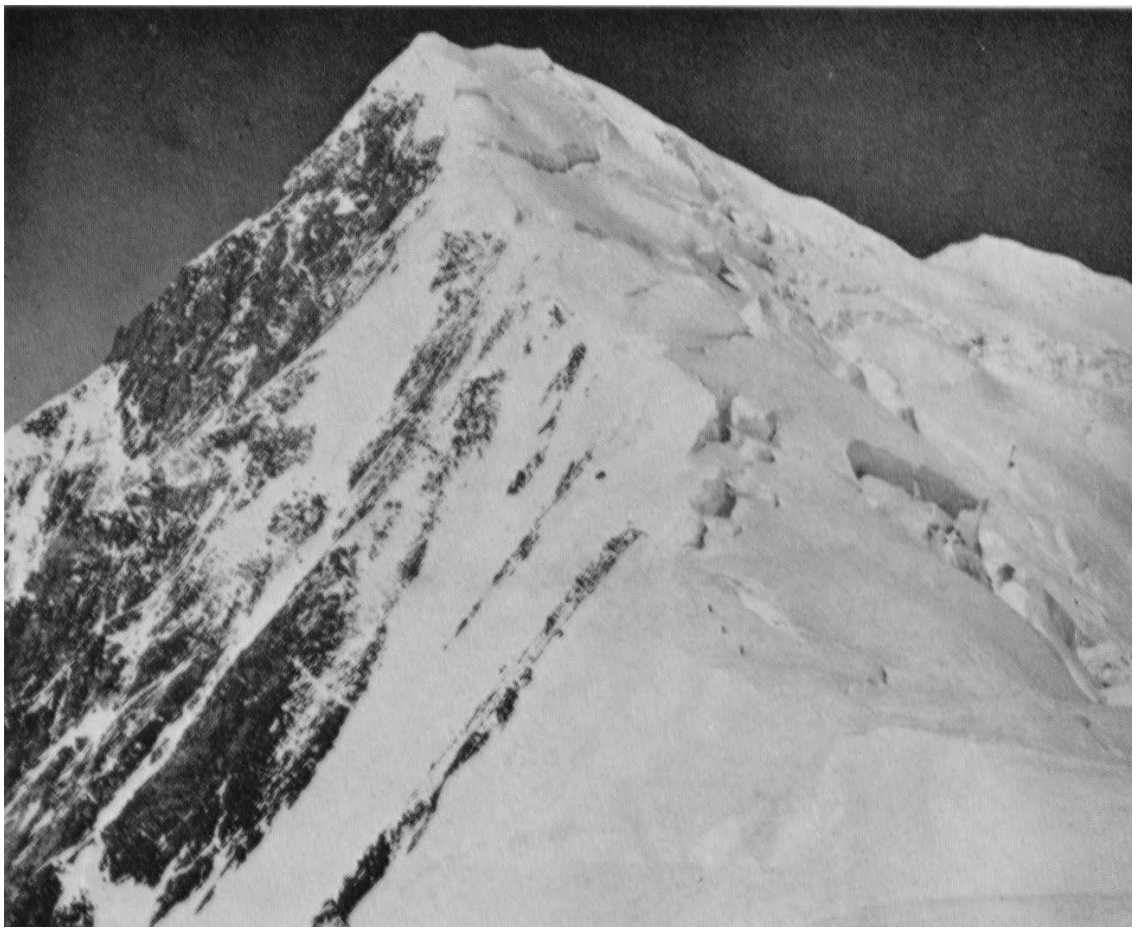


Photo: Monty Alford

South summit of Mt. Vancouver ("Good Neighbour Peak") from southeast buttress.

This gave the scene a particular enchantment. One felt so completely isolated. With other massifs made to look like islands as they penetrated the sun drenched canopy, the scene was breathtaking. Such a picture is not perhaps novel to the mountaineer but familiarity does in no way lessen the impact on the soul. One cannot help but feel extreme humility; so finite a form in such an infinite setting. The temperature on the summit was 9°F and the wind from the south at 5-10 knots.

Our cameras recorded the planting of the flags of the United States, Canada, Alaska and the Canadian Centennial.

Five of the party traversed to the Central Peak and four to the North Peak.

The fairly rapid ascent of "Good Neighbour Peak" had however imposed a toll. Several of the party complained of headaches and hard breathing and one member suffered the early effects of pulmonary edema.

It would be most negligent to omit that we were all most receptive to the administrations, medications and reassurance provided by Alan. Speaking of Alan it was most unfortunate that the cloud layer had prevented our viewing the Seward, the Hubbard and other glaciers since such a scene had been hidden from view in 1949 when Alan had been a member of the party to make the first ascent of the North Peak. A third trip Alan?

The return from the summit was made in increasingly bad weather, as if the elements had thought they had done their bit for Centennial. Of the four to traverse to the North Peak, Vin, Les, Dan and George Denton, the latter two, returning late, experienced the teeth of the gale. The storm continued through the night with winds estimated at 40 knots.

The blow kept us tentbound through the 26th. Drifts attempted to cover the tents and all had their turn at digging. Thinking that the storm could last for several days and that our wands would soon be buried, we broke camp. Our action was premature since a few rope lengths from the site we realised that it would be unwise to descend in such conditions. The blizzard continued through the second night and Alan and George were forced to repitch their Meade at 1:00 a.m. By 5:00 a.m. the visibility had improved a little so that we packed to depart at 7:00 a.m. The party descended, knee deep in fresh snow. Several stepped into small crevasses. The visibility remained marginal and we were quite content to hold for the night at camp 1.

June 29 showed little improvement so that it was a tedious traverse across the rock rib now covered by a thin film of wet snow. Once over the 'schrund we collected our snowshoes and in near white-out conditions made our way through the crevassed zone to the marker and flag indicating the base cache.

Our supper that night was a memorable one: double rations of the main course accompanied by Vin Rose, pudding flavoured with overproof rum and rum-spiced tea.

As if to remind us that she had been really quite lenient, St. Elias weather remained sour for the next day or so. At least in those parts of the Icefield Ranges that would prevent aerial pick-up.

June 30. We stamped out an airstrip and gave a long overdue course in tea making to Vin. I think we were all quite amused by the strange whoop that emanated from Vin to announce food ready. It reminded me of the berthing of an ocean liner with Vin's call resembling the hoot of the tugs.

July 1 was a fine day at our location, but we learned on the radio that it was poor at Kluane. July 2 was a day of snowfall. Vin and I made a rather serious blunder in the culinary field by mistaking powdered potato for powdered milk and using this to make hot chocolate. The result

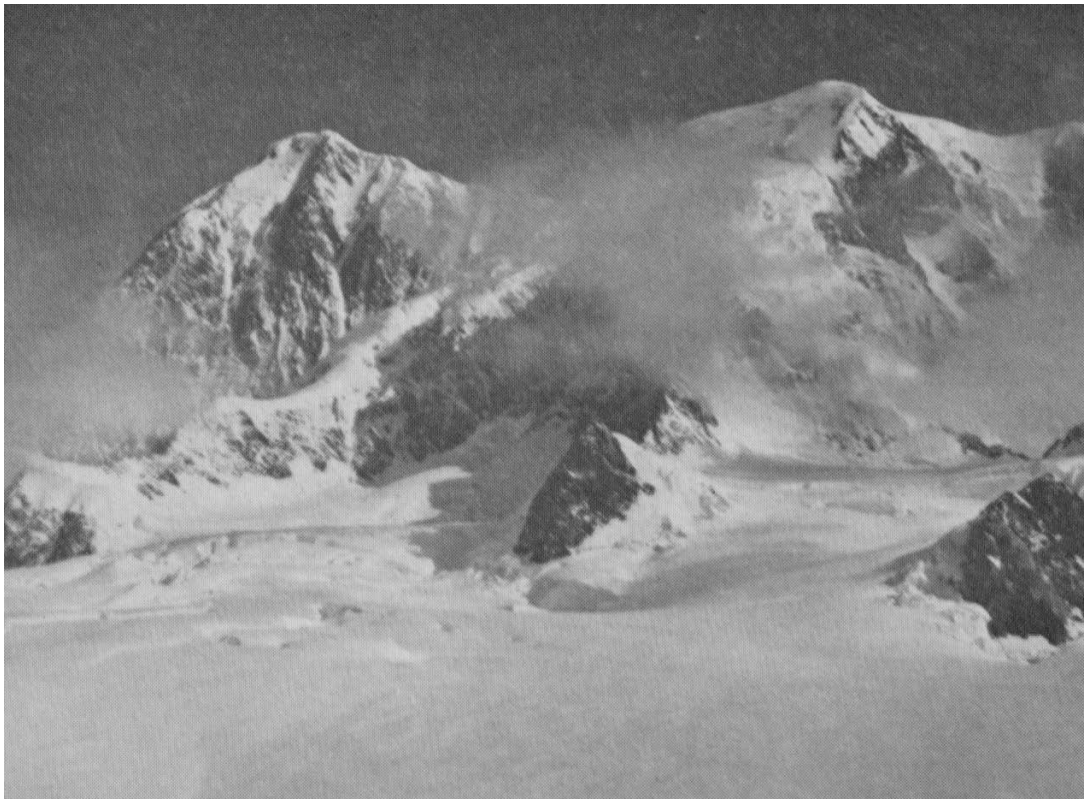


Photo: Glen Boles

South summit of Mt. Vancouver ("Good Neighbour Peak")
looking from base camp to the southwest of the mountain.

Photo: Glen Boles

The fixed ropes at the icewall above Camp 1.

was nevertheless consumed by all with a decorum befitting the best in alpine tradition.

July 3 promised little change at first but a northwest wind brought continued clearing and at 10:55 a.m. Lloyd Ryder arrived in the Expedition's Beaver. After a false run which nearly became a crevasse rescue Vin, Les and Dan were off to Kluane at 11:40 a.m. A second flight took out George, Glen and Jed and the last, Alan and I, touched down at Kluane at 5:00 p.m.

While the ascent of "Good Neighbour Peak" was not a technically difficult one, I think that we had all enjoyed participating in the Yukon Alpine Centennial Expedition. It would be an incomplete chronicle that omitted to mention a few of the many people who worked, behind the scenes, to make our adventure a successful one. Don Lyon did a grand job organising our gear and food supplies and Dave Fisher must be congratulated by all for his efforts in the planning of all the YACE climbs. As we had carried a radio with us to camp 3 and had maintained excellent contact with the Arctic Institute camp at Kluane thanks must go to those who maintained radio watch. The accompanying table gives a weather log during stays at base camp and during the climb.

Weather Log — Ascent of South summit of Mt. Vancouver ("Good Neighbour Peak"), 1967

Date	Location	Time	Spot Temp. F.	Overnight Min F.	Wind	General
June 18	Base Camp	23:30	32		Calm	
19	Base Camp	07:30	38	30	E 7	CAVU 8,000-9,000 Scattered
19	Base Camp	16:00	42		NNE 7	
20	Base Camp	09:00	42		NNE 10	Vis 15-20 to S. Rain 18:00 -21:00
21	Base Camp	08:45		38	Calm	Ovcst till noon. Clrd
22	Camp 1	07:30		27	Calm	CAVU
23	Camp 1	07:30		28	Calm	CAVU
24	Camp 2	07:30		21	SW 15	Whiteout 16:00
25	Summit	12:00	9	10	S 5-10	
25	Camp 3	18:00			S 26 Gust 40	
26	Camp 3			9.5	S 30-40	Some snowfall
27	Camp 3			5	SW ?	Blowing hard, whiteout
28	Camp 3			2	SW	Snowfall Vis. poor
29	Camp 1			2	Calm	Ovcst most of day, brkg to 9,500
30	Base Camp			21	Calm	
July 1	Base Camp			19	S light	CAVU till noon only
2	Base Camp			26	S light	Snowing all day
3	Base Camp			21	NW light	Ovcst, clearing by 10:00 to CAVU

Photo: Glen Boles

Among the seracs above Camp I.

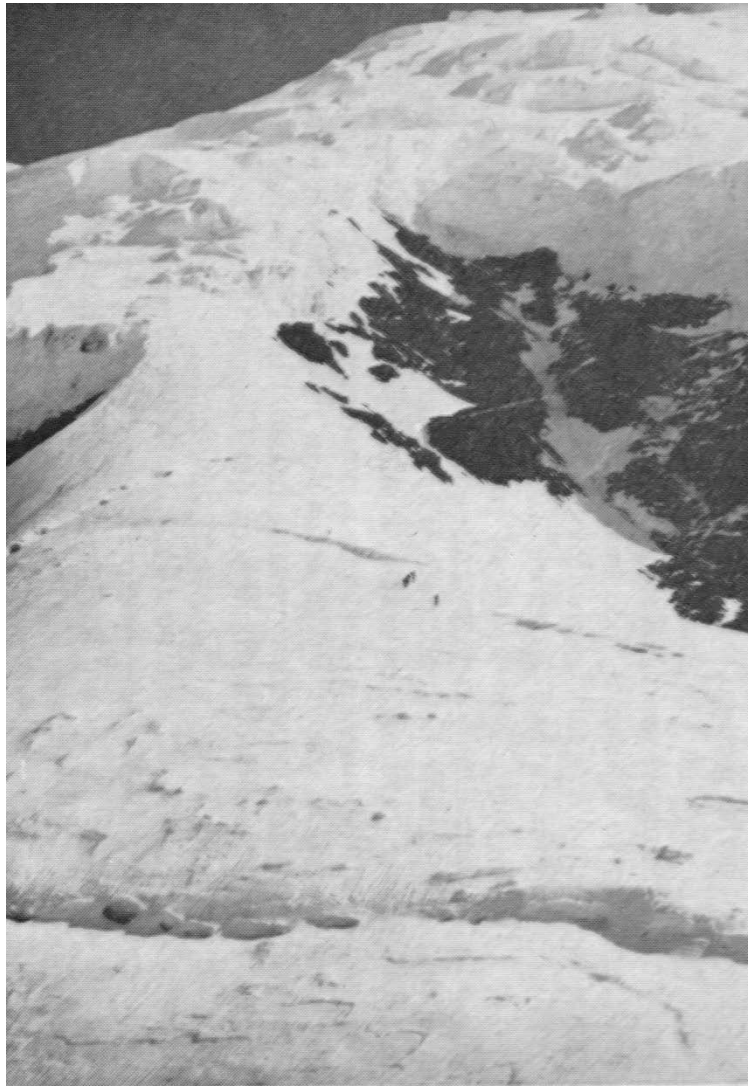


Photo: Glen Boles

The slopes above Camp I.

Centennial Peak

12,321 Feet

By Fips Broda

Team: Waldemar Fips Broda (leader), Klaus Boerger, Stanley Rosenbaum, Jean-Robert (Howsie) Weber

July 15th was a beautiful clear day; only the upper reaches of the surrounding peaks were shrouded in fast moving clouds.

A wet and frustrating week lay behind us and now we had established our new basecamp. It took almost 8 hours to reach the headwall of this subsidiary glacier from our old Prairie camp, but worth the effort, since the distance to our peak was somewhat shortened. Hans Gmoser, who at this time was still with us, ready to film the story of the ascent of Centennial Peak, was also quite disappointed when Jim Davies with his helicopter suddenly arrived.

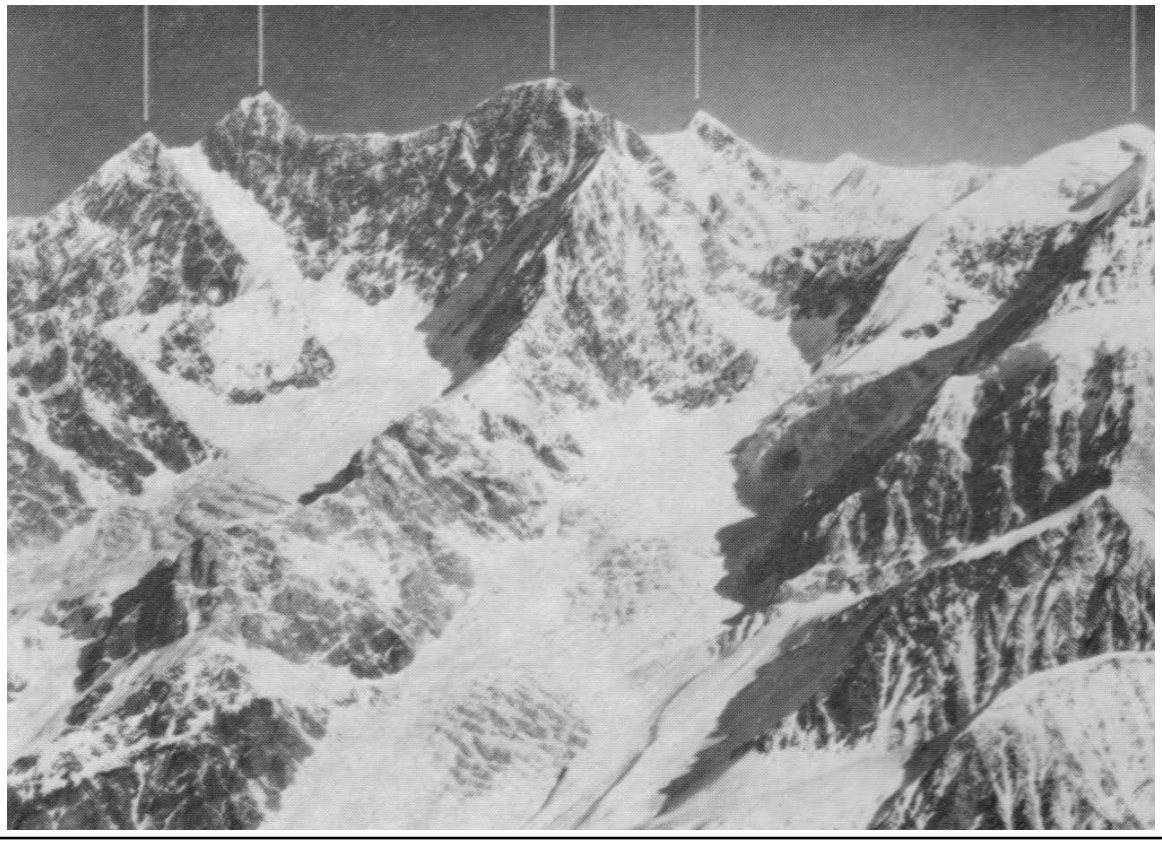


Photo: Walter Wood

Summit and south outlier of Centennial Peak in relation to other peaks

Stan Rosenbaum and I went for a quick look and see tour, while Hans got his gear ready to move on to the Steele Glacier camp.

Our advance basecamp lay just at the bottom of a steep S-shaped couloir. On our previous try, due to very bad weather and snow conditions we had not been able to climb the couloir in its entirety and were therefore happy to have an opportunity, on a quick flight, to see what lay ahead of us. From the air the couloir looked steep enough, but passable; so was the immediate slope to the east of the col, down to the Centennial Glacier. Far too fast to really grasp and evaluate, Centennial Glacier passed underneath us with its final steep slope to the Centennial Col. Three prominent crevasse systems and icefalls were noted by both of us, but unfortunately the aforementioned clouds shrouded the summit pyramid and only the lower part of the southwest ridge showed its jagged rock outcroppings along the skyline. Back at camp once more the peaceful silence surrounded us and gave us an opportunity to discuss our impressions with Weber and Boerger. I felt quite happy and more at ease after this 'scout' trip and therefore conveyed my great hopes on the various possibilities to my climbing companions. Plans were made to leave early next morning for an attempt on our peak, since there was hope the good weather might stay with us. During the first week of our expedition we had experienced very bad weather and rotten snow conditions. Little was accomplished and nothing could be done about it. Our great worry was that time was passing quite rapidly now.

After a good night's rest we got up early and started out on frozen snow, to all our delight. Our packs contained food provisions for 2 days, as well as bivouac gear, just in case of getting benighted. Our crampons gripped firmly into the steep frozen snow slopes of the couloir. After 3 hours of steady climbing we reached our previous little food cache, just under the ice gully, the steepset part of the couloir. After a short rest, I led on, first an iced-in traverse to the right which gave access to the funnel of the chimney-like ice gully formed at one side of sheer rock walls and the other of the hanging glacier wall, bulging over from the actual col above.

A tiny orange spot below us and a faint line indicated our tent and route to the base of the couloir. Two exposed leads, including the use of several ice-screws, enabled me to reach the top of a little shoulder and a decent belay stance. Another three leads over very steep snow and we all stood, after 6 hours hard work, on our No. 1 col, 1640 feet above camp. At first hardly noticeable to us, it started to cloud in as we made a short rest. We now realized that the sky was completely clouded. A steep and a very soft snowslope down to the Centennial Glacier took a lot of careful belaying. It started to snow and as fog rolled in over the glacier visibility became quite poor in a short time. Nevertheless we wanted to press on. Breaking trail in the extremely soft snow, crevasses partly hidden around us, slowed our progress considerably so frequent leading changes were essential.

The first icefall was negotiated under very poor conditions, it became worse by the hour. Since there was just a little more visibility to the left rather than on the glacier itself, I found a passable traverse onto a snow band in the steep flank of the mountainside, reaching diagonally up to the rockridge above us. It proved again very miserable going. Soft snow on top of water ice. Every 60 feet or so, for safety reasons, icescrews were set. By about 10 p.m. I finally reached the first rocks of the ridge. A small and quite exposed ledge was finally cleared of loose snow and rock which gave just barely enough room for the 4 of us to call it a bivouac place. Wet snow fell heavily during the night. A cold wind started to blow and our aluminum foil rescue blankets, which acted as shelter, had to be held firmly in place. It was a cold and miserable night, little was said, and not too much sleep was had. The rest after the first tiring day was marvellous, since we had been going

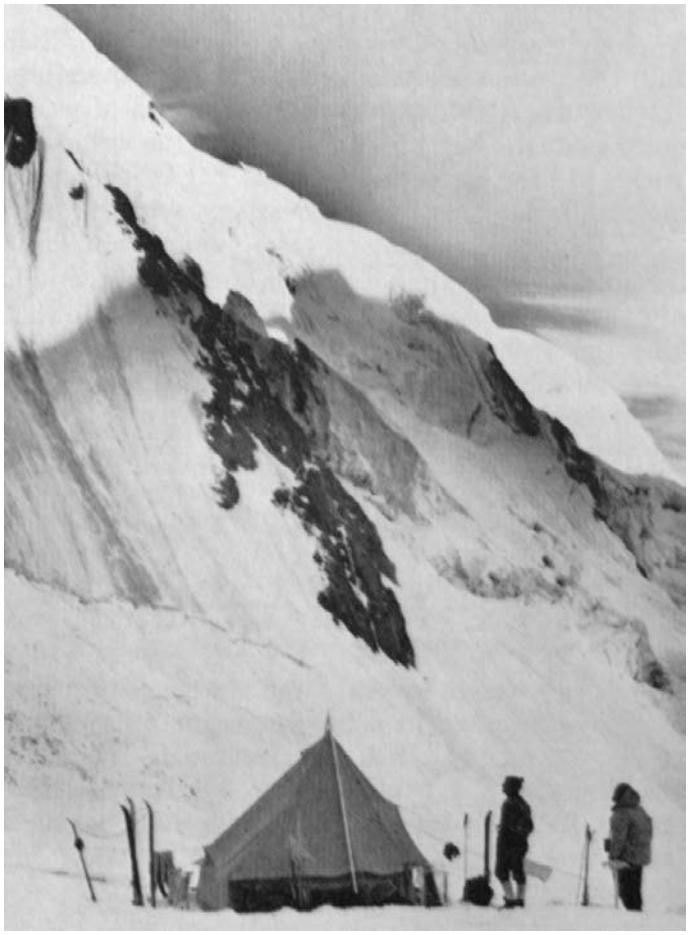


Photo: Fips Broda

Advance base camp (east of "Prairie Camp") for Centennial Peak.

quite steadily for many hours.

A break in the weather gave courage for a new start at 4 a.m. Slowly our weary and stiff limbs got accustomed to movement again. Mt. Logan was now visible in part of its might; a layer cake cloud cover gave a spectacular peek-a-boo view of the upper portion of this mountain giant, golden with the first glow of the morning sun.

Quickly our safety ropes and pitons which belayed us during the night were taken off and after some chocolate bars for breakfast, I started out right above us onto the snow-covered and exposed rock ridge. After 3 leads, a traverse over a thin ice slab led out into the snow slope of the ridge again. Hoping to reach once more Centennial Glacier on a traverse, a huge bergschrund with a most unstable bridge foiled this attempt. After assessing our situation, the steep snow slope to the left ridge above us seemed feasible. The direct fall line proved the best in the new snow. Ice axe belays had to do as only one rock piton was persuaded to stay in at a short traverse before the final very steep pitch.

Extremely carefully I had to almost tunnel my final 20 feet up onto the knife edge snow ridge, more or less level at this spot. At about 1 p.m. after 9 hours steady climbing, we were once more all together, huddled on this very exposed ridge. A few nuts and some chocolate was our lunch. This ridge seemed to be leading toward the south peak of our mountain, but a rather large double cornice was blocking our view. To my disgust and surprise I could see approximately 300

Centennial Peak (centre). Icefall in foreground is off Mt. Ontario.

feet of an extremely serrated knife-edge snowridge, corniced every so often. In my opinion it was not worth risking, since the only chance from there on was an exposed band, diagonally leading into the east flank of the south peak at the junction of Centennial Glacier.

Fog started to roll in over the glacier and the top cloud cover came down over our peak and Mt. Quebec. Our only solution was retreat. Rappelling the snow face down the way we had come proved quite slow, since great precautions had to be taken. We finally managed to rappel at one point over the bergschrund and reached the glacier level just in time for a whiteout. The going was now extremely slow and visibility so poor that at one point we had to wait 2 hours to get a few bearings to carry on through the unpredictable icefall. One spectacular iceblock bridge separating a huge gaping hole to one side, and an icicle-hung overhang of an icetower on the other side, proved the only passage (nothing short of excitement) toward our tracks of the day before.

Instead of going all the way down to the foot of the slope of "Strip Col" we traversed a new route in order to gain a point on the ridge, just above the col. The rock was extremely rotten and a piton was set for another rappel. By now it had begun to snow and loose rock made the rappel very unpleasant. One more traverse on snow to the south led out to the col. Since we were extremely tired. We decided to rappel all the way down the couloir for safety reasons. Klaus did a fine job in setting up the icescrew rappels, 11 in all. It almost rained when we reached the bergschrund which was crossed in a gliding position. Unfortunately a mistake in finding the right route to the tent proved very time consuming. Again a complete whiteout gave no alternative but to retrace our steps back to the bergschrund. By a new try, boldly holding a straight line into the fog, I finally found our tent in 7 minutes. Dehydrated as we were my bottle of Portuguese Rose never tasted any better, and a few minutes after our arrival at 3 a.m. July 18, we fell into a sound and well earned sleep. All in all, we had been 44 hours on the go, with a 4-hour bivouac interval.

The latter part of the afternoon was put to better use than sleeping. Since our food supplies had dwindled down quite rapidly, we decided to fetch some more ration boxes. Howsie and Stan were to bring the rest of the food cache at the 7000-foot level back up, while Klaus and I chose to walk down to Prairie camp for more supplies, news, hardware, etc. By about 1 a.m. on July 19, we

arrived back at our basecamp.

We found a cosy, warm tent with an ingeniously made spider-web-like drying net, constructed by our two scientists Howsie and Stan. The next three days passed quite uneventfully. Snowstorms and sometimes rain changed the landscape considerably and the almost continuous roar of rock slides and avalanches cascading down the mountains around us made up for the otherwise missing entertainment. Time had to be spent in the damp sleeping bag by reading, writing and eating. Finally on July 22nd there was a visible tendency for the weather to break. It was quite warm during the day, actually too warm to start out into the avalanche filled couloir.

We decided to leave for our final attempt on our mountain toward the evening, hoping that it might be a little colder by then. Well equipped and much wiser by now to be prepared for bivouacs and better food, we finally left our tent at 8:15 p.m. This we all knew would be our final chance. Time on the expedition was really running out. As we approached the bergschrund, now partially filled by avalanches, to start up into the couloir, Jim Davies arrived suddenly in his helicopter to pass on an urgent message to Klaus. Quickly we discussed a possible airlift with Jim up and preferably over the col to Centennial Glacier. Jim was willing, but could only land us on top of the "Strip Col", as fog was already rolling in on the lower part of Centennial Glacier. Nevertheless it saved us 6 hours of steady climbing of a part we had already done twice before.

We could barely make out some of our previous footprints down the slope, most flags were snowed in, and once more the going was tiring, breaking in at times up to our hips. The first icefall was successfully navigated and a new route now visible to the right passed quite close by the actual flanks of Centennial and Quebec. It meant circumnavigating some nasty crevasses in the second icefall.

Again it began to snow lightly and after a passage through some seracs and a final pitch over a bulging iceshoulder I found a way to a little cirque with an ice and snow head wall, a most welcome windshelter. A small crevasse with an overhanging shoulder was quickly prepared in snow-cave fashion as our bivouac; it is now midnight, the darkest time of the day. The aluminum rescue blankets formed our tent-like roof, ropes were spread over the seat and soon the primus was humming. We put on all our spare clothing, quite a task in this confined space; it was snowing very heavily by now. And it kept snowing almost all night. Seven long hours were spent half dozing, crouched under our blankets. Finally it was time to move on. Our last gas supply was used up for a morning drink, and enough fluid to fill our bottles for the climb. We got up at 7 a.m. and moved on by 8 a.m. It had stopped snowing and visibility improved so much that we had little difficulty in finding our way through the third icefall. We changed leads frequently in the deep snow to save strength.

By 10 a.m. we finally broke through the fog cover into brilliant sunshine. To our right a most impressive overhanging icecliff with glittering long icicles formed a screen to an icecave behind. A flat little area below was a welcomed rest place. We had a chance to rearrange our gear and to investigate our way up to the col. The steep snow slopes proved just a little longer than estimated and it was 1 p.m. when we finally reached Centennial Col, with a breathtaking view over to the west side. Mounts Saskatchewan, Manitoba, Ontario and the greatly crevassed glaciers leading towards these peaks, lay far below us. We had lunch, cached most of our things not needed and started off by cutting a path toward the acutal rockridge.

In parts the almost horizontal section was double corniced and greatest caution on my part was necessary. After ll/2 hours of snow tunnelling, ice cutting and the preparation of a trail to make a safe return route, I finally reached the rocks for a safety belay to bring up the party one by one.

The actual climb began with steep and rotten rock partly covered by powder snow above us. The exposure was also great; it took all my finesse and technical ability to get over the first vertical pitch. I had to climb free, since pitons would not hold in the rotten rock. This pitch was followed by a shallow gully with hardly a hold in it. Two more leads, and all 4 were roped together on 2 ropes. This brought me to the foot of a snow and ice chute ending with a short but very exposed rock chimney.[1]

At the end of it was a wedged rock blocking the way through. As I tried to place a rock piton, the whole block started to split through the middle, and only by sheer luck was I able to pull out the piton without dislodging any parts of the rock. Howsie was directly below me, and some very anxious moments passed until I could get to the outside of the chimney and climb over the block without any further belay. A short traverse to the left and once more I had a safe stance to bring up the party.

Photo: Fips Broda

The last bergschrund.

The view was just magnificent and we all enjoyed the climb and the companionship of each other. One more rope length, and an unpleasant traverse to the right, at the head of the gully, and a half decent rock on a little subsidiary ridge was under foot. A few more moves, a sharp little

1 For an example of this type of climbing, see the Frontispiece.

cornice, and the first major obstacle, the main gendarme, was reached. It was 9:30 p.m. Snow, rock and ice were all very poor, and the exposure generally great. Again the southwest ridge upwards was very serrated, steep and double corniced. Only the view is magnificent and Mt. Logan looked really what it is: A giant of a beautiful mountain. Instead of climbing the ridge we now traversed out to the south flank onto steep snow on ice.

We got up in the fall line, steps having to be kicked and icescrews placed every 80 to 100 feet. Although the going seemed a little easier the exposure was quite formidable. The slope inclined about 50 to 60 degrees. Rope length after rope length I had to kick steps and only slowly were we gaining altitude. A prominent rounded boulder type rock seemed the obvious assembly place for the whole party, the only safe spot in this steep south flank. By now it was midnight. It became quite dark, and a cold wind had sprung up. We debated our situation and estimated the approximate time ahead of us to reach the peak. We pulled all our down jackets on. Stan and Klaus passed the retrieved icescrews and pitons to me, and after a short break we were once more on our way. Now I had to traverse in order to avoid steep rock above, and take the fall line of another flat gully.

Most of the time now the ice under the snow was too thin to support an icescrew properly. Once in a while I broke through to the rock underneath, but all efforts to place rock pitons were foiled, due to the unbelievable rotten rock conditions. Most of the climbing therefore was free and unbelayed. A strong wind carried ice particles which in turn hit my face and it was almost a battle under blizzard conditions. The boys below me suffered still more. Due to the very poor visibility they had a hard time to guard themselves against falling rock and ice. I was always conscious of our return and tried to prepare the route to my best ability. Finally the moon came up and it was a glorious night. Quite eerie though, and even close distances were hard to estimate. By about 2 a.m. July 24th I had reached the end of the gully and a vertical rock out-crop about 15 feet high proved to be quite an obstacle. I brought Klaus up on a piton belay, and he in turn had Howsie coming up. Some rather thin handholds to the inside corner of the rock permitted finally a lower traverse. A small crack led to a step up over the bulge onto a snow shoulder to the left of the rock.

A fierce wind was hitting me with full force and only by crouching could I circumnavigate this point. I little realized at the time that I was actually moving on the outside corner of a huge cornice somehow attached to this rock out-crop. Below me about 2800 feet was the cascading, and almost vertical W.N.W. face of Centennial Peak. A short traverse to the right and once more I was above the rock and the rest of the party. From here on the ridge started to lean a little back, mostly snow covered rock, with cornices either way. I quickly explained the situation ahead to the party, and went on again towards the peak.

About 60 more feet on this ridge and I reached the partly snow covered rocks of the southwest peak. To my half right, E.N.E., a light drop off toward a serrated and corniced snow ridge led on to the central peak, which from my vantage point seemed somewhat higher in appearance but this was hard to estimate in the half-light.

It was 2:30 a.m. and light conditions were still quite poor, the cold and the wind were fierce. After some soul-searching I retreated down to the top of the last rock out-crop in order to convey what I had found. Since all of us were extremely tired and it would have taken about another 30 minutes to bring the entire party up, we decided that the team effort was undeniably great enough to claim the peak reached by all, even though we were half a rope length apart. The central summit mentioned before, remained unclimbed. It was now 27 hours that we had been climbing steadily and all our strength started to dwindle. Klaus felt quite sick and we were all on the verge of falling

asleep. Howsie, Klaus and I were also bothered by totally frozen boots and extremely cold feet.

My little spare gold line proved, at this point, very useful and a rock nose on top of the bluff provided the ideal rappel anchor. With great caution we rappelled off the peak, realizing that one wrong move could be fatal to the whole party. It was 6:45 a.m. when we reached with great relief Centennial Col. Mt. Logan and all surrounding mountains looked just great, with the morning sun well advanced.

We left at 7:15, again setting a handline for safety down the very steep, long slope. Our aluminum rappel picket was lost at one point high up on the ridge, so parts of the wooden marker sticks were used to substitute as an anchor. Only Howsie managed a spectacular head first glissade, when suddenly under his weight the wood stick broke. Stan and Klaus directly below in the fall line were able to stop him just in time, ahead of a gaping crevasse. As the steepest of the terrain eased off we now started to kick our steps down through the third icefall.

Just as we reached a shoulder to have a look down over the rest of Centennial Glacier, a small black speck above the ice became rapidly larger and soon the unmistakable noise of a helicopter engine bounced off the mountain flanks around us. Jim Davies never looked better to four mountaineers. One at a time Jim ferried us down to the top of Strip Col first, and from there on again two and two down to our tent. Howsie's magic produced at once an open champagne bottle, foaming vigorously at this altitude. What a delightful way to soothe our parched and dehydrated throats! We were all elated about this sudden and effortless finish after the constant strain on body and mind while climbing up and down, hour after tiring hour.

Howsie and I broke camp, while Stan and Klaus were ferried back to Prairie Glacier. A quick change over at "Divide" into the waiting Beaver and soon the sensation of flying in this immense mountain country engulfed us for the last time. After some 56 hours of climbing and flying we could finally bed down at Kluane Staging Camp, getting the chance for a long overdue rest and sleep.

Mount Alberta

10,983 feet

By Wayne Smith

Team: Wayne Smith (leader), Philip Dowling, Dr. Gerald Wright, Klaus Hahn.

The Mt. Alberta team was scheduled to arrive at the staging camp at Kluane Lake on July 7 along with five other teams. Paddy Sherman and I were assigned to fly immediately after the T-Bone Glacier teams had been flown into their base camp so that we could establish a suitable base camp on the Prairie Glacier. On the day we were to fly, the fixed-wing flight from Kluane Lake to Divide Camp was working well but the helicopters were experiencing difficulties. By the time Paddy and I were flown to Prairie Glacier it was getting late and the weather was deteriorating. The site where one of the helicopters had a broken supercharger repaired turned out to be the best

Photo: Klaus Hahn

Mt. Alberta team.

Left to right: Wayne Smith, Philip Dowling, Klaus Hahn, Dr. Gerald Wright.

Photo: Jim Tarrant

Mt. Alberta

site. It was a flat moraine broad enough to accommodate the five teams assigned to the Prairie Glacier.

On the following day a reconnaissance trip was organized to find the best approach to Mt. Alberta. From a view point on some slopes at the base of Mt. Manitoba a rough route was mapped. As we were to find out later the parts we thought would be difficult were reasonable and the parts which we thought looked easy were difficult. We returned to base camp full of confidence that we would polish off Mt. Alberta in short order the next day.

On Monday July 10, our first attempt on Mt. Alberta proved a little more difficult than we had anticipated. After 13 exhausting hours of steep snow and ice climbing we were turned back by a 30-foot vertical ice wall on the summit ridge. This blocked our access to the summit just 200 feet higher. Since we had no food and our feet were wet we did not cherish the thought of a bivouac. Despite our tiredness, we forced ourselves back to base camp. We tried to forget that we had to go through all that torture again in order to reach the summit. It was estimated that we had been using our crampons for 10 of the total 21 hours. Such maltreatment of our feet caused sore toes and in my case a numb right foot which never regained feeling for the duration of the camp. Our second and successful attempt was made on Thursday July 13. After 14 hours of climbing the Mt. Alberta team reached the summit at 6:00 p.m. in very heavy snowfall. The route was exactly the same as the previous attempt which is described as follows:

The Prairie Glacier was followed in a northeasterly direction on the west side of the medial moraines. The base of Mt. Manitoba was reached by turning west avoiding an icefall. By ascending scree slopes in a diagonal direction (southwest) the shoulder of a peak in front of Mt. Saskatchewan was reached. From here the top of the upper icefall of the east Mt. Alberta glacier was gained. A straightforward walk on flat snow brought one into the Alberta-Saskatchewan cirque. From here on a gradually steepening slope and snow bridges over two bergschrunds brought us to a prominent rock rib directly below the Alberta-Saskatchewan col. The rock rib was then climbed for 800 feet to the top (loose rock).

From this point a steep snow and ice slope was climbed to the col utilizing the toe points of our crampons (700 feet). The north ridge was then followed which involved steep ice traverses on the east side to circumvent vertical ice walls. The final wall (30 feet) was surmounted by traversing down and out onto the east face and then ascending a very steep ice slope to the ridge again (ice screws used for protection). From this point an easy climb was made to the summit over a knife-edge snow ridge. Descent of the final ice wall was made by rappelling from a snow picket. Total climbing time was 23 hours.

It is recommended that care be exercised in the use of this route in that the upper slopes become difficult ice when there is too little snow and become avalanche hazards when there is a great deal of new snow.

Mount British Columbia

10,200 feet

By Ralph Hutchinson

Team: Ralph M. J. Hutchinson (leader), Andrew Gruft, Byron Olson, Karl Winter.

The party selected to climb this mountain met for the first time in Whitehorse; the shock was so great that we swiftly adjourned for some liquid refreshment so that we could take stock of the Selection Committee's considered planning—this, predictably, was very much a mongrel. The British Columbia team hailed from South Africa, East Africa, Bavaria and Alberta. The common denominator was climbing, and hence, British Columbia, whom they represented. Fortunately there were other interests in common, of a base nature, and these were liberally spiced with a jaundiced sense of humour.

As we flew over miles of glacier snouts, by surging glaciers and over monstrous moraines towards "Divide", the normal apprehension that accompanies any major trip soon displaced our complacent armchair route finding that had been so easy prior to the trip.

A base camp was established on the 8th of July on a glacier improbably named "T-Bone Glacier". We were assured the name was only a temporary one. On the 9th and llth of July we probed our way up this glacier and were privileged to get closer to Mount British Columbia and investigate its considerable defences. On one of these recces, Andrew (our import from South Africa, whom we were anxious to preserve for his considerable culinary skills) fell out of sight when negotiating a crevasse. His rescue was complicated by his snowshoes which he assured us in colourful terms were of no assistance in getting out of a crevasse. The rest of us were of even less help as we photographed his return to glacier firma and we were disinclined to give him anything but verbal encouragement to remain dangling until we had the correct exposure.

On the llth of July we reached the height of 9200 feet (which appears on paper an auspicious sign.) Unfortunately, we were not on Mount British Columbia at that time but on a shoulder of Mount Yukon. We were attempting to bypass a headwall that barred the approaches to Mount British Columbia. This was of little value in advancing us up the correct mountain but had great educational merit in making us more cognizant of the unstable rock condition, the treachery of the snow slopes, and the charms of steep scree laid on ice, all of which were the rule in the western extremities of the Centennial Range. On that day Karl had the unnerving experience of starting a wind-slab avalanche as he led the party up a relatively gentle (35°) snow slope. We had left base camp at 3:40 a.m. and, as the weather was deteriorating, we decided to return at 11:00 a.m. and reached camp at 3:30 p.m. After we had rested and dried out we concluded that the only remaining route was up the headwall which lay at the very southwestern end of the "T-Bone Glacier."

On the 12th of July Byron and Karl set off to inspect this route. If it was feasible we would have to establish a high camp to the west of the col that joins Mount British Columbia to Mount Yukon. They started at 8:00 p.m. after the weather had cleared and were able to climb all night except for two hours. They found the headwall a formidable obstacle, in part verglas on

rock and other parts steep scree on ice. They had to traverse to the side onto a rocky outcrop and, finally, force their way up a narrow iced chimney to gain the ridge. This latter pitch had virtually no protection. From the col they made a brief reconnaissance to view the southwest ridge and west ridge and it was clear that the west ridge, while being very steep and exposed, was the only possible route up the mountain from the glaciers that were accessible to us. The risk of taking a four-man party with supplies up to the col was not justifiable.

They returned to base camp by 9:30 the next morning with this sad news and we then decided to see if a helicopter could be brought in to assist this move rather than take the alternative course of moving camp up the headwall, which did not appear to be justified in view of the apparent hazards. As a person had been hurt in one of the other camps, a helicopter was expected back shortly in the vicinity. We waited until it was able to come and it moved our campsite to a point just west of the col separating Mount British Columbia from Mount Yukon. We had been reluctant to leave the base camp in which we had enjoyed the company of the Yukon and Northwest Teams.

From the high camp we made a preliminary survey of the west ridge on the 15th of July. The rock disintegrated with the mildest look so the filthy looks we gave it even when they were accompanied by the most delicate touch, released a hail of missiles on all except the leader. Even the leader was not immune from bombardment. The ridge itself was consistently steep and exposed. We spent some time on a gendarme that night and then returned to high camp, not very gruntled. The next day, the 16th of July, the weather was unsettled and deteriorating so, rather than climb a route about which we had misgivings, we elected for another recce and separated, one rope going back to the col to pick up some supplies left by Karl and Byron on their first trip there. The others probed a steep ice slope on the north side of the west ridge and examined some couloirs on the south side of the west ridge to see if access to the ridge could be gained above the troublesome gendarmes. The latter gave some hope and was really the most encouraging sign we had of penetrating the final armour of the mountain.

For the next two days we were confined to the tent waiting for storms to pass. We cursed the tent and its designer as it was not suited to withstand the blizzards that coursed the mountains. During these days we exhausted all known variations on the theme of porridge and hot chocolate (of which there was a plethora) and had diabolical plans laid for the disposal of the balance.

In the early hours of the 19th of July, we peered out and found a beautiful morning with clouds in the valley and the hint of a storm coming over the Peaks from the southwest. Quickly we organized for the climb. We had decided the couloir was too dangerous for all of the party to be in at once so Karl and Ralph set off at 5:00 a.m. Byron and Andrew set off one and one-half hours later when the couloir was clear. The route led over the foot of the west ridge and along its base to the fourth couloir.

This couloir took five full rope lengths to negotiate, was very steep, and at the bottom the rock was verglassed. A steady barrage of rocks from higher up the mountain did little to inspire confidence. Each relay station was chosen for its protection from above as much as for its safety qualities which were frequently psychological rather than real.

We finally gained the ridge and found the conditions no easier and the exposure greater, though we were spared the direct bombardment of rocks. The ridge varied from steep snow, or ice, in places running into rocky outcrops, all highly exposed and equally rotten. We had difficulty climbing certain rock pitches in crampons but this was quicker than taking them off whenever we came to rock. In this way, and assisted by icescrews and pitons, we inched up the mountain until five rope lengths from the exit of the first couloir. We traversed to the right for 200 feet and then

entered a devilish ice-choked gully. This taxed our climbing skills, our patience, and brought out colourful epithets that were derived from the Saxon, German, Swahili and Afrikaans languages. At the top of the gully we found ourselves perched precariously at the base of a steep snow slope, corniced to the north and corniced to the east and whose western face up which we proposed to climb had recently avalanched. Our height was 10,100 feet and the summit was within reach.

Delicately we crept up this slope which had a few inches of corn snow on top of an icy base. The sun was out and the snow was melting onto the ice which made the snow extremely unstable. In addition the exposure was great and our only protection were icescrews. They had limited value as the sun's heat was being conducted by the metal and quickly loosened them. Karl led up onto the summit ridge at 12:30 p.m. The ridge was so unstable that it was not considered advisable to have more than one on it at a time securely belayed from below.

The view from the summit was most impressive, extending right around and showing all the major mountains, St. Elias, Logan and Lucania dominating the scene. Storm clouds were gathering in the glacier valleys and beginning to cluster about the higher peaks, so the Centennial and the British Columbia Flags were quickly raised, and after Karl had his photograph taken he retreated and allowed the next climber up. The altimeter showed 10,275 feet (official height, 10,200).

On the summit there was no sense of elation, only a burning desire to leave before the disaster that each of us felt was imminent actually overtook us. The descent was more exacting than the ascent and wherever possible we rappelled. We finally reached camp at 11:30 p.m. and had our first decent rest and brew up of the day. The storm held off just long enough to allow us to get into our sleeping bags, and then closed in for the next two days, curtailing any more climbing. We were lifted off the mountain on the 22nd of July, 1967.

In conclusion, our sentiments were of relief in having achieved what we set out to do and gratitude that we had been permitted to return to civilization unscathed. If Mount British Columbia had not been our Centennial project, then it is probable the same party would not have climbed the mountain—the objective hazards were too great and it seems unlikely that the mountain will be climbed again for some years.

Mount Manitoba

11,150 feet

By Paddy Sherman

Team: Paddy Sherman (leader), Dr. Raymond Denson, Duncan McDougall, Don J. Forest.

The very way we selected the site for Prairie Base Camp indicated the problems of travel in this part of the Yukon mountains. Our helicopter pilot said the man flying the other machine had found a level spot when he made an emergency landing after his supercharger caught fire. The old engine parts littering the moraine added a welcoming touch.

Wayne Smith of the Alberta team and I found that the pilot had picked a good spot—easily the best site on the central moraine, less than half-an-hour from where the glacier forked and led to

the peaks of Alberta, Saskatchewan and Manitoba on one side, and Ontario on the other. The glacier route to Centennial began right opposite our base, and led east. Cloud base was down about 6500 feet when we came in, and shortly after Wayne and I began setting up the new tents some yards apart, rain and sleet began to fall. Naturally, as I opened the factory packaging on the strange new tent, I found the makers had thoughtfully provided the wrong instruction leaflet. The weather was the old familiar, Coast Range model. We had three and a half good days during our stay. Duncan McDougall of the Manitoba team came in that night, and Don Forest and Ray Denson the following day. We at once wandered up to look at the approaches. They looked straightforward without much difficult climbing. We headed up Prairie Glacier, then turned east into the big cwm surrounded by the prairie peaks. Once past the steep and broken glacier falling from the centre of the Manitoba cirque, several gullies fall from the general summit area in a southwesterly direction.

Photo: Duncan McDougall

Left to right: Paddy Sherman, Duncan McDougall, Dr. Raymond Denson, Don Forest.

Next morning, July 10, we headed up the first big gully, moved out to the left up a very obvious chimney choked with ice, then worked left over cliffs of rotten rock to a high snowfield.

Conditions were poor, a light crust over heavy, unstable snow beneath. After we crossed the upper snowfield, conditions improved somewhat in a steep gully above so we put on crampons. As the gully opened up higher, however, progress once more became slow and heavy. At last we topped the ridge leading southwest towards Saskatchewan and knew that by now we were close to the summit. Our ridge flared up into a wall. The snow was wet and almost waist deep, useless for a safe belay, and there were no belay stances anywhere within reach. At the end of the rope, the ice beneath was so rotten it wouldn't take a screw, and all around patches of wet snow were peeling and sliding down the gully we had to descend.

Only a little more than 50 vertical feet of climbing remained; behind that the ridge sloped gently up to the summit a short distance behind. But since it was the first day, and we mustn't make things too easy, we cached our flag pole and decided to come back earlier next day to make the

Photo: Duncan McDougall

Mt. Manitoba from above "Prairie Camp"

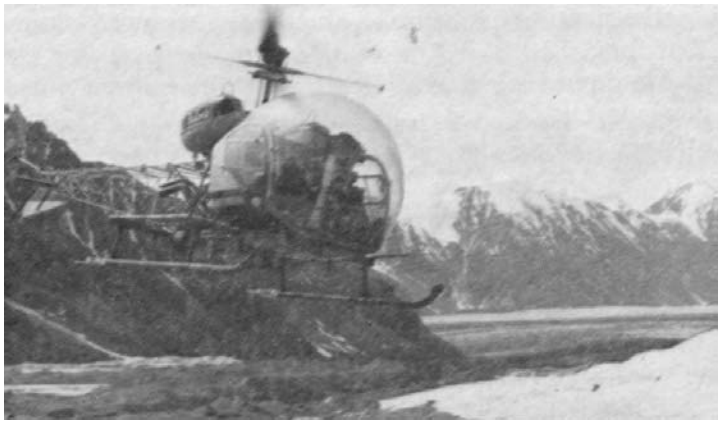


Photo: Duncan McDougall

Chopper at "Prairie Camp".

Photo: Duncan McDougall

Chess at "Prairie Camp".

best of conditions. We had no way of knowing that conditions then were better than they would be again throughout the trip. They rapidly worsened as we crawled down, and it was 2 a.m. when we returned to camp.

On July 13 the weather permitted another attempt. This time conditions low down were better and we set off earlier. This seduced us into continuing up the main gully, the steep and narrow one out of which we had traversed left earlier. It ended in flutings at the summit ridge, and I knew that if we arrived on top early and with reasonable conditions, we would have no trouble descending by our first route. We slowed, however, in the last 700 feet or so when it steepened quite dramatically. The first sun had hit the fluting when we got there. At first icescrews held, but on the last lead the ice became appallingly bad and I kept on going. By the time I traversed over the crest the rope was tight as a fiddle string.

At once I could see a bad storm arriving on schedule from Mt. Ontario. It took a long time to get all the party up to the crest and work along a few yards of astonishingly loose rock. But the summit ridge beyond looked easy and we kept going. Then the end of the rock revealed a horizontal knife-edge of snow linking the rock with the summit ridge. It was fluted on both sides and the sun was turning it into mush. I led one rope out but when Duncan followed his greater weight made him break through dangerously, and there was no way to safeguard him at either end. We had to return, although the section was only a couple of hundred level feet.

The ascent route was one I didn't want to retreat down under any circumstances now that the hands of the clock pointed to "avalanche". We began to rope off the crest, intending to rope down the 3000-foot east wall, but I called the others back, feeling that it was safer on the route we knew, provided we used extreme caution. Snow from the storm was falling as we rappelled down our flutings from a shaky rock piton.

Soon the conditions underfoot grew worse and the avalanche track in the centre of the gully, which we had to cross and recross, was alive with debris. Things slid out from under us so easily that I finally decided to bivouac, the four of us on a sloping dirt ledge that did not afford enough room for one to sit on comfortably. We soon had enough of this and managed to creep down with extreme caution. Much of the snow was stripped off, and I was able to let the others down from a screw then carry it down and start again. It was again very late when we reached camp. Although we had been no closer this time than perhaps 250 vertical feet from the end of the climbing, I felt the safe retreat in good order was worth more than most summits, so we opened the summit brandy.

We tried again on July 16 and 21, when weather allowed. The first time, we used the original route. The gully bottoms were clogged with huge mounds of avalanche debris, and the upper snowfield seemed to belong to a different mountain.

Only rotten ice remained, and the air was full of whirring rocks. Ice, absolutely rotten, floored the higher gully, and the rock alongside it disintegrated at the touch. Our speed made the snail look like a space capsule. As things got warmer, the rockfall got thicker, so once more we turned back. Life was getting, in fact, rather tedious.

On July 21, we set off in weather so wretched that we didn't even make it to the bottom of the main gully. The last day in camp the weather improved, but we were already overdue for our airlift. Had we known we would not be picked up as arranged with the pilot, we would have made another quick try. But then life in the mountains seems so often to be wrapped around a skeleton of "ifs" and "but fors".

To sum up: Manitoba is not a difficult peak. In normal June weather, it would be a pleasant outing. But with bad snow, rotten rock and even worse weather, it just wasn't worth the gamble.

Mount New Brunswick

11,114 feet

By Peter B. Spear

Team: Peter Spear (leader), Stephen Bezruchka, Robin Lidstone, Christopher Gardner.

Tuesday morning July 11 at "Divide" started out with a howling blizzard and in order to satisfy our need for action, a large snow cave was dug. An igloo and snowfort were built which created problems an Eskimo could not have imagined. The weather cleared in the evening so we donned snowshoes and started packing the airstrips.

Wednesday dawned clear, bright, and sparkling. The two Sno-Cats spent two hours packing strips whilst we revelled in the sight of Mt. Logan. Steve and Chris passed over "Divide" in a helicopter as they flew directly from Kluane Lake to "Fundy" Glacier. A short time later Robin landed and, with Peter packed aboard, the flight was made to "Fundy". (The four days spent at Kluane had resulted in frayed nerves and a large consumption of suds.) A short side trip gave a good view of our peak and a potential campsite. While Peter waited for all the supplies to arrive, the other three carried gear about two miles down the Fundy Glacier to our potential campsite. One more trip by us all put all our gear and six days food on our camp "Restigouche" beside the "Miramichi" Glacier. The weather closed in on Logan but the top of Lucania, some 11,000 feet above us, rose out of the swirling valley clouds.

Our Thursday climbing was a reconnaissance trip to find routes and conditions. After a day of knee-deep mush, we returned to camp with a proposed route and soaked equipment. Rocks boomed down the slope behind our camp but none managed to reach our tents on a gravel and clay terrace behind a lateral moraine.

Rain greeted us on Friday morning so to keep exercised we strolled down the Walsh and spent hours rolling glacial boulders down slopes 100 feet in height that surrounded glacial ponds. The glacial features were so enormous in comparison to the Rockies that we were a bit overwhelmed. Don and Fred greeted us on our return to camp telling us of poor climbing conditions and of a tumble on Mt. Newfoundland.

The big day arrived. We were on our way by 4 a.m. and quickly overcame the lower icefall on the "Miramichi", travelling up a medial moraine, and were soon snow-shoeing through mush to a fearsome ice-fall. This active ice-fall was bypassed and a side glacier was climbed. The sun's heat sent slides booming upon us so we gained a rotten rock ridge and after several dangerous and nerve-racking incidents the ridge crest was attained. A decision was made to establish a bivouac so while Robin and Peter explored ahead, Chris and Stephen constructed a very airy perch facing Logan. As the sun set the sky cleared and the enormous area of the St. Elias Range greeted our eyes. Our perch at 9500 feet gave us an uncluttered sweep of about 270°. Sleep came slowly because of our attention to the view and the creeping cold.

Darkness lasted only briefly, and we were on our way by 3:00 a.m. July 16th. A steep snow

slope had to be traversed for three rope lengths and even at 4:00 a.m. it was rotten and waist-deep on top of ice. A careful ascent up a long rock rib led us to the snow slopes and then the rest of the Centennial Range rose into view. The South Peak was traversed and we were stopped just short of the slightly higher North Peak by a fearsome cornice and ice slopes which would have required too much time to negotiate as the snow was softening quickly. To gain the last 130 feet, we would have had to tunnel down through the cornice, traverse under it, and tunnel up through the cornice again to reach the last rocks. As the snow avalanches were already swooshing downslope at 7:30 a.m. we returned to the South Peak, planted our flags and admired the peaks about us.

The trip back to our bivouac was long and hazardous as conditions deteriorated rapidly. By noon we were again on our rotten ridge and headed for the lower glacier. Poor snow conditions meant a detour of our ascent route which lost two hours. A short 30 minutes mush put us on the medial moraine. By now the weather had forsaken us and rain poured down as we retreated homewards.

The weather socked in for the next four days and we spent our time exploring the local area, including a trip down to the Walsh Glacier where we saw 17 Dall sheep. "Fundy" Base climbers visited our "Restigouche" garden which included five fat brown birds, seven enormous bumble bees and numerous vetch and saxifrage flowers.

When Exit Day came the weather cleared and in short order we had traversed the stark and bleak but beautiful St. Elias Range by helicopter and Beaver and were again enmeshed in the activities of the civilized world. The warm breezes upon our faces, the green forests and the clatter of vehicles told of our return to our normal way of life. We were disappointed to a small degree in not having accomplished more during the last two weeks but this was superseded by the fact that we had enjoyed the exploration of a remote and beautiful part of Canada.

Mount Newfoundland

12,041 feet

By D. W. Soughan

Team: Werner Himmelsbach (leader), Dr. Dick Roe, Don Soughan, Ian Stewart.

Introduction

Don Soughan is a consulting engineer and a widely travelled man. He gained climbing experience in Europe, U.K. and New Zealand. He also has a first ascent of an 18,000-foot peak in the Himalayas to his credit.

The following article written by Don Soughan of the ascent of Mount Newfoundland touches only slightly on the human experience and friendship one gains on a mountaineering adventure such as this. Although the weather was very bad and the, expedition was in my opinion ill-timed, I would not have missed it.

Our success was greatly attributed to Ian's decision not to take part on the final climb. His injuries he received on our reconnaissance would definitely have hampered our ascent. And as it

turned out, it was the only day it would have been accomplished.

For the climb itself, it was one of the most hazardous of my life. We were more dependent on good will of Nature than our skill. The 27-hour round trip on the 4500-foot east face of virgin Mount Newfoundland will be remembered for many years to come.

I know well the importance of the Expedition and the responsibility as Leader. It will never be known whether my decision to turn back within a few feet of the, summit was a wise one. Only the fact that we are all safe with our families and no one seriously injured eases my conscience.

Werner Himmelsbach (leader, Mount Newfoundland)

Compared to the wasted days at Kluane, Wednesday July 12 had been exciting. The weather had cleared and the Bell helicopters seemed as fresh and as eager to go as we were. The first parties were soon lifted off and by 11:00 a.m. we were squeezed into the "Beaver" for the flight to "Divide". Once there at the end of the queue for helicopters the time began to drag once more and I renewed my study of the Newfoundland team.

The helicopters shuttled back and forth all afternoon and it was 4 o'clock before Werner and Dick were lifted out to "Fundy". An hour later Ian and I tramped out through the snow to the chopper. Inside the bubble it was pleasantly warm. The pilot scanned the instrument panel and looked at us: "All set? Take pictures if you like, but not while I'm taking off or landing." The engine roared into life and we nosed off to describe a graceful arc to the west. Flying in a small plane in the mountains was great, but this was marvellous! We left Mt. Logan to our left and headed out over a col to the Walsh Glacier. Flying between 8000 and 9000 feet at 70 m.p.h. we seemed to crawl over the heavily crevassed glacier below. No place for a forced landing! This was the country that the famous Duke of Abruzzi had explored in 1897 when he climbed Mt. St. Elias and named Mt. Lucania that reared up behind our Mt. Newfoundland.

After some 20 minutes flying the pilot pointed over a rocky ridge straight ahead. "Fundy is over there," he announced. Ian and I leaned forward expectantly as the 'copter slipped over the knife edged arête and there, sure enough was a cluster of orange tents looking absurdly small at the foot of a great peak. I followed its rocky ridge up to the snowline and then along the final arête sweeping up sheer to the summit itself. A fine mountain, I thought, and it looked quite familiar. I studied it again and glanced at the map on my knees. Hell! so that's Mt. Newfoundland.

Soon after we landed, Werner and Dick left for a short reconnaissance of our mountain leaving Ian and me to settle in. They returned within a few hours having found a likely route via a couloir set in the east face of the peak. We discussed this possibility over the evening meal before stuffing our sacks ready for an early start the next day.

We stirred at 6:00 a.m., swallowed some of Dick's porridge and, after the usual preliminaries which somehow seem to fill an hour, we set off along the glacier. By 8:00 a.m. we had arrived at the couloir where we unroped and set off up the loose rocks. The climbing was not pleasant: every hold was suspect and the grade was steep. For variation we crossed to a snowy area but we sank in deeply at every step and our axes groped in vain for a good stance. So we climbed on over loose rocks and snow for hour after hour at the same monotonous angle. By mid-morning we had climbed to about 9000 feet where we stopped for food, wedging ourselves as best we could into the loose rocks. Ian, who was lagging behind, began to look quite pale and appeared to be suffering from the altitude already.

Climbing steadily we spread ourselves across the mountain to avoid the rocks we kept sending down. Werner and Dick were ahead and Ian was climbing to my right. He disappeared

Photo: Don Soughan

Mt Newfoundland team.

Left to right: Ian Stewart, Dr. Dick Roe, Werner Himmelsbach, Don Soughan.

Photo: Don Soughan

"Morning colours" at "Funday Camp"

into a gully marking his progress by a steady fall of rubble. A particularly heavy fall caused me to pause: the stones rumbled down, the heavy ones sliding on the surface and the lighter ones bounding out into space to the glacier several thousand feet below. A large patch of colour, uttering a muffled curse, slipped by with them. I looked again to see Ian sliding down with the small rock avalanche. I could do nothing but watch him go until he slid to a clumsy halt perhaps 40 feet below me.

"Hold it!" I shouted up to Werner and Dick, "Ian's fallen!" I moved to a relatively stable rock and peered down to see where he had landed. He was jammed in a corner and was rubbing his leg. He looked quite distressed.

"How are you Ian?" I called down.

He looked up and grimaced, "I've lost my wedding ring, I've smashed my camera and my leg is damned sore." I uncoiled the rope and tossed an end down to him. He tied on and climbed painfully up to join me. We crossed a loose snow slope together and joined the others in silence. "You three go on" Ian said, "I'll wait here until you get back."

"No—never!" replied Werner. "We will not divide the party. We all go down—now."

It was a good decision and, for greater safety, we roped up for the return. We had climbed about half-way up Mt. Newfoundland and felt that, with care, the route would 'go'. It was an unpleasant climb with neither good rock nor firm snow and it was steep all the way. As a reconnaissance, however, we had had a good day and knew a little more about our mountain.

We arrived back at "Fundy" after a laborious climb down 12 hours after we had left. Bob Paul and the Nova Scotia team were back from their first attempt which, like ours, had been unsuccessful. The Centennial Range was not as simple as we had been led to believe.

We turned in after a meal reasonably pleased with our first day but vaguely wishing that Newfoundland was out of the way. As we snuggled down in our sleeping bags the rain began to fall. "It looks like we will be stuck here tomorrow" someone said as I dozed off. In a half-conscious state I thought of the pioneers and the time they took to establish new routes on mountains that were now considered quite simple climbs. Certainly they were breaking new ground and, by our standards, they were ill-equipped. Yet we too were breaking new ground and perhaps it was expecting too much to climb straight up the first route that suggested itself on any of the towering mountains surrounding Fundy camp. We slept soundly, stirring only when the rain beat particularly hard on the tent.

It was still raining when Dick nobly emerged to brew tea at 7:00 a.m. Any thought of climbing was dismissed when we saw the clouds hanging low over the glaciers. The rain eased while we had breakfast but fell again as we washed the dishes. Ian returned to his sack to nurse his enormous bruise, but without such afflictions sacktime began to pall and we stood in groups outside the tents talking in the rain. By early afternoon the weather had cleared enough to allow some mild glacier travel.

The weather showed signs of clearing as we turned in and we had hopes of climbing Newfoundland the next day. None of us could sleep more than an hour or so at a time and by 2:00 a.m. Dick was already stirring. I looked at my watch and thought for a moment: July 15—the eve of my birthday—as good a time as any to climb. I clambered over Ian's sleeping form and joined Werner and Dick outside. Yes, it would be a fair day. Ian looked out of the tent to wish us luck. By 3:30 a.m. we were moving off up the glacier once more.

As we looked up the couloir we decided that we could make faster progress by staying on the snow as far as possible. Roped up this time and with Werner leading we kicked steps in the firm

Photo: Don Soughan

Mt Newfoundland east face.

snow. The going was good and we gained height rapidly. From time to time we looked across the glacier to see the Nova Scotia team moving like ants between the crevasses of the new route they had selected. Our route on Newfoundland gained height rapidly and soon we were looking down on them until they finally disappeared from sight.

We continued climbing as the sun rose higher in the sky. Dick led over loose rocks and slushy snow finding the best route he could. Our early enthusiasm for the hard snow of the couloir had now dampened. Sometime in the afternoon we heard a helicopter beating its way over the glacier far below us. We continued climbing up a steep slope of virgin snow which must have brought us out in sharp relief to the occupants of the aircraft. The beating grew louder as it gained height until it was level with us hovering as close as it dared to the flank of the mountain. We could see Hans Gmoser beside the pilot shooting us with his cine camera. A further run for good measure and we waved with our ice axes as they flew off.

Feeling a little less lost we continued upwards. After about 11 hours of effort we topped a ridge and there above us was the summit arête. We paused on some rocks just below the final

steep snow slope. Werner took the lead and carefully thrust deep steps into the mush. Dick and I followed slowly, the steps just supporting us, and beneath them we could feel hard ice. Crampons would have bitten better, but the soft snow would have balled up between the points turning the slope into an icy chute. We crept up steadily with the rope hanging loosely between us. Werner reached the crest without a word and carefully hoisted himself over. Dick followed in his confident fashion and disappeared from view without a murmur. I waited as the rope slid slowly up. Could they see the summit now? Would it 'go'? Why didn't they say something? The rope inched up once, forming a groove in the soft snow. The particles it dislodged gathered speed as they slipped down into the void. The whole slope was quite unstable and had to be climbed in the most careful fashion. The rope tightened and I crept up once more. I thrust the axe deep into the snow with one hand and pushed the other in as far as it would go before lifting up one foot to the next step. Soon I was just below the crest: just one more step and I would be up.

I made the final move and peered over—and almost leapt back the way we had come. There was nothing. Nothing at all, unless a sheer white slope sweeping down perhaps 3000 feet was something. I looked to the right where the rope led, to see Werner and Dick shuffling along the summit arête no wider than two boot widths. It was a noble sight; two men of widely different backgrounds, total strangers a week before, now tied together over that awful drop. Although it offered little protection the friendly bond of the rope seemed particularly apposite at that moment. The link tightened causing Dick to half turn in his steps. I hesitated before moving off. A slip down the face to our left would have jerked the others from their steps in a flash. The books record a technique for such an event, by suggesting that the member left standing immediately leap down the opposite face. I glanced to the right and imagined jumping had Dick slipped. And what about Werner, I thought, what would he do? Stand whistling on the fulcrum to haul us back bloody but unbowed?

Casting such thoughts from my mind I made to move, but just then Werner paused. "What do you think?" he asked. Dick paused: "I don't like it" he replied. We waited in absolute silence as Werner searched his soul for a decision. We knew what he was thinking: Go on to put the flags right on the top of that delicate cornice arching gracefully over the murderous west face?

An achievement certainly and this was a very special climb. But no one could be sure that the whole lot wouldn't collapse taking the flags and us with it. He looked back at us and then to the summit again before replying:

"It's too dangerous—we go down now."

Dick swung off his pack, jammed it in the snow and extracted the flags: the large Centennial flag and a small Union Jack for Newfoundland. He thrust them in the snow to mark our highest point, a few moments walk on nothing from the top. Photographs were quickly taken, a quick look round and then Werner said, "Let's get to hell out of this."

We retraced our steps down the steep slope to the rocks below. We looked around the summit cirque to find another route that might have taken us to the summit, but there was none. With some doubt in his mind Werner finally agreed that we had pushed the route as far as it would go. We had been climbing for 12 hours and thought we would get back to camp within another 8 hours. This proved wildly optimistic and our pace down was so slow that it took 15 hours to get back to "Fundy".

The snow was dangerously soft and our boots slipped on the hard ice beneath. We looked in vain for a flat spot to don crampons, so we strapped them on as we balanced in our steps. We continued the descent making faster, yet safer, progress. Dusk fell around midnight, but we carried

on without a pause through the Yukon twilight. We were beginning to appreciate the beauty of the mountains again. We could see the moon and sun lighting up each end of Mt. Logan. A splendid ethereal sight, but how cold it must have been up there at 19,850 feet.

We came to a particularly steep pitch and, with fuddled brains, discussed how to get down it. Since we had two ropes there was no real problem, but we talked for some minutes before we could decide what to do. Fastening the ropes together, we secured one end over a stable rock and threw the coils down the slope. We now had a line of 240 feet hanging well below the rocks we would make for. We fastened prusik loops on the fixed ropes and clipped them on to our karabiners. Dick led off facing the slope and sliding his prusik down as he descended. Werner, as last man down, had the unenviable task of untying the ropes and descending the last pitch protected only by our belay from below. All went well and, with a last glance at our abandoned rope hanging down the pitch like something in the Alps, we continued on. The problems were nearly over and soon we were slithering down the last few hundred feet of scree to the glacier.

We unroped and followed our tracks back to "Fundy" arriving there about 7:00 a.m. Ian poked a sleepy head out of the tent. "I was quite worried when you didn't return last night" he said. "I had a meal ready for you—but the Nova Scotia boys ate it after their climb."

Bob Paul's head appeared from the Nova Scotia tent to see what the noise was. They had climbed their peak by the second route attempted and, since most of the eastern peaks had now been climbed, "Fundy" had an air of satisfaction about it. Despite our 27-hour climb of Mt. Newfoundland we were not hungry and a little food swilled down with many cups of tea sent us happily to our sleeping bags.

The weather deteriorated once more and confined us to the camp area. It was unfortunate that the one psychiatrist on the expedition was over at "Prairie" camp since he would have found the 16 frustrated climbers at "Fundy" worthy of study. Reading began to pall and interesting discussions never develop to order.

Maurice Tyler, a civil engineer, started a fashion when be began casting boulders down the nearest crevasse and soon had all of us doing it. By this time he had advanced to building a series of dams along a glacial stream and, once more, we all followed. An impressive hydro scheme was built for the next visitors to puzzle over. How long we would have remained in this blissful state no one had time to contemplate. Perhaps we would have become a student body, since we had several professions in our ranks, or perhaps we would have turned to less constructive pursuits. But the psychiatrist was over the mountains and, as we later learned, champing at the inactivity more than we were. We drew lots for flying out and on Sunday July 23 we heard a helicopter flying over to the western camps to start the evacuation. The next day at 10:45 a.m. the first chopper landed at "Fundy" and by late afternoon the last pair had been lifted out.

A storm or two would soon remove all traces of our visit. We had been, seen and—conquered? "None but ourselves" George Leigh Mallory would have said. We knew what he meant. Despite the weather and our enforced idleness the first ascent of Mt. Newfoundland had been a grand adventure which none of us would ever forget.

Mount Northwest

10,796 feet

By P. D. Baird

Team: Dr. P. D. Baird (leader), J. R. Caldwell, Don Morton, James Ferguson.

Mount Northwest of the Centennial Range rises about 4500 feet from the two glaciers—tributaries to the Chitina Glacier—east and west of it. To its north there is a glacier filled cirque descending steeply to the Chitina, enclosed by the northeast and northwest ridges and a steep headwall.

To the south a col some 400 feet deep separates it from its neighbour Mt. Yukon, which is slightly higher.[2]

The base camp of Y.A.C.E. having been established on the T-Bone Glacier (east of the two peaks) we first made an 8-hour reconnaissance of the east face and possible access to the northeast ridge.

The rock was rotten, steep enough to be very difficult to ascend with heavy packs, so we rejected the possibility of ascending any of the eastern buttresses which led either to the summit or to the northeast ridge, the last part of which looked like a difficult snow and ice climb.

Undoubtedly access to the northwest ridge and flank would have been possible from the neighbouring western glacier, but it seemed that the most direct route to the summit, as several people had already suggested, would be over the top of Mt. Yukon.

At latitude 61° in midsummer there is light enough to move at any hour. So we were up at midnight on July 11 and moved off from our camp on T-Bone Glacier at 1:30 a.m. On snowshoes we followed the tracks up the glacier made by the other parties previously, avoiding the crevasse into which Andy Gruft tumbled. In 3 hours we had reached the foot of the south slope of Mt. Yukon and off with the rope and snowshoes, but we carried the latter on in case they were needed on the snowy plateau above.

The slope was horrible; 1700 feet of very rotten loose rock up which we stumbled and cursed for over 3 hours, while clouds began to build up so that when we wearily reached the edge of the high glacier, visibility had gone and light snow flurries began. We noticed a scree and stone-filled gully to our west which would give a better descent (and ascent!) of this stretch. Across this was a snow slope which looked the best way to reach this, but, as we looked at it, off came a windslab avalanche. Only later did we discover this was started by Karl Winter of the British Columbia team, which had been following up to the west of us. “It only moved me a few feet and then I got my axe in” he related.

Up here we found the snow on the western rim ridge quite firm so we left our snowshoes stuck in as trail markers and headed on in the mist. The ridge ended in a step, and we were forced down onto the flat glacier. Here we had an hour’s lunch halt, hoping the mist would clear to show

2 Concerning the relative heights of Mt. Northwest and Mt. Yukon, see the footnote on page 101.

a route for the last thousand feet of Mt. Yukon, since we were now up against its southern headwall with enclosing southwest and southeast ridges.

The 4500-foot east of Mt Northwest
showing col between it and Mt. Yukon (left), from"T-Bone" camp.

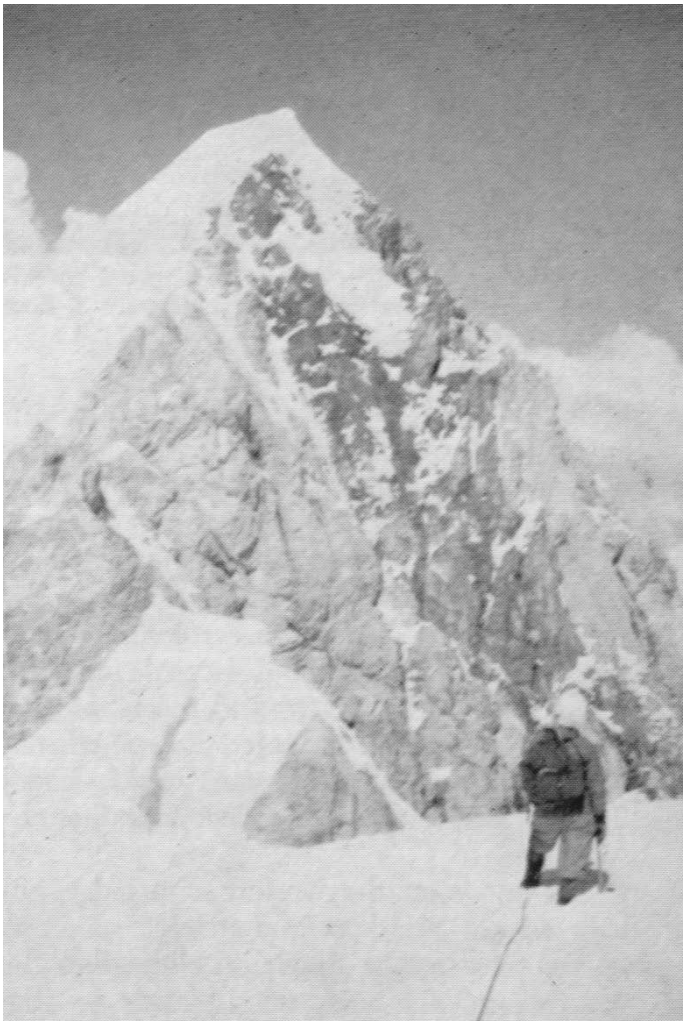
At last we saw enough, a snow gully leading to the latter and the two Jims broke trail up this to the ridge. Once on this an easy 300 feet of snow brought us to the summit, or just short of it, since we left a 10-foot corniced boss to the Yukon team to achieve.

It was 2:30 p.m. We had taken 13 hours so far and still could see little in the cloud and snow flurries. Jim Ferguson was feeling sick now with kidney pains. He stayed in a bivouac site while the rest of us tackled the descent ahead. We sank in a snow picket and fixed 200 feet of line to this, then Don went down into the misty unknown and we followed at rope's lengths down the 60° snow slope. More line needed then, gold cord this time, just reaching across a bergschrund and we were on the col. It was snowing hard by now. We went ahead up the ridge of Mt. Northwest but very soon came to a pitch of rotten rock. Seventeen hours out and obviously slow going ahead, a

sick man left behind and snow falling heavily—it was time to retreat.

With our fixed line it was not too hard to re-ascend the great curving white slope back to Mt. Yukon. Jim had dug a hole and was nearly buried by snow but was feeling a bit better after 6 hours rest and did as well as any of us on the way home. This was a long and weary effort. Down on the plateau we stopped to brew up soup but we ourselves, now soaked by the wet snow, chilled faster than the soup warmed. But it stimulated us a little and at the darkest hour we stumbled down the large gully parallel to our ascent route and reached the glacier at 1:00 a.m.

On with snowshoes and then 3 miles home. I led trustingly, since it was a complete white-out, down the centre of the glacier. Now came a new trouble: Don's snowshoes kept coming off—agonisingly chill waits for adjustments—he tried a part of it on foot but this was even slower. So we crawled shiveringly down onto tracks at last, so little danger from crevasses, but our packs were telling on us and we went in a kind of interrupted dream. My eyes were playing tricks—at one glance the rock wall to the left became red, at another an avalanche fan took on incredible kaleidoscopic colours, like a specimen seen through polarising lenses. And the falling snow was composed of not only white flakes but greasy black ones.



Summit pyramid of Mt. Northwest from col between it and Mt. Yukon.

The torture did not last forever. At 4:30 a.m. after 27 hours on the mountain we reached our camp, and as we dragged off our squelching clothes and slid into bed the snow ceased. It was another morning.

We had proved the route over Yukon, and so when the weather was favourable again we set off, this time following the Mt. Yukon team to whom, not on snowshoes, we gave a half hour start. After all it was their mountain and they had a right to break trail for us to follow!

This time it was 3:00 a.m. on July 15 and progress was much better—we went up the gully we had descended before and took the same route over the higher snowfield. Now here it was a burning hot sun. By 12:30 we were atop Mt. Yukon and leaving its team to the summit celebrations, we applied ourselves to the descent, unearthing our cached fixed rope. This time in good visibility it was much easier. At the col we were left only with the final ridge to Mt. Northwest. First a few rock pitches, rotten as ever, then a steep soft snow slope. We had rejected a traverse onto the sun-beaten southwest slope, since the snow was in a very unstable condition.

We reached the summit ridge of Mt. Northwest at 5:30 p.m. Ahead lay about 150 yards of near level ridge with a very sharp, soft, unstable looking cornice. The furthest bump on this appeared to be 20 feet higher than our top but we felt we had done enough, especially as clouds were moving in from northeast. So we displayed the flags and started home.

Here the only difficulties were with our wearied muscles and the gully down from Mt. Yukon's ridge. The hot sun had removed almost all snow from Part of this but an icescrew and a fixed rope took care of it. Came midnight and a clear sky and a superb view in all directions, the huge bulk of Mt. Logan dominating to the south. It was one of those prize moments which one lives for in mountaineering.

Crampons off, snowshoes on, down the glacier to the tents—once again 27 hours out but this time we were in good heart.

Mount Nova Scotia

10,800 feet

By Robert M. Paul

Team: Bob Paul (leader), Fred Crickard, Don Poole, Maurice Tyler.

"Happiness is finding SEVEN tea bags in a ration box."

Due to the vagaries of the weather it was Wednesday July 12 before our team finally assembled at our "Fundy" base camp. Don Poole and I had flown in on Sunday July 9, but Fred Crickard and Maurice Tyler had been stuck at "Divide". Since the weather was very promising we decided to set off that night on a tentative route we had chosen from an air photo.

Precisely at 4:30 p.m. we lived it up with three precious tea bags in strict observance of that fine old Alpine Club tradition of afternoon tea, then set off up the glacier between Mts. Newfoundland and Nova Scotia. We called this the "Northumberland Glacier".[3] The route we had chosen was a rocky ridge forming one leg of a horseshoe leading to our peak. The north face of the ridge was covered with snow and looked as if it would make for faster going but because of the poor condition of this snow we headed for the southern side and on to the exposed rock. The rock was actually the lesser of two evils since it was very rotten but the doubtful pleasure of watching

3 Later given the as yet unofficial name: " Cabot Glacier."

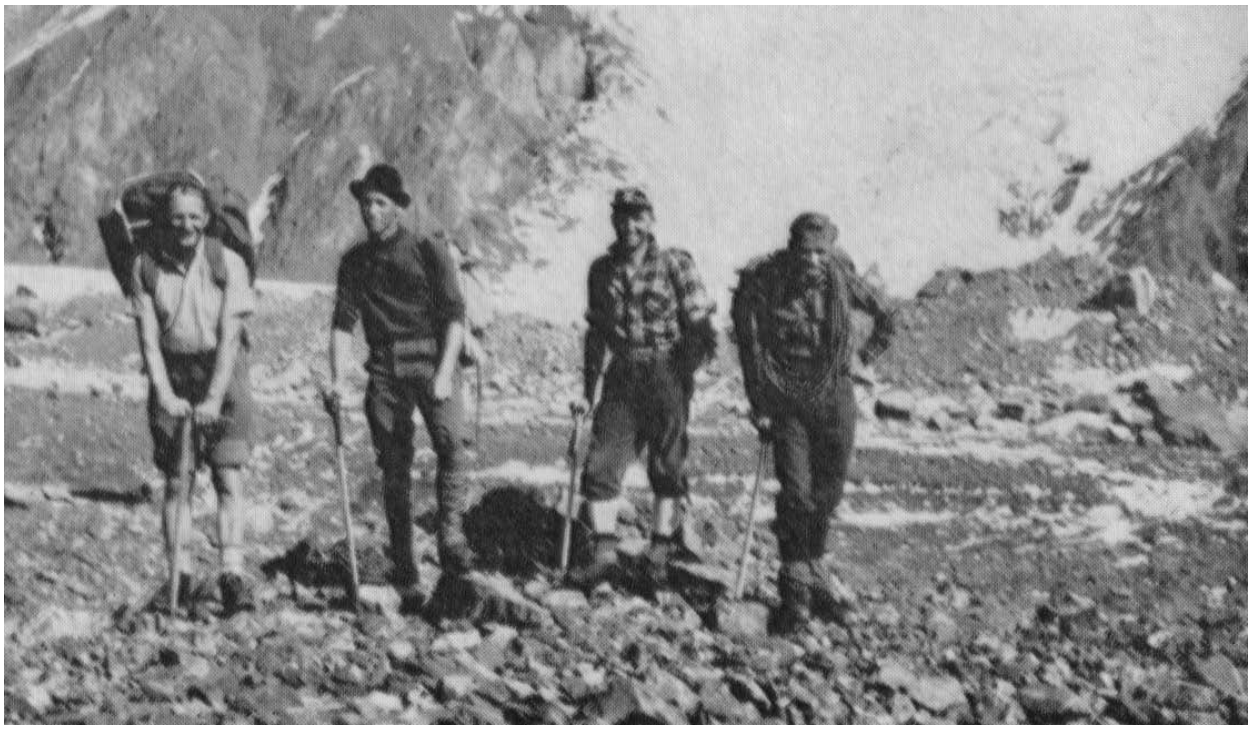


Photo: Bob Paul

Mt. Nova Scotia team.
left to right: Maurice Tyler, Don Poole, Fred Crickard, Bob Paul

a large avalanche sweep down the snow beside us confirmed our suspicions.

We continued up this rock occasionally finding short pitches of almost reason¬able material but no one could remember ever climbing for so long a stretch on such poor rock. About midnight it was just too dark for rock climbing so we settled down for a bivouac. There wasn't much room but with the aid of a few slings we managed to make ourselves reasonably secure and comfortable. The altimeter read 9500 feet.

At 5:30 a.m. we set off again still on the rock below some large cornices. Our route was blocked by a steep gully of powder snow forcing us to backtrack somewhat then lead up on to the cornice. It was the airiest cornice I have ever stood on—it seemed to be two boot-widths wide and fell away at about 70° on the north side. A breakable crust of powder snow made it a very dicey position. It was definitely out as a route but from this vantage point we were able to choose a more direct route for our next attempt.

Climbing down the ridge was even more unpleasant than the ascent. We had to be extra careful not to kick down loose rock on the heads of our team-mates and progress was painfully slow. However we arrived back at base camp with no serious injuries about 4:30 p.m.—in time for afternoon tea!

The miserable nature of this rock reminded us of a dike of rockfill so we christened this ridge "The Canso Causeway."

Our next attempt was Saturday July 15, and accordingly we rose at 2:30 a.m. The weather was not too promising but we decided to give it a try and left at 4:30 a.m. We followed our route up "Northumberland Glacier" and carried on into the centre of the horseshoe. The glacier here,

which we have called "Annapolis Glacier", was snow covered and we spent most of our time climbing out of crevasses. The snow was still in poor condition—breaking crust on powder snow. We followed up the south face of the north ridge under some impressive looking ice-falls and chose a feasible route on to the summit ridge. The sky was clearing at this stage and we felt fairly optimistic about our prospects.

The route to the ridge was not too difficult technically but mainly sheer drudgery. At practically every step we sank thigh-deep in the snow and the usual gain was about three inches horizontally and an inch vertically. Nevertheless, by midday we reached the summit ridge and the snow seemed to improve slightly. The climbing was much more difficult now and we had some interesting moments with cornices and collapsing snow bridges. A fixed rope at one "hairy" spot led us on to this final pitch—an ice stretch which gave us some anxious moments before we reached some rock outcropping at the final summit. The time was then 2:30 p.m.

Photo: Maurice Tyler

Summit of Mt. Nova Scotia.
Left to right: Don Poole, Fred Crickard, Bob Paul.

At this stage we heard a helicopter buzzing around Mt. Newfoundland and we learned later that Hans Gmoser had been shooting some sequences for the official film. He didn't come near us which was a great pity as he would have had some excellent shots of our progress along the ridge.

The altimeter read 11,100 feet, somewhat higher than the map height. (Official height 10,800 feet.) The weather was at its best and we had tremendous views in all directions.

After fixing the flags and building a cairn we had a leisurely lunch and a nap in the warm

sun before starting down at 4:30 p.m. We fixed ropes for handlines down the first two pitches—Maurice proved their usefulness with an unintentional glissade(?) on an icy stretch but no harm was done. Another fixed rope at a treacherous looking cornice and we were back into the col.

The next half hour was relatively pleasant as we waded down in the deep snow until we reached the lower stretches where the snow over the crevasses was not deep enough to carry our weight. This stretch I can only describe as pure misery. We stumbled, bumbled, floundered, sank and swam our way down. At one stage I was stopped by a pull on the rope and turning round all I could see were three heads and shoulders sticking out of crevasses—three individual crevasses, of course. By the time we reached the exposed part of "Northumberland Glacier" we were all tired and soaked to the skin and ready to call it a day.

The walk down the glacier was uneventful and we reached camp at 10:00 p.m. for a round trip of 17 l/2 hours. Our breakdown was: 10 hours up and 5l/2 down for a vertical climb of 4200 feet. The longest distance covered was 5 miles each way.

In a fit of gay abandon we used a whole day's rations of six tea bags to brew two large pots of tea, then topped the evening off with a toast to our mountain in that Prince of Liqueurs—Drambuie, a finely balanced mixture of honey and whisky which we can thoroughly recommend. The honey supplies energy and the whisky supplies ideas for the use of the energy.

Mount Ontario

12,200 feet

By H. F. Microys

Team: Helmut Microys (leader), Alex Norman, Roland Reader, Sev Heiberg.

The Mt. Ontario team landed at base camp on the Prairie Glacier on July 9. The same day we established a higher camp on snow at about 7000 feet directly below the southeast ridge of Mt. Ontario.

From the study of maps and mainly aerial photographs I thought the southwest ridge was a challenging but reasonably safe approach to the summit. The other possibility was to follow the glacier which flows from the ridge connecting Mt. Ontario and Centennial Peak. It runs more or less parallel to the southwest ridge of Mt. Ontario. The glacier starts with a 2500-foot gully and then cascades in four icefalls—two of them of considerable proportions—down to the Prairie Glacier. Avalanche tracks on the aerial photos did not make this a very inviting approach. No wonder, therefore, that when we set out the next day at 6:00 a.m. I had in mind to investigate the southwest ridge.

Around crevasses we went, up steep snow, and we were ready to make our first acquaintance with the proverbially poor rock of the St. Elias Mountains. It proved to be highly unpleasant. We had reached the top of a spur on the southwest ridge and were just above the first icefall of the above mentioned glacier. The other team members now suggested following the right border of the glacier rather than climb further up the ridge. Rather reluctantly I agreed, expecting that we would

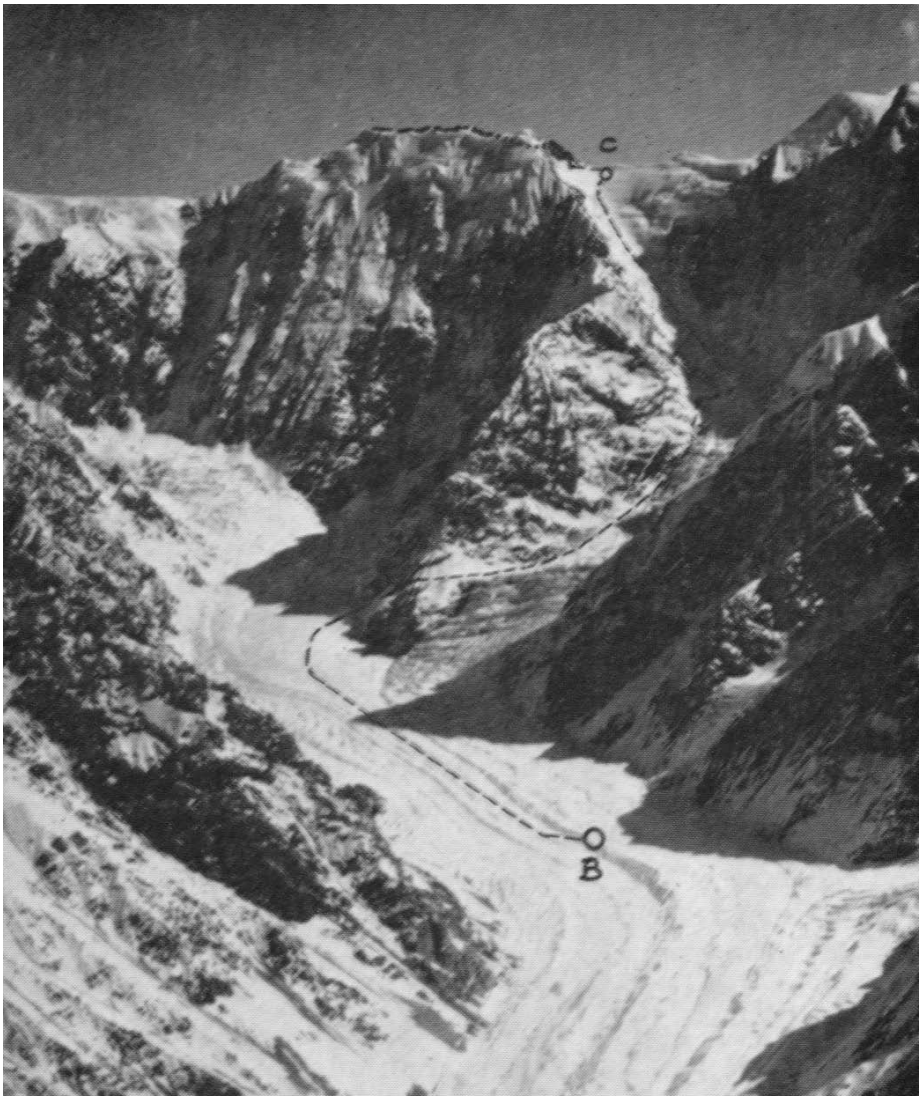


Photo: Walter Wood

Mt. Ontario, showing route.

B-Base camp on "Prairie Glacier". C-Snow cave. Dotted portion of route was behind skyline.

be turned back eventually because the glacier was extremely broken up and the rock appeared to be difficult to climb in many places. Furthermore, it was only our first day out and I felt there was no harm done wasting a day. As it turned out I could not have been more wrong.

On we went, constantly on the lookout for a way through the maze of crevasses. It was slow going. Luckily we always found a snowbridge, some tumbled séracs over which we could proceed. When the severity of the séracs forced us onto rock for a while, we were fortunate to find it technically easy, although extremely loose. After 6 hours of continuous climbing we finally reached the base of the gully and had a deserved rest. We had covered no more than 1500 vertical feet. And despite going through séracs virtually all the time only one man fell into a crevasse.

It was clear by now that the best route had been found. This was simply a result of the ability of the party to handle snow and ice much better than rock. It was felt that the rest of the climb was fairly straightforward. The aerial photographs at least did give this impression. The

thought of climbing through the icefalls once more did not appeal to us. Hence we changed our plans. We cached a box of rations which we had brought along and turned our recce into a summit attempt.

Kicking steps up the gully was very tiring. It was afternoon and the snow conditions were poor. The many remains of avalanches did not make it any easier. After 4 hours we reached the ridge (about 11,000 feet). A quick look at the ridge convinced us that the dream of a snow climb to the summit was over. A formidable face, with a thoroughly iced up chimney as the only route up, was the start. A thin exposed snow ridge followed and a gendarme, from which it seemed possible to reach the summit ice fields, concluded our field of vision.

By now the weather—although never very good—had deteriorated. A rock and snow avalanche starting on the face of Mt. Ontario above us thundered down the gully through which we had just come. Alex felt ill. Roland had completely wet feet and was quite cold. We all were tired. After a feeble attempt to climb the chimney we retreated.

The snow was now of the "porridge on ice" condition. While the thin layer of snow on ice supported us in the morning, it avalanched now and several slips resulted, affording us with the opportunities to practise self arrests. Camp was reached after midnight.

Bad weather followed and we moved back to base camp again. Alex was still ill. We passed up one good day for a summit attempt hoping that he would be better soon. As it turned out the weather did not last. We now became somewhat concerned whether this foul weather would continue. We finally decided that we would start our summit attempt at the next opportunity. Our plans were made. We knew that a bivouac was necessary. Although we had a tent-sack along, our intention was to dig a snow cave at the previous high point reached. It would serve not only for the bivouac but also as a long-term shelter should the weather break, as was likely to happen. At the gendarme the necessity of a fixed rope seemed almost certain. During the afternoon of July 14 the sky started to clear. The weather forecast was as usual: unsettled. Alex was still in no condition to climb. It was with rather heavy hearts that we left him behind when we started out at 8:30 p.m.

Because little change had occurred in the séracs, we made good progress. We rested when we reached the food cache of our first attempt, then stocked up and continued. Our previous high point was reached just as the sun peeked over distant summits. Roland was extremely fatigued, mainly on account of lack of food. Sev and I dug the cave. Then followed another rest with a hot brew from the stove we had judiciously brought along. The weather had constantly improved and we finally decided to forego a longer rest and continue. Roland, after eating half a pound of sugar, felt well again.

To avoid the steep section in the ridge we traversed out onto the south face. Four long pitches brought us back to the ridge. Although the climbing on the face was technically not very difficult, the conditions required great care. Thin layers of snow over ice alternated with ice over rock. The snow had become soft and an avalanche missed Sev literally by inches as he was climbing up. for better protection on the soft snow we never gathered all on the same belay. The gendarme turned out as expected, possibly a bit worse. We had to rappel about 100 feet into the steep northeast face. The only ice piton of the entire climb was placed at the bottom of the gendarme in a nearly 70° slope. The exposure was fierce. After a short traverse on this steep face into a couloir, we were able to reach the summit ice fields. We left the rappel rope in place and continued on one rope.

We had expected to find better snow conditions but were disappointed by knee deep powder. Breaking trail was very tiring but at least we could climb together again. The summit was still half a mile away. The last obstacle was a crevasse of gigantic proportions which cut right across the

ridge. It prompted Sev's remark that we may have to consider ourselves defeated and look for a different approach. We were only 300 yards from the summit. The only solution was to climb down into the northeast face, cross a snow bridge and then climb a spectacular 60° slope back up to the ridge, all the time having a 3000-foot drop down to the glacier in view. For this manoeuvre the middle man had to untie because the leader needed all the rope he could get. Once the second was across, one end of the rope was tossed back over the crevasse to the third remaining team member. The summit, a huge cornice, was reached at 6:00 p.m., July 15. We flew the Provincial and Centennial Flags and sat down for a short rest. The weather was still fine, although we had no view towards the east on account of heavy clouds.

Summit ridge of Mt. Ontario.
In background (left to right): North peak of Mt. Quebec, Mt. Quebec, north sub-summit of Centennial Peak, Centennial peak.

It had been an exciting ascent. The difficulties of the last 1000 vertical feet can easily be assessed when one considers that it took us only a little longer to go from base camp (at 6000 feet) to 11,000 feet, than it took from there to the summit. Furthermore hardly any horizontal distance was covered during the last part of the climb in comparison.

The Centennial Flag moved in a gentle breeze when we left the summit at 6:30 p.m. The crevasse was crossed without incident by reversing in our steps. At the gendarme Sev gave a splendid demonstration of Prusik technique. Belayed from above Roland decided to go hand over hand once he was half way up, while I started this way right from the bottom. The belays on snow

and the steps from the morning were frozen solid, which was a great relief to us. We followed the ridge to the sharp drop. A rappel then brought us to easy terrain.

The setting sun tinted all peaks in beautiful rose colours as we descended. It was getting colder as the sky cleared and the day ended. Suddenly Mt. Lucania was visible, towering above us in the distance. Not very far off we could see the Quebec team on the steep summit ice field. In a straight line they kicked their way towards the top. They appeared to reach the summit just as we arrived at our snow cave, shortly after 11:00 p.m.

We had been without sleep for almost 40 hours and climbed continuously for nearly 27. As the stove was buzzing away between my legs my head fell forward repeatedly as I dozed off. I made soup and tea and had to wake Sev and Roland when it was ready. Eventually we all slept a couple of hours. At 4:30 a.m. we left the cave. We crossed numerous new avalanche debris on the way down and reached base camp at 10:00 a.m. after an uneventful descent.

Alex and the Alberta team were there to greet us. All other teams were out on their respective mountains. A carefully hidden bottle of Mumm's Extra Dry appeared from the depths of my tent and with this surprise ended the successful ascent of Mt. Ontario.

Mount Prince Edward Island

12,262 feet

By Norman Purssell

Team: Norman Purssell (leader), Brendan Moss, Albert Parke, Christopher Smith.

Climbing starts with planning. For the Mt. Prince Edward Island climb this centred around three photographs of one side of the mountain taken from the plane and an impressive looking map of part of the St. Elias Mountains. The skyline ridges, as seen from the air, sloped gently upwards. The map with a scale of 2 miles to the inch and contours at 500 feet gave additional confirmation of long ridges rising slowly to the peak. The prospect of gentle snow slopes on a broad skyline ridge seemed somewhat uninteresting as a climb but for the four keen skiers of the party it had exciting prospects as a ski ascent. Consequently, skis and skins became a part of the essential equipment and our thought turned away from Mt. Prince Edward Island to the prospects of even higher peaks, which could be tackled after the first few days needed for Mt. Prince Edward Island were over.

So much for the dreams; the reality of the Yukon would prove to be of tougher substance. Broad ridges would become knife ridges and gentle slopes prove to be a foot or two of unstable snow overlaying hard ice. Thus, late in the afternoon of Wednesday July 12, 1967, the four members of the Prince Edward Island team were in sight, for the first time, of their objective. Their somewhat relaxed frame of mind, already modified by the frustration of seeing three precious days slip by while bad weather grounded the aeroplanes, was beginning to change.

The 40-minute Beaver flight from Kluane Lake staging camp to the 8000-foot "Divide" Station of the I.R.R.P., followed by the 25-minute helicopter flight to "Fundy" Base Camp had vividly illustrated the vast size and immense proportions of the area. Mountaineers are used to

jagged peaks and great glaciers but here were glaciers whose width equalled the length of many well known glaciers in the Rockies. Here, at an elevation of 6700 feet, there was no sign of life, no alpine plants, no green grass or sedge, even the rocks were bare of lichen. Just snow, ice and shattered rock. Everywhere the forces of erosion were evident, the underlying ice cracked and groaned and from above rocks were continually rolling down talus slopes or cascading down the gullies.

The peak of Mt. Prince Edward Island was plainly in view from "Fundy" Base Camp, but somehow the picture was changing; the gentle slopes looked steeper and previously unnoticed details now showed as steps of unknown height and difficulty. Even the access to the ridges looked long and formidable. With scarcely a second thought the skis, so carefully prepared and packed in, were abandoned. The likelihood that they would assist in the climb seemed remote indeed, although there remained the possibility that they would be an aid to travel on the upper parts of the glacier.

Mt. Prince Edward Island team.
left to right: Bert Park, Norman Purssell, Chris Smith, Bren Moss.

With the rope stretched out so far and a thick cloud obscuring all visibility, the fall had neither been seen nor felt at the other end of the rope by Norman and the seemingly long time lapse before communication was restored was the cause of some bewilderment. During the traverse along

the shoulder the weather had changed abruptly when cloud drifted around the peak and by the time the base of the main peak was reached a light snow precipitation had started and all landscapes were completely obliterated. After a short wait the cloud cleared enough to show the lower part of our proposed route and it quickly became evident that success by this route would be long and tedious. Considerable exposure, together with a steep icy slope, would entail very slow progress. To the west, a ridge coming up from the slopes of North Quebec Peak appeared to offer a more positive route but to reach it would mean passing under a slope which had been swept by recent snow slides, although it now appeared reasonably safe. This was the final effort and although not technically difficult the deep snow made progress slow and exhausting. Finally, the steep slope gave way to a broad summit and the peak was reached at 1:30 p.m. in cloud too thick to permit any views of the surrounding country. After 50 minutes on top, the flag of Prince Edward Island and the Centennial flag were left to wave on their broomstick and the party started the descent. The traverse back along the ridge and through the cornice to the south end of the shoulder was again a slow careful business and by the time we were across the weather had further deteriorated into a more general light snowfall but with a warming trend which left the top layer of snow soft and treacherous. Consequently it was necessary to belay down many slopes and a tired party finally climbed down the last rock gully and arrived back at the tent at 1:00 a.m. July 17.

Summit of Mt. Prince Edward Island, with false summit and south shoulder to left.

The mountain had been climbed but the climb had been very different to the way our plans had envisaged and future climbers might wish to find a shorter route with fewer objective dangers. The final 1000 feet of the mountain had been climbed on the southwest ridge and it appears that this ridge continues down to the col which connects it to North Quebec. This route appears to have no technical difficulty and from the col down to the “Chaleur” Glacier the route follows that used by the Quebec party. An advance base high on the “Chaleur” Glacier would therefore appear to be a logical departure point for Mt. Prince Edward Island as well as Mt. Quebec. The northeast ridge

Photo: Chris Smith

Summit of Mt. Prince Edward Island

is also a possibility but this was never seen at close range by members of the Prince Edward Island team.

The extremes of the mountain world are also experienced by the climber who ventures into it and following our period of extreme activity we lapsed into longer periods of extreme inertia. With deteriorating weather in the second week, further climbing had to be curtailed and only general exploration could be attempted. Finally, on July 24, the helicopter arrived to carry us back to the less demanding world east of the mountains.

Mont Quebec

12,300 pieds

By Claude Lavallee

L'équipe: Claude Lavallee (chef de cordé), Peter Hutchins, André Hébert, Hans Münger.

Vers trois heures le 9 juillet, après une dernière bière, nous quittons Kluane Lake en Beaver. Quelques minutes plus tard je prends connaissance avec ces fleuves de glace que sont les glaciers du Yukon et ces centaines de sommets enneigés a 1'horizon. Le transfer d'équipement et de passagers au "Divide" se fait rapidement dans 1'hélicoptère qui nous amène, Bob Paul du Mont Nouvelle-Ecosse et moi-même, au centre de la région d'où cinq colonnes d'alpinistes doivent partir pour faire leur sommet respectif. Ce camp de base avancé fut baptisé "Fundy" ainsi que le glacier en question où nous étions installés.

L'équipe du Mont Quebec.
Hans Munger, Peter Hutchins, André Herbert et Claude Lavallee (chef de corde) prennant la route du Mont Quebec, dont la double arete se profile au loin.

Deux jours plus tard André et Peter Hutchins arrivaient finalement pour se joindre à nous, il était une heure p.m. le 12 juillet. Dès trois heures p.m. la même journée, chargés de tout notre équipment nécessaire pour six jours, nous remontons le glacier "Bonaventure" (nommé par nous),[4] en direction du Mont Québec. L'avance fut pénible, même équipes de raquettes, à cause de la neige pourrie qui recouvrait ce glacier dans toute sa longueur. Nos bâtons de ski furent très utiles pour tenir notre équilibre partout et particulièrement sur les ponts de neige qui one cédé à plusieurs reprises sous notre lourde charge (80 livres). Au bout d'une journée et demie de marche le brouillard nous immobilisa en plein centre du glacier à proximité de notre montagne, à 8000 pieds d'altitude. Nous avions tous dépensé passablement d'énergie pour en arriver là, ce brouillard nous était plutôt un bienfait qu'un obstacle.

Ces quelques journées dans cette chaine de montagnes me font connaître les variations rapides de la température, c'est pourquoi le soir du 13 juillet je suggère à mes compagnons d'absorber un somnifère afin d'avoir un sommeil ininterrompu au cas où le temps serait grand beau au milieu de la nuit. Vers trois heures a.m. je jette un coup d'oeil á 1'extérieur et suis très heureux de constater que le temps est bouché et que nous pouvons prolonger notre repos. Cette journée du 14 juillet servit à choisir la route la plus propice. Nous avions le choix entre le col Mont Nouveau Brunswick-Mont Québec, le col Mont Ile du Prince Edouard-Mont Québec, et en dernier lieu l'éperon sud-est. D'un commun accord nous optons pour ce dernier choix car il fallait prendre en considération la mauvaise qualité de la neige couvrant en entier les deux cols ci-haut mentionnés.

Je m'éveille dès deux heures a.m. le 15 juillet, le ciel est transparent. A trois heures tout le monde est sur pieds en train de faire les derniers préparatifs sans mot dire. A 4:15 nous partons en direction du cône d'avalanches qui n'est pas alimenté à cette heure hâtive de la journée. Le ciel est rosé, 1'air sec, une température de 20 degrés nous tient frais malgré la rapidité de notre départ. Étant le premier en tête je dois, soit tailler d'innombrables marches ou m'attaquer aux parois rocheuses, j'opte pour ce dernier choix. Les premières prises de mains m'apprennent que le rocher n'est pas très bon tel que mentionné dans les circulaires que j'avais reçus antérieurement. Ceci est très décevant pour moi car mon terrain d'entraînement en rochers consiste strictement en du granite.

Dès 5:30 chacun de nous sait que chaque geste sera problématique; choisir avec soin les rares prises qui tiendront, s'abstenir de déclencher une avalanche de cailloux afin d'éviter de blesser les autres participants de la cordée. A plusieurs reprises je suis bien peiné de ne pouvoir avertir ceux qui suivent que quelques secondes avant qu'ils ne soient atteints par les cailloux que j'avais détaches. La solution à ces problèmes est de grimper dans des petits couloirs extrêmement raides et remplis de neige. A un moment donné Hans Münger prend la tête pour suivre une arête de neige longue de 500 pieds, qui le mène au pied du gendarme jaune. Ce gendarme haut de 200 pieds nous retarde prés de deux heures et demie. Pour parvenir à le passer je dois taper quelques marches dans un mélange de glace et de rocher avec mon marteau à pitons. Ce passage de 5 se fait au fond d'une fissure cheminée remplie de neige fraîche et de glace. Nous continuons notre ascension sur une série de petites parois d'une quinzaine de pieds, couvertes d'amoncellement de rocher pourri. Les risques sont d'autant plus grands que je suis seul à les prendre en conduisant et j'assure les trois autres de ma position précaire qui me sert de point d'assurance.

Après dix heures d'ascension nous nous groupons sur une arête de neige très mince et très

4 Plus tard nomme le glacier "Chaleur".

Photo: André Hebért

Peter Hutchins ascending Mt. Quebec.

exposée, c'est le seul moment de répit que nous prenons durant cette ascension jusqu'au sommet. Nous en profitons pour manger quelques morceaux de chocolat et boire un peu de thé froid.

Après treize heures d'escalade André se sent complètement crevé et se demande si nous atteindrons jamais notre but. En lui présentant un comprime dexédrine, la suggestion la plus pratique que je lui fais est de placer un pied devant 1'autre et je m'occuperai du reste. Il suit mon conseil à la lettre. Vers 7:30 p.m. j'attaque ce qui me semble le dernier problème en rocher. Après plusieurs minutes d'hésitation je m'assure sur un piton et une cordelette, ceci est un passage de 5 médium, et sans doute le plus difficile que j'ai fait en haute montagne dans ces conditions. Une heure plus tard Hans conduit une dernière arête de neige, il brise quelques corniches et débouche finalement sur le plateau sommital. La vue de ce plateau nous réconforte pour quelques instants mais nous revenons vite à la réalité en regardant a notre gauche vers le sommet principal. Ce dernier problème consiste en une pente d'environ 60 degrés, 1000 pieds de long, recouverte de 18 pouces de neige fraîche. Nous longeons cette pente avec l'espoir d'y trouver un pont de neige pour passer la crevasse qui nous en sépare. C'est peine perdue, et au bout de 20 minutes je peux enfoncer mon piolet, a 1'horizontal, assez haut pour pouvoir m'y pendre et passer cette damnée crevasse. Pendant 1'heure et demie qui suit nous répétons ces gestes dans des mouvements ascendants, sous

un soleil couchant qui nous donne 1'impression d'être d'un autre monde en ce 15 juillet 1967. A 11 heures p.m. je débouche finalement sur une petite arête et dans les minutes qui suivent les autres se joignent à moi pour faire les dernier 50 pieds menant au cône sommital. Les échanges de poignées de mains remplacent les mots mais chacun sent qu'il vient d'accomplir une ascension exceptionnelle. Les moments qui suivent sont précipités à cause du soleil qui disparait à l'horizon, et nous procédons au cérémonial; déploiement de drapeaux, photos-souvenirs, etc.

Vers 12:30 a.m. nous sommes prêts à redescendre, un dernier coup d'oeil sur Logan nous fait admirer cette montagne grandiose. De retour sur le plateau nous nous permettons trois quarts d'heure de repos couchés dans la neige. Je n'avais aucune objection personnellement car j'essayais depuis plusieurs minutes de briser la piste en direction du second sommet, mais j'étais tellement vidé d'énergie qu'à trois reprises je me suis étendu à plat ventre. Pendant le repos nous terminons le thé froid et prenons une partie d'un comprimé dexédrine.

A 2 heures a.m. le 16 juillet Hans Münger ouvre la piste jusqu'au haut du sommet "Montréal" (sommet secondaire du Mont Québec). Au soleil levant, c'est-à-dire vers 2:30, c'est le début d'une descente enlevante en glissade sur les pentes de neige raide en direction du col Mont Québec-Mont Ile du Prince Edouard. Six heures plus tard nous pouvons finalement nous détendre dans notre camp.

La première ascension du Mont Québec venait de se terminer après 28 heures d'efforts. C'est avec grand regret que je jetai un dernier regard vers le Mont Québec en quittant Fundy. J'avais 1'impression d'y avoir laisse un peu de moi-même.

Mount Quebec

12,300 feet.

Translation By D. W. Soughan Of The Preceding Account

About 3:00 p.m. on July 9, after a last beer, we left Kluane Lake by Beaver. Some minutes later I saw for the first time the rivers of ice that form the Yukon glaciers and hundreds of snow-covered summits on the horizon. At "Divide" equipment and passengers were transferred to the helicopter that would take Bob Paul of the Mt. Nova Scotia team and me to the centre of the area where five teams of climbers would leave for their respective summits. This base camp and the nearby glacier, were named "Fundy".

Two days later at midday July 12, André and Peter Hutchins joined us. At 3:00 p.m. the same day, loaded with all essential equipment for six days, we ascended the "Bonaventure" Glacier (named by us)[5] towards Mt. Quebec. It was a miserable journey, despite our snowshoes, because of the rotten snow covering the length of the glacier. Our ski poles were a great help in maintaining our balance particularly on the snow bridges, which gave way several times under our heavy loads of 80 lbs. After a day and a half's march the mist stopped us in the centre of the glacier near our mountain at 8000 feet. We had used up a fair amount of energy in getting there; the mist was a blessing rather than an obstacle to us.

After spending some days in these mountains we noted the rapid changes in temperature, and so on July 13 I suggested that we should take a sleeping pill to ensure an uninterrupted sleep during the night when it was bright. About 3:00 a.m. I looked outside of the tent and was happy to see the weather was bad so we could continue sleeping. That day, July 14, was spent in selecting the

5 This the "Chaleur" Glacier.

most promising route. We had the choice of the New Brunswick-Quebec Col; the Prince Edward Island-Quebec Col and, finally, the Southeast Spur. We decided on the Spur unanimously since it avoided the loose snow lying in the two cols.

I stirred at 2:00 a.m. on July 15. The sky was clear. At 3:00 a.m. everyone was up preparing to go and not speaking a word. At 4:15 a.m. we moved off towards an avalanche cone that was inactive at this early hour. The sky was blue, the air dry and the temperature at 20°, cold despite our fast pace. As leader I had to choose between the direct route or to attack the rock wall. I selected the latter. From the first handholds I found the rock worse than stated in the accounts I had read. This was very disappointing for me, as my rock training had been entirely on granite.

From 5:30 a.m. each of us knew that every move would be a problem and we must carefully test the rare dependable holds to prevent rock avalanches that could injure the others on the rope. Several times I was unable to avoid loosing rocks on the others. The solution was probably to have climbed the very steep snow-filled gullies as quickly as possible. Hans Münger thought of following a snow arête, 500 feet long, which led to the foot of a yellow gendarme 200 feet high that delayed us for nearly l l/2 hours. To pass this I kicked steps in the icy snow and knocked steps in the rock with my piton hammer. This pitch of grade 5 was at the bottom of a chimney full of snow and ice. We continued climbing on a series of small walls 15 feet high covered with an accumulation of loose snow. It was as risky as being alone. After six hours' climbing we gathered on a snowy arête that was very thin and exposed: this was the only rest we took during the climb. We ate a little chocolate and drank a little cold tea.

After 13 hours of climbing André was completely exhausted and wondered if we would ever reach our goal. I gave him a dexedrine tablet and the most practical advice I could give: "place one foot in front of the other and I would do the rest". About 7:30 p.m. I attacked what seemed to be the last rock problem. After hesitating several minutes I protected myself with a piton and a sling The pitch was about grade 5 medium and was, without doubt, the most difficult I have climbed in the high mountains under such conditions. One hour later Hans led up a last snowy arête with several cornices to the summit plateau. The view from here was encouraging but we soon realised the truth when we looked to our left towards the principal summit. The last problem was a slope of about 60°, 1000 feet long and covered with 18 inches of fresh snow. We searched this slope in the hope of finding a snow bridge to cross the crevasse separating us from it. This was a waste of effort and after 20 minutes I was able to drive in my ice axe, hang myself on it and pass the damned crevasse. During the l 1/2 hours that followed, we repeated these contortions as we climbed under a setting sun, which gave the impression of being in another world on that July 15, 1967.

At 11:00 p.m. I arrived finally on a small arête and a few minutes later the others followed to climb the last 50 feet to the summit cone. The handshakes replaced words that each of us felt accompanied an exceptional climb. The sun was sinking below the horizon so we quickly disposed of the ceremonies: displaying the flags, taking photos, etc.

At 12:30 a.m. we prepared to descend: we glanced admiringly at the great mass of Mt. Logan. On arriving at the plateau we allowed ourselves a 1/2-hour rest in the snow. I had no objection for I had tried several times to force a trail towards the second summit, but I was so exhausted that after the third attempt I was drained. During our rest we finished the cold tea and took a part of a dexedrine tablet.

At 2 a.m. on July 16 Hans Münger forced a trail to the summit of "Montreal" (secondary summit to Quebec). As the sun rose, that is to say about 2:30 a.m., we glissaded down the steep snow slopes towards the Quebec-Prince Edward Island Col. Six hours later we were able to finally

relax in our camp, with the first ascent of Mt. Quebec ended after 28 hours of effort.

It was with much regret that I took a last look at the mountain as we left "Fundy". I had the feeling of having left a little of myself there.

Mount Saskatchewan

11,387 feet

By Gertrude Smith

Team: Gertrude Smith (leader), Helen Butling, Andrea Rankin, Wendy Teichmann.

The Yukon is a vast territory and what can be seen of it from a helicopter is very impressive. The glaciers appear as great highways, in places more than 15 miles across, divided into traffic lanes by the dark lines of the moraines carried into them by the subsidiary glaciers. The peaks are covered with hanging glaciers and precipitous ice cliffs. Above 5000 feet the bare rocks appear to support little life. We saw a microscopic draba, a small blue butterfly and a wasp. Often we had the sensation of having been transported back to the Ice Age.

On Friday July 7th Helen Butling and I arrived by plane at Fort St. John where we met the blue-sweatered climbers from the east, among whom were Wendy and Andrea. Excitement was high. People were studying avidly the photographs of the Centennial Peaks. A small, snow pinnacle on a long ridge in one of the photographs was pointed out as Mt. Saskatchewan.

A warm Yukon welcome was given us at Whitehorse airport by the local people who were greatly interested in the expedition. Yukon Bud with his long, white beard looked like Santa Klaus in summer clothes. A watch chain of huge gold nuggets was draped across his chest and a specially large nugget was tucked in his pocket.

Air operations went quite well on Saturday. The climbers for "T-Bone" had been taken in to their base camp or as far as "Divide". At midday Campbell Ledingham drove our team to the I.R.R.P. airstrip at Mile 1054 but by then complications in flight plans had developed. One helicopter needed repairs and the other one had taken off for Mt. Logan to rescue an injured climber from another climb, so we returned to the Staging Camp to wait for instructions.

During the afternoon, to help pass the time, various small musical instru¬ments were brought out and a practice session under the direction of Andre Hebert created a great deal of fun. By the time the bus had arrived from Whitehorse with Saturday's contingent of climbers, the ensemble had grown into an orchestra with garbage can timpani and a mixed choir. The bewildered bus passengers were led to the log seats in front of the orchestra and subjected to a very amusing concert, to which they reacted most favourably.

After an early breakfast Sunday morning portions of the teams took off for the I.R.R.P. airstrip followed by "Les Girls" about an hour later. We sat on top of our dunnage which was piled high in the Beaver. Helen was the lucky girl to get the seat next to the pilot, Lloyd Ryder.

The lower slopes of the mountains were fresh and green. Not far below us as we flew nearer the ridges, the Dall sheep and lambs skipped away from the noise of the aircraft. Each turn

Photo: Gertrude Smith

Mt Saskatchewan team.
Left to right: Gertrude Smith, Helen Butling, Wendy Teichmann, Andrea Rankin.

in the valley revealed scenery more and more beautiful and then breathtaking Mt. Logan spread its bulk across the horizon 30 miles away. The great plateau of "Divide", with its cluster of Arctic Institute tents and Y.A.C.E. dunnage, sparkled in the brilliant sunshine. The plane's wheels had been retracted. We were going to land on skis. Could the plane make a parallel turn before it reached the crevasse at the edge of the plateau!

We transferred to a helicopter for the next part of the journey up the Walsh Glacier. As we came level with "Fundy" base camp new peaks came into view. We attempted to sort them out. We were sure of Prince Edward Island and from glimpses we cried out to each other "Quebec!", "Centennial!", "Alberta!", but nothing resembling Saskatchewan appeared. Our pilot, Jim Davies, turned from the Walsh Glacier into the subsidiary one on which our camp was supposed to be located and it was a great thrill to see, just where we thought they would be, the little orange tents dotting the grey moraine.

Members of the Alberta and Manitoba teams had already set up our tent for us so all we had to do was build a rock fireplace. This we did. After a few days it collapsed as the ice beneath moved down the valley. From the store tent we collected our four-man-one-day cartons of food and other supplies, including a Saskatchewan flag which we draped over our tent.

At 3:00 p.m. we started up the glacier eager to locate our mountain and to plan a route up it. About a mile up the glacier we turned a flank of Mount Alberta and saw a very large, glacier-hung peak with little resemblance to the peak shown in the photograph as Mount Saskatchewan. A check up with the map supported Andrea's theory that it must be our mountain. We returned to camp,

went to bed early and planned to do a reconnaissance next day. Light rain fell during the night, a soft, incessant patter. Wendy and Andrea, whose duty day it happened to be, had breakfast ready by 4:15 a.m. but the weather had deteriorated and clouds covered most of the peaks, so after listening to Hans Gmoser and Fips Broda, the authorities on weather, we decided not to leave camp; after all we had two weeks ahead of us for the climb. Little did we know this was to be the general pattern of the weather for the next fortnight. Instead, we went over to the steep part of the nearby glacier, tried out our ice equipment and planned our procedures for crevasse rescue. Long before lunch we were back in our tents out of the rain. After supper we read poetry to each other from "The Weekend Book" by Francis and Vera Meynell. Then we tried to get to sleep as we wanted to make an early start next day. Sleep seemed impossible so we lay and listened for the return of the Alberta and Manitoba teams. What news had they of our peak? What had they seen of "Saskatchewan"? The Manitoba team returned at 11:30 p.m. and gave us a vivid description of the snow ridge running down to the Manitoba-Saskatchewan col. Around 4:30 a.m. the boys returned from Alberta with the news that the rock ridge from the Alberta-Saskatchewan col was unclimable.

However, despite these chilling descriptions, early on Tuesday morning we started out for the Alberta-Saskatchewan col to see if the ridge running out to the west had any possibilities. Four or five inches of snow that had fallen during the night made the going quite heavy and by the time we had reached the top of the col at 10,200 feet, clouds obscured the view and the ridge was not visible. Descent down the 55° gully was slow and by the time we reached the glacier snow was falling heavily. We arrived in camp just before 10:00 p.m. At the lower levels the snow turned to rain and we were drenched to the skin by the time we reached camp. We enjoyed hot soup provided by the boys and were happy to get out of our wet clothes and crawl into our cosy sleeping bags.

Wednesday was a gorgeous morning. Everywhere was covered with about 3 inches of snow which glittered in the early morning sunshine. We stretched a clothes line from tent to tent and hung out an incredible array of garments

Thursday showed every promise of being a good day so most of the teams left camp early in the morning. The weather was warm and the snow in the cirque below the Saskatchewan ridge was knee deep and heavy. We decided that as soon as possible we would move up our tent to this cirque at 8000 feet to shorten our approach to the mountain by at least 3 hours. However, rain began falling at 6:00 p.m. so we went to bed to keep dry.

On Friday we assembled our gear and repacked the food we required for a 5-day stay at high camp. The temperature soared considerably during the day so we delayed our departure until about 6:00 p.m. when it became much colder. We reached the snowfield in the cirque about 10:30 p.m. and because the flat light made it impossible to see the contours of the snow-covered crevasses clearly, we dumped our gear in a safe place, covered it with a space blanket, stuck in a marker flag and returned to camp in the strange lightness of the northern night.

We finally established our camp on Saturday with the help of some of the Alberta team who had climbed their peak on Thursday. This put us in a very advantageous spot for getting on to the ridge. When the boys departed we felt very much on our own but our enthusiasm was extremely high.

Sunday began as a good day so we started off for the ridge. The climb was a mixture of wet snow and snow-covered ice and rock, but did not present many difficulties, except for the rottenness of the snow on a few slopes where it slipped off and left the bare ice. In 4 hours, after cutting through an overhang, we were on the ridge which ran in steep, lacy undulations up into the clouds above us. To the northwest it dropped sharply for about 1500 feet to the valley below.

Photo: Duncan McDougall
Gertrude Smith the "Ladies" Leader.

Photo: Helen Butling
Ladies' team en route to Mt. Saskatchewan at upper left.

Behind us it ran down to the col joining Manitoba. In many places crevasses cut across the ridge made progress difficult.

About 120 feet along the ridge I surmounted a 10-foot wall of ice covered with rotten snow by cutting steps on a diagonal traverse. As I stepped over the top I saw a 20-foot pinnacle dropping off on both sides and two more rock towers ahead of that. I passed this information back to the others on the rope below me and asked if they wanted to come up and look at them. "No, thank you" they replied, "if you think they can't be climbed, that's good enough for us. It was obvious we would have to get onto the ridge above these obstacles. We returned to camp in a snowstorm. Later we made plans for the next day weather permitting, to get onto the ridge higher up and if possible at the level of the icefall.

Thick fog enveloped us on Monday morning and snow fell occasionally. We felt the warmth of the sun through the haze at midday but the visibility was only a few yards. Most of the day was spent in the "ever-rest" position. Later in the day Andrea crawled out of her bag to make tea and get a little fresh air. We were startled to hear her shouting "A man! a man!" and thought that the

altitude or close confines of the tent had affected her. To our relief, when we slithered out beside her, we were delighted to see that, in fact, a man had appeared over the top of the snow slope. Helmut Microys brought us the news of the Ontario team's successful climb. He also brought what was left of their celebration—the champagne cork. Most of the champagne, unfortunately had been sprayed over the moraine by the great pressure in the bottle. He brought, too, a can of gas and a packet of Tang. Being optimistic souls we gave him a grocery list on his departure!

Tuesday continued to be snowy with poor visibility so we stayed in the tent most of the day and took turns in reading "Stefansson, Ambassador of the North" by D. M. Boudais, which Wendy had packed up to high camp. Compared with Stefansson's hardships we were living a life of luxury. Sometime during the afternoon, two "delivery boys", Roly Reader and Alex Norman, appeared out of the fog with the groceries. We were glad to get the extra food as we realized that our stay was going to be longer than the 5 days we had planned for in the first place. Later in the evening the weather improved considerably and by 3:00 a.m. it was very good.

Photo: Paddy Sherman

Mt. Saskatchewan from the col between it and Mt. Manitoba.

After a hurried breakfast of the usual fare, porridge and hot chocolate, we collected our summit gear, centennial and provincial flags and set out across the snow, marking our route with wand-flags in anticipation of a foggy return. The temperature had dropped during the night and a thin breakable crust on the snow made the going slow and tedious. The route was fairly steep rock ridges and snow slopes. As the sun reached us the snow on the ice slipped off and necessitated step cutting to get around some of the rock towers. The rotten rock would not hold a piton and there were few belay spots. Several leads of the whole length of rope had to be made before a suitable

belay stance could be found. The ridge was reached at noon and immediately we found ourselves negotiating a very narrow crumbly rock section. The rock rose sharply and nowhere on that rotten mass of rock could a hand or foot hold be found that did not move and threaten to bring the whole thing down. On the southeast stretched the steep surface of the slope and on the northwest was the 1500-foot drop-off. There seemed no alternative but to retrace our steps and find a way lower down to by-pass this unpleasant place. Because of the poor condition of the snow we had to be extremely cautious in getting down. We took 2 hours to do the first pitch and by that time wet snow was falling making it most hazardous to travel below the ice walls. At this point we realized that we could not reach the summit that day so we decided to return to camp and try again the next day. The climb up had taken 8 hours and our progress down was very slow and showed no promise of improving as we made our way down the mountain. Belaying a rope of four people was very time consuming and much care was required on the rocks which were becoming quite treacherous by now. Occasionally the snow stopped and we could see the snowfield below us. Three minute figures were walking around our tent doing a thorough inspection. Our yells of greeting were answered with faint replies but we could not understand what was being said. We later found out that they were planning to climb Mt. Alberta next day.

With the help of a hand line we descended some wet slabs to the top of a snow slope and traversed the narrow bergschrund to a rib of rock. Here our progress was very slow and as it was about 1:00 a.m. and the visibility poor we agreed to rest for a while. No place could be found to accommodate all of us so we had to cross another snow slope to a little scree-covered ledge away from avalanche danger. After some landscaping by Helen, the place was fairly habitable. We spread out one of our space blankets to sit on, tucked one over our knees, put another one over our heads to keep off the snow, and managed to get about an hour's rest.

As it began to get lighter we could see that we were a little off our route and were heading into a gully that was becoming more icy as we descended. I made an effort to climb up to the spot where we had missed the route earlier but the snow was almost thigh high so we decided to continue down the gully. We put on crampons and used a few icescrews to aid our progress. Because we were out of sight and taking so long to get down, our three friends below, who had apparently spent the night in our tent, decided to follow our route up and find out what was going on. Although we were not in any serious trouble we were cheered to see our friends, who turned out to be Helmut, Roly and Sev, appear above us on the ridge of our gully, and delighted when they told us that if we came back up out of that chute and over onto their side it would be plain sailing from there down to camp. To speed things up Helmut threw down a rope and in no time we were out of the gully and on the route again. We reached our tent at 10:00 a.m. Thursday, after having spent 22 hours in getting down. Seven people squeezed into the 7 1/2-foot-square tent, had a delicious meal, and chatted about the adventure.

When we awoke on Friday morning the tent roof sagged ominously over us and Helen wasn't able to see out of the small window in the wall of the tent. The snow on the space blanket canopy at the door way collapsed suddenly at the entrance, blocking our exit so we had to get up and dig ourselves out from under a foot and half of snow which had fallen during the night. By about 10:00 am. the snow stopped falling and in a short while the avalanches began to pour down. I counted fifty-four of them from 11:00 a.m. until 3:00 p.m. and then gave up counting. Later in the afternoon a breeze sprang up and helped dry the tent. By 7:00 p.m. we had packed everything. We staggered across the snowfield under our fairly heavy packs, watching carefully for the crevasses which were now covered with fresh snow, and started down the scree slopes to

base camp. Cheerful greetings from the men in camp welcomed us as we came into view down the glacier that evening.

The following day Andrea and Wendy made preparations for a private trip to Mounts Steele and Lucania while Helen and I were helicoptered to "Divide" and then flown by Beaver to the airstrip at Mile 1054.

Mount Yukon
10,600 feet
By Mike MacCallum

Team: Michael MacCallum (leader), Dr. William Louie, Hugo Hohner, James White.

Photo: Mike MacCallum

Mt. Yukon team.
left to right: Dr. Bill Louie, Mike MacCallum, Jim White, Hugo Hohner.

Mt. Yukon of the Centennial Range lies about a mile south of Mt. Northwest and is about 50 feet higher.[6]

From the 400-foot deep col between the two peaks, a glacier tumbles down some 4000 feet to the "T-Bone" Glacier, east of the two peaks. Our base camp was on the side moraine opposite, and when the mist cleared, we could see the summits of both mountains.

The weather closed in on "T-Bone" Glacier just after the Mounts British Columbia and Northwest teams had been flown in, leaving our group at "Divide" overnight. The weather all this

6 Concerning the relative heigths of Mt. Yukon and Mt. Northwest, see the footnote on page 101.

time at "Divide" was excellent and, although anxious to tackle "our peak" as soon as possible, we consoled ourselves by thinking that these two teams would not be able to do any climbing. Conse¬quently, after supper we talked one of the permanent staff at "Divide" into borrowing a Ski-doo and coming with us to look at a nearby peak. The weather and the snow were so perfect that had we had our crampons and other gear with us we would have made a serious attempt on it there and then. Our enthusiasm grew in leaps and bounds when next morning the weather cleared enough for us to fly in to "T-Bone".

When we arrived, the Northwest team were already out on a reconnaissance of the east face after setting up our tent for us (thank-you); the British Columbia team were just leaving on their first reconnaissance south up the "T-Bone" Glacier.

We decided to await British Columbia's return because such information as we had about Mt. Yukon indicated that our route would probably be up the "T-Bone" Glacier and then double back northward up a long ridge. On their return they confirmed this impression. (On our flight in, both Yukon and Northwest were blanketed out by a thick mist.)

The sky was overcast and visibility poor when we left on our reconnaissance the next morning at 6:00 a.m. We made good time up the centre of the frozen glacier and came on to the British Columbia team's snowshoe trail just before a heavily crevassed section of the glacier. We wound our way through the crevasses without mishap and after two and one half hours came to the rounded snout of a glacier flowing south from Mt. Yukon. It was still misty, but it seemed that the rock on the east of this glacier was only an easy scramble. The rock was very rotten and after an

Photo: Walter Wood

Mt. Yukon (centre); Mt. Northwest (left).

Photo: Don Morton

Ridge of Mt. Yukon, with summit in background.
Route up peak was via right-hand ridge.

hour or so became difficult enough that a rope was required.

While climbing quite a hard section of rotten rock three things happened which caused us to abandon the reconnaissance. First, the rope dislodged a large stone which fell about 20 feet and hit Jim White's hard hat, cracking it, and at the same time, hurting his fingers. He was visibly shaken because he realized that had he not been wearing the hard hat, he would probably have been killed. Second, to be added to the rottenness of the rock was the increasing technical difficulty and the correspondingly slow progress. Thirdly, the weather cleared. We were high enough up that when the clouds rolled away we could see that the west side of the glacier presented a much better route which would at most be a tiring scramble.

We had been on the rock for some 3 hours by this time and it was obviously going to take a long time to make progress from our present position. Consequently we decided that since we now knew our route, the best plan was to head back to base camp, rest up and make a determined effort the next day.

We rappelled off the difficult face and, after a rest and a further short reconnaissance to the west of the upper glacier, we made our way back. The sun had melted the hard crust on the glacier and our progress back to camp was very slow and tiring since we had no snowshoes. The reconnaissance had taken 14 hours.

We discussed our findings with the other two teams since it seemed to us that the route of the British Columbia team followed our route in part and that of the Northwest team route lay over our peak. To our disgust the Northwest team answered that they were leaving around 1:00 a.m. and that they were going to attempt Mt. Northwest "skirting our summit"—as they put it. Consequently, the first ascent of Mt. Yukon was actually made by the Northwest team on July 11. It was a fine effort on their part because visibility was poor and route finding difficult. (See Pat Baird's account for the first ascent, page 66.)

Photo: Mike MacCallum

Summit of Mt. Yukon

The weather closed in and it was July 15 when we set off. At 12:30 a.m. when we checked the weather a start seemed doubtful, but having spent 4 rainy inactive days—mainly in bed—we felt it worth the effort. At 2:20 a.m. we set off and made good progress. For the first mile or so the glacier was snow free, but soon we were ploughing through knee-deep snow again. Suddenly we were in water up to our knees—there was a stream running down a hollow in the glacier just below the snowy surface. In my haste to cross it I fell forward and made a good job of getting wet. Thus, an hour after starting afresh we were wet through and slightly bedraggled. There was no point in changing until we reached the rock beyond the upper glacier. The sky was still overcast but the cloud was quite high and looked as if it might clear. While changing our socks, the Northwest team came up, rested briefly and set off ahead of us—their snowshoes allowed a saving of one hour on the glacier.

We arrived at the upper snowfield about 8:00 a.m. The other team was basking in the now warm sunlight. After a short pause we set off over a long ridge into a snow bowl 1000 or so feet below the summit. Here we stopped for lunch; there seemed no real hurry since the weather had set fair. Actually our worry now was avalanches coming down the gully we proposed climbing— the snow was sliding off some of the other walls of the bowl. Jim White led us up the steep gully and soon we were standing on the summit plateau. The Northwest team had said they had left us the summit block to climb—it was an awkward ten-foot corniced block of ice and snow! We climbed

it and planted the Centennial flag.

Nature had decided to give us a special treat. The sun shone brilliantly and the scenery was superb. We could see peaks away off to the horizon in every direction even to Mt. St. Elias itself. It was one of those special days when you rededicated yourself to mountaineering.

Apart from minor adventures in the gully our trip back to base camp was uneventful. After some 20 hours on the mountain, we arrived back in camp at 10:10 p.m. tired, but cheerful.

Mount Baffin

9600 feet

By Mike MacCallum

Team: Don Morton (leader), Mike MacCallum, Jim White.

"Mount Baffin" is the high point on the ridge forming the eastern wall of T-Bone glacier behind the T-Bone campsite. The rock is typical of all rock in the area—very rotten and loose—no technical rock climbing was required.

We had been sitting around camp since the previous weekend, waiting for the weather to clear so that we could have at least one really enjoyable climb. It was not the rain or snow as much as the very low cloud cover which was responsible for our inactivity.

Wednesday July 19 it cleared a bit, so Don, Jim and I felt we should do something, such as explore the ridge behind camp. We had on previous occasions climbed the steep scree to a rocky knoll about 800 feet above camp. Accordingly around 3:20 p.m. we shouldered our packs (just for emergencies in case we made progress) and made our way to the knoll. We attempted a narrow gully leading upwards. Jim led unroped over a large chockstone (grade 3) to where the gully narrowed to a chimney and we wriggled upwards under another chockstone. A short distance further, we came to a very steep face. Our previous experiences on rock in these parts discouraged us from any serious technical climbing, so we turned back to the knoll to start again.

This time we descended from the knoll to the next scree gully to the south. We made our way up to a point on a long ridge at about 7600 feet. The clouds had rolled in again and visibility was poor.

We moved upwards and built cairns at regular intervals (I wished I had my roll of shocking pink marker tape which was in my rucksack at base camp). The slope was quite easy and we made good time to the main ridge at 9100 feet. Visibility was now only 100 feet, and it was difficult to say if we were at the high point or not. At first we thought we were at the summit but continued along the ridge a little way to make sure, dropping some 100 feet before starting to rise again.

The mist cleared, leaving the cloud level at 10,000 feet and we could see the real summit further along the ridge. (There was yet another summit, slightly higher, about a mile or so beyond our peak). We arrived at the summit 9600 feet at about 9:30 p.m. There was a rocky outcrop above the snow some 10 feet below the summit so we built a small cairn. The scenery was great. All the peaks were chopped off at 10,000 feet by the cloud.

The descent was uneventful and fast; we arrived back in camp at 11:45 p.m. Bill Louie heard us from afar and had a nice hot meal waiting for us—thank-you Bill! By midnight it was raining.

Summary Of The Centennial Climbs

By D.R. Fisher

Notes applying to the Centennial Climbs made by the 60 selected climbers— "Good Neighbour Peak" and the Centennial Range Peaks:

1. The name "Good Neighbour Peak" is a provisional one symbolizing the friendship between Americans and Canadians. Boundary Peak No. 181 (which has been given the temporary name "Good Neighbour Peak") is shown on maps as being Mount Vancouver, whereas in actual fact it is the south summit of Mount Vancouver, the true summit of which lies about 1 1/2 miles within Canada. No permanent name can be given to this peak until this problem has been resolved.

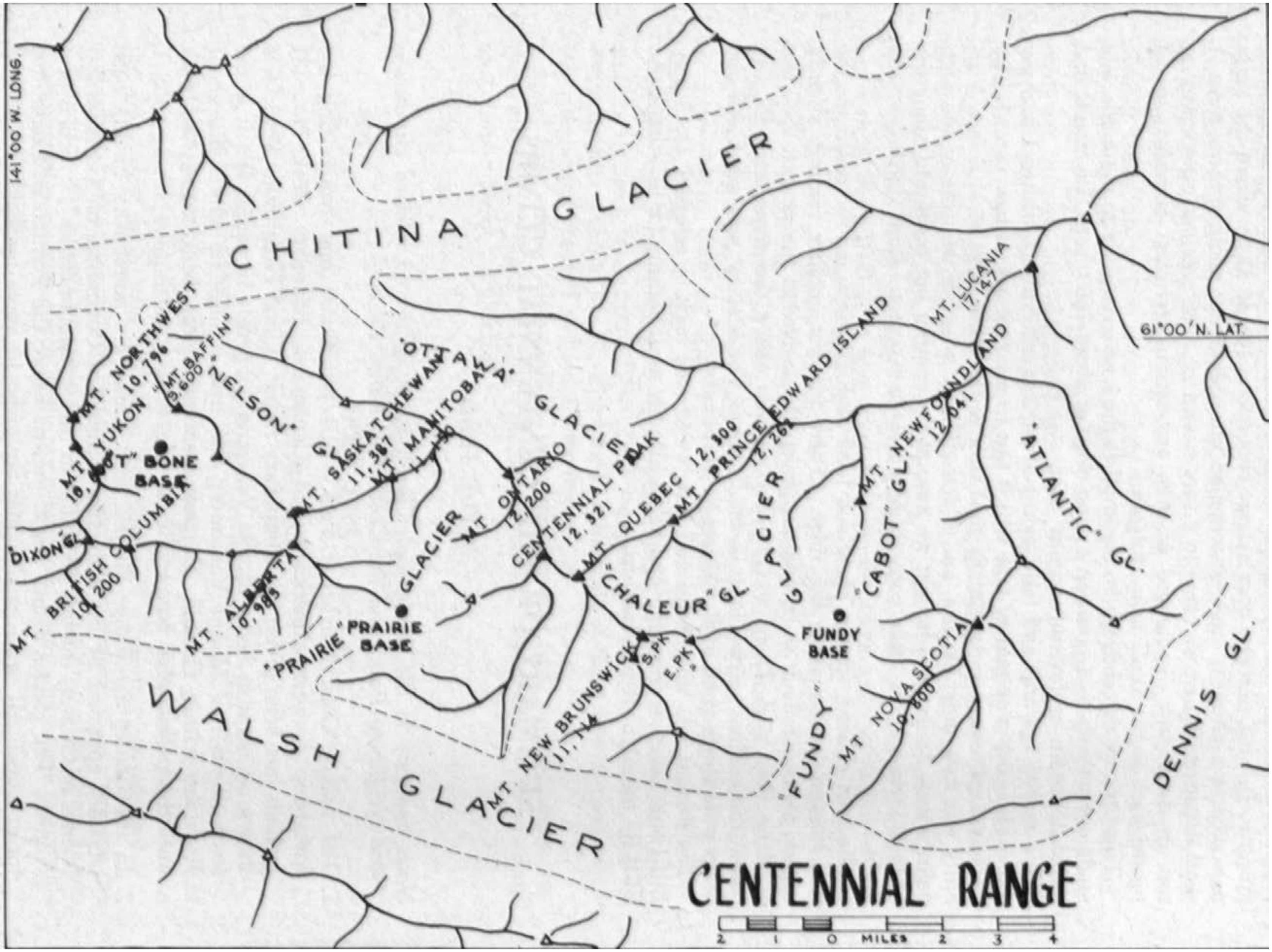
2. In the Centennial Range all the peak names are permanent, having been officially approved by the Canadian Permanent Committee on Geographical Names in Ottawa; the one exception to this is "Mount Baffin", which is provisional. The glacier names are at present before the Permanent Committee for approval. All provisional names are given in quote marks.

3. The mountains in the Centennial Range were climbed from three base camps. Mounts Nova Scotia, Newfoundland, Prince Edward Island, New Brunswick, and Quebec were climbed from the Fundy Base; Centennial Peak and Mounts Ontario, Manitoba, Saskatchewan and Alberta were climbed from the Prairie Base; and Mounts British Columbia, Yukon and Northwest were climbed from the T-Bone Base. The British Columbia team was eventually flown over to the west side of their mountain and climbed it from a high camp on the "Dixon Glacier".

4. When the Centennial Range peaks were first photographed in detail from the air, it became quite apparent that not only were most of the summits going to be difficult to climb but that the majority had massive cornices hanging from their precipitous summit ridges. It was always realized that these cornices, when soft in July, might make the attainment of the final feet very dangerous and inadvisable. In some cases it has been hard to determine whether climbs should be classified as first ascents because the teams were faced with bad cornices at the summits. Some parties have clearly acknowledged that they did not reach their summits although they did reach foresummits of approximately the same height. Others came within a few feet of the summit cornice and wisely stopped when there was no obvious permanent part of the mountain between them and the top of the cornice itself. These points, and others, have been carefully considered and evaluated by studying personal reports and many detailed photographs and it is believed that the decisions taken are the best that can be made in these circumstances.

South Summit of Mt. Vancouver ("Good Neighbour Peak", 15,720 feet)

Party	Monty Alford (co-leader), Vin Hoeman (co-leader), Glen Boles, Dr. Alan Bruce-Robertson, Daniel Davis, George Denton, Les McDonald, Jed Williamson.
Date Climbed	June 25, 1967. First ascent.


141°00' W. LONG.
CHITINA GLACIER
61°00' N. LAT.
MT. NORTHWEST 10,796
"MT. BAFFIN"
"NELSON"
MT. YUKON
"T" BONE BASE
"DIXON" GL.
MT. BRITISH COLUMBIA 10,200
MT. ALBERTA 10,985
MT. SASKATCHEWAN 11,387
MT. MANITOBA
"OTTAWA" GLACIER
MT. ONTARIO 12,200
CENTENNIAL PEAK 12,321
MT. QUEBEC 12,300
MT. PRINCE EDWARD ISLAND
MT. NEWFOUNDLAND 12,041
MT. LUCANIA 17,147
"ATLANTIC" GL.
"CABOT" GL.
"CHALEUR" GL
"PRAIRIE" GLACIER
"PRAIRIE" BASE
MT. NEW BRUNSWICK 11,714
S.PK
E.PK
FUNDY BASE
"FUNDY" GLACIER
MT. NOVA SCOTIA 10,800
DENNIS GL.
WALSH GLACIER
CENTENNIAL RANGE
2 1 0 MILES 2 3 4

Route — The route led from the base camp up an ice fall to the upper basin and on up to a low col giving access to a ridge of shattered rock, which was followed to the west until it ended at the top of an ice tongue, where Camp I was established at 10,300 feet. From Camp I the route went up to a snow-ice apron which led up to the southeast buttress. Camp II (11,800 feet) and Camp III (14,000 feet) were established on the apron. From Camp III the party climbed up to the top of the southeast buttress and along it to the summit. Hoeman, McDonald, Davis and Denton climbed across three intervening summits to reach the north and highest summit of Mount Vancouver (15,860 feet). Alford went as far as the central summit (approximately 15,700 feet). This was the second ascent of the main summit of Mount Vancouver and the first ascent by this route.

:

Centennial Peak (12,321 feet)

Party — Fips Broda (leader), Klaus Boerger, Stanley Rosenbaum, Hans Weber.

Date Climbed — July 24, 1967. First ascent.

Route — The summit of Centennial Peak consists of several small ice pinnacles or flutes, three of which are very distinct. The northerly one is the lower of the three and the central and southwesterly ones are of almost equal height and are separated by about 75 feet of feathery snow crest. In some photographs the central summit appears slightly higher and in others the southwest summit appears higher. Quite clearly the configuration of the flutings in each year has a bearing on which of these two pinnacles is the few feet higher than the other. Possibly in some years these flutes are absent.

It was the summit of the southwesterly pinnacle that was finally reached at 2:30 a.m. on July 24 in very poor light. The route led up the glacier lying immediately to the east of the Prairie Base camp, and across the ridge at its head to join the small glacier lying immediately south of the summit. This glacier was then ascended to the col at its head and the southwest ridge followed to the summit.

Mount Alberta (10,983 feet)

Party — Wayne Smith (leader), Philip Dowling, Klaus Hahn, Dr. Gerald Wright.

Date Climbed — July 13, 1967. First ascent.

Route — The mountain was climbed from the east up a rock rib to the Alberta—Saskatchewan col and then up the north ridge, across below the summit on the east side, to the south ridge, and up this ridge to the summit.

Mount British Columbia (10,200 feet)

Party — Ralph Hutchinson (leader), Andrew Gruft, Byron Olson, Karl Winter.

Date Climbed — July 19, 1967. First ascent.

Route — The mountain was climbed from a high camp on the "Dixon Glacier". The route led from the south up a couloir to the west ridge and then up the ridge to the summit.

Mount Manitoba (11,150 feet)

Party	Paddy Sherman (leader), Dr. Raymond Denson, Don Forest, Duncan McDougall.
Date Climbed	July 10, 1967.
Route	The party ascended the face to the west of the south buttress then climbed in a northeasterly direction up the face towards the summit keeping near the ridge running towards Mount Saskatchewan. They were turned back a short distance from the summit by rotten snow on ice.

Mount New Brunswick (11,114 feet)

Party	Peter Spear (leader), Stephen Bezruchka, Christopher Gardner, Robin Lidstone.
Date Climbed	July 16, 1967. First ascent of south summit (approximately 11,070 feet).
Route	The mountain was climbed from a high camp at the base of the glacier flowing to the southeast from the mountain. The route led up a rock ridge to the south peak and then along the ridge connecting it to the main summit. The party was stopped about 130 feet below and 200 yards from the main summit by a dangerous cornice.

Mount Newfoundland (12,041 feet)

Party	Werner Himmelsbach (leader), Dr. Dick Roe, Don Soughan, Ian Stewart (not on summit climb because of effects of a fall).
Date Climbed	July 15, 1967. First ascent except for soft summit cornice.
Route	The mountain was climbed up a couloir on the east face that joined the south ridge near the summit, and then north along this ridge. The party stopped 20 feet below and 60 feet from the top because of the summit cornice.

Mount Northwest (10,796 feet)[7]

Party	Patrick Baird (leader), Jim Caldwell, Jim Ferguson, Don Morton.
Date Climbed	July 15, 1967. First ascent of south summit. Second ascent of Mount Yukon.
Route	The route led over the summit of Mount Yukon (by the same route as that used by the Mount Yukon party) and along the ridge that connects the two mountains. The party stopped at the south summit, which was separated from the slightly higher north summit by a nearly level, dangerously corniced 150-yard ridge.

7 These official heights show Mount Northwest higher than Mount Yukon, but the team that climbed both says that the former is definitely the lower by at least 50 feet.

Mount Nova Scotia (10,800 feet)

Party	Robert Paul (leader), Fred Crickard, Don Poole, Maurice Tyler.
Date Climbed	July 15, 1967. First ascent.
Route	The route led up the glacier that flows northwest from the mountain into a point on the summit ridge just west of the summit and from there along the ridge to the summit.

Mount Ontario (12,200 feet)

Party	Helmut Microys (leader), Sev Heiberg, Roland Reader, Alex Norman (not on summit climb because of ill health).
Date Climbed	July 15, 1967. First ascent.
Route	The mountain was climbed up the glacier on the south side of the southwest buttress to the Centennial Peak-Mount Ontario ridge at about 11,000 feet then along the south east ridge to the summit.

Mount Prince Edward Island (12,262 feet)

Party	Norman Purssell (leader), Brendan Moss, Albert Parke, Christopher Smith.
Date Climbed	July 16, 1967. First ascent of main peak and south peak
Route	The route led from a high camp up the southeast ridge to the south summit (approximately 11,000 feet) and then over to the southwest ridge and up this ridge for 1000 feet to the summit.

Mount Quebec (12,300 feet)

Party	Claude Lavallee (leader), Andre Hebert, Peter Hutchins, Hans Münger.
Date Climbed	July 15, 1967. First ascent of main peak and north peak.
Route	The mountain was climbed from the "Chaleur Glacier" up a spur to the snow plateau between the north and south peaks, and then south to the main summit. The descent was made over the north peak to the col between Mount Quebec and Mount Prince Edward Island and then back down to the "Chaleur Glacier".

Mount Saskatchewan (11,387 feet)

Party	Miss Gertrude Smith (leader), Mrs. Helen Butling, Miss Andrea Rankin, Mrs. Wendy Teichmann.
Date Climbed	July 19, 1967.
Route	The route led from a high camp in the snow cirque to the east of the mountain up to join the northeast ridge at about 9500 feet and then up the ridge. The party was forced to turn back at approximately 10,400 feet.

8 See footnote on page 101.

Mount Yukon (10,600 feet) [8]

Party	Mike MacCallum (leader), Hugo Hohener, Dr. William Louie, Jim White.
Date Climbed	July 15, 1967. First ascent.
Route	The route led from the glacier to the south of the mountain up a gully to a glacial plateau, which was climbed on the west side and then crossed to a gully leading up to the southeast ridge. The party then climbed up this ridge for about 500 feet to the summit.

Mount Baffin (9600 feet)

Party	Mike MacCallum, Don Morton, Jim White.
Date Climbed	July 19, 1967. First ascent.
Route	The route led east from the T-Bone Base Camp into a small snow basin and then up a south ridge to slightly west of the summit and finally east to the summit.

The First Steele Glacier Camp, 1967

By Basil Dunell [9]

Several weeks of preparation beginning in a very leisurely way and slowly increasing in tempo to somewhat of a chaotic scramble as one tried to find the final necessities at the last minute, culminated in the sense of relief and expectation that one experienced as one stood in the passenger terminals and on the tarmac of various airports on the way to Whitehorse watching the climbers come together by ones, twos, tens and twenties. Some who had come earlier by plane or by boat and train showed up at Whitehorse to catch the bus for Staging Camp at Kluane Lake; those who came by car completed the party at Kluane Lake. Here Campbell Ledingham organized the busloads on the mornings of Saturday and Sunday, July 15th and 16th, for the final stages of the journey into the Steele Glacier Camp. I was simple-minded enough to suppose that this journey would proceed in a more or less uninterrupted fashion. Instead, those 24 or 25 people who left Staging Camp by the second bus (at 9 a.m.) for the road up Quill Creek found on arrival at the end of the bus-line that half of the first busload was still waiting for the 4-wheel-drive truck to return from the helicopter pick-up point and transport them there.

About 6 p.m. the last load of bodies and duffel had been brought up to “Maple”, the communications code name for the helicopter pick-up and drop-off point some 9 miles up Quill Creek, west of Mile 1111 on the Alaska Highway and about 8 miles east of the Donjek River. Regrettably, one of the two helicopters that had been chartered to move us was sitting at Burwash Landing waiting for a spare part to come from Vancouver. Fortunately, however, two other ‘copters that were working in the area helped to fly us in as their other duties might permit. On each of Saturday and Sunday, the last climbers arrived in camp about midnight. Our pilots had done a long wearisome job.

9 I am greatly indebted to all those leaders who made notes on their climbs on the Camp Climbing Sheets and, in particular, to Lord Hunt for his detailed accounts of Peak 3 and Triplex.

The flight from Maple was westward over muskeg and country sharply eroded into steep ravines to the Donjek River, across its many channels to Steele Creek, and up Steele Creek to a point a few miles up from the snout of the Steele Glacier. From here one walked about 4 miles beside the glacier, crossing a couple of tributary creeks and the moraines of their associated glaciers from the side valleys, to the Steele Camp situated at approximately 5,700 feet in a somewhat moist meadows of grassy hummocks on the edge of the (true) right lateral moraine of the Steele Glacier with a magnificent prospect of Mount Steele rising 11,000 feet above camp some 15 miles away.

Camp consisted of the usual Alpine Club of Canada Annual Camp facilities: mess and kitchen tent, tea, office and radio, and hospital tents, and finally the living and drying tents.

Although there was some scrub willow around Steele Camp, the nearest wood suitable for stoves and campfires was probably 10 miles or more away. Those accustomed to the usual Club camp in the Rockies missed the campfires. Cooking, and the heating that was done, was by tank propane, brought up by the helicopters.

The first Sunday in camp, July 16th, was a splendid day and four "recces" got started immediately after breakfast. One party climbed Peak l,[10] another climbed Peak 2A, and the character of the snow for the whole camp period was made clear—soft and deep, and in the afternoon soft, deep, and wet. In general the nights were too warm during the camp period and parties frequently found that even after a 3:30 a.m. start (at which time it was quite light; indeed at the beginning of the camp period it never seemed completely dark) they would encounter easily breakable crust on the ascent. Having broken the crust, one often sank to the knees and sometimes to the hips. Descents in early and mid-afternoon were generally a series of plunge steps to various discouragingly great depths in remarkably wet snow.

On Monday, the 17th, there was low cloud and some rain. Peak 1 was again climbed, a snow school held, and some recces made. No climbs went on Tuesday because of poor weather.

Things really got under way on Wednesday, the 19th, another brilliant day. A peak which was given the name "Gmoser's Gmesa" (9000 feet) near "Tempest" (9200 feet, known during first camp as "Lighthouse") and a peak lying behind "Terrace" and called "Promenade" (9200 feet) were both climbed (for the first time) from a helicopter drop-off point at about 6700 feet across from camp on the north side of the Steele Glacier. The ascent of "Gmoser's Gmesa" was made by Hans Gmoser, B. Coulter, L. Hawes, Miss N. Houghton, K. Philp, W. Robinson, G. Schlee, and W. Sharp. The ascent of "Promenade" by Don Morrison, Miss J. Allen, Miss S. Evans, W. Joyce, J. Lampard, J. LaPlace, M. Piggott, R. Peters, T. Swaddle, and A. Woznicki, went up the left side of the glacier between Tempest and Terrace Peaks. As the glacier flattened out, two peaks appeared behind Terrace and the peak on the left was climbed by gullies on rock and snow to the summit ridge: 5 hr. up, 3 1/2 hr. down from and to the helicopter pick-up point.

The same day the first ascent of Peak 3 was made by John and Joy (Lord and Lady) Hunt, Colin Godfrey, Ernest Reinhold, and Fritz and Andy Wiessner. From a 3:30 a.m. start from camp, the party walked up to the end of the grass moraine trough beside "C Glacier" and crossed the glacier at this point to the foot of the gully beneath a prominent hanging glacier in the northeast face of the peak. They had intended to climb a broken rock buttress on the left of this hanging ice,

10 For heights and proposed official names of certain peaks and glaciers referred to here by the temporary designations used at Camp, see Notes 1 and 2 of the following summary (pages 129-136) of the first ascents and other climbs made from the Steele Glacier Camps. For three peaks not listed in that summary (see its Note 3), the heights and proposed names are: Peak 1 (9850 feet)—"Mount Wates"; Peak 2 (9850 feet)—"Mount Gibson" ; Peak 2A (9250 feet) — no name recommended. Peak 7A (10,850 feet)—"Mt. Coleman"—was not climbed.

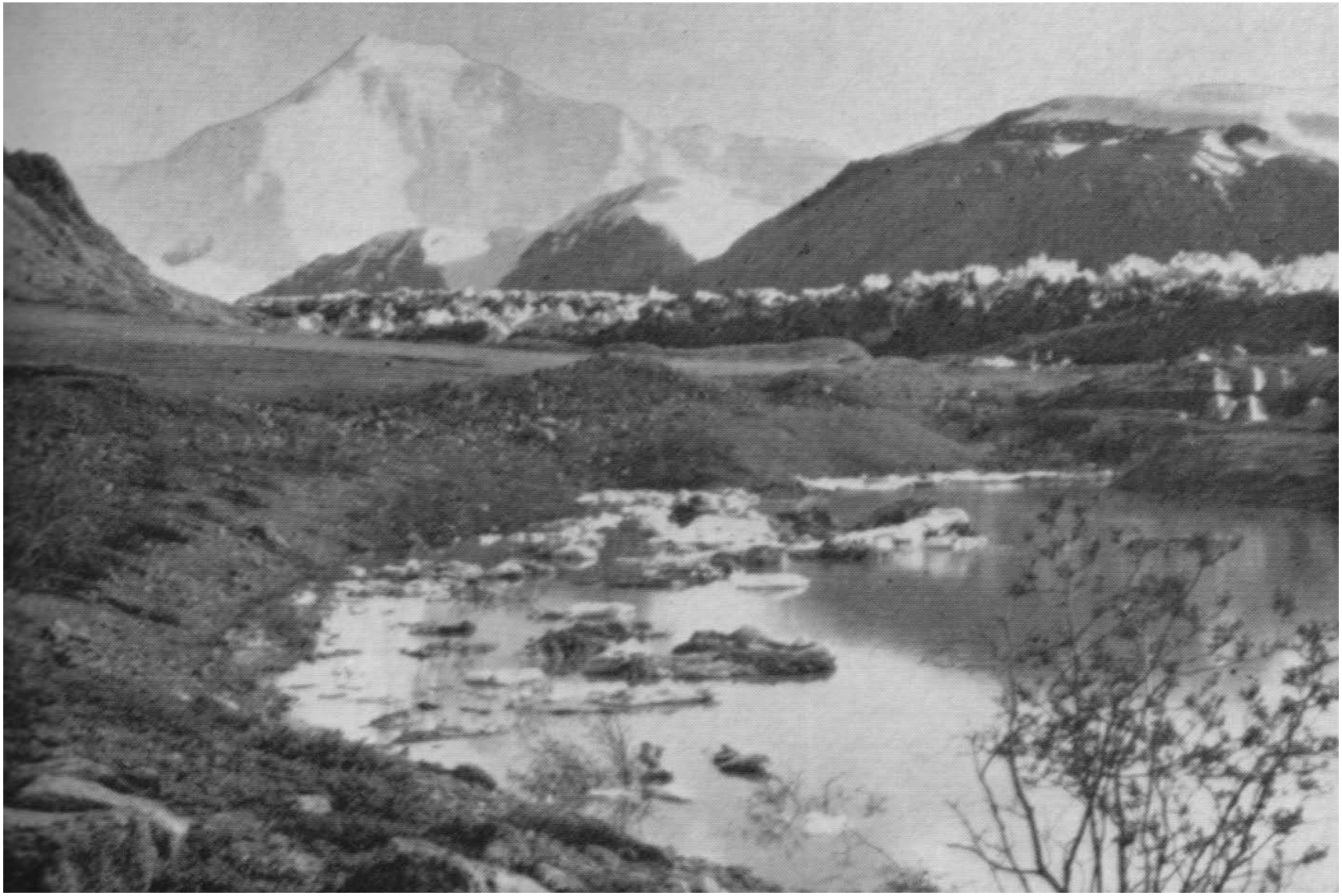


Photo: Sylvia Evans

Steele Glacier Campsite.

but actually went straight up the avalanche fan beneath it and up a steep ice trough, thence straight up a steep ice face, which was in excellent condition, to a short steep snow gully, which led onto the north ridge of the peak via a short dangerous rock pitch. A snow slope, followed by a 50° ice gully, led to the first sub-summit.

The party removed crampons at this point to continue along an interesting but dangerously loose rock ridge to a rock summit at about 9000 feet. This was reached at 10 a.m., 2 hours after they had gained the north ridge. From here they followed a mile-long snow ridge which was particularly interesting and varied with steep sections, crevasses, and a final bergschrund bridged by the narrowest of snow bridges and followed by a very steep slope. They reached the peak at 1:05 p.m. On the return, they left the ridge by a long rubble-filled gully which descended to the Steele Glacier, whence they traversed to the right to the junction with "C Glacier" and arrived back at base at 9 p.m.

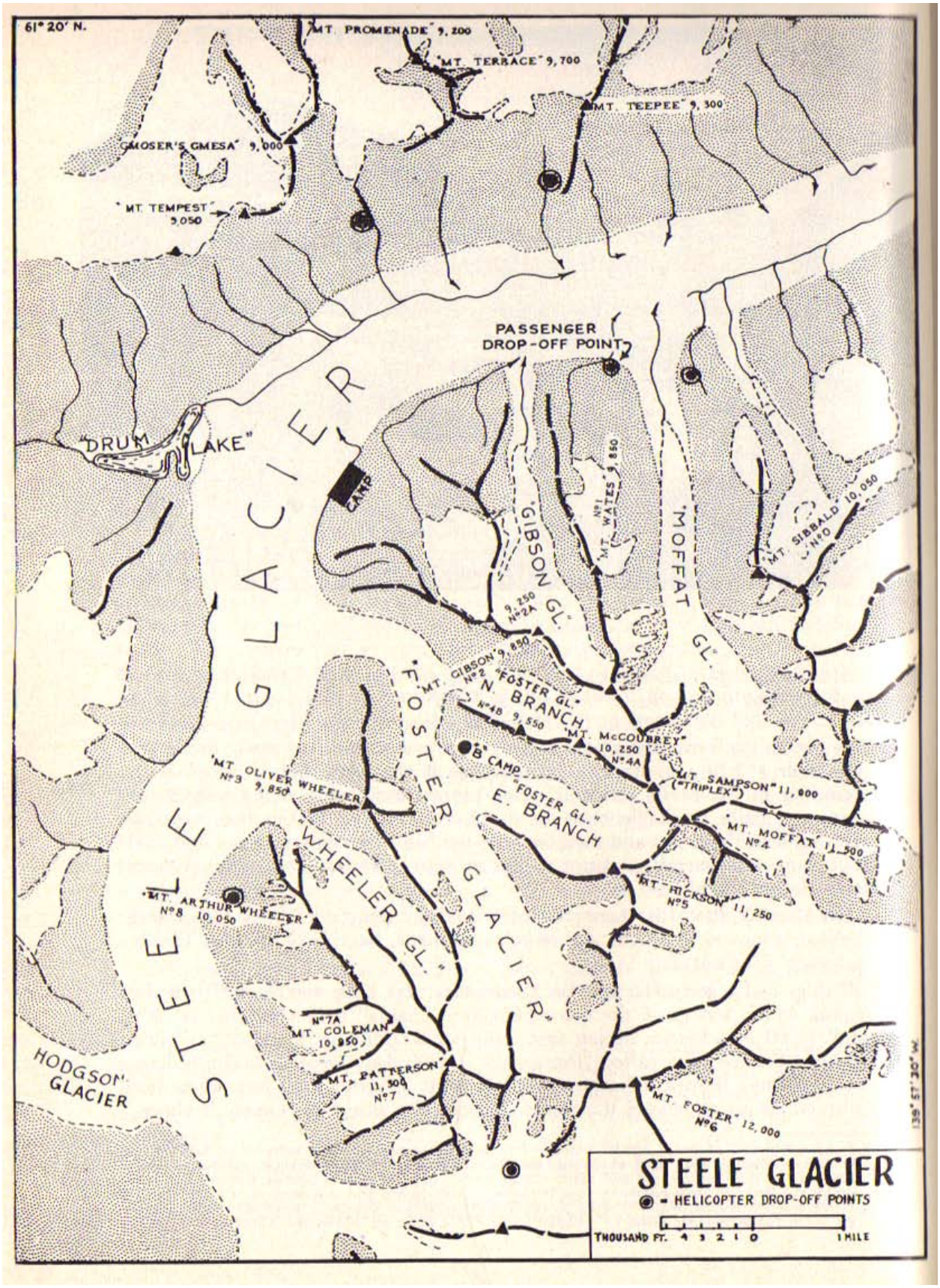
On Thursday, the 20th, we had a visit from the Secretary of State, the Hon. Judy LaMarsh, and her entourage, which included representatives of the Whitehorse Press. The party toured the campsite, shared turkey with us for lunch, a gastronomical event normally reserved for the observance of Sundays and Holy Days, and Miss LaMarsh was taken on a helicopter trip to the higher and snowier parts of the St. Elias Range.

Despite the double attraction of guests, and turkey for lunch, some dedicated mountaineers had gone off to eat their sandwiches on the peaks and at the schools. "Gmoser's Gmesa" and Peaks 1, 2, and 3 were again climbed and ice and snow and rock schools were held. An advance camp, or at least the makings of it, had meantime been deposited by helicopter on a rocky prominence just above the junction of "B" and "C" glaciers at about the 7400-foot level. Some time after lunch a party of six set off for this "Glacier B Camp" to climb from there the next day. Rather doubtful weather encouraged us to erect the tents without delay and without quite the attention one might have wished to give to preparation of the ground.

Next day the weather was poor and it was decided to move camp a few yards to a more suitable site, improve the ground, and construct one or two cooking amenities. This was done while two of the party returned to base to communicate our intention and obtain more food. They returned, with John Hunt and a party of twelve in close pursuit. Fortunately, the Hunt party had brought one or two more tents and without trouble all 19 of us bedded down at a very comfortable B Camp for the night of the 21st.

The night was clear and frosty and the early morning of the 22nd was sparkling. Roger Neave, Miss Freddy Chamberlin, Basil Dunell, Stirling Hendricks, Wally Joyce, and Doug Lampard set out at 4:20 a.m. for Peak 5. We dropped down onto "C Glacier" and followed it up to the first icefall above the camp and scrambled up past the icefall between the glacier and the cliffs, then along the moraine for a few hundred yards before starting up scree to a very broken rocky rib, which led up to the main northwest ridge of the peak. We put on crampons a little below the ridge and ascended the next several hundred feet on well-frozen crust. This snow ridge was followed to the summit. It was a fine ridge with some very steep pitches, crevasses, and fine views of the huge icefall on the northwest face of the mountain.

A spectacular and very narrow snow ridge formed the actual summit, which was reached at 12:15 p.m., a first ascent. Although high cloud had appeared during the morning and the air remained cold during the ascent, we encountered on the higher slopes, and especially the steeper ones, breakable crust which made the going very slow. We left the summit at about 1 p.m. and followed the same route back to high camp, which was reached at 6 p.m.


61° 20' N.
MT. PROMENADE 9,200
MT. TERRACE 9,700
MT. TEEPEE 9,300
GMOSER'S GMESA 9,000
MT. TEMPEST 9,050
PASSENGER DROP-OFF POINT
"DRUM LAKE"
CAMP
STEELE GLACIER
"GIBSON GL."
MT. WATES 9,850
MT. SIBBALD 10,050
"MOFFAT GL."
MT. GIBSON 9,850
"FOSTER GL." N. BRANCH
MT. McCOUBREY 10,250
"FOSTER GL." E. BRANCH
MT. SAMPSON ("TRIPLEX") 11,800
MT. MOFFAT 11,500
MT. HICKSON 11,250
"B" CAMP
MT. OLIVER WHEELER 9,850
"WHEELER GL."
MT. ARTHUR WHEELER 10,050
"FOSTER GLACIER"
MT. COLEMAN 10,850
MT. PATTERSON 11,300
MT. FOSTER 12,000
HODGSON GLACIER
STEELE GLACIER
= HELICOPTER DROP-OFF POINTS
THOUSAND FT. 4 3 2 1 0 1 MILE

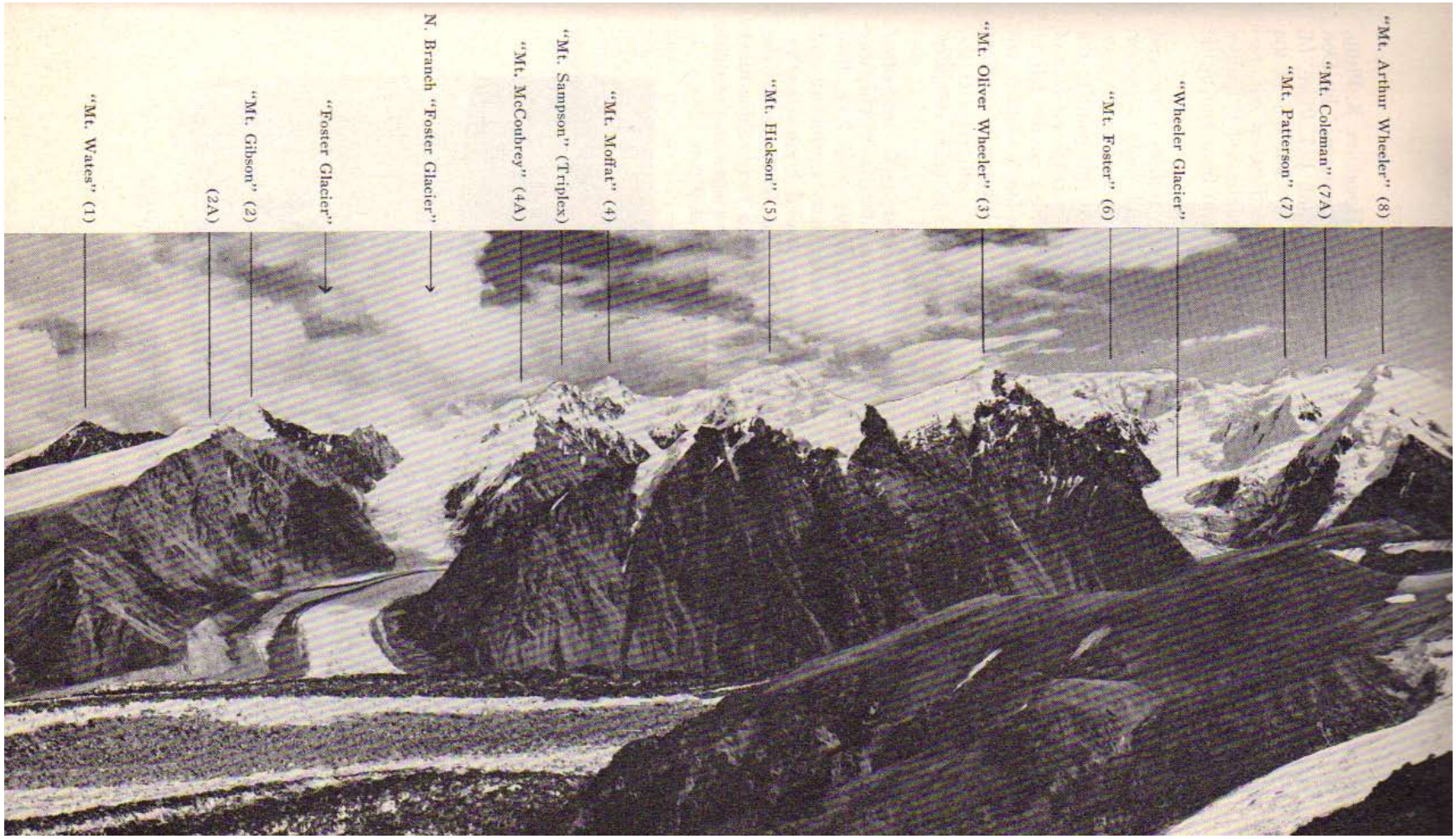


Photo: Walter Wood

Peaks climbed southeast of the Steele Glacier Camp.
Steele Glacier in left foreground.
General Camp and "Mt. Sibbald" (Peak 0) shown in the panorama following page 133.

Photo: Wally Joyce

Approach to the first ascent of "Promenade Peak" (left); "Terrace" at right.

Photo: Wally Joyce

"Mt. Gibson" (Peak No. 2).

Meanwhile a group of six from the Hunt party, led by Karl Dietz and Jerry LaPlace, climbed Peak 3 by a broken rock rib to the right of the very large snow gully at the southeast end of the peak, a bit upstream across "C Glacier" from B Camp. The route was easy but very loose rock to an eastern snow buttress and up not very steep snow to the summit. This route was a much quicker one than the first route and was very easily done with a 3:30 a.m. start from main camp. An alternative descent of the lower 1000 feet or so of the rock rib was via a wide scree-gully on the south side of the rib to the snow gully lying at the southeast end of the peak. At the same time the remaining seven of the Hunt party set off to reconnoitre the possibilities of climbing the twin peaks high up on the true right flank of B Glacier. Much discussion in camp centred on the identity of these peaks, which were eventually distinguished from Peaks 4, 4A and 4B, a group also called "Triplex" at camp. This party travelled 1 1/2 miles up the right moraine of "B Glacier" to a point close to the corner where the upper icefall comes steeply down. A main ridge also descends from the objective to this point. Just downstream of the ridge a wide, steep (40-50°) avalanche-swept snow couloir descends 2000-2500 feet from the summit ridge. The party ascended first on rock and then by the couloir to a point just below the ridge. The exit onto the ridge, however, was awkward and exposed, and very poor snow conditions—incoherent powder under a crust—caused them to turn back from a point at about 10,500 feet (summit about 11,000 feet).

Photo: Wally Joyce

Summit of "Mt. Hickson" (Peak No. 5) on first Ascent.

A party consisting of Bob Hind, Jack Cade, Jo Kato, Garry Kozel, Jim Lampard, and Brian Thompson left main camp for Peak 4A also on the 22nd. They left camp at 3:20 a.m., went up "A Glacier" and ascended the north ridge of the objective from this glacier by way of very steep snow. They reached their summit (a first ascent) at 9:35 a.m., and because of the cold wind, continued

on immediately, descending via the Peak 1—Peak 2 col and the glacier between Peaks 1 and 2 to Steele Creek, arriving back in camp at 3:20 p.m.

On July 24 a first ascent of Peak 4 was made from B Camp by Peter Fuhrmann and Fritz Wiessner, together with Miss Judy Allen, Colin Godfrey, Leo Smith, and Andy Wiessner.

Their route was up the middle of "B Glacier", through the icefalls and up the steep snow of the southwest face. Times for this first party have not been recorded, but for the second ascent on July 25 the time up was 6 hours from a 4 a.m. start from B Camp, and 4 1/2 hours down.

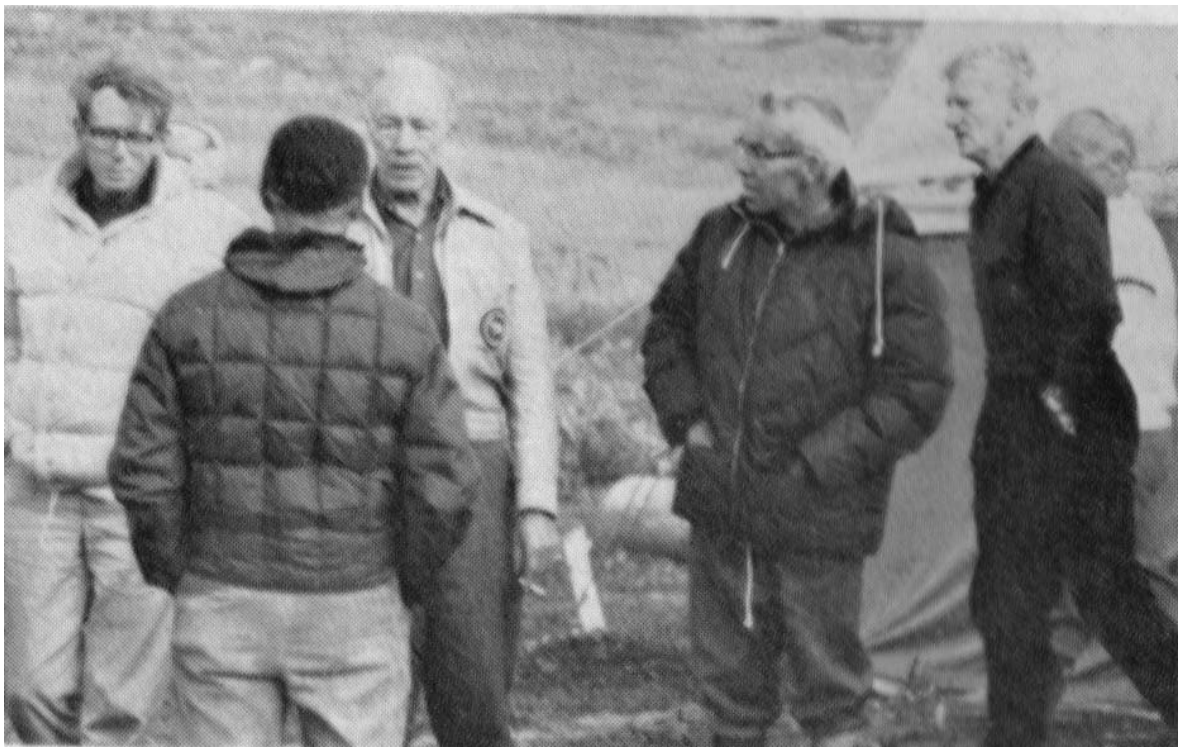
Also on the 24th, John Hunt and party, largely the same group that had investigated "Triplex" two days previously, had another try at this peak from the north, via "A Glacier". An attempt by the north ridge, which is steep and narrow, was blocked by a huge crevasse some 800 feet above the upper basin of the glacier. Whether a route down into the crevasse and out onto the east face would have been successful was uncertain and, in any case, at least one member of the party would have had to be left behind to secure the return of the remainder from out of the crevasse on the descent. It was therefore decided to continue up the north face. A thousand feet more of steep snow brought them to another monster crevasse, 50 feet wide and running right across the face. It was then 2:30 p.m., and although they were only a couple of hundred feet below the summit, they were obliged to turn back. Disappointing, but as Peter Bowers, who had been on both tries, told me, everybody agreed that they had had two days of superb climbing and excellent new experiences in ice and snow techniques.

The final first ascent during first camp was made on July 26th by Gerry Schlee, Miss E. Demchenko, Mrs. C. Dietz, W. Joyce, D. Lampard, J. LaPlace, Miss J. Logie, R. Peters, L. Smith, R. Thomson, D. Vallance, and R. Wharry on "Terrace". From the helicopter drop-off point on the north side of the Steele Glacier, the route followed the glacier between "Terrace" and "Lighthouse" to the south ridge of the mountain (2 l/2 hours); thence over loose rock on the right side of the mountain. The party partly traversed the mountain on the east side below the ridge to avoid buttresses, then ascended scree to the upper cliff band, traversed south and around the cliffs to the west face and ascended snow, keeping close to the rock (here in the form of Hoodoos). (l 1/2 hours.) The final narrow snow ridge to the summit took another hour. Descent towards "Promenade," down a steep snow face, is not recommended because of poor rockbands below the snow. Return to the helicopter pick-up, 4 hours (presumably by the ascent route).

After the 26th the weather left much to be desired and little was accomplished. There was the occasion when a party of six went up to B Camp to climb Peak 4 and two of the French two- (or three-) man tents collapsed on their single occupants in the middle of the night because the very light aluminum poles supporting the head and foot buckled under the weight of two or three inches of wet snow. Next day we sat in the remaining tents and listened to the avalanches roaring off Peak 3 at about half-hourly intervals.

Peter Fuhrmann and five others climbed Walsh (14,780 feet) on the 26th in poor weather, reaching, at the correct altitude, a point from which the land descended in all directions. They then waited at the high camp on the Steele-Walsh col, together with a party which made an attempt on Steele but was turned back by bad weather, until late afternoon on Saturday, the 29th, before the helicopters could get to them to bring them out. They had not yet begun to eat their shoelaces, but rations were getting a bit tight.

Meanwhile, back at main camp, people went on a few minor expeditions, climbed in and out of their sleeping bags, played bridge in the tea tent, and eavesdropped on the radio communications between Steele Camp and high camp where the Walsh and Steele parties were waiting it out, and



"In conference".
(Facing camera, left to right: Dave Fisher, Walter Wood, Jim Tarrant, John Hunt, Roger Neave (partly hidden)).

between Steele Camp and Kluane Lake, from which the rest of the world was cut off for a time by washouts on the Alaska Highway. An interesting aspect of this radio communication is that it was apparently accomplished by frequent invocation of one "Roger" (who was not connected with the President of the Alpine Club of Canada).

There was also the incident in which one of the climbers at high camp developed a hernia. Fortunately the cloud parted for long enough in the evening of the day it developed, so that Joe Kato was able to go up by helicopter, give medical assistance, and let the patient return to civilization by the helicopter. Joe then had the pleasure of waiting with the remainder of the party for the next three days to be brought down.

Because of the washouts on the Alaska Highway there was a day's delay in bringing up the participants for second camp and simultaneously taking out the people from first camp. I am sure most of us left with the feeling that we had had a wonderful adventure and it was sad to go. I have not before had the experience of leaving a mountain area with no expectation of ever being able to return to it. It had been a good camp in a magnificent mountain area with the excitement of several ascents, and it was unsettling to think that one was very unlikely to see again so glorious a place. Or is it improbable? One of the purposes of the Yukon Alpine Centennial Expedition was to call attention to a great and still undeveloped climbing area. Here's to more expeditions to the St. Elias Mountains in which unaccomplished climbers like me can participate—in the near future, before old age overtakes us.

The Second Steele Glacier Camp, 1967

Hugh Neave

Mountaineers from many lands and by many different means of transportation were trickling into the staging camp at Kluane Lake on the Alaska Highway. Simultaneously, the first of the Steele Glacier Camps was in the process of evacuation to Mile 1064. It was at this point that the gods of the Yukon decided to open their sluiceboxes and curtail all this unseemly activity on their footstools. The net result was a complete standstill for 36 hours, while the diversion crews and maintenance gangs battled with the worst washout in 17 years. Whether you interpreted this deific tantrum as just retribution for the sullying of sundry virgin summits, or as a warning shot across the bows, depended entirely on whether you were inward or outward bound.

The staging camp was a well-organized and nicely set up establishment, which gave me, a newcomer to A.C.C. Camps, an opportunity to fraternize with many of the stalwarts whose names have become familiar through the pages of the Journal. It was also a clearinghouse par excellence for fact and fiction re the primeval peaks that awaited us. The tales of cooking in crampons at the high camps while belayed to an ice-axe showed that the food was not the only thing that had to be taken with a grain of salt.

The jolt from Mile 1111 on the Alaska Highway, where the bus dropped us, to the first helicopter pad was most nostalgic. I had thought the last of these vintage vehicles lay buried in the sands of the Western Desert or the mud of Italy. Nevertheless the old 4-wheel-drive was an essential link in the bus-truck-helicopter relay that left us with nothing but a gently packless hike along the Steel moraine into the Main Camp. Possibly many others felt as I did, that never before had a base camp been reached with such unencumbered ease.

The Main Camp was in a delightful situation, tucked against the true right bank of the Steele Glacier, with a superb head-on view of the mountain of that ilk dominating the southwest aspect. Panorama Ridge, thrusting scree-clad ridges from its dark dome, paralleled the glacier on the other side. The campsite was a spacious grassed area of the split level variety, stepping up from the married quarters to the girls and then the single men and the grass widowers on the periphery of the mess tents.

I was courteously offered the centre slot in the President's tent, situated under the high blade of the busiest chopper. This I originally took to be a gesture of brotherly love, but the ulterior motive soon became apparent; two weeks of fielding socks, soap and washbasin from the whirly-birds had obviously shown the need for reinforcements. Anyway it was a most uplifting experience.

Many of us spent our first day at camp assimilating the latest in rope and rescue techniques from the professionals in the anti-laws of gravity firm of Hans, Hans and Peter. Thereafter it was quite common to see many of the bowline brigade squatting around camp stringently trying to make three loops with one knot.

My first foray into the Steele Glacier group started at 3:40 a.m. up the well-worn route to the summit of "Panorama Ridge". The party consisted of thirteen on three ropes under the leadership of John Tewnion. Our destination was Peak 2.[11] A glorious sunrise welcomed us to the snowfields above "Panorama". The snow conditions were good and the going easy over the first ridge and into the cwm; avalanche areas were well-defined and it was only necessary to cross the

11 For heights and proposed official names, see footnote on page 107 and summary on pages 129-136.

fringe of these. A well-arranged rampart of rock provided flank coverage as we angled up out of the cwm toward the shoulder of Peak 2 ridge. Once the rocks were turned, a fairly steep snow-slope, complete with bucket steps, brought us onto the ridge.

Photo: Dave Wessel

Pika (Rock-rabbit).

The scenery became even more superb, and in many places the going allowed us to take full advantage of it. However, as we approached the summit, the ridge constricted and wiggled, a few steps around an airy corner deep with powder snow, and we were confronted with a short but very steep slope leading to the final summit ridge. This latter, for aesthetic grandeur stands out among the five summits I personally topped. The brilliant crystalline whiteness of the plunging slopes set off the sharp edge, pitted with steps and grooved by the running rope, that reared itself toward the final crest against a perfect backdrop of deep blue. Though spectacular, care and respect was all that the ridge really demanded of the climber. We crossed the summit at 10 a.m. and lunched on some rocks overlooking as vast a turmoil of mountains, glaciers and névé as one could wish to see.

The descent was uneventful. Once into the cwm, we digressed from our morning's route to traverse Peak 2A; and so back, through rapidly softening snow, to "Panorama" with its delightful scree run into the alplands above the Main Camp.

Our objective next day, August 4th, was Peak 8. Some 24 hours earlier it had been surmounted for the first time by a party comprising Miss Freddie Chamberlin, Mrs. Judy Cook, Bill Frantz, Murray Foubister, Neil McCubbin, Peter Brogden and Alain Arsenault, led by Roger Neave. They were airlifted along the Steele Glacier to the survey station below the glacier on the

northwest side of the peak's massif, the first contingent getting there about 7:15 a.m. Alpland and stone slopes were then ascended to the left side of the glacier tongue, where medium steep snow-slopes carried them to the ridge at 10:45 a.m. About 50 minutes of straightforward ridge work took them to the summit. They had encountered bad snow conditions on the lower slopes but the ridge itself offered fairly good going. They retraced their steps on the return journey; the complete descent to the survey station took 3 hours.

Our attempt on the mountain was on a more massive scale. A party of 11 under the leadership of John Tewnion were helicopted two at a time from the Main Camp to the survey station. At 9 a.m. we were all assembled and started angling up the hillside, religiously following the line of least resistance until we struck the snow tongue at the point where yesterday's party had also stopped to don crampons. Snow conditions were reasonably good as we mounted to the northerly ridge.

Once this was gained we followed our predecessors' tracks along the crest, surmounting a series of humps of varying steepness until the twelve of us stood in echelon along the snowy edge that constituted the summit. After materially increasing the dividends of Kodak and Agfa and eating lunch, we decided to break new ground for the descent by following a westerly ridge toward the Steele Glacier. This turned out to be quite interesting; it consisted of a series of snow pitches interspersed with rock outcrop. The latter gave us a chance to see if our crampon work was literally up to scratch.

Part way down the ridge the rope led by Ruth Graffer branched off and descended into the cwm by a steep snow slope. The ropes of Tewnion and Neave stayed with the ridge until it was necessary to strike across the shallow base of the cwm toward our starting point. We were all back at the chopper pad by 3 p.m. after completing the first traverse of the mountain.

On the morning of August 5th, 8:45 was "Zero" hour for John Tewnion and his party comprising Miss Freddie Chamberlin, Mrs. Ruth Graffer, Mrs. Margaret Tewnion, Gordon Smaill, Gordon Adams, Ron Royston, Ned Baldwin, Roland Schwerdtfeger and Brian Kregosky. Peak "Zero" (0) overlooks the snout of the Steele Glacier and is the most easterly peak of the Steele group that was climbed. The party left the helicopter drop-off point on a terrace above the glacier dividing Peak 1 and Zero and ascended scree below the upper glacier as far as possible. Here they roped up at 10:30, ascended over the glacier, and then followed the ridge over several rock steps and gendarmes, to a section composed of a crevassed glacier which necessitated several detours before giving access to the fairly steep final ridge. The summit was reached at 3:40 p.m. Unfortunately in the course of the ascent Mrs. Ruth Graffer sustained an injury when her leg was struck by a rock dislodged by another member of the party. This incident prevented a complete first ascent by a fine climber. The descent retraced the upward route and the rendezvous with the helicopter was made 3 1/2 hours after leaving the summit.

August 5th also saw the first ascent of "Triplex". Peter Fuhrmann, accom¬panied by Miss Jean Finley, Miss Marilyn Thompson and John Hopwood, successfully reached the peak from the east side from the col situated below Peak 4 after having ascended "B Glacier."

On the afternoon of these successes Peter Brogden, Frank Bartlett, George Czuczka and I, complete with sleeping gear, sauntered up the Steele Moraine and "C Glacier" to Camp B. This camp was in an exceptionally attractive situation, well protected, but providing stupendous views of a wild medley of peaks and glaciers. It was well worth all the re-siting work of the President and his cohort. A party bound next day for Peak 7 was already at Camp B, so cooking operations continued until quite late. We virtuously conceded first breakfast to Monica Nasmyth and the speleologists but even so we were away at 4 a.m., travelling up "C Glacier" till just past the nose

of the northwest ridge of Peak 5, which was our objective.

Not being very stimulated by the accounts of the previous routes to the main snow ridge, we struck off the glacier at the earliest opportunity, cutting a few steps through a crevassed area to the bottom of the first stone slide. We found the boulders reasonably firm and they probably provided the easiest access to the snow ridge. Once on the ridge, the climb followed the pattern usual in this group of mountains, the route sticking closely to the crest with snow pitches of varying severity interspersed with easier going. The summit was reached at 11 a.m. However, the descent was considerably slowed by the soft snow, so that we did not reach Camp B until 5 p.m., right on the heels of the successful Peak 7 party. Here, we hastily packed bedrolls and moved down the glacier to the Main Camp in order to make way for a fresh climbing party at Camp B. The Climbing Committee wisely limited the sojourn at the higher camp to one night in order to give everyone a fair chance.

Those of us on the August 6th climb of Peak 5 had been particularly interested in the first ascent of Peak 7 on the same day by Mike Matthews leading Trevor Morris, Rod Sykes and Miss Monica Nasmyth. Much of their route was visible from our side of the glacier and, at times, the progress of the climbers could be noted.

Mike gives the following account of the climb:

"We left Camp B at approximately 4 a.m. and followed "C Glacier" up to just north of the hanging glacier on the righthand side. A good rock and snow ridge climb took us to the ridge which leads to Peak 7. The route along this ridge is interesting and ends in a steep knife-edge. At one time we turned to the east face and came through an extremely soft snow slope which we avoided on the way down by staying on the ridge. The danger of avalanches on this section was high. The summit was reached at approximately 10:45 a.m.

"We followed the same route on the return trip. At this time of day the upper part of the stretch between the ridge and "C Glacier" was extremely soft and a section of the cornice broke loose forming an avalanche. Extreme care and possibly one or two ice screws should be used on this portion of the climb. Walking out along "C Glacier" was a wearisome process; we sank in up to our knees at every step and fell into holes many times. We reached B Camp at 5:15 p.m.

"The round trip from B Camp to the summit of the peak and then back to the Main Camp took us 15 hours."

The succession of first ascents continued on August 7th when Peak 6 was the target for John Tewnion leading Mrs. Margaret Tewnion, John and Rosa Thompson, Mike Matthews, Gordon Smaill, Murray Foubister and Brian Kregosky. They were deposited by helicopter at the first possible landing place above the crevasses of the Steele Glacier, near a subsidiary rock ridge which descends in a westerly direction from near the summit of the peak. The party ascended the tributary glacier close to the rock ridge for about a mile, then traversed across the glacier to a prominent snow ridge running parallel to the rock ridge. They continued along the snow ridge until it merged into the broad glacial bowl above. Here, it was necessary to ascend the southerly ridge, weaving a route through the crevasses and glacial depressions.The summit plateau was then reached without further difficulty. Crampons were used throughout the climb, which took the party 4l/2 hours from the helicopter drop-off to the summit. The descent was achieved in 3 hours.

John notes that the most interesting feature of the climb was the spectacular glacier scenery. He also records a day temperature reading of 28° F in the shade and 59° F in the sun. This, I would think, is a fair indication of what we experienced on many of the days in the mountains.

First ascents were beginning to run out. But the night of August 8th found a full house at

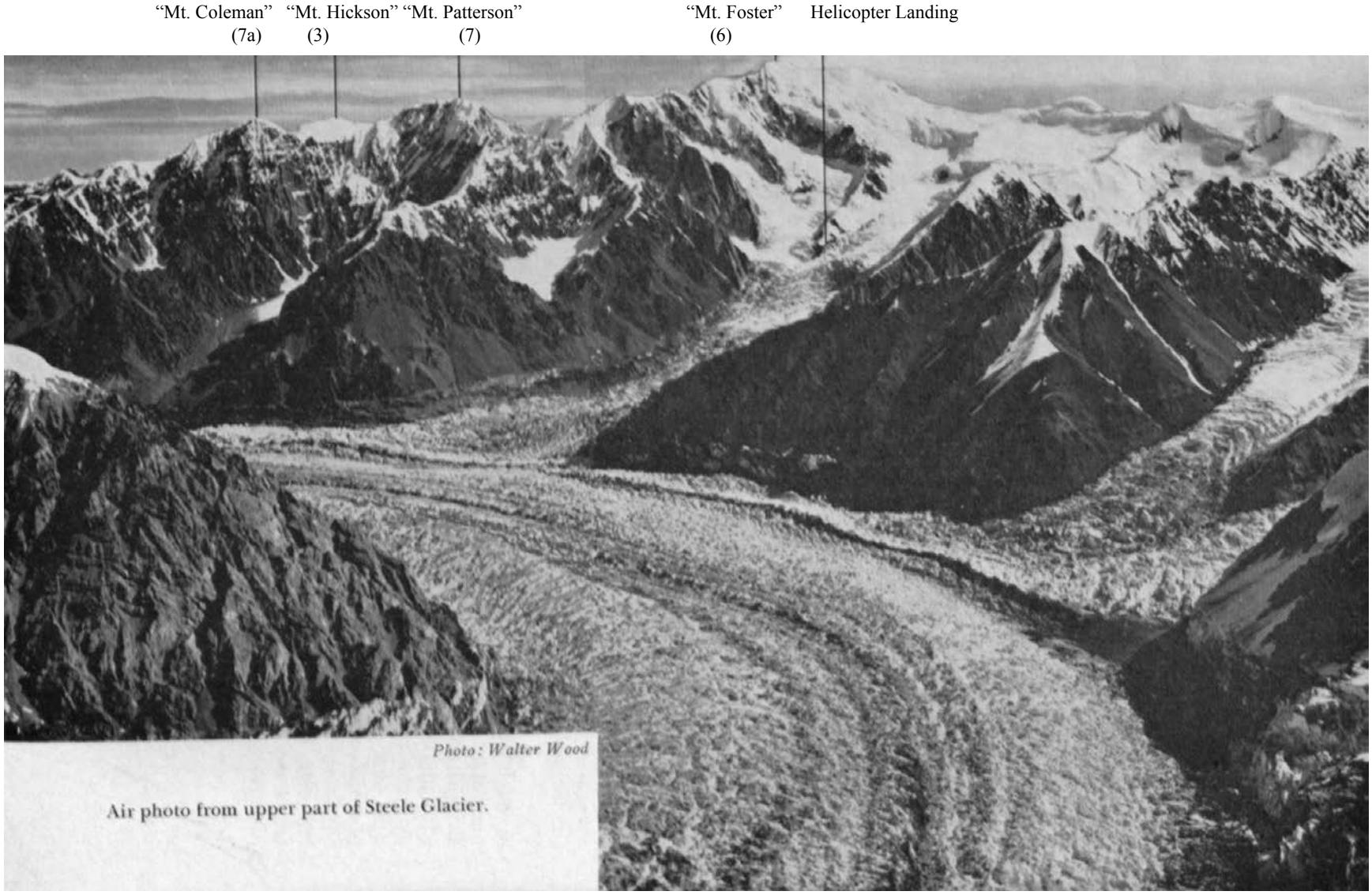
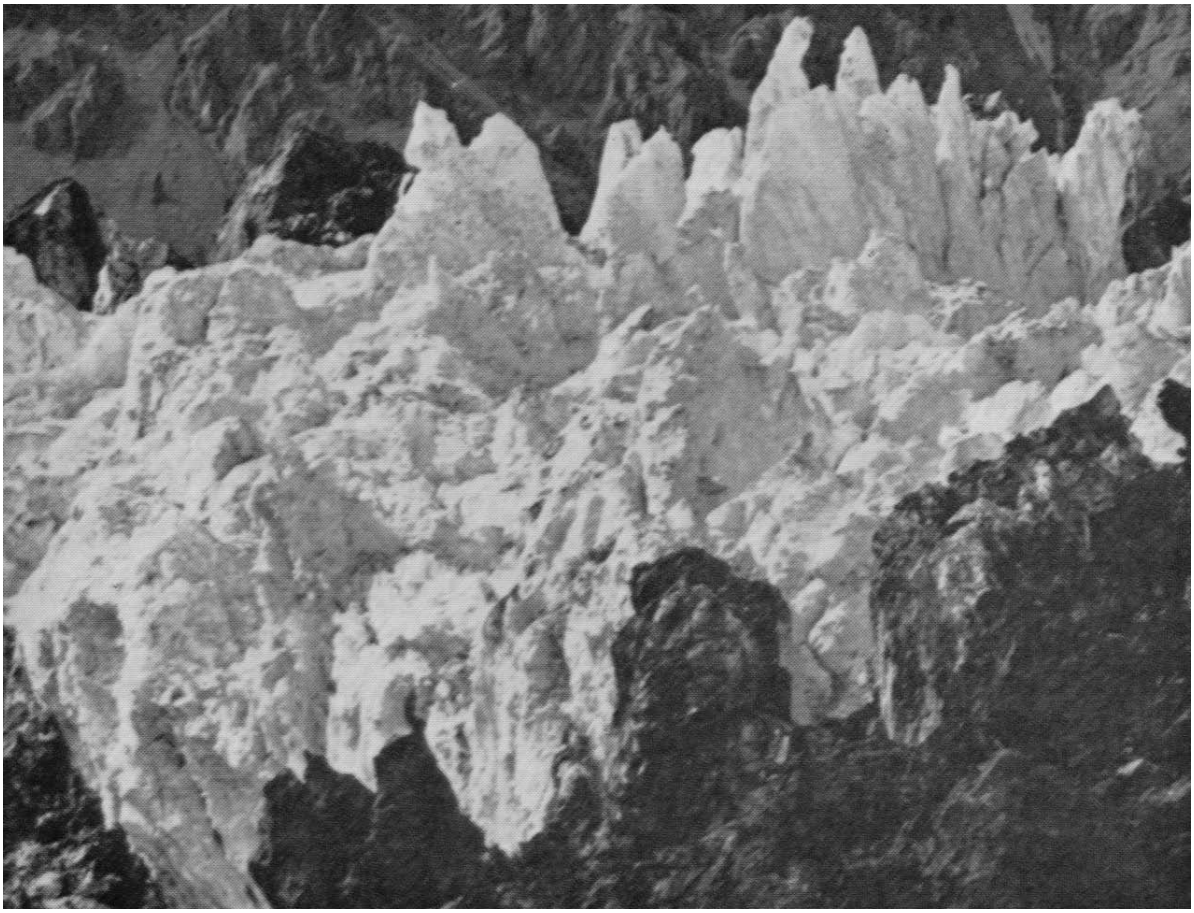


Photo: Walter Wood

Air Photo from upper part of Steele Glacier



Steele Glacier pinnacles marching past Camp.

Camp B, John Tewnion and an all-ladies team being bound for Peak 5 and stardom in Gmoser's movie, while my party had designs on Peak 4.

We got underway about 5 a.m. next morning, August 9th, and crossed a wide band of stone and rubble to the glacier formed by the Peaks 4 and 5 cirque. The glacier was well covered with snow but gave good grip for our crampons. The ascent of the icefall was actually the most entertaining part of the climb, since the exuberant advance guard threw in an unscheduled circuit that featured séracs a cheval and leaps of the mountain goat variety. After this, it was an anticlimax to plod straight up the steep and interminable snow slope to the col. However, the ridge itself offered more interest and the usual superb views. We reached the summit about 9:30 a.m., but it was somewhat cool and misty, so we did not stay long. Snow conditions were deteriorating on the way down; a good deal of breaking through up to the knees being experienced. Even so, those who went straight back to camp were there by noon.

No descriptions of the climbs around Camp B would be complete without a reference to one of the great Sagas of the Steele, the immortal ascent, burdened with bedrolls, of that "frewning" bastion guarding the approach to the Camp, now known to posterity as "Tewnion's Folly". Few are likely to follow in the wake of John and Bunny, but those who took the easy route have nothing but admiration for the dour determination of the Scots.

The last of the first ascents made at the Second Camp was that of "Teepee", on August

10th, by Henry Baldwin, Brian Kregosky, Steve Saba, Jim Thorsell, Jane Coble, Jack and Joan Miller, led by Hans Schwarz.

The helicopters ferried the party across the Steele Glacier, which at this point is nearly two miles wide and consists of a truly amazing labyrinth of crevasses surmounted by a wild medley of séracs, pinnacles and dragons' teeth that would put any ice sculptor to shame. The climbers got under way at 8:30 a.m. and ascended diagonally up scree slopes covered with fresh snow, to the bottom of the prominent gully, on the southwest side, which separates the main peak from the west ridge. Here, they put on crampons and climbed the gully on ice and snow. They then mounted a snow ridge and arrived at the summit at 11:30 a.m. Hans brought the party down by the west ridge, mostly on snow close to the rocks. At the prominent step on the ridge, they made a 60-foot rappel, though it is a section that could be climbed. The helicopter landing was reached at 3:15 p.m., 3 hours after leaving the summit.

The weather, on the whole, was most co-operative for making the above-described (and later) ascents in the Peak Zero to 8 group, but unfortunately it did considerably restrict the use of the high-altitude camps. However, the seventh and eighth ascents of Mount Steele were successfully accomplished. On August 7th, Scipio Merler led Miss Freddie Chamberlin, Mrs. Ruth Graffer and Dave Wessel to the summit. This was followed up on August 10th by Mike Matthews leading Murray Foubister, Tatsuya Nagahama and Tim Griffin.

There was only one successful attack on Mount Wood. This constituted the third ascent of the mountain. Peter Fuhrmann was the leader of a team composed of Bill Hurst, Stan Paterson, Neil McCubbin, Peter Brogden and Mrs. Judy Cook, which reached the summit on August 10th.

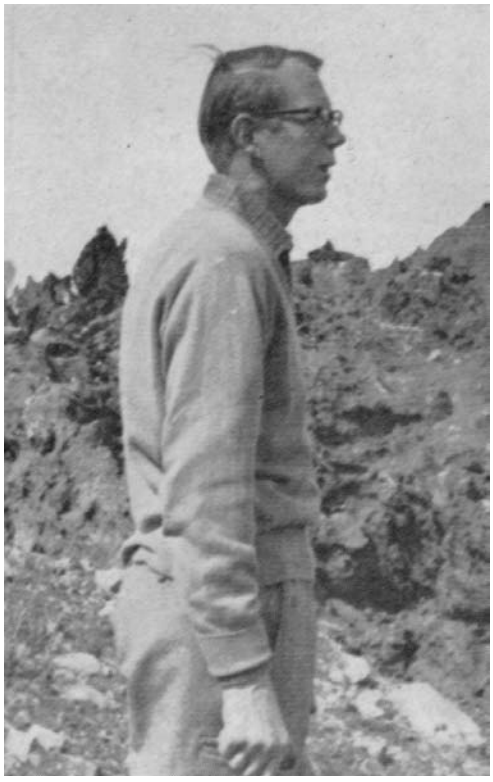


Photo: "Whitehorse Star"

Dave Fisher beside Steele Glacier.

Of the big three peaks, Mount Walsh was climbed the most often. On three successive days (August 5, 6, 7) parties of six climbers made the fifth, sixth, and seventh complete ascents. The composition of these parties is given on page 135.

Main Camp was always interesting on the off days. You could wander along the Steele moraine to try to capture the amazing profusion of grotesque ice sculptures on film, or circle Panorama Ridge for its unexcelled views, or botanize and entomologize in the alplands around camp. Helicopter lifts across the Steele Glacier to Hazard Creek valley gave opportunities to visit the debris-covered decaying tongue of Hazard Glacier. If you were well in with the Lash-Gibson partnership, you might be privileged to take a sight along the markers that charted the daily movement of the Steele Glacier, where the eye of faith could substantiate that, though a straight line between two points is the shortest, a curve is the loveliest.How nice it was to return to the Main Camp after a climb and plonk right down to a really good meal, instead of fiddling around with a small Primus or wet wood as is usually my lot. Bill Harrison and his cooking staff and helpers deserve our warmest thanks for their efforts.

Finally, appreciation must also be expressed to Dave Fisher for his indefatigable work at the Main Camp where he served that others might climb. I hope he has rectified the helicopter stoop he acquired during his summer beneath the whirling blades.

There's a land where the mountains are nameless,
And the rivers all run God knows where;
There are lives that are erring and aimless,
And deaths that just hang by a hair;
There are hardships that nobody reckons;
There are valleys unpeopled and still;
There's a land—oh, it beckons and beckons,
And 1 want to go back—and I will.

—The Spell of the Yukon by Robert W. Service

Mount Walsh

(14,780 feet - Fourth ascent)

By Art Schwartz

The first of the three higher peaks climbed by the Y.A.C.E. Steele Glacier camps was Mount Walsh (14,780 feet), on July 26, 1967. A previous attempt at Mount Steele had resulted in four climbers spending 4 days in high camp at 10,000 feet, and though an earlier attempt at Walsh had been scheduled, it literally never got off the ground.

For this attempt, original plans had been altered, and twelve climbers were choppered up the Spring Glacier to a col at 10,200 feet, between the northwest ridge of Walsh and the long southeast ridge of Steele, at roughly the same location as the final supply dump used by Wood, Bates, Bakewell and Jackman for their first ascent of Walsh in 1941.

Helicopter reconnaissance had marked the sight with a small flag, which Derrick Ellis, our trusty Bullock driver, found with no difficulty. He left Peter Fuhrmann and me, and went back for more climbers. Jim Davies soon appeared with another pair, and all six chopper loads were soon

on the spot and setting up camp by 4 p.m. on Tuesday, July 15.

Six small orange tents and the fluorescent flags marking out the landing platform made a bright splash of colour against the white of the snowfields and ridges. This was what attracted a few visitors, all seabirds which we assumed had been driven in and from the north Pacific storms. The first one showed up while the camp was still being erected; a large white bird with black trimmings, it soared up the snowfield from the southeast, suddenly veered when he saw the camp, circled it a few times, and landed on the snow not far away. Some wit made a crack about albatrosses; the bird soon took off and disappeared. It was later identified as a jaeger.

We intended to have six climbers make an attempt at Walsh the next day, while the other six would attempt to set up a second camp higher up on Steele, going on to the summit a day later. At 2:30 a.m. Wednesday, snow was falling and visibility was non-existent. We all went back to sleep. At 6:30 the snow had stopped, visibility under a ceiling of strato-cumulus was about 2 miles, and a light north wind was blowing. We snatched a quick breakfast and set out, leaving the Steele party still eating and packing up.

The six were split into two ropes of three, Peter Fuhrmann leading the first, followed by Dieter von Hennig and myself; Ernest Reinhold, Colin Godfrey, and John Dynneson made up the second. We began by threading our way among large crevasses in temperatures just a bit on the warm side, the last man leaving flags to mark the route down. The route then led onto the prominent northwest ridge of Walsh, a narrow snow ridge, frequently corniced, and broken into a series of steps by steep snow slopes, each one ending in a false summit. In among these were two short, very steep ice walls, the second just below the summit.

Photo: Dave Wessel

Digging out at Walsh high camp.

Not long after we had begun the ridge, the weather turned for the worst—visibility dropped to near-zero, and the wind picked up strength, making speech impossible because of the howling. These conditions combined to greatly increase the difficulty of the climb; the wind made balance difficult—frame packs have a bad habit of acting like sails, and I was blown off my feet twice. Lack of visibility meant that the exposure was hidden from us most of the time, which was a good thing; but then there was no point in trying to take photos, which wasn't. Occasionally there was a break in the clouds, giving us an idea of what the rest of the mountain looked like. The summit was not visible from the camp, which meant that we never saw it all. The ridge was well defined, however, and there was little chance of losing our way.

The second rope had been having some difficulty with cornices, and had fallen behind. We waited for them just below the summit, sharing a tiny piece of cake salvaged from the last meal at base camp—a great place for celebrating birthdays. But there was barely any shelter from the wind, and after 10 minutes we carried on without them.

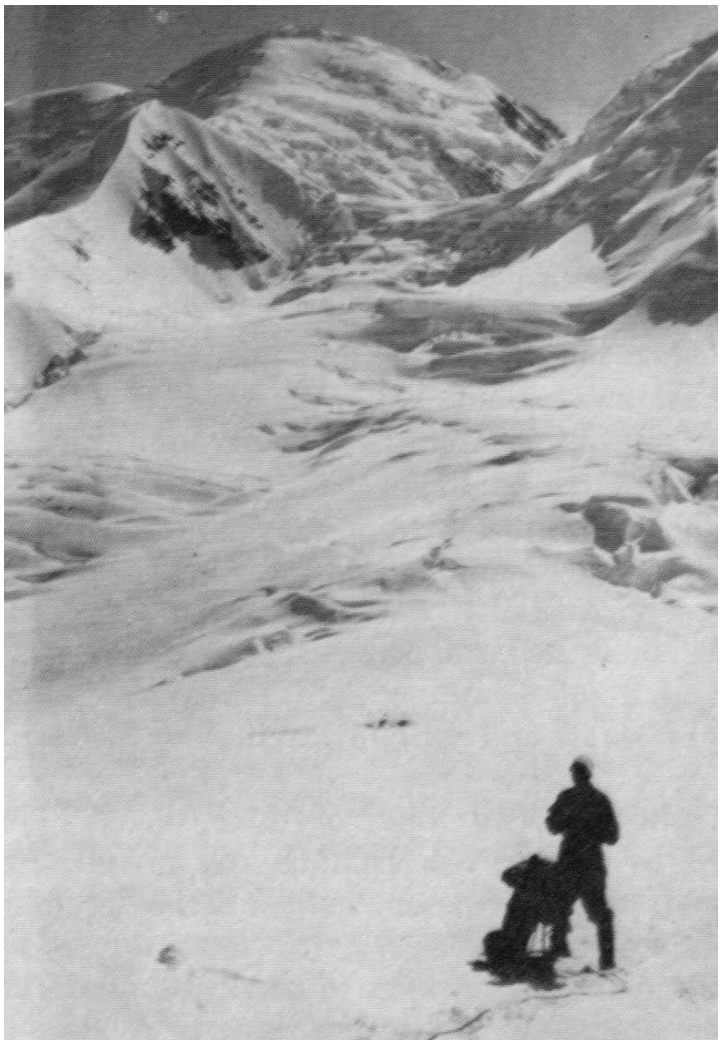


Photo: Dave Wessel

Mt. Walsh, showing high camp (just below centre)

After 8 1/2 hours, we found ourselves at the junction of three ridges—the one we had come up, another going on to the southeast, and a third branching off to the northeast. This matched the way the summit had been described by Wood's party, and since our altimeter read 100 feet higher than the summit height on the map and there was nowhere to go but down, we assumed we had made the top. At this point, visibility was only a few feet. We shook hands, assured ourselves that this must be the peak, and tried to get in its lee to wait for the second rope.

There was no lee side to that mountain. We retreated down the north flank a few yards, but the wind seemed to be circling the summit, and we soon began to feel its effects. After 15 very cold minutes we started down, and met the second rope near the last ice wall. They turned back there, and we came down together, with two of the six completely exhausted.

Visibility was now gone altogether; we had run out of marker flags about halfway along the ridge, and snow had completely filled in all the 40,000 steps Peter had kicked on the way up. It was a case of the lead man casting about from side to side with his nose on the snow like a bloodhound looking for a scent, trying to find the marks of ice axe shafts, the only signs remaining on the steeper slopes. Navigation on the ice walls was hairy—there was only one way off, along the narrow ridge somewhere at the bottom of each wall, and only the odd crampon marks were still visible, these from only a few feet.

Things got better with lower altitude, and we stopped for lunch 10 1/2 hours after starting out. After we had picked up the flagged part of the route lower down, the sun came out for a few minutes, brightening things up considerably. It soon disappeared again.

Warm temperatures at the base of the ridge had softened the snow, and the last stretch through the crevasses and down to the camp was a long slog, waist deep in a few places. We found the Steele party waiting with tea and supper—they had turned back after 2 hours, not wanting to risk missing their supply dump in the whiteout.

Mike Piggott, of the Steele group, had been complaining of abdominal pains. Radio contact with base camp was good, and when the whiteout lifted for about 20 minutes, Dr. Joe Kato came up by chopper. Mike and Ernest were loaded onto the machine and taken out, while Joe joined us for a 3-day enforced rest cure.

Just as the chopper took off, the whiteout closed in again. It lifted 3 days later, Saturday afternoon, when the choppers were able to lift us off. By this time, the camp resembled a high-altitude Camelot, surrounded by a snow wall complete with turrets and flags. The only things missing were Guinevere and a knight whose heart was pure.

Mount Steele

(16,644 feet—Seventh ascent)

By S. Merler

Attempt Party: Scipio Merler, Hans Schwarz, Dave Wessel, Dave Bidwell.
2nd Party: Merler (leader), Wessel, Freddie Chamberlin, Ruth Graffer.

On August 2nd a party of four was scheduled for the first try at Mt. Steele from main camp. The object was to start from Walsh camp (10,300 feet) and from there to follow the ridge to the summit. A second high camp was located at 12,750 feet on the last saddle of the ridge of Mt. Steele. In the afternoon of August 2nd we assembled all the gear and food and about 6:30 p.m. we were ready to be airlifted to Walsh camp.

The camp at Walsh Col was rather snowed in, so we spent a couple of hours digging it out. On August 3rd the alarm woke us at 6:00 a.m. and we found ourselves in a whiteout. Had breakfast and packed ready to leave, but the whiteout persisted. We tried to get main camp on the radio for a weather report but had no reply, so waited. About 9:30 a.m. the weather cleared. Beautiful, not a cloud in the sky. We roped up and got going on the ridge. Had a good supply of wands and we placed one every 300 feet.

Photo: Walter Wood

Mt. Steele from the northeast. Ascents have been via ridges leading up from right.

The ridge is beautiful, but long. Up to 11,500 feet, down to 11,000 feet, up to 12,000 feet, down to 11,000, and so on. Weather was perfect, warm, and snow kept balling up the crampons. Half way there, we realized that the ridge was much longer than we had figured and we were running out of wands. We then decided to space them double the distance, really hoping that we would not need them. We eventually arrived in the fog at the last bump of the ridge where it goes to approximately 14,200 feet and then drops to 12,750 feet where Steele high camp was placed. We arrived in darkness at about 1:30 a.m. It had been a long day. We dropped to sleep and nobody mentioned any 5 or 6 o'clock alarm. Got up in beautiful sunshine about 9:00 a.m. Fixed camp and

Photo: Dave Wessel

On Walsh-Steele ridge route.

Photo: Dave Wessel

Supper at Steele high camp.

Photo: Dave Wessel

After the storm at Steele high camp.

lazed around. Had a good dinner at 5:00 p.m., a siesta and a cup of hot chocolate (we were never short of that). At 10:30 that night we roped up and started for Steele.

We skirted to the east of the first bump and then kept pretty well to the ridge. Again we played safe and placed wands every 300 feet. It was cold, the snow good and we had no major trouble gaining altitude. Around 1:30 a.m. the wind grew stronger and we found ourselves in a whiteout at night, which I guess you can call a blackout whiteout. We estimated that we were around 14,500 feet and decided to bivouac until we could see something. We were none too keen on risking going over some high cornices. It was too cold for that. We tried, and somehow managed to get four people in a two-man bivouac bag. By 4:30 a.m. the blackout was gone but the whiteout and the howling wind were still with us. Only one decision then: follow our wands back to Steele high camp. We reached camp by 7:30 a.m. and by noon the sun was shining and the wind was just a gentle breeze. We were all keen to get ready for our second try about midnight, but in came a helicopter. The orders were to take us down. We had no radio with which to argue with headquarters, so just had to get the gear packed and go.

Back at main camp we were told that they did not want us to be stuck up there for a week. The weather report, however, indicated better weather so the next day we were to go up again to Steele high camp. Hans Schwarz, however, was sent to Walsh high camp and Dave Bidwell decided that some other peak interested him more than Steele. Also, we were told that we could not strip the camp of too many leaders. So Dave Wessel and I decided to court the ladies. Freddie Chamberlin was ready to leave camp and go back to civilization, but when we told her about Steele she soon changed her mind. Ruth Graffer was only waiting to be asked. So we had a party of four again.

This time we were able to get the helicopter to take us up right after lunch. On August 6th at 1:30 in the afternoon all four were in Steele high camp in shirt sleeves. A beautiful warm day.

Got the camp well organized, had a huge dinner at 5:00 p.m. and then a siesta. At 10:00 p.m. hot chocolate, and around midnight, roped up and were off. This time it was cold and the wind was blowing hard, but the sky was clear. We followed our marked route up to the bivouac place of our first attempt. From there we tried to angle off to the right to get out of the wind. The slope is quite steep and the snow had a 3-inch wind slab that kept breaking. The snow under the slab, however, was firm enough not to give us too much worry that we would take off with it. About 11:00 a.m. we were just below the summit which is a truncated cone with a platform on top about 15 feet diameter. We decided to climb a spiral up the cone, hoping to avoid the bitter wind, just to realize that the wind was also spiralling. We had on down jackets and parkas but were still cold. Stopped just long enough to take a couple of pictures and of course, the ritual summit cigarette. Then down.

The weather was definitely worsening and for the last couple of hours we had again to thank our wands. At 5:00 p.m. we reached our tents at Steele high camp. We had not been able to drink anything all day as all the water bottles, although well wrapped, were frozen. We were rather wind blown by then so made a cup of hot chocolate and then into the sleeping bags. The weather had really closed in. The temperature was about -25°F. and the wind was blowing at about 60 miles per hour. We had to close off the ventilation ports in the tents; otherwise we were going to be drowned in powder snow. Of course, the tent soon iced up inside from our breath and the shaking by the wind produced a gentle snowfall all over our sleeping bags. The only thing was to close your eyes and forget it.

The wind and snow kept on for 48 hours. The first morning Dave braved the weather—he

cooked come chocolate in a snow cave dug near the tents. After an hour he came back in the tent, and spent the rest of the day thawing out. The second morning I got out, so cooked some porridge. Freddie and I ate it, the others did not think too much of my cooking. Then I spent the rest of the day thawing out.

Photo: Dave Wessel

Pre-dawn (3 a.m.) on ascent of Mt Steele.

At 6:00 p.m. all at once the wind stopped and we made a scramble for the outside. What a sight! Clear blue sky, sun, all the peaks shining. In 5 minutes everybody was busy getting sleeping bags out to dry, cooking hot chocolate (for a change). Within half an hour we heard a helicopter. By the time it landed Ruth and Freddie were all packed ready to leave. Dave was snapping pictures and I was enjoying the sun, watching everyone so busy.

Another party was landed so got busy to explain the route and pack our gear. By 7:30 p.m. we were all back at camp. No more hot chocolate, just some good hot soup. In and out, Ruth and Freddie had spent 4 days, while Dave and I had been on that mountain for 8 days. But for 16,644 feet it was well worth it.

Mount Wood

(15,885 feet-Third ascent)

By Peter Fuhrmann

Only towards the end of the camp, the idea of climbing Mt. Wood was discussed. Having to wait because of bad weather, we finally flew to our high camp at an elevation of 11,400 feet on Wednesday August 9th at noon. The members of the party were Mrs. Judy Cook, W. J. Hurst, Stan Paterson, Neil McCubbin, P. Brogden and I. At an excellent site on the southeast side of the face we set up camp and had a bite to eat. The rest of the afternoon we spent preparing our ascent route

up to 14,000 feet, breaking trail and flagging the section. We arrived back at 6:00 p.m.

The next morning, Thursday, brought snow and at 8:00 a.m. we finally left camp in slightly clearing weather. Two and a half hours were spent in reaching the 14,000-foot level we had attained the day before, and we then continued.

The lower section, right above camp, consisted of easy slopes, a sharp and steep snow ridge (three rock bluffs to the left), travelling on easy sidehills, and up a steeper face. From now on we continued in somewhat the same fashion, but were working towards the ridge on our left—the southeast ridge of Mt. Wood, which had previously not been ascended.

A steep and sharp minor summit was bypassed and after ascending steep slopes, full of bottomless powder snow, we found ourselves travelling on the main ridge. By this time with 800 feet to go, the weather had deteriorated to such an extent that we set markers every 120 feet and had difficulty to see the last man on a rope of three. Carefully climbing on, and hoping for a break in the weather, about 300 feet below the summit we suddenly emerged from the sea of clouds and found it clear with blue skies above. The final section of the ridge leading to the fairly small summit is a fantastic site, winding a bit to the left and then to the right, some smaller cornices, steep rock faces to the left, but always leading up rather steeply to the summit.

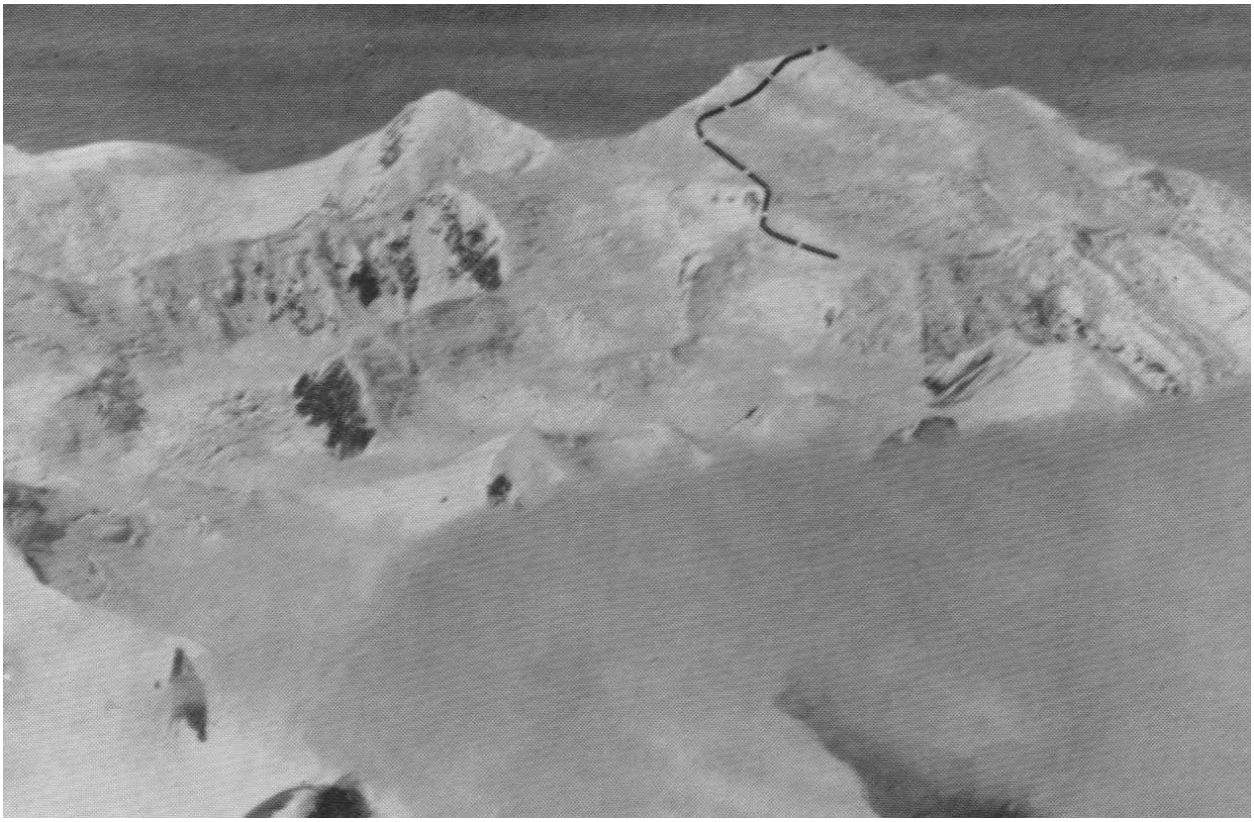


Photo: Peter Fuhrmann

Mt. Wood (right of centre) and Mt. Macauley (left of centre) from about the east.

What we saw from the summit was hard to determine. There was an unbroken level of clouds 300 feet below us, and only occasional glimpses of other peaks (totally in clouds) were possible, such as Steele and Lucania.

Having cured some cold toes and upset stomachs we descended about 300 feet and were

back in the clouds. Light snow was falling. From here to approximately the 14,000-foot level, the visibility ranged between 180 feet at best, to 60 feet at worst. The willow wands were greatly appreciated as our tracks were starting to drift over. At 7:30 p.m. we reached camp and cooked supper (for 3 hours) consisting of various courses. The temperature by then had dropped to 10°F. Snow started to fall again. The next morning, at 8:00 a.m. we were rudely awakened by a helicopter and flown back to Steele camp.

Summary Of Climbs From The General Camp

By D.R. Fisher

Notes applying to the climbs made from the General Camp in the Steele Valley

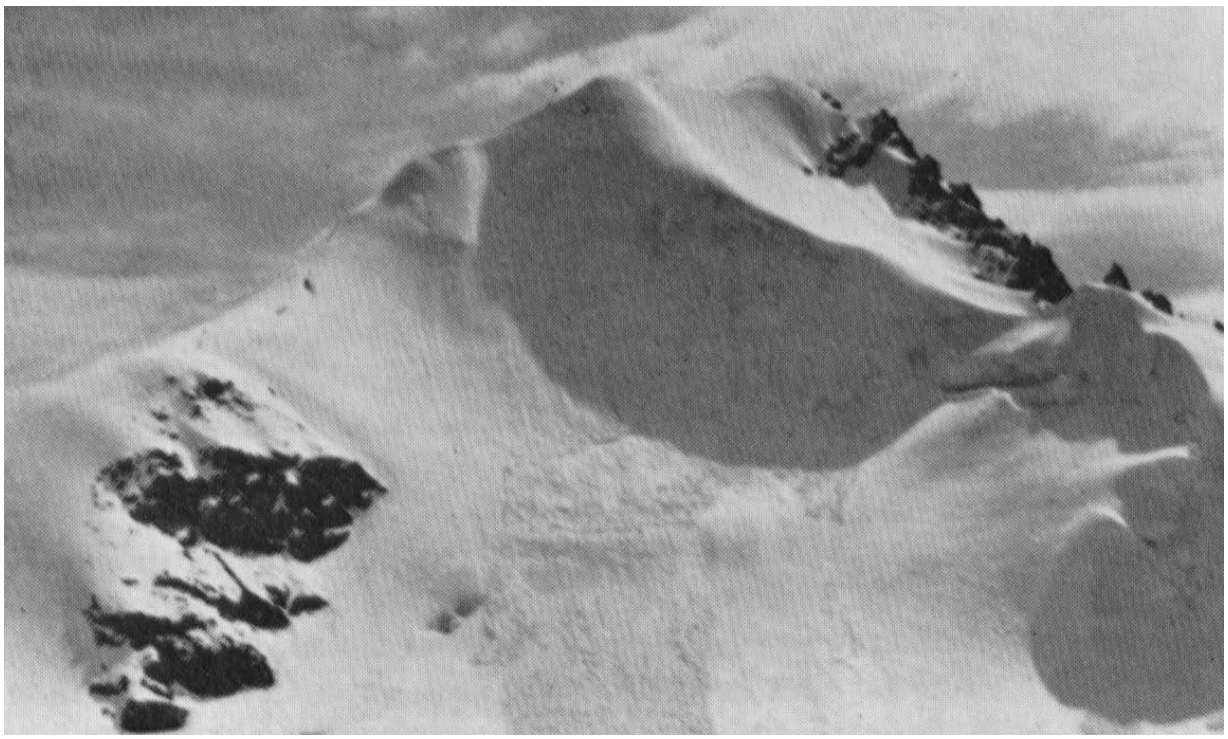
1. Of the peaks climbed by the Expedition in or on the Steele Valley watershed, only Mount Steele and Mount Wood have permanent names. Mount Walsh was the only peak outside this watershed to be climbed from the Camp and also has a permanent name. The numerical designation used for the group of peaks lying to the southeast of the General Camp site was set up during the camp. Subsequently an application was placed before the Permanent Committee on Geographical Names requesting approval of the names given in quote marks. Those on the south side of the Steele Glacier have been named after the twelve deceased past presidents of the Alpine Club of Canada and those on the north side of the glacier were given names suggested at the camp. The name "Mount Tempest" was used by Anderson Bakewell when he made the first ascent solo on August 26, 1941, after the ascent of Mount Wood.

2. Some peaks were climbed directly from the main Y.A.C.E. camp and others were climbed from the "B Glacier" high camp; Peaks 0, 6, 8, "Promenade", "Terrace", "Teapot" and "Gmoser's Gmesa' were climbed from helicopter landings; and Mounts Steele, Walsh and Wood were climbed from high camps to which the climbers were flown by helicopter. Helicopters had to be used to take climbers to many of the mountains because the Steele Glacier surge has made it impossible for anyone to travel on the Steele Glacier. The lower parts of many of the subsidiary glaciers were also affected by the surge.

3. Peaks 0, 1, 2, 2A, 3, 4, 5, 6, 8 and Terrace were climbed many times from Camp, being the most accessible. Peaks 1, 2 and 2A are not listed among the following first ascents since they had already been climbed by Walter Wood's previous expeditions.[12]

4. The following list of climbs are all FIRST ASCENTS with the exception of Mount Walsh, Mount Steele and Mount Wood, all three of which had been climbed more than once before the summer of 1967.

12 For names and heights of Peaks 1, 2 and 2A, see footnote on page 105 of the article describing climbs of these peaks from Camp.



“Mt. Gibson” (Peak “2”) from Peak “2 A”.

Peak 0 - Mount Sibbald (10,050 feet)

Party	John Tewnion (leader), Gordon Adams, Ned Baldwin, Miss Freddie Chamberlin, Mrs. Ruth Graffer (not at summit because of injury), Brian Kregosky, Ronald Royston, Gordon Smaill, Roland Schwerdtfeger, Mrs. Margaret Tewnion.
Date Climbed	August 5, 1967. First ascent.
Route	The route led from the helicopter landing beside the Steele Glacier up the north ridge to the summit.

Peak 3 - ”Mount Oliver Wheeler” (9850)

Party	Lord John Hunt (leader), Lady Joy Hunt, Colin Godfrey, Ernest Reinhold, Andrew Wiessner, Fritz Wiessner.
Date Climbed	July 19, 1967. First ascent
Route	The route led from the C (“Foster”) Glacier up snow and ice on the east face to the north ridge, which was followed over a sub summit and on to the main summit.

Peak 4B - (9550 feet)

Party	Dave Parfitt (leader), Dr. Joyce Davies, Miss Pat Gooding.
Date Climbed	July 26, 1967. First ascent.

Peak 4a - Mount McCoubrey (10,250 feet)

Party	Bob Hind (leader), Jack Cade, Jo Kato, Garry Kozel, Jim Lampard, Brian Thompson.
Date Climbed	July 22, 1967. First ascent.
Route	The route led from the A ("North Branch of the Foster") Glacier up the north ridge to the summit. The party descended to the 4A-Triplex col and then to the "Gibson Glacier" which they followed down to the Steele Valley.

Peak 4 - Mount Moffat (11,500 feet)

Party	Peter Fuhrmann (guide), Miss Judy Allen, Colin Godfrey, Leo Smith, Andrew Wiessner, Fritz Wiessner.
Date Climbed	July 24, 1967. First ascent
Route	The mountain was climbed from the Y.A.C.E. high camp on the B ("East Branch of the Foster") Glacier. The route led up the glacier to the Triplex—4 ("Samson—Moffat") col and then up the ridge to the summit.

Triplex—"Mount Samson" (11,000 feet)

Party	Peter Furhmann (guide), Miss Jean Finley, John Hopwood, Miss Marilyn Thompson.
Date Climbed	August 5, 1967. First ascent
Route	Route The mountain was climbed from the B Glacier high camp.The route led up the glacier to the Triplex—4 col and up the ridge to the summit.

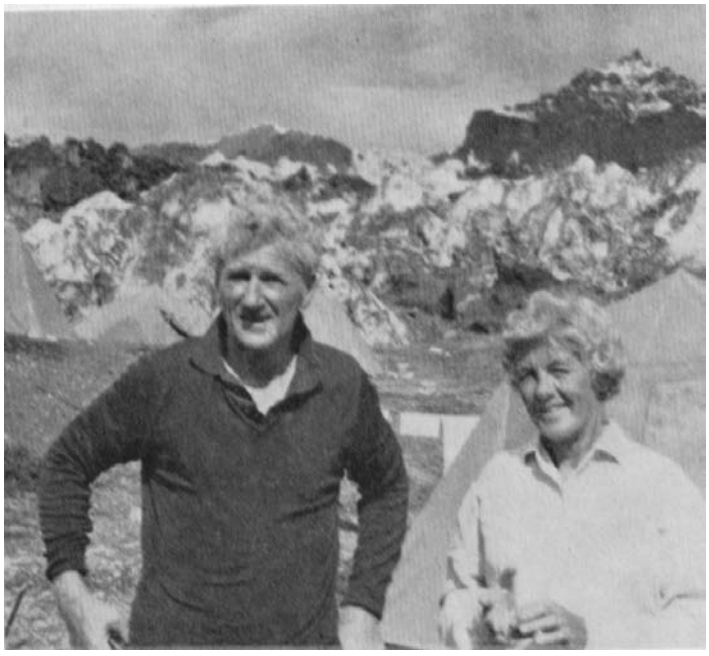


Photo: the "Whitehorse Star"

Lord and Lady Hunt at Steele Glacier General Camp.

Peak 5 - Mount Hickson (11,250 feet)

Party	Roger Neave (leader), Miss Freddie Chamberlin, Basil Dunell, Sterling Hendricks, Wally Joyce, Dr. Doug Lampard.
Date Climbed	July 22, 1967. First ascent.
Route	The mountain was climbed from the B Glacier high camp. The route led from the C ("Foster") Glacier up a broken rib to the northwest ridge and up the ridge to the summit.

Peak 6 - Mount Foster (12,000 feet)

Party	John Tewnion (leader), Murray Foubister, Brian Kregosky, Michael Matthews, Gordon Smaill, Mrs. Margaret Tew¬nion, John Thompson, Mrs. Rosa Thompson.
Date Climbed	August 7, 1967. First ascent.
Route	The route led from the helicopter landing place on the glacier to the south of Peak 7 ("Mount Patterson") up a snow ridge to a glacial bowl and then up the south ridge to the summit plateau.

Peak 7 - Mount Patterson (11,300 feet)

Party	Michael Matthews (leader), Trevor Morris, Miss Monica Nasmyth, Rodney Sykes.
Date Climbed	August 6, 1967. First ascent.
Route	The mountain was climbed from the B Glacier camp. The route led up the C ("Foster") Glacier to north of the hanging glacier and then up rock and snow to the north ridge, and along the ridge to the summit except for one point where the party went out on the east face to avoid a high point. The point was climbed on the descent.

Peak 8 - Mount Arthur Wheeler (10,050 feet)

Party	Roger Neave (leader), Alain Arsenault, Peter Brogden, Miss Freddie Chamberlin, Mrs. Judy Cook, Murray Foubister, Neil McCubbin, Bill Frantz.
Date Climbed	August 3, 1967. First ascent.
Route	The route led from the helicopter landing place at a survey station up to the north ridge and along the ridge to the summit.

Gmoser's Gmesa (9000 feet)

Party	Hans Gmoser (guide), Barry Coulter, Leon Hawes, Miss Ngaere Houghton, Ken Philp, Walter Robinson, Gerrit Schlee, Bill Sharp.
Date Climbed	July 19, 1967. First ascent.
Route	The route led from the helicopter landing up the glacier between "Gmoser's Gmesa" and "Mount Terrace" to the upper snow field and thence up the northeast ridge to the summit.

SPECIAL NOTE FOR THE CAJ DIGITAL EDITION

An oversized fold-out panoramic photograph of the peaks on true right of Steele Glacier was included in the hardcopy version of the 1968 Canadian Alpine Journal.

It is not included in this digital version due to size restrictions.

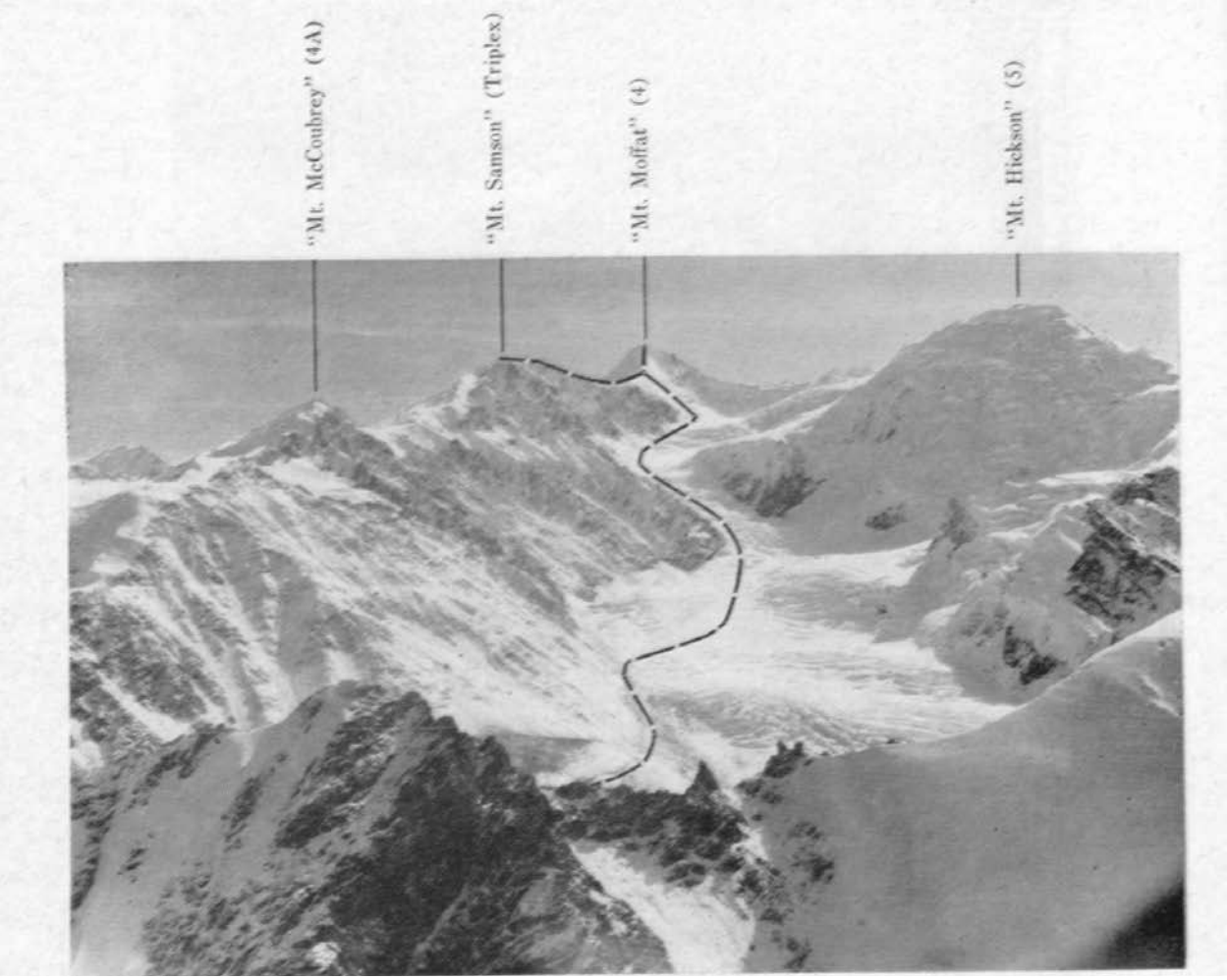


Photo: Peter Fuhrmann

Air view of some peaks climbed from Steele Glacier Camp.

Mount Promenade (9200 feet)

Party	Don Morrison (leader), Miss Judy Allen, Miss Sylvia Evans, Wally Joyce, Jim Lampard, John La Place, Mike Piggott, R. Peters, Tom Swaddle, Andrew Woznicki.
Date Climbed	July 19, 1967. First ascent.
Route	The mountain was climbed from the helicopter landing on the glacier between "Mount Tempest" and "Mount Terrace. The route led up the glacier and then up some rock and snow gullies to the summit.

Mount Teepee—"Mount Teapot" (9300 feet)

Party	Hans Schwarz (guide), Henry Baldwin, Miss Jane Coble, Brian Kregosky, Jack Miller, Mrs. Joan Miller, Steve Saba, James Thorsell.
Date Climbed	August 10, 1967. First ascent.

Route — The route led from the helicopter landing place up to a gully on the southwest that separates the peak from the west ridge and then up the gully to the summit. The party descended by the west ridge.

Mount Terrace (9700 feet)

Party — Gerrit Schlee (leader), Miss Elma Demchenko, Mrs. Christa Dietz, Wally Joyce, Dr. Douglas Lampard, John La Place, Miss Jean Logic, Robert Peters, Leo Smith, Dick Thomson, David Vallance, Bob Wharry.

Date Climbed — July 26, 1967. First ascent.

Route — The mountain was climbed from the helicopter landing. The route led up the glacier to the south ridge and then across the east face below the ridge, up to cliff bands, and then to the south below the summit and up a snow slope on the west to the summit ridge.

Pilot Jim Davies takes off from Camp with climbers Don Morrison and Michael Matthews.

Mount Steele (16,644 feet)

Party — Scipio Merler (leader), Miss Freddie Chamberlin, Mrs. Ruth Graffer, Dave Wessel.

Date Climbed — August 7, 1967. Seventh ascent.

Party — Michael Matthews (leader), Murray Foubister, Tim Griffin, Tatsuya Nagahama.

Date Climbed — August 10, 1967. Eighth ascent

Route	Both parties climbed the mountain from the high camp up the southeast ridge. On August 3, Hans Schwarz (guide), Dave Bidwell, Scipio Merler and Dave Wessel climbed from the Walsh high camp to the Steele high camp, which was the first ascent of this section of the ridge. Merler and Wessel returned to the Steele high camp on the seventh to complete the climb (see above).

Mount Walsh (14,780 feet)

Party	Peter Fuhrmann (guide), John Dynneson, Colin Godfrey, Ernest Reinhold, Arthur Schwartz, Dieter von Hennig.
Date Climbed	July 26, 1967. Fourth ascent.
Party	Hans Gmoser (guide), James Bennett, Mrs. Judy Cook, Murray Foubister, Stan Paterson, Bruno Struck.
Date Climbed	August 5, 1967. Fifth ascent.
Party	Hans Schwarz (guide), Alain Arsenault, William Frantz, Tim Griffin, Neil McCubbin, Tatsuya Nagahama.
Date Climbed	August 6, 1967. Sixth ascent.
Party	Bernard Royle (leader), Gordon Adams, Ned Baldwin, Miss Jean Finley, Mike Goodchild, Ronald Royston.
Date Climbed	August 7, 1967. Seventh ascent.
Route	All four parties climbed the mountain from the high camp up the west ridge to the summit.

Mount Wood (15,885 feet)

Party	Peter Fuhrmann (guide), Peter Brogden, Mrs. Judy Cook, William Hurst, Stan Paterson, Neil McCubbin.
Date Climbed	August 10, 1967. Third ascent.
Route	The route led from the high camp up to the southeast ridge and along this ridge to the summit.

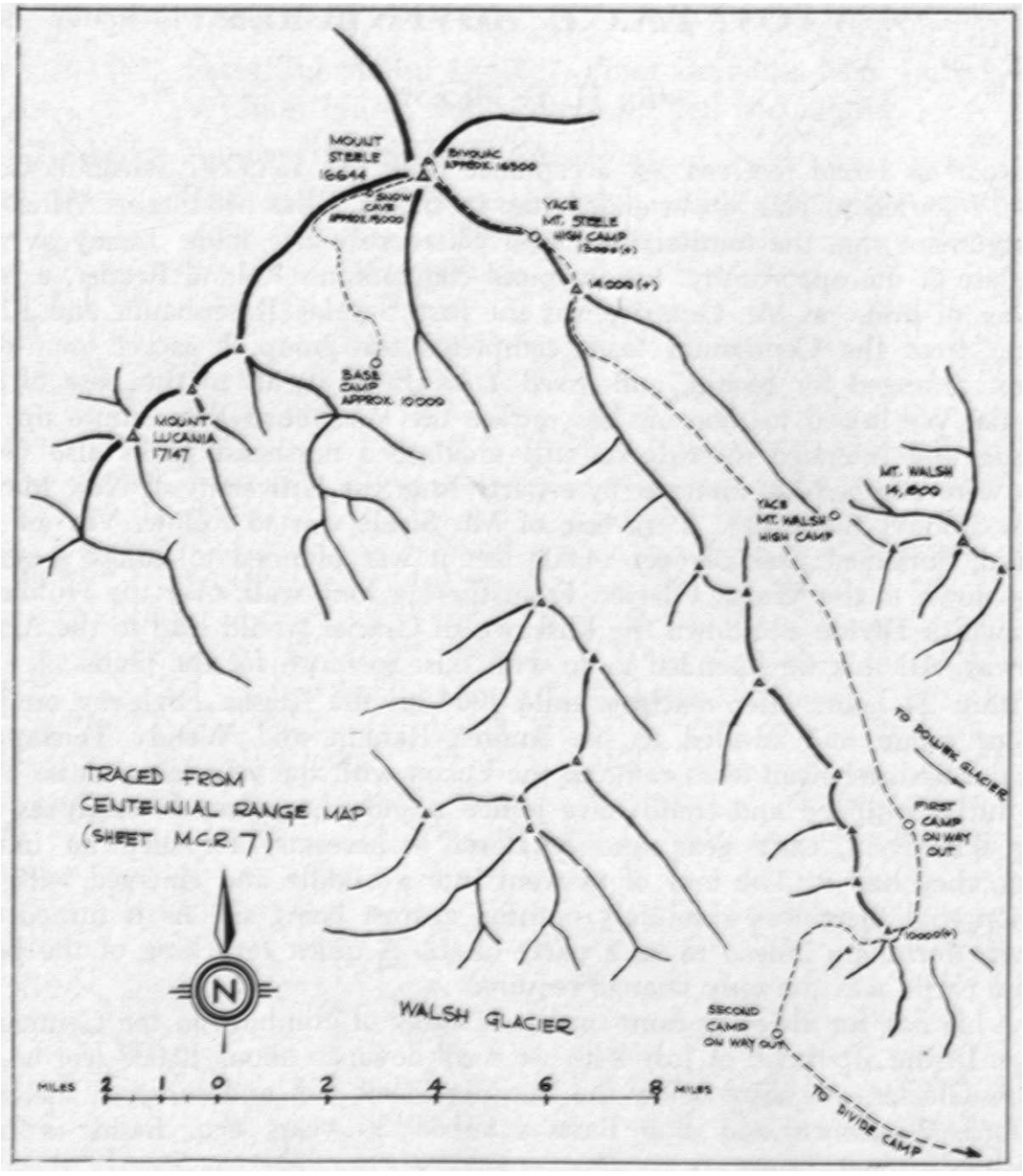
Post-Y.A.C.E. Adventures

By H.F. Microys

As soon as I had received my acceptance from the Y.A.C.E. Selection Committee, I started to plan an extended stay in the St. Elias Mountains. After all, my argument ran, the hardest part is to get there. Once there, I may as well make use of the opportunity. I soon found companions. Roland Reader, a team member of mine on Mt. Ontario, was the first. Stanley Rosenbaum and Klaus Boerger from the Centennial team completed the group. I packed man-day-rations, arranged for caches, and asked Y.A.C.E. to fly us to the base of Mt. Lucania. We hoped to more or less retrace the Washburn-Bates route up Mt. Lucania and intended to scale its still unclimbed northeast peaks also (both peaks were climbed last summer by a party from the University of New Mexico led by Ronald Bierstedt). A traverse of Mt. Steele was to follow. Via an unclimbed, unnamed peak

of over 14,000 feet it was planned to follow a gentle valley down to the Walsh Glacier. From there a long walk over the Hubbard-Kaskawulsh Divide and down the Kaskawulsh Glacier would lead to the Alaska Highway. All this we intended to do with skis. So much for the plans.

Within 24 hours after reaching mile 1064 on the Alaska Highway on July 7th our group had swelled to six. Andrea Rankin and Wendy Teichmann from the Saskatchewan team came to the Yukon with the very same ideas. They were fully equipped and could have joined a snowshoe team as easily as one using skis. Food, extra gear, and whatever is necessary for such an undertaking, they had it. The four of us went into a huddle and emerged with the decision that there was absolutely nothing against being six. As it turned out, we were fortunate indeed to be a party of six. A quick repacking of the boxes for the cache was the only change required.



Location of the adventure.

The big day for all of us came on the last day of climbing in the Centennial Range. In the afternoon of July 24th we were flown to about 10,000 feet on the Dennis Glacier. We were below the Lucania-Steele Col and surveyed the ridge Bradford Washburn and Bob Bates climbed 30 years ago. Beside a huge crevasse we made camp.

Klaus Boerger and Stan Rosenbaum had only returned from Centennial Peak that very same day and had not slept for many hours. They went to sleep while the rest of us decided to pack most of the food up the ridge. We reached about 12,500 feet in a howling gale that barely let us stand up. We dumped the stores in a quickly dug hole and departed in a hurry. While skiing roped towards camp around 9:00 p.m., Roland fell and broke both legs. On an improvised sled—a pack frame and Roland's skis—we brought him back to camp. By 2:00 a.m. we finally all managed to get some rest. There was no question of climbing Mt. Lucania now. We stamped out a big HELP sign in the snow and brought our food cache down again. The next move was to go for help at least as far as our first cache. It was located at the Y.A.C.E. high camp of Mt. Steele. This meant, of course, that we had to climb Mt. Steele. Klaus, Wendy, and myself were to go over Mt. Steele, leaving Andrea and Stan to look after Roland. Because we had only a small two-man tent besides the larger one, we planned to go without tent. Packing three days supplies we left the rest of our group on July 28th.

The first half of the ridge we climbed with crampons. From then on we used skis all the time except for a short distance on the descent of Mt. Steele. While climbing the ridge Wendy's sleeping bag came undone and rolled down the ridge into a crevasse. Since she still had her elephant's foot we carried on. At 15,000 feet we dug a snow cave. Bad weather forced us to stay there for 24 hours. To our dismay we discovered that we had taken our poorly functioning stove along. It took ll/2 hours just to get a pot of water warm. On the evening of July 29th there appeared to be some improvement in the weather. We continued our ascent after 9:00 p.m. and reached the summit by 11:15 p.m. The evening had been one of the most glorious I had ever seen. The clouds cleared from the high summits as we climbed higher and the setting sun produced an indescribable variety of colours. A sea of clouds at the 13,000-foot level stretched below us. The night was cold and the wind on the summit chilled us considerably, although we stayed no longer than was necessary to take the skins off our skis and take a photograph. Shortly below the summit I discovered that Wendy was extremely cold. We stopped immediately, cut two steps out of the very hard snow and sat down on a pair of skis. The tent sack was pulled over us and we huddled together for warmth. We ate some crackers and cheese and waited for the morning. Wendy had taken off her boots and I tried in vain to warm her feet. She had frostbitten toes and it is an indication of her determination and stamina that she continued on the expedition, although she was almost in constant pain from now on.

We did not move until the sun had warmed us a little in our fragile shell. The route was straightforward. The high camp was reached around noon after a very leisurely descent. Clouds moved in shortly after and for three days a storm confined us to the tents. Fortunately our cache was there and we also found some stoves and thus were rather comfortable. We went on half rations like our friends below and hoped that they did not worry too much about us.

The late afternoon of Aug. 2nd finally brought the long awaited helicopter. It had come up to the high camp to deposit some food for a party attempting Mt. Steele in the next few days. The very same evening Roland was evacuated. Andrea's holiday was nearly over and so she flew out with Roland. On the next day Stan was with us at the high camp. During the afternoon of this day we made the first mountaineering ascent of the unnamed 14,000-foot peak southeast from the high

camp. I said mountaineering ascent, because a helicopter had landed on the summit before to place a survey marker.

The following day, Aug. 4th, was the best day during the entire five weeks in the St. Elias Mountains. It was the day I climbed Mt. Steele again with Stan. By now we were acclimatized to such an extent that the whole climb at, what we considered, a leisurely pace took us no more than 10 hours. We stayed for some time at the summit because it was relatively warm and calm. We returned to camp in the early afternoon, where we met a party of climbers from the Y.A.C.E. General Camp led by Hans Schwarz.

Two days later we began our trek out. The first day ended at the Donjek-Walsh Divide. The second day we managed to get down to the Walsh Glacier after negotiating a very heavily crevassed area. When reconnoitring a possible route out of this ice labyrinth I climbed an unnamed 10,000-foot peak. Two more days brought us to the "Divide" Camp at the top of the Kaskawulsh Glacier. Four days later we arrived back at Mile 1064. Except for the last three days we were in whiteouts, strong winds, snow falls, or a combination of these on every day of our march out. The Kaskawulsh Glacier proved to be as gentle as it was described to us. With skis and favourable conditions it should take no longer than three days from "Divide" Camp to the Alaska Highway.

Without the generous help and co-operation of the Yukon Alpine Centennial Expedition this post-Y.A.C.E. stunt would have been impossible. I would like to thank the Y.A.C.E., members of the Alpine Club of Canada, IRRP personnel, and especially David Fisher, the Eastern Vice-President of the A.C.C., for the help extended to us, especially in connection with the evacuation of the injured Roland Reader.

Summary (Mt. Steele)

Party	Helmut Microys (leader), Klaus Boerger, Mrs. Wendy Teichmann.
Date Climbed	July 29, 1967. Fifth ascent.
Route	Mount Steele was traversed from a high camp on the south side of the mountain. The peak was climbed by the same route as that used by Washburn and Bates in 1937. The party then descended the southeast ridge to the Y.A.C.E. high camp.
Party	Helmut Microys (leader), Stan Rosenbaum.
Date Climbed	August 4, 1967. Sixth ascent.
Route	The route led up the southeast ridge from the Y.A.C.E. high camp. This was the first ascent by this route, though Microys and his party had descended it a few days previously.

The foregoing article concludes the accounts of activities in the area covered by the Yukon Alpine Centennial Expedition.

NON-Y.A.C.E. CLIMBS

East-West Traverse Of Mount Logan

By Vin Hoeman

Party: Vin Hoeman (leader), Alex Bittenbinder, Dave Shaw, Will Harrison, Ed. Ward.

Until 1890 Canada's highest mountain, 19,850 feet, was unrecognized in the then unknown heart of the St. Elias Mountains. That year Mt. Logan was seen, and named by Prof. I. C. Russell in honour of Sir William E. Logan, founder, and for a long time, the Director of the Geological Survey of Canada. (See Historical Sketch of Mt. Logan, C.A.J. 1925 p. 15.)

It is a massive mountain with a summit plateau 12 miles long exceeding 15,000 feet. The glacier system dominated by Mt. Logan extends unbroken for 300 miles from the Alesk River of B.C. to the Copper and White Rivers of Yukon and Alaska.

Alex, Dave and I began our plans for a lengthwise traverse of Mt. Logan while climbing Mt. Walsh in 1966. On July the 6th, 1967, Alex, Ed. and Dave flew from Kluane Lake to 6500 feet on the Hubbard Glacier, while Will and I flew from near McCarthy, Alaska, on the 8th.

We finally met for the first time at the base of Mt. Logan's east ridge. Here we parted; the first group rigged a fixed rope and started carrying loads on the east ridge. Will and I attacked a new route up the neighbouring ESE ridge that forms the Hubbard-Seward divide. The two join at the edge of the Great Plateau at 15,000 feet, so we decided to climb them simultaneously.

On July the 9th Will and I shouldered heavy packs, snowshoed to the base of our "Hub-Sew" ridge, then changed to crampons. It took us all day to reach the 10,000-foot col, battling breakable crust up a difficult icefall.

As we worked over and around obstacles on the succeeding days, new snow piled upon us forming extremely dangerous slab avalanche conditions. Once I was swept away by a heavy slab of snow and mercifully Will's firm belay saved me. I was deeply buried and might have suffocated if I had not been able to move one leg. My Jumar loop was already in place under my crampon and by extending that leg I managed to lever myself up against the taut climbing rope. We had to tunnel through cornices and pass under their eaves in an effort to avoid them. It took us a week to win our way to the plateau and rejoin our companions who had relayed sufficient supplies up the east ridge.

The following day, July the 16th, we carried our camp to the base of the East Peak, from where Alex and I climbed the Southeast Peak, about 17,900 feet for a probable first ascent. Despite a whiteout on the 17th we were able to move camp to 18,000 feet on the southeast ridge of the East Peak and followed it to the summit at 19,750 feet, the sixth ascent. A day of storm confined us to our 2-man tents linked together. We traded our literature and cooking, and were wondering what sort of weather other climbers were experiencing. We learned later seven other climbers lost their lives on Mt. McKinley. Happily I did not know then, since my wife was also on Mt. McKinley.

We could move on the 19th and traversed the southern slopes of the East Peak, through the pass between it and the Central Peak, and climbed to Canada's highpoint at 4:00 p.m. An hour after, the northwest ridge party reached the East Peak. One pair started down our way but turned back after setting off a huge avalanche. Of four parties attempting Logan this year, we were the only ones who reached the main peak, 19,850 feet, making the twelfth ascent. The bamboo pole

left by the fourth ascent party in 1959 still protrudes from the summit snow. Fifty feet down the south side I collected specimens of the highest rock.

Camp was pitched at about 19,000 feet between Central and West Peaks and here bad weather held us until the 25th. Once, when our cramped quarters seemed unbearable, we tried to move. It took a long time to pack in the blizzard and in just a few hundred yards we knew that it was quite impossible. One cannot see, or hardly breathe in such blowing snow! By the time we got our tents up again most of us had a touch of frostbite. By the 24th there was a lull and Dave and I managed to climb the West Peak (only 20 minutes from camp). The next day we pushed on to the 17,200-foot physiology camp that Barry Bishop and his helpers were just completing. I visited the highest of the far-western summits of Logan that afternoon, about 18,750 feet. On the 27th we crossed to the southern side of this line of summits to follow a trough down to King Col. Alex fell 45 feet into a crevasse just above the Col, but was able to jumar out, and we continued down King Trench till stopped by whiteout near 10,000 feet. Two days later we found the igloo where we expected to find our air-drop food supply. We could not find the cache, so cut our rations and continued to our pick-up point at 9100 feet on the Quintino Sella Glacier.

On the 30th, boredom outweighing energy, Dave and I explored the 10,000-foot nunatak at the head of the Ogilvie Glacier for plant specimens. I had just completed a cairn on top when we heard the happy drone of the Beaver's engine approaching. We dashed for camp that the others were swiftly razing and soon we were passing by that immense massif we'd crossed afoot, bound for that other, so-different world.

Mount Logan North Ridge (Attempted)

By Alice Purdy

Party: James Craig, Alice Purdy, Peter Thompson, Bob Cuthbert, Vince Bauer.

As a private Centennial project, five of us decided to attempt a new route on Mt. Logan (19,850 feet). We chose, both from pictures and from maps, to tackle the sharp-crested ridge which points most directly north.

Flying in from Kluane Lake on June 24, we established base camp at 8000 feet, to the east of our ridge and beneath, but safely beyond, a 6000-foot chute. Spectacular avalanches which thundered down regularly provided us with many thrills during time spent at Base. It was not easy to adjust to the grand scale of the St. Elias Range after one has been used to the B.C. mountains.

Whenever possible, i.e., when it wasn't snowing, we worked during the twilight hours of "night" and finally managed, after 6 days, to establish Camp I at about 9700 feet. We had gained the main ridge crest along the western rim of its bevelled toe. Because of the abysmal snow and weather conditions (experienced also by the many who attended YACE) we were forced to shovel our trail above 9500 feet.

Establishment of Camps II and III required another 9 days—somewhat longer than expected, again due to the snow quality which required constant shovelling. Fixed rope was used almost continuously above Camp I as the few rock pitches were rather rotten and the snow climbing grim to delicate.

Our system of work had two people shovelling during the night while the other three would pack gear between camp and cache. On sunny days the snow became too soft for safe walking but

at night it fortunately froze.

On July 8 the snow conditions hit back. Vince Bauer and Peter Thompson were taken out by a slab avalanche as they prepared trail just above Camp III (11,500 feet). Swept 700 feet down the west face, they were miraculously stopped at the lip of an ice wall when their rope snagged on a small horizontal projection. They had lost their ice axes, mitts and some personal effects, and were able to climb back up only by use of a snow shovel on a fluted snow rib. One hundred feet below the ridge crest this turned to ice, but here their calls were heard and a rescue effected. Vince had a badly broken arm and within 10 hours was lifted out by the helicopter serving YACE after Alaskan pilot Jack Wilson spotted our S.O.S. in the snow. We repaired Peter's forehead with 23 stitches and he stayed with the party.

Once the void following the accident had passed, much debate ensued as to whether to continue or to retreat. Nobody liked the idea of descending the ridge, especially being one ice axe short. We still had 11 days until our rendezvous with Great Northern Airways. We also expected to find a high altitude physiology research hut on the summit plateau. So we decided to continue. Deteriorating conditions soon settled the matter for us however, making retreat the only alternative. What faster route was there than straight down the 3300-foot western slope of the ridge?

From earlier observations we knew there were 3 or 4 ice walls to be negotiated, but at the time had considered these to be of no great difficulty. We estimated about 6 hours for descent.

From Camp III we rappelled several hundred feet on our fixed line, wove back and forth among the upper ice walls, then were forced into a narrow avalanche chute separated from the major, summit-snowfield-fed chute by only a rock rib. Here we underwent an unforgettable experience. A large avalanche thundered down the main chute, plastering us with its dust and, though we realized we were safe, shattering our nerves. Several subsequent rappels took us out of this chute and to the lip of a 600-foot ice wall—our last barrier to the glacier. Two alternatives became obvious. One was down the 1000-foot avalanche cone to our left, the other was down a weakness (i.e., slight relaxation of angle) in the ice wall to our right. This section itself required almost 4 hours of ice work; the total descent time was a tense 20 hours on the move.

Rain greeted us on the glacier so we pitched a soggy camp where our base cache had been. Two days later, just as our gas supply was exhausted, the weather cleared and we dashed around the ridge back to Base Camp. Here we sat for 3 days awaiting pick-up.

Although we were unsuccessful in scaling the ridge, none of us felt the expedition a total loss because of the experience gained, and because of the unforgettable memories of the St. Elias Range.

An Interesting Trio From Ape Lake

By Bruce R. Brandell

Low clouds hung over the mountains west of Nimpo Lake, British Columbia, as we emerged from our sleeping bags at 8 a.m. on July 18, 1967. We had arrived by car from Saskatoon via Banff, Cache Creek and Williams Lake the night before, and this was the day we were scheduled to fly into Ape Lake, beautifully situated in the Coast Mountains about 30 miles southeast of Bella Coola. I was afraid the flight might have to be postponed, perhaps a whole day, because of weather. But Dan Schuetze, president of Wilderness Airline, was still giving us a green light for a 9 a.m. take-off. We quickly struck our umbrella tent, rolled the six sleeping bags tightly for air transport, and

were directed by Dan to drive onto the dock, where his Cessna 185 float plane was waiting. This was a big moment for us all! Was our trip into Ape Lake really about to materialize after nearly 6 months of planning? Dan advised that basic survival luggage, such as the tent, sleeping bags, food and rifle, should go in with the first group of three in the event the second flight was delayed by weather. In the back seat were Bruce Jr., age 10, and Steven, age 8, and I sat in the front with Dan. Then we were skimming across Nimpo Lake and in the air. I had flown before, but this was a first for the boys, and they had popping eyes with broad ear-connecting grins. Most landmarks were socked in, but we could see Charlotte Lake, and Dan pointed to mountain goats high on Kappan Mtn. Visibility decreased as we flew through a pass west of the Atnarko and Telchako Canyons, and I crossed my fingers. But suddenly we were in the clear and settling down on Ape Lake at an elevation of 4600 feet Just the roots of the mountains were visible, but we were "in"! Taxiing to about the middle of the north shore opposite an area of pleasant heathery flats, Dan paddled the plane to shore. It was drizzling slightly as our luggage was removed by the little human chain gang.

In an hour Dan was back with the other half of our expedition—my wife Jeannette, Jeaniene age 13, Rachelle age 10 and Huska, our female Samoyed dog. An excellent campsite had been selected about 100 yards from the lake beside a small glacial moraine, quite near a small brook. The umbrella tent had already been pitched, and we put up two mountain pup tents for our luggage and food. For a while we were busy making things shipshape, but the rain finally confined us to the tent. Jeannette read, the kids played Old Maid, and with too much time on my hands, I decided to oil the shutter mechanism of my camera. Very soon oil was on the shutter leaves, making them stick completely. It required at least 3 hours of pains-taking wiping to remove the oil. Four geologists from the Geological Survey of Canada were flown in from Bella Coola during the day, and were camped on a small peninsula almost within hollering distance of us. I guess this constituted an almost unprecedented population explosion for Ape Lake. It rained all night, and although the pitter patter on the tent was soothing it did not sound much like climbing weather.

The next day was another very rainy one. Not being just quite com¬pletely satisfied with my performance of the previous day, I decided to try to adjust the distance estimation mechanism of my camera. Luckily most of the pictures I took after that were distance shots. It seemed far safer to join the kids in a game of gin rummy. Jeannette came through with a delicious supper about this time. I have to admit that our thoughts were of an early departure, as we listened to the rhythm of raindrops that night.

I happened to get up about 5:30 next morning, July 20, and was totally unprepared for the scene that greeted me as my head poked out of the tent. There was not a cloud in the sky, and my breath was cut short as I took in the wild magnificence of our surroundings. The sky was still a dark blue with a full moon, and the mountains were clearly visible. The two peaks of Mt. Jacobsen stood up like two glorious sore thumbs directly across the lake. It was hard to believe they were 3 miles away. To the right, forming the west end of the lake, was Fyles Glacier. Icebergs which had broken from its perpendicular snout littered the greenish water. The entire glacier was visible from this point, and at its head rose the jagged summit of Mt. Fyles. To the extreme right was the pointed summit of Atavist Mtn., while to the left at the east end of the lake lay a whole range of snowy and lofty peaks. Directly above my back was Musician Mtn., partially forested, but with numerous snow patches on its upper half. Poet Peak, a very similar type of mountain, stood over the back of my right shoulder. It was inspiring beyond words! I rushed back into the tent for camera and meter, but it was still rather dark for photography, and after a few preliminary shots I retired to await the

sun, although sleep was now impossible.

By 7 o'clock I was departing to reconnoitre the west peak of Mt. Jacobsen. First it was necessary to follow the boulder-strewn shore of Ape Lake for about l l/2 miles to reach the edge of the Fyles Glacier. I had told Huska in a firm tone to stay home, but after about 15 minutes I caught sight of her stealthily following at a distance. I decided to let her come along, and so it was the two of us for the day. The relatively gentle slope at the edge of the glacier was climbed easily without crampons, and the snow filling the crevasses was still firm. We crossed the glacier comfortably within half an hour, and were soon scrambling to the crest of a lateral moraine, which we followed upward toward the head of the glacier for another 30 minutes. After leaving the moraine we turned left and headed south on a long steep climb to the crest of a high snow-covered ridge. The higher we climbed, the more spectacular became the view of Ape Lake below on our left, with our umbrella tent as a tiny speck in the distance. After a time this view was blocked by Mt. Jacobsen, and it became apparent that we were climbing onto Ape Glacier between the west peak of Mt. Jacobsen and the smaller Mongol Peaks ahead on our right. While we climbed, I speculated on the best route for a summit bid of the west peak; a secondary ridge from Ape Glacier to the main east-west ridge seemed promising. I believe this was the route used by John Dudra and P. Broda in 1953.

Although Huska had faithfully followed me across the snowfield and glaciers, she was not mountain goat enough to tackle the ridges of Mt. Jacobsen, so we continued past the mountain to the head of Ape Glacier. The snow was quite soft by now, and I was sinking to ankle and knee depth, while Huska ran circles around me barking. An attractive little peak with a snow ridge, which terminated in a corniced summit, hove into view. Once at the base, it took us about 20 minutes to gain the summit. There were some clouds to the south, but these occasionally parted revealing the Monarch Icecap and its very snowy surrounding peaks. The scene was very beautiful, and the alternate cloudy and clear periods lent an ethereal-like quality to it. I was determined to travel that area at a future time, but it was almost 4 p.m., and Huska was anxiously barking to start back. At the first sign of my departure she was off at a run, reached the base of the ridge within a couple of minutes, and continued back along our trail until she was a mere off-colour white dot in the distance. It took me somewhat longer to descend, because the ridge crest was quite steep near the top, and I did not fancy either slipping through the cornice on my right or losing control on the very steep snow pitch I was traversing.

On rejoining my canine companion, we made excellent time descending Ape Glacier, although the snow was too soft to glissade. Crossing Fyles Glacier took an hour, because the crevasse snow was soft, and we went closer to its crevasse-riddled snout. Nevertheless, we reached camp by 8 p.m. The rest of the family had walked some distance to meet us, and were happily relieved to see that we had returned safely. It had been a long excursion for the first day out, and it felt good to come back to a comfortable base camp for a hot supper and rest. Later that evening I had the great pleasure of talking to Dick Culbert, one of the geologists camped near us. He has climbed much in this region and is author of "A Climbers Guide to the Coastal Ranges of British Columbia".

The next day we rested and enjoyed the beautiful scenery from camp, and practised rappelling on a huge boulder nearby. On Saturday July 22, our third consecutive day of fine weather, we all started a climb of Musician Mtn., which rose directly behind our tent to an elevation of about 9000 feet. Making a very late 11:30 a.m. start, we spent the first 3 hours pushing up a steep slope, heavily timbered with Douglas fir, spruce, service berry and a small red-flowered plant called flowering willow. Finally, we emerged on the broad rock slabs of a cascading creek directly above

our tent; from here the going was fairly easy on rock slabs and Patches of heather. We headed for what appeared to be the crest of the southeast ridge, which we gained after a last very steep heather-clothed pitch. The summit now appeared to be a crest of rock above a snowfield to our left, and seemed well within our grasp. This was surmounted in due course, but alas!—in reality we were still far down on the south face of the mountain, although the view of the Fyles Glacier and its surrounding mountains was very grand. But it was already 6 p.m. and Jeannette and Jeaniene had had enough climbing for one day. Leaving them with Huska, the rest of us continued climbing more or less straight up very steep heather slopes and snowfields until 7:30 p.m., when Rachelle announced that she also had reached her limit. By now the summit really did look tantalizingly close. So enthroning Rachelle on a pile of rock, the boys and I decided to continue the climb as long as we could see her red sweatshirt. This stood out very well in the bright sunlight, but at 8:10 we had reached the end of our time, but not of the mountain, although I believe another half-hour would have seen us on the summit. We could see the Jacobsen Glacier, and the mountains in the distance to the southeast, including Mt. Ratcliff, were bold and clear in the lowering rays of the sun.

Much of the distance back down to Rachelle was covered in a very short time by belly glissading on soft steep snow. First, I would drop a distance with the help of my ice axe, and then each of the boys would follow so that I could arrest their descent if necessary, but they did quite well by themselves. As we started down the highest snowfield, we noticed the melted-out cloven tracks of a mountain goat. By about 9:30 p.m. the family was reunited, and some disappointment expressed at our failure to reach the summit, but our late start had made that result inevitable. It was also now evident that it would be impossible for us to reach before dark the tiny speck which was our camp far below on Ape Lake. After a brief family conference we decided to find a favorable place to bivouac rather than try to find our way through the dense timber in the darkness. It was cloudless, with hardly a breath of wind, so with ample bivouacking equipment the prospect was not too uninviting. Taking advantage of the remaining light we rapidly descended to timber and by 10:30 were located on a gravelly island in a creek below a large cascade. A merry fire was soon going, and we had a long-delayed lunch that tasted very wonderful to seven famished climbers including Huska. Our party was soon joined by a bright moon. Bedding accommodations were a bit uneven and lumpy, and I doubt that anyone with the possible exception of Huska did much more than doze. In any case by 4:30 a.m. we were all nodding around the fire, and after a somewhat scanty “breakfast”, by 6:45 a.m. we were making our way down. In some places we crossed lush little meadows with thick stands of Indian paintbrush and alpine lupine, although beautiful swarms of very healthy mosquitos discouraged dawdling. Some 2 hours later we broke through the thicket beside our rappelling boulder directly back of base camp. It was a most welcome sight! We took sponge baths at the creek, had a large meal that was a combination of supper and breakfast, and spent the day taking a well deserved rest. In the evening we used a wooden post for target practice, though so far the only possible sign we had found of bear or wolf consisted of large droppings far up in the timber during our climb.

On Monday July 24, we all took a delightful hike on the near (north-east) edge of the Fyles Glacier, photographing crevasses in various stages of their development, noting tiny free-living worms in the rivulets on the ice, and finally lunching beside a clear snow-fed pool just below the snout of the intersecting Aurora Glacier, where we saw an occasional humming bird. Looking up Aurora Glacier, we had an excellent view of both Poet peak to its east and Atavist Mtn. to its west. A northwest ridge descending from a subsummit peak of the Poet to the glacier suggested

an interesting variation from the usual west ridge-south face route, which in theory should avoid going through the dense timber. Six o'clock the next morning, July 25, saw me set out from base camp to put theory into practice.

After working my way along the boulder fields at the edge of Fyles Glacier, I used crampons to climb the steep ice at the foot of the Aurora (Borealis) Glacier. Once some large crevasses were bypassed, I walked up at a gentle angle on firm snow. Fyles Glacier was already far below, and the view of the Noeick Glacier with its bordering bastions to the west, and of Ape Glacier with the Mongol Peaks rising behind it to the south, was breathtaking. It was a beautiful cloudless day, windless at the moment—the kind of environment that makes you glad to be alive. Trudging on, I could soon see the north side of Atavist Mtn. on my left and what appeared to be a feasible snow ridge climb to its summit. Distances are always greater than they seem in the clear atmosphere of the mountains, and it was 10 o'clock before I started to climb the northwest ridge of Poet Peak. Once on its crest it was just a long steep walk to the base of the subsummit seen the day before. Some heathery patches would have made satisfactory, although dry, bivouac points. The subsummit itself provided the first real climbing. Strapping the ice axe to my knapsack, I began an interesting class 3, and in places class 4, climb on narrow ledges with a respectable exposure. Hand holds were generally excellent, but with the occasional loose piece, and the ledges were covered with moss, which gave less confidence than bare rock. Half to three-quarters of an hour saw me over this part, and I was somewhat relieved since it would have been difficult retreating down the same route, and there had not been any satisfactory anchor points for rappelling. I scrambled to the top of the subsummit to enjoy the marvellous view.

A direct northwest assault of the peak towering above me looked difficult, and it appeared necessary to make a long traverse onto its south face. However, a route was found onto its northwest ridge after all, and an hour of scrambling brought me to its summit. But this proved to be another subsummit and still a third peak soared high above me. After a brief rest I set out to climb the mountain again. This time the climbing was easy on the south face, and I was now on the same general route used by previous parties. Climbing to the west ridge, I dared to have faith again, and at 2:15 p.m. came into view of the true summit cairn. It felt very good to look down the mountain on all sides; the position of our camp on Ape Lake was easily identified, as was beautiful symmetrical Horribilis Peak to the east, but most spectacular of all were the almost needle-like spires of the Edwards Range to the north. I wondered how many of these had been climbed. Musician Mtn. was close at hand to the southeast, and looked slightly lower than Poet Peak. The register indicated that I constituted the fourth party to have made the ascent, the first having been made on Aug. 22, 1962, by George Whitmore and Frank Cook, a second on Aug. 2, 1964, and the third on July 25, 1965, exactly two years before.

While eating lunch, I contemplated the possibility of reaching the summit of Musician Mtn. via a snow covered north ridge on the side facing away from Ape Lake—its back side so to speak. Snow dipped gracefully from Poet Peak to an intervening glacial saddle, and was continuous onto the north ridge of the Musician. Culbert's Guide indicated the south ridge as the approach used in the first ascent, but from the summit of Poet the north ridge seemed like a direct and relatively easy route. I decided to try it. Leaving the summit of Poet Peak at 3:45 p.m., I was soon descending in soft ankle-deep snow to the saddle, which was reached in a half-hour. There were numerous mountain goat tracks, but I did not actually see any animals. So far this seemed too easy to be true. The ascent of the north ridge was steep, but amounted to a stiff walk-up in deep snow. However, as the snow crest of the ridge came into view my self-assured reverie was jarred to a

sudden halt. The crest itself was razor thin, and appeared to be corniced over the other side of the ridge. Furthermore, the crest steepened greatly as it approached what appeared to be the summit, and ended in one last lofty, frightening cornice. But was the summit of Musician Mtn. actually a cornice, and if not where was the true summit? These thoughts were not the type that generate a warm and glowing confidence, but I decided to try working along the steep snowbank below the crest to a patch of bared rocks. It was easy enough kicking steps in the soft snow, and other bare areas ahead gave hope that this was a feasible route. An exposure of several hundred feet to the lower parts of the glacial saddle stimulated excellent concentration on my work, the greatest worry being that the soft snow might avalanche in the manner we had been hearing on Mt. Jacobsen from our camp. I reached rocks at the base of the last high corniced ridge without incident, however, and bare rocks visible beside the summit of the cornice were encouraging. I had a snack of peanuts and put on crampons, more to kill time and establish mental calm than anything else. The crampons would not be much help in the soft snow, but could be crucial if an icy area were encountered. Then, I was actually on the steep snow, keeping a respectable distance below the crest. It was easier doing it than it had been thinking about it. In a few minutes I was opposite the tip of the cornice, climbed over its near shoulder, and immediately came into view of the summit cairn. The cornice actually did mark the position of the summit. The time was 6:45 p.m. The summit register had been established by Frank Cook and George Whitmore on August 30, 1962, and there was also a penny, which according to George Whitmore (CAJ 1965) is the trade-mark of Frank de Saussure, a resident of the Bella Coola Valley, so that mine was apparently the third ascent. I cannot endorse the north ridge as a safe route because of the soft snow, although if it could be taken in the morning while still firm, it would make an enjoyable climb.

The summit was now clouded in, and after a second lunch, I started a rapid retreat down the south face at about 7:30 p.m. Some class 3 rock was encountered, but much time was saved by belly glissading on steep snow-fields. Timber was reached by 9:30 under a clear sky again. Now a tiny spark could be seen far below at our campsite, where a fire had been lighted to guide me. This was a real help as I slithered down over dwarf spruce and whitebark pine, at first making marvelously fast time. But presently I disappeared into taller stuff, and had to feel a way in the dim remnant of daylight. Just as I began to dispair of getting back to camp before dawn, the dense timber ended, and to my amazement I was walking in the clearing behind our tent at 11 p.m. A hot supper was still waiting, and it was a pleasant reward to be back with my family as they eagerly asked for details of the day's adventures.

The next day was one of general rest and recuperation, but also of planning. Tomorrow, July 27, would be our tenth and last day at Ape Lake, and I hoped to make the most of it. A pointed peak to the west beyond the head of the Fyles Glacier, and immediately south of Atavist Mtn., was very attractive. It seemed rather far from our camp for a one-day climb, but it was hard to dismiss the idea. Bruce Jr. and I could only identify it as a triangle on the map in Dick Culbert's Guide, and there was no description of it.

It seemed inconceivable that such a prominent and beautiful mountain had not been climbed, yet the possibility of a first ascent was tantalizing. I decided to give it try!

Sleep proved very difficult that night, as I mulled over the possible problems and dangers of my proposed climb. Huska provided some diversion about 3:30 a.m. when she came into the tent with a snout full of porcupine quills, but we succeeded in removing all sixteen after a tense little session with a pair of pliers. An hour later I decided to rise for the day, and by 5 o'clock was moving toward the Fyles Glacier under a clear sky with a three-quarter moon, and the dawn

gathering behind me. Doubts and fears of the night evaporated in the cool clear morning air, and were replaced by the beautiful realities of The Mountain. A short distance from our camp I passed a bristling porcupine, no doubt the one that had seduced Huska. While crossing the glacier, I studied The Mountain. Its general appearance was that of a massive castle with several pointed towers, the highest, most southerly of which was the summit. Its visible north and east sides were covered with snow, except for the tops of the towers. The left (southeast) profile consisted of a steep rocky ridge, which seemed to continue almost unbroken to the summit tower. My plan was to reach the southeast ridge via the Noeick Glacier, which poured out between a massive northeast buttress ridge of The Mountain and another low dome-shaped mountain. From the northwest corner of Fyles Glacier I started traversing the north (right) flank of the dome with the idea of going directly onto the Noeick Glacier. It was soon apparent that it would be much easier to drop into the broad valley of the Noeick, and then climb the snout of the glacier. The valley was a delightful place at 8:30 a.m.

The Mountain was in full view from base to summit, and a large lake, formed by a number of brooks cascading down from the glacier, was located at the head of the valley. A second large lake was further out on the valley floor. The sun had just risen here, and some brown-headed rosy finches escorted me to the delta sands where one of the brooks flowed into the lake. I only wished there were still time to bring the whole family here to camp for a day or two. Suddenly, I noticed the trail of big foot prints in the sand, leading from the rocks to along the water's edge. They looked about twice as big as Huska's, and my guess was large wolf or small cougar. For a panicky moment I thought of our rifle tucked safely away at camp, but the improbability of a confrontation with a truly wild and wary animal, probably well fed with marmots, restored composure. After photographing a pair of tracks, I turned up the rocky cascade.

The crampons I had received as a Father's Day gift were a great help as I easily avoided a few deep crevasses on the steep ice of the glacier's lip. Once on the firm snow above, I came into view of the massive northeast buttress. This looked like a very workable approach to the main peak, so I decided to begin the climb here rather than follow the glacier farther around to the southeast ridge. A steep class 2 climb over snow, rock and heather patches required about l 1/2 hours, and was completed about 11 a.m. The treat in store on top took me completely by surprise. A beautiful turquoise blue mountain lake, perhaps 100 to 200 yards across, was nestled at the foot of a large snowfield. The main peak of The Mountain stood behind it on the right, snowy Griffin Peak was beyond on the left, and its shore was formed by rock and large patches of flower-strewn heather. What a place for a bivouac! From here I could plan a route for the remainder of the climb. It followed the crest of a high morainic ridge toward a large secondary summit, which was on the north (right) side of the main summit pyramid; then to the left across a steep hanging glacier to a rib of rock on the main pyramid, which could be ascended on alternate stretches of snowfields and rock ridges, while working diagonally to the left to the east base of the summit cap of rock. It looked like a long climb, but did not seem to present any serious problems.

The rib on the main pyramid was reached by 12:45 p.m. after some ticklish manoeuvering between crevasses on a steep slope with a moderate exposure. From here the rock climbing was very enjoyable on solid granite blocks and slabs. These formed giant steps tilted up at an angle, so that often it was possible to climb up the groove between them using pressure friction as in a chimney. Sometimes the lower block slanted outward, but usually this was compensated for by excellent hand and finger holds on the upper surface. I would grade most of the climbing as class 3 with an occasional stretch of class 4. At one point, after having arbitrarily chosen rock instead of

steep snow, it seemed that I was stuck. A retreat seemed inadvisable without a belay, a good hand hold was still out of reach, and the next step was a rock crest about hip high. Finally, the problem was solved by swinging a knee onto the crest, and using pressure friction to scootch to a standing position. Now the hand hold was within reach, and I was soon at a higher, more workable level. Technically, that was the climax of the climb, and I had really felt the need of a belay by friend or piton. At last the steep snowfield stopped at the base of the summit cap, and clouds swirled around as I struggled to a seat in the lower rocks to remove my crampons. I began to weary; some of the climb and my thoughts returned to the lake, now far below, which had appeared so blue and friendly in the warm late morning sun. Soon, however, the rocks fell back from a brief class 3 climb, and I emerged on the summit, where I could see no cairn! But not far to the left was a slightly higher sister summit with the big rocks of a cairn announcing the truth of the matter. A short walk brought me to it where a little plastic vial was found and the contained scroll of paper unrolled. The following message printed in large clear letters answered my questions: Peak 8500 1st ascent August 22, 1964, Dick Culbert, Glenn Woodsworth, B.C. Mountaineering Club. The time was 4:45 p.m., 12 hours since my departure from Ape Lake. A solid layer of clouds was moving in from the south, but the immediately surrounding peaks, glaciers and valleys, as well as Ape Lake, were all in clear view. It seemed like just one giant step in a straight line to the location of our camp, but it would actually require many thousands of tiny human steps on The Mountain, glaciers and moraines. After a lunch and rest I left the summit at 5:45.

Dropping straight down toward the head of the Noeick Glacier, I found the going easier than the diagonal route of the ascent from the northeast buttress, although chimney-like grooves between tilted strata of granite were again the predominant feature of the rock climbing. Belly glissading was also an important method of transportation, and the humming sound made by the pick of the ice axe, as it slipped through the soft snow, reminded me of an ultramodern express elevator. I chuckled as I thought how the control engineering was just a wee bit more primitive—feet extended straight for full speed, and flexed to right angles for a quick stop. The mountain lake was far to my left, and had a horseshoe shape from this angle. On the lower snow foot glissading went extremely fast, replacing long slow pulls of the ascent with a few minutes of almost effortless skiing. By 8:30 I was humping over the rough snow of the Noeick Glacier. The solid cloud cover was now overhead and promised an early nightfall, but try as I would it was 10:30 before the foot of the glacier was attained. Still, some light sky lingered in the northwest, and the clouds had fallen back to the south. I now made the unfortunate mistake of climbing the shoulder of the mountain ridge on my right, trying for a shortcut to the Fyles Glacier. This ended in a trap above high cliffs, and necessitated exasperating backtracking before a way could be found down to the Noeick valley. At this point I would have been quite content to have bivouacked on a soft patch of heather, but my family would be worrying, and besides we were scheduled to be flown out from Ape Lake at 9 the next morning. The stars had come out and clearly lighted a snowfield, which I followed to the high west moraine of the Fyles Glacier. While descending to the glacier a steamer-trunk-size block of granite bounced playfully past about 30 feet from my left side, leaving a trail of sparks as it crunched to a stop near the bottom of the moraine. All was silent again, except for the gurgling of numerous tiny brooks from glacial melt. Just a trivial incident in the impersonal life of a glacier. I started across the glacier about midnight, proceeding gingerly with the aid of a flashlight. By 1:30 a.m. I was working along the rocky north side of Ape Lake with some help from the moon rising above Musician Mtn., and reached camp by about 2:20. Jeannette was indeed much relieved to know I was safe. With sleepy congratulations from other members, I crawled into my sleeping bag

as a rather long day of climbing faded into history.

At 9:30 a.m. three of us watched the plane carrying the girls disappear into the distance over the east end of the lake. Clumps of low hanging clouds had rung down a curtain on the eight previous days of almost faultless weather, and the most spectacular mountain scenery I have known. On our flight out we saw 1300-foot Hunlen Falls, but the half-hour transition from a completely isolated region of snowy peaks and glaciers to the world of houses, electric lights and automobiles was too sudden to immediately comprehend, and I looked forward to another ten days of such living in a not too distant year. My family had provided me with a warm and welcome base camp, and although they had not accompanied me to the summits, I am sure that they will count their experience at Ape Lake as one of their most pleasant and memorable. It was perhaps just good fortune that I had chosen mountains that could be successfully challenged with my modest technical experience, but it was also the valleys, the views from the subsummit ridges, mountain lakes and gushing cascades that made the region attractive. Now it seemed that I had done so little compared to what I had left untouched that a whole new horizon lay open and waiting.

Niut Range Expedition

By Martin And Esther Kafer

Party: Esther and Martin Kafer, Barry and Rena Hagen, David Boyd, Dick Chambers, Paul Plummer, Bill and Signe Nickerson joined later.

This summer's trip into the central part of the Niut Range was somehow a logical sequence to the 1966 expedition into the Pantheon Range (see CAJ 1967, pp. 4-14). After having seen the wild and inspiring mountains grouped around the high triplet peak of Pagoda, whose highest point had been climbed in 1947 by Fred Beckey (see CAJ 1948, p. 170), we were sure that many fine climbs would be waiting.

Dave Boyd, Dick Chambers, Martin and Esther Kafer left Vancouver late Friday afternoon, August 18th, and were met in Williams Lake by Rena Hagen who had come down from Prince George on the midnight bus. The drive through the night took its usual toll on the nerves so it was a tired crew that pulled into the smoke-filled valley near Tatla Lake. Because two large fires were burning near the Bella Coola Highway and a fire closure was imminent we were not surprised to encounter some trouble locating the promised plane for the airdrop.

After a few phone calls and endless waiting we were ordered to proceed to Horn Lake, from where our gear and food was successfully free-dropped onto Rusty Glacier in two half-hour flights. At the lake we were joined by our two young doctors, Paul and Barry. While waiting at the lonely landing, we found that the Chilcotin grapevine was in perfect working order as we were visited by Bill and Signe Nickerson, two local climbers living at the south end of Twist Lake. They reported that their second attempt on Camel Mtn. had failed so they were anxious to try again. Both of them were very helpful in transporting our gear in their Land Rover further down the valley and loaned us a canoe for the crossing of Mosley Creek near its junction with Quartz Creek. Our first camp was just on the other side of Mosley Creek.

We spent a restless night due to the heat and the mosquitoes and set out early, but ran into trouble immediately trying to cross a dirty slough that seemed to extend for miles. Stripping was the only answer and, the crossing affected, we continued, our spirits considerably dampened. The

SPECIAL NOTE FOR THE CAJ DIGITAL EDITION

An oversized fold-out map of the Nuit Range was included in the hardcopy version of the 1968 Canadian Alpine Journal.

It is not included in this digital version due to size restrictions.

Photo: Barry Hagen

Northwest face of "Rusty" from moraine above lake at headwaters of Quartz creek.

Photo: Barry Hagen

"Camel Mtn." from subsidiary peak to the east.

Photo: Barry Hagen

North face of east peak of Pagoda Peak.

rest of the day was an endless series of bushwhacks, boulder fields and more bushwhacks, the only relieving features being some beautiful blueberries and a cooling drizzle.

We made camp about 5 o'clock near a fairly large lake, which was not even shown on the Waddington map. Next day we climbed up to the glacier, where the airdrop parcels were found to be in very good condition, in spite of the fact that the drops were made from 200-400 feet above the hard snow. Carrying the heavy loads down to the chosen camp spot in the highest meadow of Five Finger Creek valley and setting up camp, including a rock walled cooking shelter, occupied the remainder of a mainly dull and sometimes rainy day.

Tuesday, the 22nd of August, did not look very promising, but we managed to climb the three most northerly peaks of the Camel Range, all easy snow or boulder heaps, approximately 9500 feet. The hope for a good look at the higher portion of the Camel group and the east peak of Pagoda did not fully materialize as the clouds never lifted above 9500 feet. Towards the evening some blue patches and a high wind promised a better day to follow.

To our delight the next morning was cold, and a clear sky enticed even our slowest laggards to an early start. Unfortunately we found the chosen route on the west ridge of Rusty Peak (9900 feet) offered, after an initial crampon work-out on steep hard snow, only inferior, rotten rock. The only exception was a series of small gendarmes which half the party bypassed, and a steep grade 5 pitch of about 80 feet. The climb was long and mainly uninteresting grade 3, but the view on top to the surrounding mountains we planned to climb made up for that.

The descent was similarly rotten through the southwest face to the highest eastern tributary glacier of Five Finger Creek and from there over the lightly wooded western flank back to camp.

On August 24th, another fine day, we crossed Rusty Glacier in a northerly direction towards a group of three peaks that had impressed us even from the Pantheon Range. Two of the peaks had been contoured at 10,000 feet on the Waddington sheet, but the 1 : 50,000 preprint showed them just below that height. We approached the centre peak along a subsidiary rock ridge and were pleasantly surprised to find solid rock of grade 3-4. The altimeters confirmed the altitude at about 9950 feet. As it was still early we decided to split the party with the Hagens, Paul and Dave carry¬ing on towards the west peak, whereas Dick, Martin and Esther had a delightful ridge walk on a sometimes very narrow arête over to the east peak. Again we found a tortuous way down rubble filled gullies and rock bluffs of the southwest face, with a very steep snow tongue leading back to the glacier below. The party on the west peak reported a rather more interesting rock descent on the southwest ridge.

After having admired the north faces of the three Pagoda peaks from various angles and especially the east peak's northern exposure, we felt that our conditioning had progressed to the level where we could attempt this most prized objective of our venture. The one logical way to climb that mountain was to find a bivouac spot as close as possible to the base of the face, then try one of the two prominent rock ribs leading to the west or east ridge. For this purpose we had a half rest day on Friday and after lunch, on a warm sunny afternoon, climbed up over a glacier in the second northerly tributary valley of Five Finger Creek, which by evening gave us access to a perfect bivouac site within a short half hour from the imposing face we were about to climb. During the cool evening preparations for a night under the stars were carried on simultaneously with a searching study of the beautifully striated north face, which the slanting evening sun high-lighted in a golden colour.

Next morning, when we approached the easterly rib no consensus on the best route had been found. After a short counsel the party split into two teams to ensure that at least one group

would reach the top. As it turned out, both the easterly and the westerly rib of the north face were successfully climbed, the first by Dave, Paul, Barry and Rena and the latter by Dick, Martin and Esther. Neither of the two approaches offered any great difficulty, but the rock was very changeable, extremely rotten in places, quite solid in others. The main ridge on the other hand was amazingly solid and extremely pleasurable to climb. We were all very happy to have thus climbed what Dick Culbert had previously termed "the highest unclimbed peak in the Coast Range" (altimeter reading approx. 10,350 feet). The parties returned to camp via different routes: the first party down the east ridge and north flank, then up the (eastern) Pagoda Glacier, and the others descending via the ascent route of the first party, the east rib, directly back to camp.

Next day, being a Sunday, we decided to back-pack down to Five Finger Creek, and while some of us loafed around, Esther and Dick returned to base camp to pick up additional food and rendezvous with Bill and Signe Nickerson, who had promised to join us for the planned ascents in the Camel group. They were very grateful to climb with us and we never regretted adding two such helpful and pleasant companions to our group. The same evening we reached a high bivouac on a shoulder below the northern peaks of the Camel group, which allowed reasonable access to the central portion of the range.

We were all very eager to have a closer look at the main peak of Camel, therefore the first sunshine caught us well on the way towards a snow col above camp. Unfortunately we had to descend for a good 2 miles and 500 feet before we turned up into the closest glacial cirque below Camel. At this point an amiable controversy in regard to the best route was resolved by dividing the party. The southeast ridge was chosen by Dick, Martin, Esther, Rena and Signe; the other four, Barry, Paul, Dave and Bill, headed for the east face. Both routes offered varied rock, some quite solid, and the east face involved some grade 5 pitches. The parties reunited on the peak, where the wonderful weather and tremendous view towards Mt. Waddington encouraged a longer than usual stay. While ascending towards Camel's main peak, we had some opportunities to study the next southerly promi¬nence of the Camel group, which we quickly named "Camel Tower". Its sheer north and east faces attracted our admiration and seemed to offer only extremely difficult routes. It was obvious that, having come so far, we had to try to find a key to its apparent difficulties. Somebody suggested that we might even give it a try the same day and all of a sudden the whole party regrouped and a hurried descent down the south ridge ensued. When we reached the foot of the tower, saner heads prevailed and the 3-hour slog back to camp proved retreat had been a wise decision.

Next morning after a good night's sleep had revived us enough to at least make an attempt on the Tower, four of us (Barry, Bill, Martin and Esther) set out, retracing the lengthy approach. On closer investigation of the far side of the Tower we found it to be just as precipitous as the northern exposure and therefore chose the closest ridge as the most direct approach. The relentless pace of climbing during the previous week began to make itself felt and our rate of progress was correspondingly slow. It was already afternoon when we reached an insurmountable overhang in the ridge; this forced us to descend precariously towards the south ridge, which we reached after a longish rappel and snow traverse.

The south ridge offered its sternest defence right at the beginning, but Barry had enough reserve strength and technique to overcome the grade 5 difficulties. The remainder of the climb was consistently grade 4 rock of delightful qualities, which helped to revive our lethargic spirits. On the peak we all agreed that this had been a very worthwhile climb and even the prospect of the long return to the bivouac could not detract from our feeling of euphoria.

Photo: Barry Hagen

Waddington Group from "Camel Peak", looking southwest.

When we arrived back at the bivouac site, we were surprised to see Dick waiting for us, but very delighted to be served hot tea and stew; he related that the remaining five climbers had made first ascents of two subsidiary peaks just east of the main peak of Camel and after an early return had decided to go back to base camp.

On Wednesday, August 30th, the whole party was reunited again for the last time. It had been decided that, with Paul and Barry due back in Prince George on Saturday morning, they and Rena, Signe and Bill would return early. The remaining four planned to descend Five Finger Valley to Royal Glacier and attempt one or two of the peaks just south of it. The camp pretty soon looked as if a tornado had blown right through it when we struck some of the tents, distributed the food and spread our gear for repacking.

The early afternoon saw four of us bid a last farewell and shoulder our heavy packs, while Barry, Paul and Bill set out to see who could race up fastest to the 8800-foot peak just west of the base camp. Soon after their return base camp was completely deserted as they moved to a camp spot which gave more convenient access to their next day's goal, Quartz Peak. On their last climbing day they found a very rewarding route on the south face of that mountain; some of the most solid rock of the whole area made the 9660-foot Quartz Peak a fitting finale.

Meanwhile, back at Five Finger Creek, we had difficulties, wading through the braided, fast flowing white waters of the main creek. Crossing the hip deep torrent pouring out of the ice portal of Pagoda Creek impressed even Dave, a native of New Zealand, where the art of streamwalking is a basic requisite for successful mountaineering.

The last hours of the afternoon passed very quickly as we descended the desolate canyon of Five Finger Creek. Camp was made on a gravel bar at about 3500 feet. Next day was one of those best to be forgotten, as a long and wearying ascent above the northern side moraine of Royal Glacier ended in a series of impassable side gullies and headwalls, which forced us to return. The only highlights of the day were the elegant exploits of a band of mountain goats on the steep moraine escarpment. We prepared camp under threatening skies on the same gravel bar and as expected the rain began towards midnight and quickly turned into a downpour. During the night, the waters rose to within a few feet of our soggy camp, an ominous foreboding for the long trek back to base camp.

The well laid plans for avoiding the river crossing on a high traverse over the glacier tongue were thwarted by a continuous bombardment of the proposed route by boulders and rock slides loosened by the heavy rain. An alternate route was found on a dashing reconnaissance by Dave who placed a piton on a slanting ice ledge above the glacier portal. A horrible rappel under the threat of hurtling rocks necessitated pendulum manoeuvres over the swirling waters, and everybody heaved a sigh of relief on reaching the safe gravel bars on the other side. The swollen creeks forced us into many more detours and it was a very sorry looking crew that arrived at the base camp. After a miserable night in waterlogged tents we spent all next morning packing and burning garbage. The trip out took another 24 hours, including a camp in the friendly forest of Quartz Creek, where a cheery fire and the appearance of a few stars brightened the end of another worthwhile expedition.

Manatee Ski Expedition 1967

By John Clarke

Party: Esther Kafer, Judy Horgan, Brian Howard, Alfred Menninga, Dr. Paul Plummer, Hans Peter Münger, John Clarke.

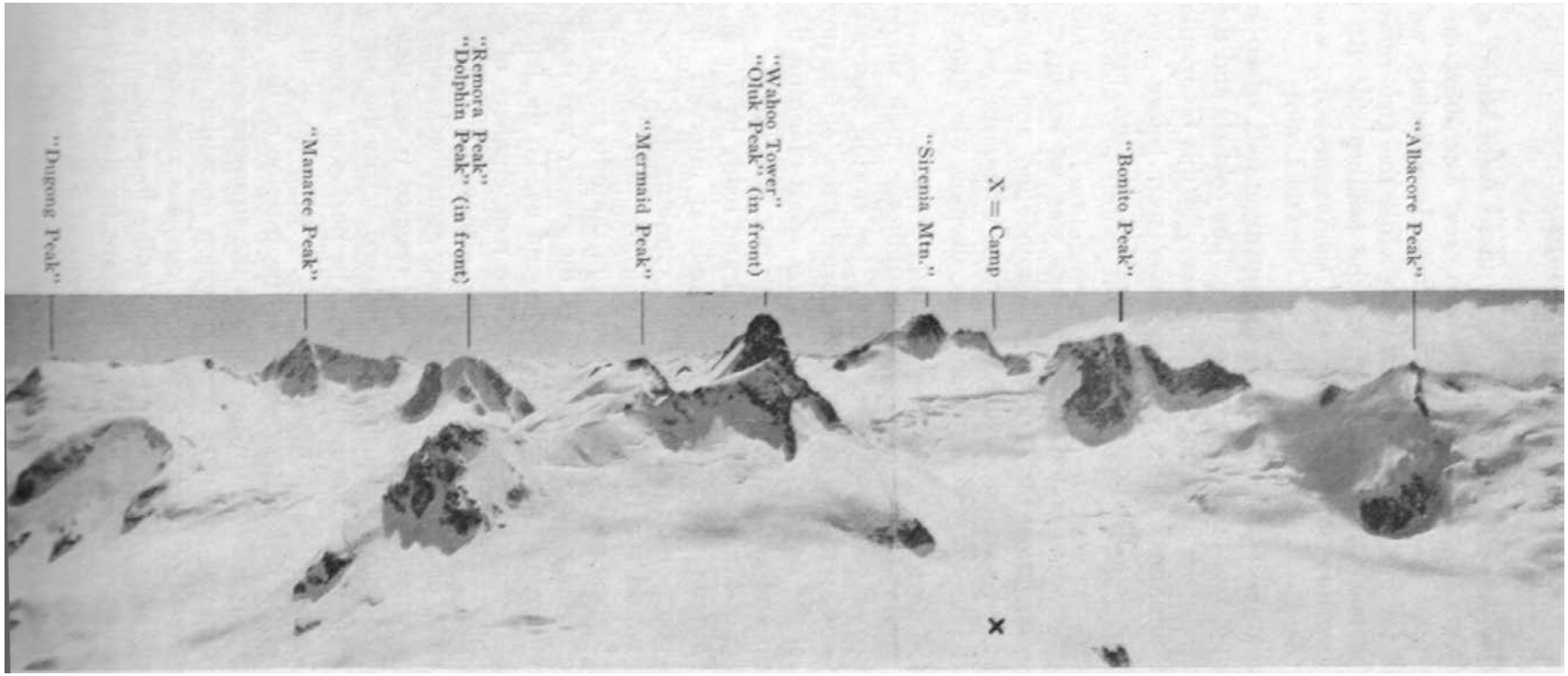
About fifty miles northwest of Pemberton, B.C., there is a huge glacier complex called the Lillooet Icecap with long lobes of ice extending far into bushy coastal valleys. These glaciers which extend like fingers from the epicentre of the snowfield form the extreme headwaters of the Lillooet, Toba, Bishop, Lord, Chilko and Bridge Rivers. To the southern edge of this icecap the B.C. Mountaineering Club organized a ski-mountaineering expedition for the Centennial year. At 50° 36' N., 123° 46' W. there is a cluster of granite peaks jutting out of the ice called the "Manatee Range". Large open snowfields between these peaks promised an excellent setting for rock scenery and ski touring.

We planned to fly to a 7500-foot col; make our trips from snowcaves at this central location; then ski and backpack to South Creek in the Lillooet valley. Four days were allowed for this march. Don Gill, the Pemberton ranger, kindly offered to wait at South Creek with his four-wheel drive when we emerged from the bush. On Saturday morning April 29 the seven expedition members met in Pemberton and drove to the horse meadow where the plane was to meet us. Right on time, the "Northern Mountain" ski plane made a bumpy landing on the grassy surface and taxied up beside our mound of supplies. The noise brought a junior 'welcoming committee' from Mount Currie galloping across the field.

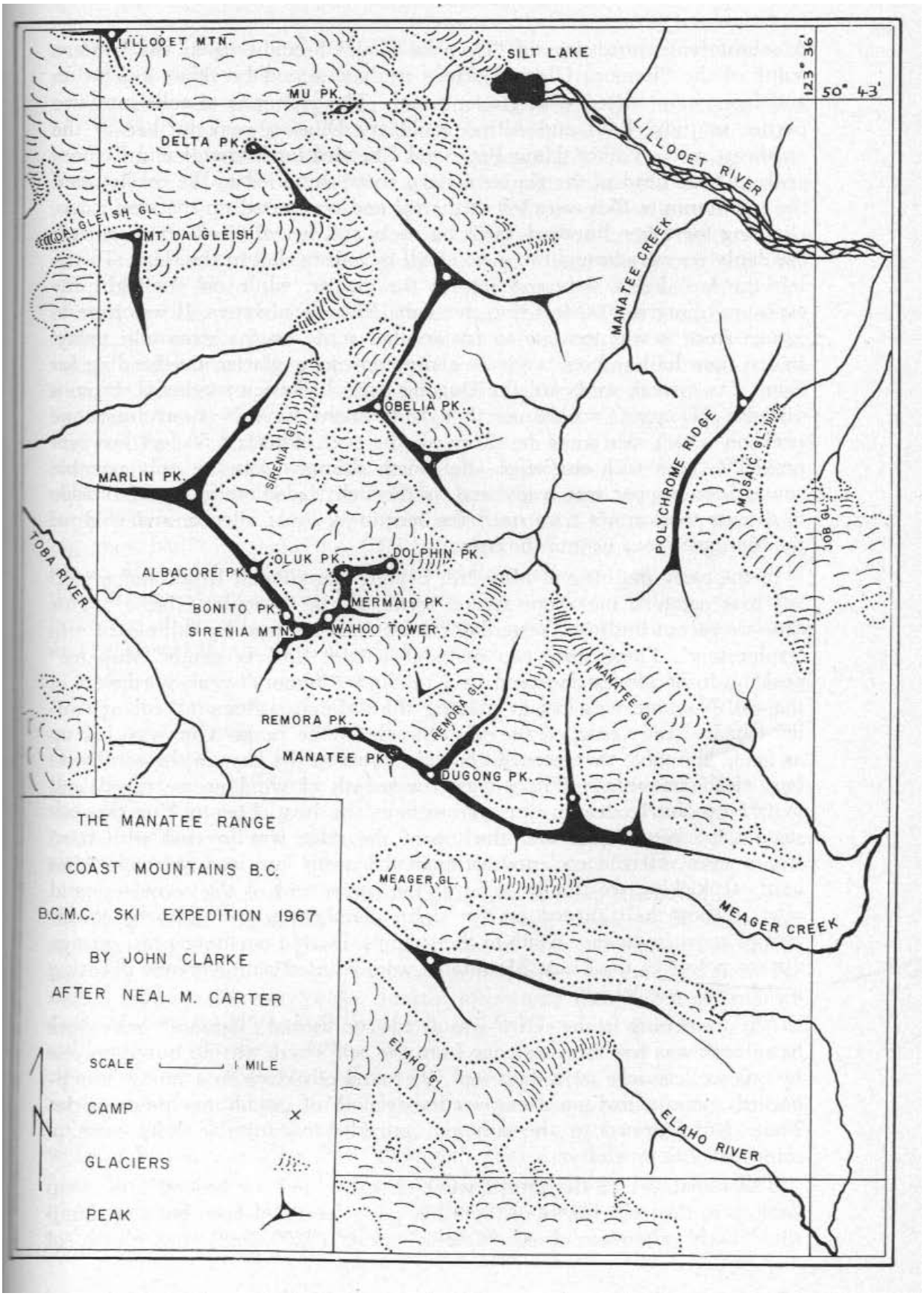
Clouds obscured the mountains so the first flight had to leave as soon as possible. With maps and air-photos ready, Hans Peter and I climbed aboard and in minutes were flying up the giant corridor of the Lillooet River. Soon the volcanic rock cliffs of the Meager group could be seen peeping through swirling clouds and we wondered how to find our pass in all this mist. However the pilot was highly skilled in mountain flying and could manoeuvre the craft in any direction we wished. Suddenly the snout of the Manatee Glacier became visible so that only half a minute later we zoomed over the pass. Landing wasn't going to be easy, since sun filtering through the clouds gave a dazzling effect, making it difficult to tell how high above the snow we were on each landing attempt. Finally I threw my bedroll out the window for a marker and prayed it would hit its mark. It did! Next time around it was spotted and we came to a bumpy uphill landing so as to coast to a stop at the crest. It was an exciting moment. When we jumped outside it was windy and snowing but it was great to be here. I was also glad to see the bedroll again!

As the plane disappeared we experienced the uncanny atmosphere of being in one of the lonely places of the world. But there was work to be done. Right away a runway had to be marked out along the snow with food boxes and with each succeeding flight more were added since the weather was deteriorating. Finally the whole crew assembled on the col and waved the pilot goodbye for the last time. Immediately we started digging like mad for tonight's accommodation while the girls relayed food and equipment a few hundred yards from the landing site. By evening enough space was dug for the night and soon everybody was inside dropping off to sleep.

Next morning we all crawled out into the sunshine half asleep and with only a vague idea of what the place looked like. The cold air and the impact of the wintry scene woke us at once to the beauty of this fascinating place. Unclimbed and unnamed peaks we had never seen before were everywhere. Our group felt bewildered and humbled by the magic of the Manatee. Despite



"Manatee Range" from summit of "Obelia Peak"
"Marlin Peak" is just out of picture at right.


LILLOOET MTN.
SILT LAKE
MU PK.
123° 36'
50° 43'
DELTA PK.
LILLOOET RIVER
DALGLEISH GL.
MT. DALGLEISH
MANATEE CREEK
OBELIA PK.
SIRENIA GL.
MARLIN PK.
POLYCHROME RIDGE
MOSAIC GL.
JOB GL.
TOBA RIVER
OLUK PK.
DOLPHIN PK.
ALBACORE PK.
BONITO PK.
MERMAID PK.
SIRENIA MTN.
WAHOO TOWER
MANATEE GL.
REMORA GL.
REMORA PK.
MANATEE PK.
DUGONG PK.
THE MANATEE RANGE
COAST MOUNTAINS B.C.
B.C.M.C. SKI EXPEDITION 1967
BY JOHN CLARKE
AFTER NEAL M. CARTER
SCALE 1 MILE
CAMP
GLACIERS
PEAK
MEAGER GL.
MEAGER CREEK
ELAHO GL.
ELAHO RIVER

the great weather today our project was to 'set up house' by digging two sleeping caves for general accommodation and storage. Low narrow entrances led to more spacious interiors where shelves for packs were dug on one side and a roomy bench for sleeping was shaped out on the other.

Between the sleeping caves a kitchen roundhouse took shape where elaborate shelves and cupboards were formed for storing food and white gas. Over to one side an insulated platform sported a row of five stoves. The work took most of the day but the evening was spent planning the details of tomorrow's trip and getting acquainted with our new home.

On the morning of May 1st we were packed and ready by 7 a.m. and set off across the "Sirenia Glacier" placing wands at intervals should the weather become poor. Since this was the first climbing day it was decided the whole party would stay together. The objective was "Mount Sirenia" (9500 feet)[13] the highest peak in the horseshoe of summits south of camp.

After a couple of hours, an upper shelf of the glacier was reached with a cirque of peaks forming an amphitheatre around us. To the left the walls of "Wahoo Tower" thrust out of the ice. The rock climbers of our party couldn't conceal their enthusiasm for this peak, although air photos disclose a possible snow route on its southeast side. Many switchbacks were required for the icefall and when the bergschrund was reached it was time to leave the skis. After a snack in the sunshine we belayed across the 'schrund and moved in three ropes up the northeast ridge. The peak was a spacious dome and everybody lingered for an hour to drink in as much of the view as possible. Esther could pick out summits in the interior of the icecap she had helped explore in 1963. But what gave us the strangest feeling was the tangled mass of summits in almost every direction on which no one could put a name. We roped off the peak, collected our skis and once below the icefall had an unbroken run back to camp. Evening found us all assembled at the caves, very happy and already making plans for the next climb.

Tuesday morning six of us set out in dim light at 5 a.m. and headed for "Manatee" (9300 feet) "Dugong" (9100 feet) and "Remora" (9000 feet). A southerly traverse around "Dolphin Peak" brought us to the western trunk of the "Remora Glacier". Here we had second breakfast and necks and faces were coated with glacier cream. The plan was to split into two parties so Judy, Paul and Alfred could try Dugong peak farther to the southeast, while Esther, Hans Peter and I headed for Manatee and Remora peaks. At the head of the glacier a steep snow chute led to the col between the two summits. Skis were left at the col and we started up the west ridge, climbing for a few hundred yards on rocks still heavily iced and corniced. Suddenly we were brought to a standstill by a deep cleft in the ridge. To the left the face fell a thousand feet to the glacier, while on our right the exposure plunged 5000 feet into the Toba River headwaters. It was time to return since it was too late to try another route on the mountain today. In less than half an hour we were gliding down the glacier and heading for camp. On arrival, we heard the Dugong party had been successful. From a distance "Dugong" looked as though it might have been at least one peak on which skis could be taken all the way. The last 50 feet however proved to be a rock challenge—the north chimney was the only possible route. Soon supper was ready and as the light faded we gathered outside to discuss tomorrow's trips until the seemingly lunar silence, and cold, of the Manatee drove us into the caves.

In the early morning of May 3rd, Esther, Hans Peter, Brian and myself left base camp to make our second sortie up the "Remora Glacier". This time we meant business. Yesterday's defeat was softened by calling the trip 'exploratory'. There were two main objectives: one, to climb

13 Names in quotes given to peaks and other features by this expedition are pending acceptance by the Canadian Permanent Committee on Geographical Names.

"Manatee" peak by its southwest face and two, to climb "Remora" peak northwest of the col. No time was lost in gaining the "Manatee-Remora" col as sunlight had already reached the western side of the range. Our way led up as far as the pass, then turned abruptly down to the base of the southwest face of the mountain. There wasn't a breath of wind as we roped and moved up slowly, leaning on our axes in the heat. Despite this the last steep slope between us and the top of the ridge was covered with hard frozen snow. Here a cool updraft from the north face was welcome. After hard stepkicking we finally stood at the upper end of the snowface, and after a short halt turned to the right, clambering over crunchy wind-packed snow in an easy climb to the summit. During our hour's rest on top, distant points in the Coast Mountains were pointed out; everyone debating which peak was which.

After returning to the skis it was decided to ascend "Remora" peak since its summit was less than an hour from the col. There was no hurry, so one by one we leisurely arrived on top. We found ourselves on a lumpy humpbacked summit, the top a curious honeycomb of crumbling brown rocks. These had warmed in the sun and provided comfortable lofty seats, a rare treat this time of year.

The remainder of the return went smoothly and we headed into camp anxious to hear the stories of the other party who had been back at Camp since early afternoon from "Obelia" peak (9200 feet) just north of camp. They encountered no difficulty on this pleasant climb and the different view gave them new views of the range.

Thursday was another perfect day! For 5 days now the impressive form of "Wahoo" tower (9450 feet) had tempted everybody. Alfred, Paul and I left camp in bright sunshine for the southeast face of the tower, while Esther, Judy, Hans Peter and Brian left later to re-enter the amphitheatre and climb its northwest arête. In spite of a halt to retrieve a runaway ski just east of "Dolphin" peak, we had breakfast just under the tower at 10:30 a.m. We soon switchbacked up the face which was frozen and very steep. After 2 hours we arrived at a point where skis were left with skins blowing in the wind to dry. We roped and continued on foot, our boots biting into perfect snow. In a little while we emerged onto the summit, taking shelter from the wind in a niche in the dark granitic rock. It was then we decided to climb "Mermaid" peak (9000 feet) which lay a little to the northeast. Half an hour's climb up its southeast side, we gained the top, having taken skis nearly all the way. From here we could see in the foreground the tremendous cliffs and ridges of the tower. North of Mermaid peak lies a small table glacier which provided a high short-cut route to camp. The northwest ridge party jubilantly arrived 2 hours later, announcing they had conquered the 1500-foot class 4-5 northwest ridge of the tower. After adding to our cairn they had descended to their skis by way of the "Wahoo-Mermaid" col. This was the fifth cloudless evening and everybody was tired, so after supper we jumped into our sleeping bags. Socks and other wet things were often taken along to 'dry-out'.

In the early hours of the 5th, still in fairly clear weather, Esther, Paul, Alfred, and Hans Peter left camp for "Bonito" peak, a precipitous 9100-foot peak just northwest of "Mt. Sirenia". Skis were parked just above the "Bonito-Sirenia" col. The granite slabs of the southeast ridge led them to the summit, a huge blocky projection hanging precariously 1000 feet over the glacier. On the run back to camp a recently opened crevasse, with a narrow bridge, offered the only way from the upper plateau. Skiing gingerly across this they enjoyed an uninterrupted run back to camp.

Meanwhile Judy and I directed our efforts to the two summits just across the pass; "Oluk" peak (9200 feet) and "Dolphin" peak (8900 feet). We zig-zagged up the broad glaciated north face of both mountains, encountering only minor difficulty at the bergschrund. Soon we emerged onto

the saddle between the two peaks. Shortly afterwards mist rolled in and we doubted if we could go much farther but "Oluk" yielded in 2 hours via its southeastern snowfield. When we arrived back at the saddle cirrus clouds that were high most of the day began to drop and long fingers of mist poured over the top of Mt. Dalgleish. By then fog banks began drifting up from Toba Inlet and as the two cloud layers met our glorious good weather period was over. But "Dolphin" peak lay only a short distance from the pass so we started moving up its western ridge. Monster cornices hung over the northern edge. On top we encountered our first peak with lots of cairn-building material. Suddenly we found ourselves engulfed in cloud and it began to snow, so we made a quick retreat down to our skis. By this time the wind was so fierce it was difficult to stand upright. We had an exciting run in swirling cloud and flying snow back to camp just before the main force of the storm. That night after supper everybody gathered around a candle and enjoyed a hot mug of Hans Peter's wine (for use in stormy weather). For over an hour laughter poured out of the cave entrances until everybody began nodding off to sleep.

Everyone slept fairly late on the morning of the 6th. A dull roar at the cave entrance told us our mountains were enveloped in a seething storm, so all activity was cancelled and we sank back regretfully into the sleeping bags. We lay in bed all day reading and dozing. Since all meals began by shovelling snow into a pot, everyone had their turn struggling from cave to cave with porridge and soup. Every few hours the entrances were almost plugged by drifting snow.

Every day Paul our 'medicine man' would make the rounds to see that everyone was o.k. Conversation often turned to possible names for the mountains and glaciers as they were identified only by numbers. The glacier southeast of camp was originally named the Manatee[14] because its twin ice streams sported a process like the flipper of a manatee—a docile marine creature from which the mermaid legend is said to have evolved. Thus it was decided to continue the marine theme in naming the remaining features of the area. Bad weather with more snowfall remained until the morning of the 9th. We were anxious to get going again.

On the 9th the wind was still blowing, but the day showed signs of clearing. Alfred and Brian decided to climb "Teredo" pinnacle, an interesting little needle on the north arête of "Oluk" peak. The rest of us left for "Albacore" peak (8900 feet), a beautiful ice-clad pyramid straight across the "Sirenia Glacier". Our route took us under the blocky granite walls of "Bonito's" northwest peak to the "Bonito-Albacore" col. On arrival it was discovered that the rock ridge to "Albacore" summit was completely buried in new snow. This gave us some stiff work, as all foot and hand holds had to be cleared of snow and ice, so quite often the leader appeared to be 'swimming' up the ridge. After an hour of this, the top was reached, and clouds began lifting. Good views opened up to the south into the Elaho watershed. Avalanche cords were used all day since we noticed the heavy snowfall of the last few days was sliding into the other side of the valley. In fact, avalanches triggered at 7000 feet northwest of the Elaho Glacier extended like fingers right to the valley floor. On the return we skied on slushy snow and arrived in camp as Alfred and Brian announced their success on "Teredo" pinnacle.

On the morning of the 10th we all went on a last climb together. An early morning run down the "Sirenia Glacier" was welcome until skins were strapped on opposite "Marlin" peak (8650 feet). Our path turned west and after countless switchbacks we emerged onto the broad saddle south of the peak. On arriving at its southeast face we were about to rope up when Brian suddenly dropped into a hidden crevasse which Paul and Hans Peter had just unknowingly nipped

14 See illustration opposite p. 13 of Exploration in the Lillooet River Watershed, C.A.J., 1932.

Photo: Judy Horgan

"Wahoo Tower" from upper plateau of "Sirenia Glacier".

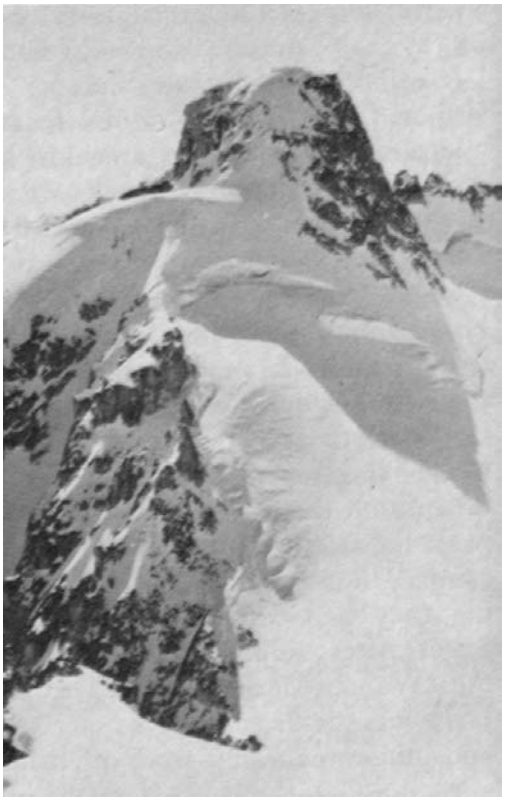


Photo: Judy Horgan

"Sirenia Mtn." from "Wahoo Tower".

Photo: Judy Horgan

Setting up camp on April 30.

The plane landed on the broad pass behind and below skis. "Oluk Peak" in background with part of "Wahoo Tower" beyond.

across. The rescue took an hour and we were greatly relieved to see him climb from the lip of the crevasse cold but uninjured. An hour's careful climbing on snow-covered slabs followed. We stayed on top an hour. The run back to the "Sirenia Glacier" was fantastic on greatly improved snow and by 6 p.m. we were back in camp. In the evening the sky cleared a little more and the last few minutes of sun, among boiling clouds, was hastily photographed.

On the llth at 10 a.m., with monster packs we skied into the basin at the snout of the Manatee Glacier. It was a long trek up the east trunk of the glacier before reaching the broad pass at its head from which we finally started down Meager Creek. At first, the skiing was pleasant but soon small intermittent canyons forced cautious running until nightfall, when camp was made in the trees at 2700 feet.

The whole day of the 12th was spent in Meager Creek itself. The first hour went well on snow-covered gravel bars which made excellent going. Eventually it was impossible to follow, as one wild canyon appeared after another. The party was tired from yesterday and much of the time windfalls under the snow made the surface collapse, not with every step but just often enough to make rhythmic walking impossible. After hours of battling upwards we encountered a flat meadow just below Pylon Peak. Once past this we set off down hill at a smart pace, contouring the wooded flanks of the Meager group and gradually descended farther into Meager Creek.

Because of the unlikelihood of our being able to use skis in the lower valleys during our backpacking trip out, we had bought cheap skis especially for this expedition. In view of the impossibility of carrying skis for at least another 2l/2 days, in the afternoon we threw our skis into the creek, and later made camp on the gravel bars near Capricorn Creek.

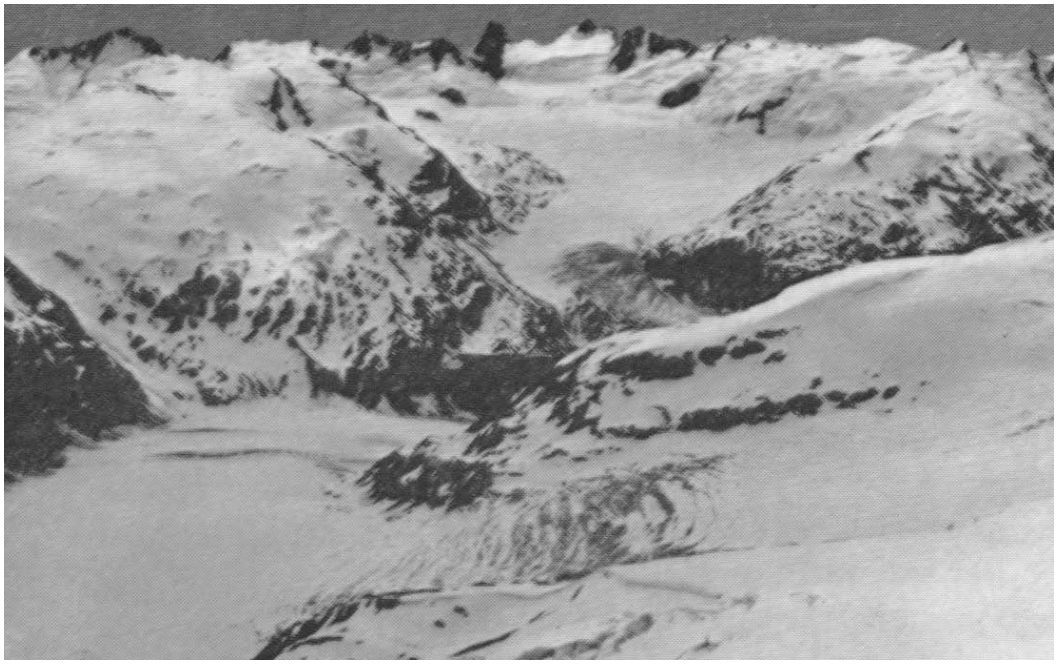


Photo: Barry Hagen

"Manatee Range" from near "Mu". (for location of "Mu" see following article).

Next morning Meager Creek was crossed when we stumbled on a huge log that had fallen to the other side. Still travelling on snow the Lillooet was finally reached, and it was easy to see

that a crossing was out of the question. Not only was the travelling on the opposite bank easier but the road had recently been pushed up on that side 8 miles from South Creek. First we had to thread our way through a forest of small trees knocked over by moose since open gravel bars only meant more unstable snow. Most of the day was spent battling bush and boulder-hopping in the side channels of the main river. Toward evening camp was made in a snow-free clearing close to the river.

The river looked impossible to ford despite its being braided into over a dozen channels. Three of us climbed into the torrent and managed to cross to an island in mid stream. The next channel however was bigger than all the rest and brought our efforts to a standstill. A bear running ahead of us had entered the water here and we imagined what he must have looked like hurtling down the river. This had been a 13-hour pack day in which 5 map-miles were accomplished and everyone's exhaustion began to show. However a big bonfire gave the camp a bright lived-in atmosphere and the group was cheered by the thought of being in Pemberton tomorrow.

At 9 on the morning of the 14th we set off on the final lap to South Creek. But the mighty Lillooet was not ready to grant us an easy release to civilization. The battle began around 11 when we encountered the first beaver pond. The river on our left, and steep slopes closing in on the right, there was only one thing to do—climb right into the ponds and wade from one to the other. The last few hours were spent wallowing through a mixture of snow-covered sand bars, quicksand and swamps until an exhausted party finally arrived at South Creek officially ending an expedition none of us would ever forget. Here the team piled into Don's truck and marvelled how days of foot travel flashed by as the 24 miles to town were covered in less than an hour.

A report of this expedition would not be complete without mentioning the sense of closeness and comradeship sustained throughout its entirety. We travelled like a tiny community with everyone working together to make the 4-day walkout as happy as our stay in the high country.

Trial By Water (Lillooet Icecap)

By Barry Hagen

Party: Esther Kafer, Sheila Pilkington, Rena and Barry Hagen, Brian Howard.

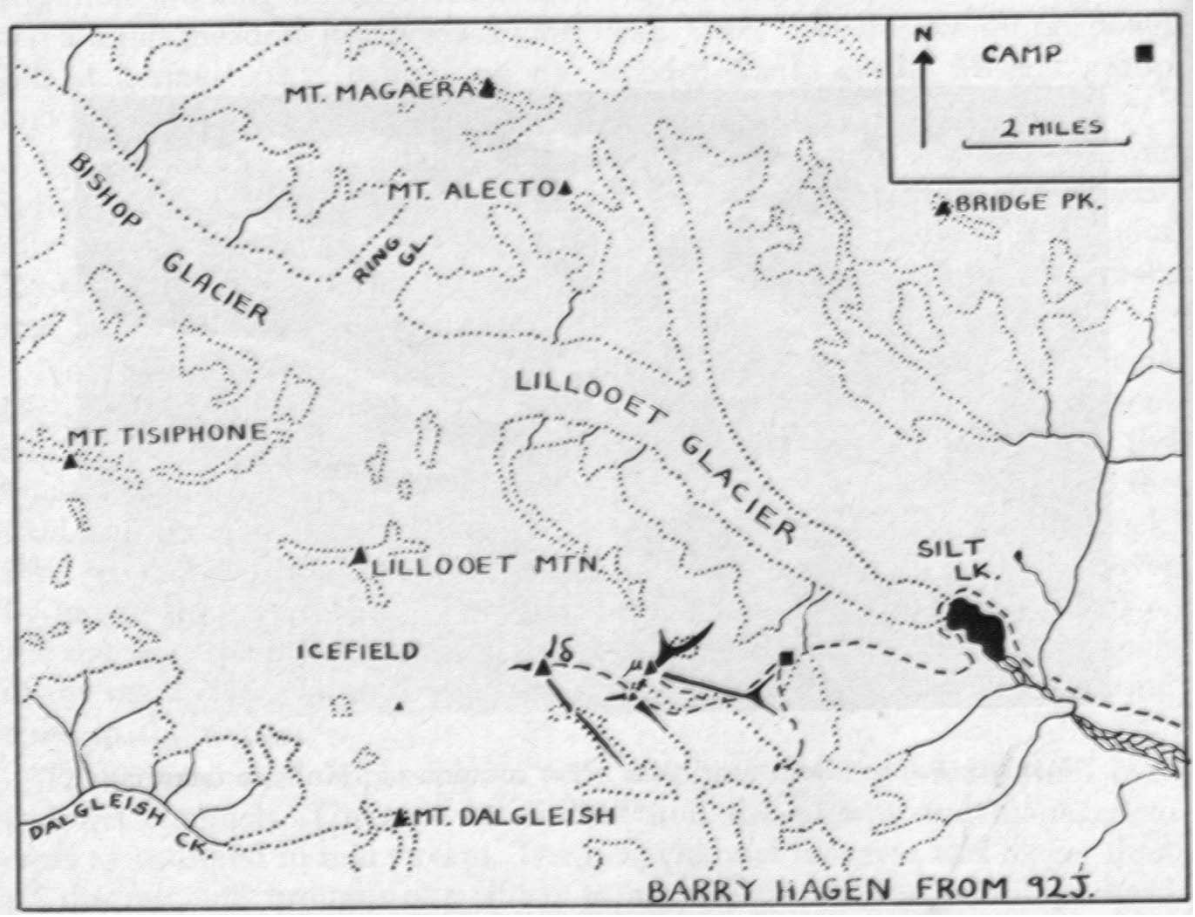
Silt Lake, altitude 2550 feet, lies 100 miles north of Vancouver, at the snout of the retreating Lillooet Glacier (B.C. Map 92 J). It was first used for air access by the 1960 Hutchinson party, which achieved first ascents of Compton, Toba, and Tisiphone peaks (ref: CAJ 1961).[15] In 1963 the Kafer-Eigenmann party gained access to the northern Lillooet area from the lake and made first ascents of seven peaks (ref: CAJ, 1964). In May 1967, while climbing with the BCMC Manatee Range ski expedition, several members observed an attractive group of apparently unclimbed peaks between Mt. Dalgleish and Silt Lake, and they made preliminary plans to attempt them.

Accordingly, on July 5, 1967, the five-member party was flown in a Harrison Airways Beaver from Vancouver to Silt Lake. An impending storm prevented aerial reconnaissance of the summits. Leaving a weatherproof food cache near the lakeshore, we labored up and over the western lateral moraine of the Lillooet Glacier toward a rounded knob at 5100 feet on the flank of our first objective, a glacier-clad beauty approaching 9500 feet elevation. For the next two days we lay in our tents, listening to the wind, rain, and occasional collapses within the icefalls that lay

15 The official name Mt. Tisiphone replaces the earlier appellation "The Archbishop."

to either side.

Our third day, July 8, dawned "clear and still" (that is, slush clear up to our knees and still falling). By noon, however, we could stand our cramped immobility no longer and shuffled off southwards through the fog. Three hours later we penetrated a moderately crevassed slope to a broad pass, from which we caught occasional glimpses of the chaotic unnamed glacier curving east and south from Mt. Dalgleish. Having no idea where our peaks lay, we returned to our sodden tents.



Some of the Lillooet Icecap area.

Our time was running short, and we hadn't even seen our peaks. July 9 found us probing westwards up a steep buttress directly above our campsite, in total white-out, ice-axes tapping ahead like the white cane of the blind. Suddenly Brian plunged through the cornice up to his chest, but, with equal speed, was out of the hole and scrambling back towards his belayer. A brief groupthink ("confidence conference") ensued, whereupon the intrepid five formed a single rope and continued upwards.

At 9000 feet the clouds parted momentarily, revealing a summit west of us and separated from our ridge by a small south-facing cirque. With whoops of joy, we jumped across a small bergschrund, crossed the cirque, and climbed a class 3 ice-plastered gully to the summit. Again the clouds parted, showing the actual summit 300 yards to the north. Soon we were astride its

9400-foot boulder-strewn cap and building a cairn, vainly waiting for a view of the surrounding peaks. As we kicked our way back down the buttress we'd climbed earlier, a piercing wind began to disperse the storm, and we admired the beauty of the Lillooet Glacier, with Silt Lake at its snout, 3 1/2 miles directly east of us.

July 10, our last day for climbing, was one of those brilliant, refreshing mornings that makes us all optimists. Clambering up our buttress to 7000 feet we traversed southward to circumnavigate yesterday's peak. After losing an hour climbing the 30-foot upper wall of a crevasse, we reached a wide pass and looked south to the Manatee Range, and west to Mt. Dalgleish. Three miles northeast of Dalgleish and ll/2 miles west of our first peak stood our day's objective, a rather unimposing mountain with a long north-to-south crest. Continuing our flanking manoeuver across snowfields, we found ourselves blocked by a 1000-foot drop to an ice-fall flowing southeast from our objective's east face. Thereupon, we climbed the solid, class 4 south ridge of a minor bump (8800 feet) adjacent to yesterday's peak, traversed its top and descended to a wide snowfield leading directly to the northernmost and highest end of our objective. A short scramble up the north ridge put us on the 9300-foot summit. As we looked northwest to magnificent Mt. Lillooet and Mt. Tisiphone, we deeply regretted having to depart for home, with so much left to do and so little done.

At the time, we were unable to decide on suitable names for our two first ascents, but have since referred to them as "Delta" (S), the more western of the two and the second one climbed, and "Mu" (μ). [Delta and Mu are, of course, the Greek initials of Don Munday.]

It was now Tuesday, July 11. I was expected in Prince George on the 15th, and 40-odd miles of dense brush and flooding creeks lay along the Lillooet between us and our car. At Silt Lake we found our food cache partially destroyed by a predator with wolverine-size feet, but salvaged enough food for three days' travel. Unable to cross the Lillooet at its exit from Silt Lake, we were forced to retrace our steps to the upper end of the lake, cross the glacier's snout, and side-hill along the volcanic debris of the eastern shore.

The first tributary, marked "intermittent" on the map, was a rushing freshet, hip-deep, requiring taut handlines. The next 10 miles of swamps, fords, slide alder, devil's club, and mosquitoes took a day, and brought us to Salal Creek, in full flood. Nearly 2 days were spent forcing a crossing by means of a 100-foot tyrolean traverse. Reaching Pebble Creek on July 15, with virtually no food left, we stared pessimistically at this largest torrent of all. Two days later, after several massive firs felled with ice-axes had been swept away, we managed to lodge a rope on an immense log jammed in the middle of the torrent. On her second attempt, Esther forced her way across the current, using the rope as a handline, and was able to ford the rest of the braided stream. Another 100-foot tyrolean traverse ensued, and, with but one ice-axe remaining, we were across. Twenty hours later, July 17, we forded our last flooding creek, and rushed off to fill our shrunken stomachs.

Photo: Barry Hagen

Summit of "Mu" from top of the eastern buttress.

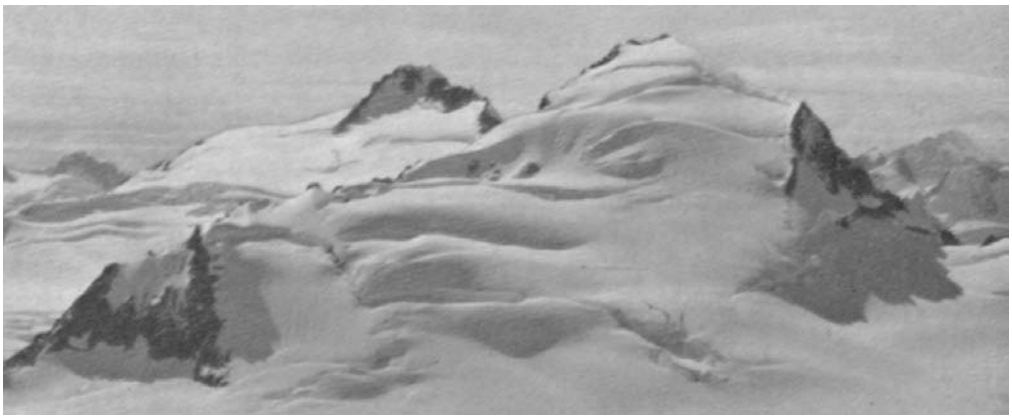


Photo: Barry Hagen

Mt. Tisiphone (left of centre) and Lillooet Mtn. (right of centre) from "Delta".

Photo: Barry Hagen

Part of Meager Mtn. group from near "Mu"
(left to right: Plinth Mtn., Meager Mtn., "Perkin's Pillar", Capricorn Mtn.).

New Ascents In The Northern Rockies

By Donald C. Morton

In the spring of 1967 George Wallerstein invited me to join him for a two-week trip to the peaks north of Mt. Sir Alexander in the Rocky Mountains. The new edition of the guide book showed that there were still several unclimbed summits in the area. We contacted some friends and soon we had an expedition of astronomers—George Wallerstein and his wife Marcia from the University of Washington, Bob O'Dell and Tom Grenfell from the Yerkes Observatory of the University of Chicago, and Lyman Spitzer and myself from the Princeton University Observatory.

The easiest approach was by float plane from Prince George, British Columbia. Consequently I met the Wallersteins there on Sunday evening, July 21, just a day after leaving the "T-Bone Glacier" of the Centennial Range. The others arrived on Monday and that evening Milton Ritchey of Thunderbird Airlines made two flights into Dimsdale Lake at 4500 feet. The land around the lake was rather swampy, but we found a dry point mid way along the west shore. We quickly erected the tents to escape the wrath of the mosquitoes.

The next morning George allowed us only time for a quick breakfast before we set off towards our first peak, an attractive unclimbed snow summit to the west of the lake. George found an easy approach around the base to the right, past some small lakes, and up sections of snow and rock to the east ridge. Near the top the snow was steep enough that we roped together in groups of three and reached the summit in 8 hours from our camp. We had made a first ascent only 20 hours since leaving Prince George.

Since our peak was not named on the map we discussed what to call it. Most of us had known Dr. Robert M. Petrie, who had been director of the Dominion Astrophysical Observatory near Victoria for 15 years until his unexpected death in April 1966, and therefore we thought it appropriate to name our summit Mt. Petrie. Through his leadership and researches Dr. Petrie had contributed much to Canadian astronomy.

For the lowest section of our descent I proposed a route that seemed to lead more directly to our camp. Indeed it would have been quicker, but there were a few obstacles on the way such as a great gap between a rock wall and a snowfield where a jump was required. I had not realized how tired some members of the party were so that the descent was very slow and mostly in the dark. We dragged ourselves into camp an hour after midnight too tired to cook dinner.

The following morning George announced we could spare half a day for rest and then we should pack and depart for more distant peaks. We sorted out four days' food along with tents and climbing gear to explore a route down to Jarvis Creek and then farther south to the next valley. In our initial optimism we thought that with a quick return for more food we could push all the way to Sir Alexander. We left Base Camp at 6:00 p.m. and crossed the swampy watershed between the Arctic and Pacific on the way to Barbara Lake. We found a good moose track around the eastern shore and stopped to camp at the south end of the lake.

The following day we started down Barbara Creek along another moose track, but soon this ended and we were in thick bush. The moose had had enough sense not to go farther. I had been in British Columbia rain forest before, but this was certainly the worst. The tangled forest, slippery dead falls, and bloodthirsty devil's club were there in abundance. Someone suggested we descend directly to Barbara Creek, but we found the bush even thicker there. We climbed out of the steepest section of the gully and then struggled on down to Jarvis Creek where we collapsed exhausted on a sand bar. This downhill trek of only three miles had taken us five hours! At this rate our four

days' food would not get us far. It was not certain we had enough provisions to attempt the nearest peak, let alone Sir Alexander, which was still 11 miles distant. However, across the river was the unclimbed Walrus Mtn., 5900 feet above us. After a little exploring upstream Lyman found an easy ford across Jarvis Creek and we spent the afternoon resting at a campsite on the south side.

According to the map, the easiest route up Walrus seemed to be the south ridge, but to get there we had to ascend a tributary stream that entered the Jarvis about two miles downstream from our camp. We tried a short cut directly through the bush. Just enough rain had fallen during the night that we were all soaked after 15 minutes of pushing our way through the dripping foliage. Some fine alder groves also added interest to the route. Eventually we broke through to the stream, where we ate some lunch on a small gravel bed. Our situation was thoroughly discouraging; alder thickets and heavy bush barred our escape in every direction. There was no place to pitch a tent at our lunch spot so that we decided to push forward for one more hour and then return to Jarvis Creek if we did not find a campsite. Fortunately, in 45 minutes we reached a clearing where our stream came tumbling out of a gorge and to the left of this was a long gully leading to a high shoulder on Mt. Walrus. On the top of the shoulder we found a campsite, just at timber line, but there was no water. We had to carry snow from a distant patch remaining from the winter.

The next morning, July 29, we started up the west face of our mountain and gradually traversed towards the southern edge which we then followed until we reached the south ridge. We ascended this until the rocks became steeper and more solid, where we roped together. Clouds were now gathering around us and our axes began to sing a little. Then a west wind cleared the sky on that side of our ridge and a few class 3 pitches brought us to the summit, 6 1/2 hours from our camp. We built a cairn on the rock beside the small cornice of snow forming the highest point. Far below us we saw Jarvis Creek flowing to the west with thick bush on each side. We were glad we had not planned the expedition around George's original suggestion of walking out to the CNR tracks, some 50 miles away from the Fraser River!

Back at our camp, just as we were finishing dinner, we heard some thunder in the distance, but George calmed our apprehension by remarking that thunderstorms are very much localized in these parts and that one was far away. Five minutes later we were scrambling for our tents as the storm became localized above us. Rain continued all night.

The rain let up during mid morning, long enough for us to strike camp and descend the gully to the stream. There, as we started into the bush, rain fell again very heavily, and soon we were so thoroughly wet that we did not even care about keeping our feet dry and sloshed through the stream. Our hard hats were specially useful for keeping the rain out of our eyes. We were grateful for the occasional gravel flat where progress was easier along the stream. As we approached our recent campsite beside Jarvis Creek the weather cleared a little. We quickly pitched our tents and ate a meal.

Another rainy night and day followed. Our food was getting rather low, but no one was anxious to ascend Barbara Creek in the rain. As a consequence of the previous day's rainy descent we had saved most of a breakfast and all of one lunch. Thus we figured we could survive provided we were back at Base Camp for dinner the following night. We spent the day in the tent trying to dry our clothes and sleeping bags over the stove.

We began the next morning with a chilling ford of Jarvis Creek which now was noticeably deeper. This time we tried the west side of Barbara Creek, but we found travelling just as bad as on the east, with the added attraction of some thick alder on one steep section. We stopped for some lunch under the waterfall from a tributary stream. Nearby Tom found the skull and a few clean

bones of a caribou that had been killed very recently. We hoped that the bear had enjoyed his meal and quickly left this area. Once we reached Barbara Lake the land was more open and soon we were back at Base Camp where there was all the food we could eat, not to mention a Clorox bottle of Daiquiris that George miraculously produced for the occasion.

This time we persuaded George to let us rest a whole day at Base Camp. However, we did sort out four days of food and the next day we set out for the glacier south and west of Mt. Petrie. On that summit we had seen a rock peak that should be accessible from the glacier. From Base Camp we could see a route from the south end of the lake up a snow slope to a high col where we expected to be able to traverse behind the ridge on the skyline to reach the desired glacier. We followed the stream feeding Dimsdale Lake and climbed into a narrow snow gully between two rock walls. Above us the stream entered the gully by a large waterfall, and we realized we were climbing over the water on a giant snow bridge. From the col we crossed an area of glacial debris and reached the main snowfield. A short distance up this George found an excellent campsite on the snow beside a rocky rib where we could sit in comfort to cook our meals. Ahead to the northwest were the three summits of our peak crowning a vertical rock wall at the edge of the glacier.

It was still early in the afternoon so that I left the others to pitch the tents while I went on alone to look for a route. I climbed out of sight of the camp to an altitude of about 7500 feet. There I was surprised to see a herd of twelve caribou coming towards me over the snow. They were just as surprised to see me and stopped a short distance below, where they pawed the snow while they pondered what sort of animal I was. Eventually I convinced them I was going in the opposite direction and they continued down the glacier, passing not far from the campsite.

The next morning the weather was a little unsettled but we hiked up the glacier to the col between Petrie and our present objective. The map suggested a possible route onto the northwest ridge from the far side of the col, but once over we saw that rock walls also protected that side of the peak. The direct route from the col would have been interesting, but beyond the capabilities of all our party. There was one remaining approach up a steep snow slope, back down the glacier. Lyman, Marcia and I climbed to the top of the snow where we found an easy exit to the left over loose rock to the upper part of our peak. A few thunder rumblings and some lightning flashes indicated a storm was brewing so that we made a quick retreat to camp. Stormy weather the following day kept us in camp and then we had only one day left to attempt the peak if we were to meet the plane as planned.

Fortunately August 7 dawned beautifully clear so that we quickly retraced our steps up the snow slope and over the rocks to an upper snowfield on the mountain. We traversed around to the west side over snow and scree to an upward sloping ledge in good rock. Clouds now obscured the upper part of our peak, but we followed the ledge for some distance to a deep gully where the rock was much looser. We ascended the side of the gully directly to a notch in the main ridge where we could look down on the glacier where we had camped. Lyman led up the rock on the ridge to the left to a summit at 9600 feet. We had taken 6 l/2 hours from camp.

As we were building the cairn a hail storm broke upon us so that we hurriedly began our retreat. Just then the clouds cleared briefly and we saw the rest of the ridge. There was one high point back towards camp and another to the north beyond a deep cleft. It was not certain which of the three points was highest, though the map indicates it is the north summit. We decided we should like to name the peak we climbed after Dr. John S. Plaskett, the first director of the Dominion Astrophysical Observatory. The establishment of the 73-inch telescope at Victoria was due largely to his efforts. It seemed appropriate to name our peaks after observatory directors since

Photo: Donald Morton

Caribou on glacier between Mt. Petrie and Mt. Plaskett. Walrus Mtn. in background just left of centre; Mt. Sir Alexander at far right.

Photo: Lyman Spitzer

Mt. Plaskett and Glacier Camp.
Upper part of the peak was reached by the snow at left.

three members of the expedition were themselves directors of observatories.[16]

The sun returned as we descended, giving us a view of the pyramid of Mt. Nechamus and its surrounding peaks. Then the clouds gathered again and we roped down the steep snow slope in pouring rain. We were so thoroughly soaked when we reached our tents that we left all our clothes outside before crawling into our sleeping bags. Rain fell heavily as we huddled towards the centre of the tent to avoid the wet sides.

The rain stopped long enough the next morning for us to pack up camp, but we were drenched again on the way down to Dimsdale Lake. We had arranged for Milton Ritchey to come that evening, but the heavy clouds over Jarvis Creek and Barbara Lake persuaded most of us that we would not see a plane for at least another day. Nevertheless George assured us Milton would be there at 6:00 p.m. No one took George seriously, and soon our gear was strewn all around camp as we dried clothing and leisurely organized for departure the next day. Then precisely at 6 o'clock Bob shouted that he saw a plane. We would have accused him of playing a vicious trick, but the sheer joy with which he spoke of his imminent rescue from this place entirely convinced us he was telling the truth. While the plane circled overhead there was a wild scurry to get three of us packed and on the plane. The other three were better prepared when the plane returned for them.

Mt. Assiniboine, North Face[17]

By Chris Jones

Yvon Chouinard, Joe Faint and I were very fortunate in making the first ascent of the north face of Mt. Assiniboine at the end of July 1967; fortunate that such a fine route on an outstandingly attractive mountain had not been climbed long ago. The climbing was excellent, and we had the hard ice conditions that we wanted, reducing any stonefall problem. The north face has a well defined shoulder on the left hand side, with a snow couloir leading to it from the right. We climbed the couloir, starting about midday, and bivouacked on the shoulder. We adopted this approach so that we would be on the upper ice early, and off the face before the afternoon sun loosened any iced up rock. From the shoulder the route went slightly right, up to a gully between the prominent red rock band. The face was now all ice climbing, with rocks occasionally breaking through. We went directly up, and crossed over a gully that leads to the ridge some hundred feet below the summit. The route followed a shattered rock rib to the right of the gully, and ended on the ridge a short distance from the top. The average angle of the face was about 45°, with steeper sections, and we cramponed or occasionally cut steps all the way. Most leads ended at small outcrops, where we often belayed from jammed nuts; they were very successful in the friable rock. The total climbing time was about 11 hours. We had a good look at the east face of Assiniboine, and were appalled by its appearance. It seemed to be a problem of another order of magnitude. The east ridge also looked exciting. Assiniboine is a really lovely mountain in a superb setting.

North face Grade 4 F7 approximately 2500 feet.

16 The Canadian Permanent Committee on Geographical Names has accepted the names Mt. Petrie and Mt. Plaskett we suggested for the two previously unnamed peaks we climbed on this expedition. The Committee already had named the peak immediately north of Mt. Plaskett, calling it Mt. Ovington after Private Roy E. Ovington from Alenza Lake, B.C., who was killed in action on August 28, 1944.

17 Editor's note—Compare note on the 1910 ascent of what T. G. Longstaff and Rudolf Aemmer termed the northwest face (C.A.J. 1911, pp. 174-176).

Ascents Along The Cline River

By Thomas R. Stengle

Party: Joe La Belle, Earl McWhorter, Guy Perry, Thomas R. Stengle, Sue and Howard Stidham.

Sooner or later almost everyone who climbs gets the urge to explore an unknown area and build cairns on unclimbed peaks. We were no exception. Our group is a loosely organized collection of climbers, mostly from the University of Massachusetts, and we call ourselves "The Bucket and Doorknob Society." When asked why, our answer is "We like our handholds the size of doorknobs, and our footholds the size of buckets." During the winter some of us had gone over the new edition of A Climber's Guide to the Rocky Mountains of Canada searching for a fresh area. We found it along the headwaters of the Cline River. The region was accessible and interesting, but little known, and there were no reported climbs of the peaks.

One should always prepare for such a trip well in advance, but somehow things never seem to work out that way. The supplies were purchased by frantic long distance phone calls, and it was not until the night before leaving that we settled down to packing our gear and deciding what to take and what to leave. At last everything was ready, and early in August, (but late in the day) we started out on the long drive to Banff. We had all climbed in New England for many years, and most of us had some acquaintance with the mountains of the West.

The Cline River valley is easily reached from the Banff-Jasper highway. Starting at the youth hostel just north of the Saskatchewan River crossing, one travels over Sunset Pass, not a trivial job with heavy packs after being cooped up in a car for a transcontinental drive. A good trail goes up over the pass, drops down past Pinto Lake, and follows the Cline River on the east. From both sides, hanging valleys feed into the Cline valley. These valleys are the result of a series of overthrust sheets; each sheet has a steep wall on the northeast side and a gentle slope to the southwest forming a perfect example of a series of writing table mountains. From the Provisional Map we had chosen a valley to the north of the Cline. It had three high points on its periphery all above 10,000 feet. Except for the stream fordings, the going was easy to the mouth of the valley.

Here we left the Cline and followed a creek which rose to treeline in a series of spectacular cascades. On reaching the valley proper, we discovered that the water issued from a deep canyon which ran the entire length of the valley up to a stagnant glacier. We decided to call it "Berkshire Creek" after the Berkshire Mountains near our home.[18]

Camp was set up in an alpine meadow, and the next day we started out for the peaks. The route leads up a long scree and talus slope to the ridge on the east side of our valley. There are two high points here. The first one at 10,400 feet is shaped in such a way that it had to be named "Cornice Peak". We left a large cairn capped with a horseshoe at the summit. After lunch it was an easy walk to follow the ridge to its northern end, which forms a 10,000-foot peak. This point we called "Bertram Peak" after Guy's little boy who has spent many years in a hospital for crippled children. From here one can see Mt. Stewart to the northwest and the course of the meltwater from the Stewart Glacier. Instead of running down a steep slope as we had expected, the stream drops over a high waterfall. The sound of it welled up from half a mile below; it was truly a dramatic sight. It then braids over a flat alluvial plain, and a mile or so down valley it enters the first of the Stewart Lakes. They form the headwaters of McDonald Creek, which in turn joins the Cline

18 Editor's note—Names in quotes in this article are not official.

River.

Our location afforded a good view of the headwall of our valley and the route to the next ridge to the west. Any hope of reaching the ridge from our side was dashed. Instead of an easy arête along the head of the valley, the route demanded a thousand feet of technical climbing; this was more than we were prepared for. Fortunately, in these parts most mountains have an easy side. Clearly the ridge was accessible from the next valley to the west, the Cataract Creek valley. The descent to camp was great fun. We bounded down a scree slope to the snowfield on the valley headwall. A long glissade took us to the valley floor from where it was a pleasant hike along the entire length of the valley to camp.

To reach Cataract Creek it was necessary to drop to the Cline River and follow it upstream for 2-3 miles. To our surprise, a well-maintained trail ran up the valley. Shortly after passing the camp of a horse packer, it petered out and we made camp just beyond. Our campsite was shared with an impressive number of ticks and other obnoxious bugs, and we were glad to get an early

Photo: T.R. Stengle

"Cornice Peak" from Sunset Pass.

start in the morning. A small stream ran off the slope and through our camp on its way to join Cataract Creek. It gave a good route up to treeline although it took some scrambling to pass the waterfalls on the way. Beyond timber we were on the usual long scree slope, but this time it was interrupted by a band of cliffs. Joe led the way, traversing back and forth, seeking out broken areas in the steep sections. Thanks to good route finding and a little luck, we had no need for our ropes. Once above the cliffs, it is easy to attain the ridge and traverse to the highest point at 10,100 feet. This point we named "Mt. Metawampe" in honour of an ancient Indian chief who lived in the Connecticut valley where the University of Massachusetts is now located. The University has

taken Metawampe as its symbol and guiding spirit. We barely had time to finish our cairn before it started to rain. The descent was a long unpleasant scramble over the cliffs in the wet. Naturally, the rain decided to stop when we reached easier ground. Rather than spend another night among the ticks, we moved camp a mile down valley before settling down.

The next day we enjoyed the luxury of a late start. It was still a long pack out to the road, but our feeling of accomplishment made the going easy. We had seen some glorious country, and we had contributed a little to its exploration. A salute was given to "Cornice Peak" as we went over the last high point in Sunset Pass and headed down to the highway. We had become avid admirers of the Rockies, and we were already planning next year's trip.

The 1967 Cape Dyer Arctic-Alpine Expedition

By G.V. B. Cochran and P.C. Ritterbush

Party: G. V. (Van) B. Cochran, M.D. (leader), Antoine Bloemen, Arnold Dennig, F. Cecil Grace, Peter H. Kruck, Philip C. Ritterbush, Monika Schwabe, Jane Titsworth.

With an incredulous expression the Nordair ticket agent reached for his telephone. It was 11:01 p.m., July 24, at Dorval Airport in Montreal and the flight for Frobisher Bay, N.W.T., scheduled to depart at 11:00, was taxiing away without the eight members of our expedition. Due to an "idee fixe" on the part of the leader that the departure time was 11:30, a plea from one of the more intellectual members for a final gourmet meal, and a near automobile accident on the way to the airport, we nearly spent the next two days at Expo rather than on Baffin Island. But Nordair saved the day and we boarded with all the dignity of a silent movie chase. Somehow the passengers who had been kept waiting as all this transpired did not seem to share our feelings of adventure. Nevertheless, dawn found us 1000 miles to the north over Ungava Bay, and a short while later we landed on Baffin Island.

While the western mountains claimed the attention of most climbers during the Centennial Year of Canada, the objective of this expedition lay in the east, the Cumberland Peninsula of Baffin Island, with a primary purpose of exploratory mountaineering. As a result, a previously unknown 200-square-mile sector of the peninsula was visited and some new possibilities discerned for climbers in the future. In the course of the 3-week expedition seven first ascents were accomplished and records made of glacial activity and other physical and biological aspects of the region in accord with specific requests.[19]

Although not necessarily to be recommended, it should be recorded that the expedition was organized and planned by its leader in an unusually short time, mostly during May of 1967. As might be expected then, its members were virtually all unknown to one another and possessed a diversity of ideals and backgrounds that served to keep things lively! Selection of the region to be visited, roughly 30 miles west of Cape Dyer, was guided by the fact that it was indeed unexplored, but not expected to be excessively difficult. It was also reasonably convenient and inexpensive to reach for an expedition that was limited in time, experience, and funds. At all times the utmost co-operation and assistance was forthcoming from the Canadian Government.

Because of the tight time schedule, not the most ideal situation in the Arctic, we spent only

19 This expedition was assisted by the award of Explorer's Club flag No. 178 and by a grant from the Exploration Fund. The bulk of the expenses, about $6,000, was paid by the individual members. A detailed report of the expedition with further references is available on request to the Explorer's Club, 46 E. 70th Street, New York, N.Y.

a few hours in Frobisher, now a thriving town that is the administrative centre of Baffin Island. Our journey continued in a chartered DC-3 to Broughton Island, 300 miles to the northeast. With perfect weather the pilot indulged our passions for mountains and photography by flying across the Cumberland Peninsula at low altitude directly through the valley of Pangnirtung Pass. Thus all of these large and spectacular mountains, Mt. Asgard and its neighbours, were literally at our wingtips. This is the district around which most climbing on Baffin has centred, due largely to the pioneering efforts of P. D. Baird.[20]

On Broughton Island, just off the coast of Baffin, there is a DEW-line radar site and an Eskimo settlement of 130. Enjoying the hospitality of its administrator, Bob Pilot, we lived in luxury for a couple of days getting sorted out and waiting for one of our number to recover from bronchitis. Our meals at Broughton were unusual. We had imported a 20-day supply of prepacked food in four-man meal units, intending to purchase local commodities for several days until scheduled to broach this prepacked supply. As the Hudson Bay stores in the North are stocked by ship in September, they tend to be depleted by August. Consequently we consumed a bizarre variety of food, ranging from pizza, seal liver, and canned beets at one meal to arctic char, tapioca pudding, and Lyle's Golden Syrup at the next.

On July 28 we began the next leg of our journey in a 22-foot whaleboat powered by an antique Acadia one-cylinder engine and crewed by two delightful Eskimos, Mosesie and Ilkalie, with a remarkable facility for rebuilding the engine without interrupting its function. Characteristically, they brought with them two cartons of cigarettes but no visible food. The boat absorbed the ten people and half-ton of supplies without difficulty, and after managing to wriggle through a belt of ice-floes we cruised slowly toward another Eskimo settlement at Padloping Island, 40 miles to the south. The weather was still perfect and nature was sparing no effort to show off the Arctic. From the icebergs lining the horizon, to the dogs and birds and seals, and the sunset twilight of the towering cliffs of Cape Searle at midnight, it was reminiscent of an overdone travelogue, almost too beautiful to be believed. Taking advantage of the weather (always a good idea in the Arctic) we kept going for 14 hours, until at 4 a.m. we rounded a headland to be greeted by a howling chorus of Padloping's sixty dogs. Even some of its thirty human inhabitants were abroad; like the rest of the Eskimos (and ourselves before long) they appeared to have little regard for the time. The next day, around 2 p.m., we continued 20 miles further south to the head of an unnamed fiord on the north side of the portion of the Cumberland Peninsula that adjoins Cape Dyer.

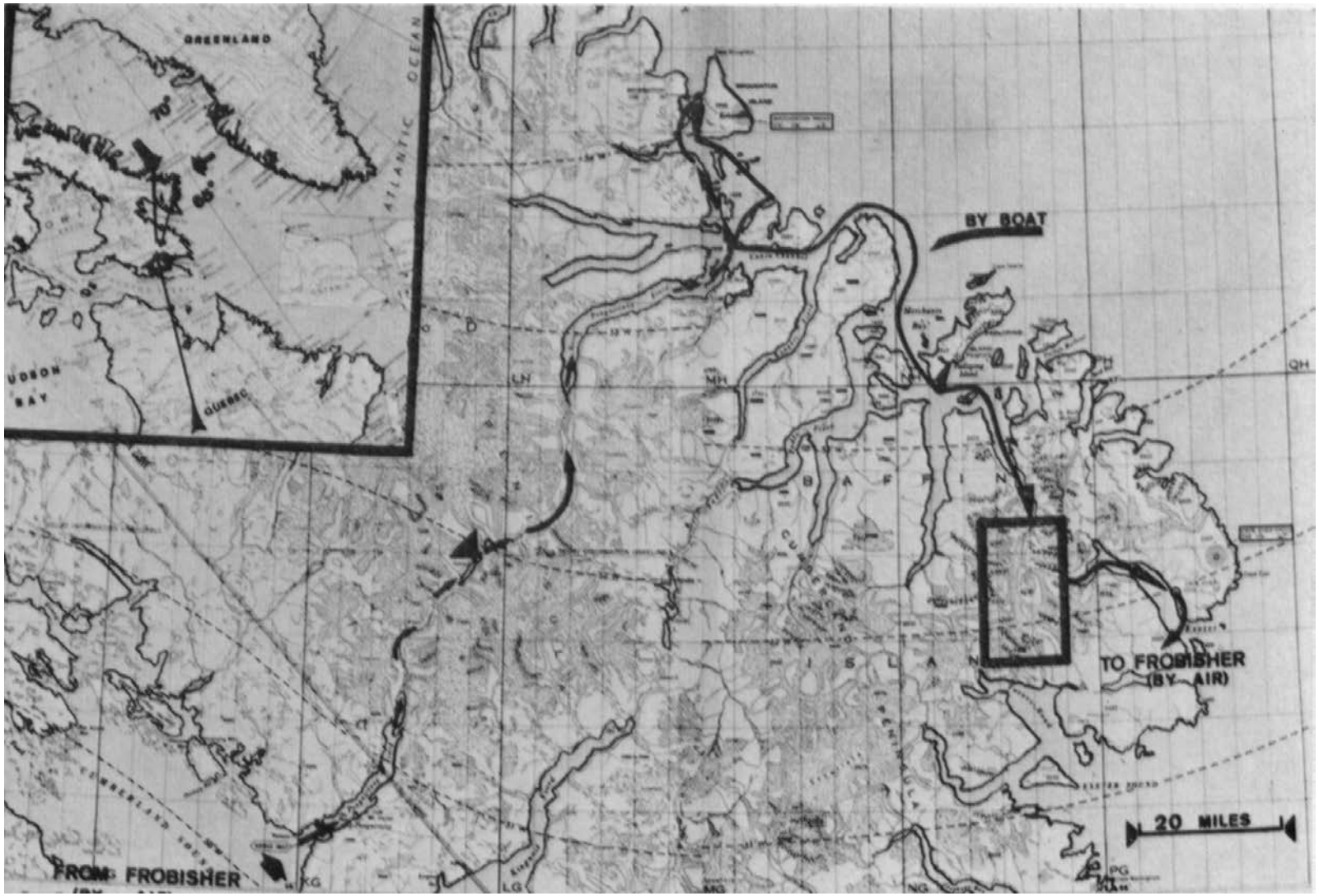
The central feature of this area, our objective, was a valley glacier nearly 2 miles wide and 18 miles long that extended south from near the fiord to its origin, across and below the Arctic Circle, on the northwest side of Mt. Raleigh and the north side of Mt. Mischief. Typical of valley glaciers on Baffin its gradient was gentle (3000 feet in 18 miles) and its lower reaches at this time were bare of ice and snow up to about 1500 feet; there, a zone of slush followed by soggy snow began. Because of the prevailing weather we named both the glacier and the fiord "Southwind".[21]

This valley lay 70 miles east of Pangnirtung Pass and 30 miles west of Cape Dyer. The mountains somewhat to the east between Mt. Gilbert and Cape Dyer had been explored in 1960 by Gribbon and Rothery,[22] who walked in from the Cape Dyer DEW-line base. The few miles between

20 Arctic, Vol. 6, Dec. 1953, pp. 227-251. See also C.A.J. 1961, p. 96; 1964, pp. 1-15 ; 1966, pp. 28-42.

21 Names suggested for geographical features by this expedition are given thus in quotation marks. A list of proposed names has been submitted to the Canadian Permanent Committee on Geographical Names.

22 *Report on Bagnall Fiord,* by P. W. F. Gribbon, Univ. of St. Andrews, St. Andrews, Scotland. Also *Irish Mountaineering,* 1961, pp. 31-37.



Locater map of the Cumberland Peninsula,
showing the air route through Pangnirtung Valley to Broughton Island, the route of the sea journey, and the area of "Southwind Glacier" (see also accompanying detail map).

Detail of area shown in small rectangle indicated on accompanying map.

the origin of the "Southwind Glacier" and the sea at Totnes Road had been explored by H. W. Tilman during his seaborne approach to his ascents of Mt. Raleigh and Mt. Mischief in 1962.[23] Eskimo Pass leading from "Southwind Fiord" to Sunneshine Fiord has long been used by Eskimos as a winter sledge route. The entire "Southwind Valley", however, with its eastward extension across

23 *Mischief in Greenland,* by Harold William Tilman. (London: Hollis and Carter, 1964). Also see *Les alpes inuitiennes* in *Cahiers de geographic de Quebec,* an 3, no. 6 (Avril-Sept., 1959), pp. 417-45B.

the Virginia Glacier to Sunneshine Fiord, and its adjacent mountains, had not been previously visited except for hunting by Eskimos, which is limited to fiord heads in mountainous regions. To the west, all of the mountains between this valley and Pangnirtung Pass are also unknown, although the next valley to the west was traversed by sledge in March of 1884 by Franz Boas, the German ethnologist.[24]

Basecamp was to be 8 miles inland in the side valley leading to Sunneshine Fiord, our pickup point for the trip home. Our food and equipment including extensive movie and other photographic equipment amounted to two 50- to 70-pound loads per person plus a couple of extras. Unfortunately the film, unlike our food supply, did not diminish in weight as it was used. On the first trip to Basecamp we employed two Eskimo men and two boys whom we found hunting seals at the head of the fiord; they proved to be most promising "Sherpas".

By August 2 we had established everything in Basecamp and after delays from the now rapidly worsening weather we began our reconnaissance, photographic survey work, and the transport of 8 days' supplies to Advance Basecamp 6 miles farther up the glacier. The side valley, while uncomfortably subject to winds from all directions, was the most interesting from the glaciological standpoint as it had recently been vacated by several glaciers and contained in addition the unusual bifid terminus of the Virginia Glacier. This region and the east side of the "Southwind Valley" was covered by an extensive series of survey photographs for future comparative study.

Phil Ritterbush and I made the first climb from this Basecamp (altitude 590 feet) to the summit of "The Mitre" (4990 feet). After picking our way over the extensive moraines we gained the northwest ridge and continued up a series of ice slopes that provided satisfying crampon work, then up and across the bulging snow of the north face, quite often sinking to our thighs as the snow there consisted of progressive layers of wet breakable crust. It appeared to be quite stable, however, and we never did encounter real avalanche danger in the course of the expedition. A total of about 8 inches of new snow fell at higher elevations during these 3 weeks, but really good snow conditions were found only around 5000 feet and higher. Eventually we got to the northeast ridge overlooking the impressive cirque of the "Gyrfalcon Glacier" and found easier going to the summit. By that time the weather had deteriorated to fog and snow. Thus we saw nothing of the surrounding mountains from what had promised to be the best vantage point of the expedition.

As 8 days' food had already been transported to Advance Basecamp we pushed on after waiting out more bad weather. Typically operating as the weather permitted, we left Basecamp at 4 p.m. and were not bedded down in the new site atop a lateral moraine until after 2 a.m. Despite the couple of hours necessary to build tent platforms it was warmer and drier than Basecamp, although 1000 feet higher.

On the first promising morning, three of us set out for "Delta Mountain'' that had always been an attraction on maps and air photographs as the centre of this district, at the midpoint of the "Southwind Glacier" and at its junction with the equally major "Centennial Glacier" leading to the west. The 3000-foot alpine-appearing north face of "Delta Mountain" had greeted us with an ice avalanche from its summit glacier on our arrival across the valley. In general the south sides of these mountains are rock or snow slopes while the ridges offered easy but often satisfying climbing; the north faces were almost always either steep as on "The Mitre" or resembled a true alpine north face as on "Delta Mountain". Planning to climb the west ridge, Peter Kruck, Arno Dennig, and I set out for "Delta Col", which the map indicated was at least 2 miles away, but as usual in the clear air

24 *A Journey in Cumberland Sound and on the west shore of Davis Strait in 1883 and 1884*, by Franz Boaz, J. American Geog. Soc. of New York, Vol. 16, 1884, pp. 266-267.

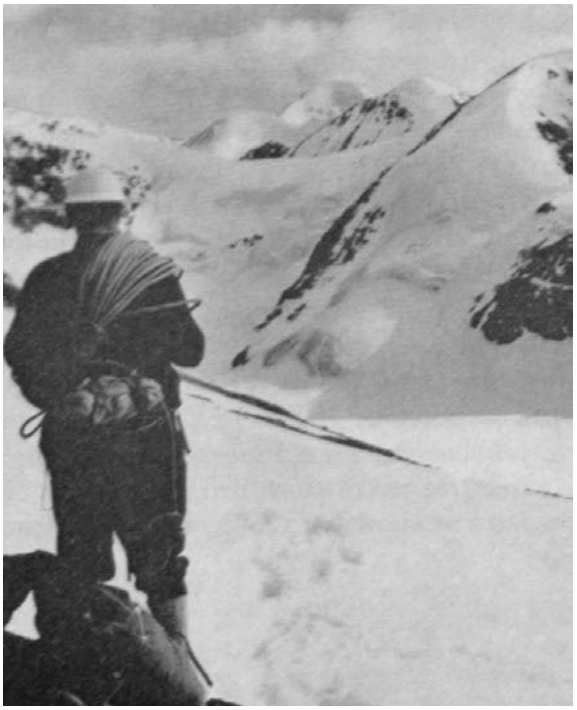
and with the deceptively large scale of the region appeared to be just a short distance. After taking a short cut up 500 feet of the west end of the north face, the ridge led us easily to the summit, despite another bout with the soft snow. This spoiled a heroic movie sequence; our flag bearer approached the summit only to sink into the snow. At the summit we found billowing clouds obscuring most of the horizon, so another chance for a good panorama was lost. A descent back to the "Southwind Glacier" via the east ridge completed a traverse of the peak and a day of varied climbing for us. Phil Ritterbush now continues this account:

"Our first day at advance base was spent waiting for fog and rain to dissipate but August 8 dawned bright and clear. I had proposed taking our less-experienced cohort up a nearby peak at the head of a small tributary glacier. Our goal was marked as 5375 feet on the most recent topographic map but had been obscured from view by intervening ridges and shoulders which had denied us a view. Still it seemed like a straightforward snow climb from the aerial photos so we headed off, skirting the boulder-strewn slopes directly above camp in order to follow the tributary glacier. We had not made waterproof overboots compulsory for members of the party and although I had tried to buy some, I had come without—the only member of the party without them in this land of soggy snow. I had stubbornly brought along an old pair of heavy U.S. Army bearpaw snowshoes and was determined to get what service from them I could in avoiding a wetting. It took us 6 hours to mount the glacier, in snow that became progressively softer. There were as many small crevasses in the glacier as some fish have bones—mostly of the one-leg-in variety but one or another of the group would sink in to his or her waist every so often. I began to be grateful for the snowshoes, heavy as they were. Cecil Grace was using a lighter pair; Monika Schwabe, Jane Titsworth, and Tony Bloemen came on in crampons. We went on a tight rope, occasionally as a single rope of five, following the line of gentlest slope. Snow flurries overtook us at the 5000-foot level. Jane and I made our way ahead along the ridge to the east of the col to a nearby lookout point ("The Eyrie"), where a ridge diverged to the north. The point commanded a view of the sensational slabs of the northern aspect of a beak-like prominence ("Eagle's Beak") further east on the ridge, which we had often admired during our treks up and down the "Southwind Glacier", but snow flurries soon limited the visibility severely.

"The crest of our next objective loomed above vast east-facing cliffs of streaked gneiss and a glacier below, but from the saddle easy slopes of hardened snow led to the summit, which I wanted to call Billowing Edge. Later, Van gently discouraged this, perhaps thinking that such an excellent name would set an unattainable literary standard out of the reach of other members of our fraternity! So it was upon "Drift Peak" that I took great pleasure in giving Cecil the lead to the final crest; he had had such a struggle to shake off bronchitis earlier, and had probably been wondering if he would be able to get in any climbs at all. It seemed to me that the essence of our trip was expressed in those moments of blizzard as Cecil stood atop its ridge with an improbably large and exultant grin. Monika and Tony had waited at the saddle during the half-hour of our final ascent. We then descended together across the screes and on down the glacier as a rope of five, troubled again by crevasses and unco-operative snowshoes.

"From its middle portion, the view of the head of the "Southwind Glacier" was dominated by Mt. Mischief rising as a great block-shaped mass, nicely framed by the peaks on each side of the valley. Their flanks presented themselves as a succession of wings on a stage set, but we had noticed a higher snow peak whose summit could be glimpsed above these predecessors. Inspection of the aerial photographs showed it adjacent to Mt. Mischief. My appetite for this peak grew by

"The Mitre" (4990 feet, right), and northeast summit of "Gyrfalcon Peak" (left),
across lower reaches of "Southwind Glacier".



Looking south to "White Wind Peak" from "Delta Mtn."; A. Denning in foreground.

P. Ritterbush and snow bowl at head of "Southwind Glacier".
(right side of photo missing from CAJ digital version)

leaps and bounds every time I saw it and after being denied a view of it by the blizzard on "Drift Peak" I became insatiable. Van genially adopted it as our next goal, perhaps the last climb of the trip, as we would soon have to start for Cape Dyer. The previous day Arno Dennig had made a solo ascent of the slopes directly above Advance Basecamp to "Eagle's Beak" but he was not tired and agreed to make the third. The size of the party was limited by our three pairs of snowshoes. We were soon forced to don these after striking off up the glacier on the morning of August 10. That same day Peter, Monika, Cecil, and Jane set off for "Gyrfalcon Peak", an interesting mountain directly across the "Southwind Glacier" east of Advance Base-camp. Theirs was the only summit reached in clear weather and they greatly enjoyed its lofty ridge approach.

"Meanwhile Van, Arno, and I progressed through the large distances of the valley, measuring our progress by the peaks we passed to either side, as we made our way into a capacious snow basin around the rim of which stood Mt. Raleigh, Mt. Mischief, and our objective, which we now saw as a wedge-shaped snow peak with a steep north face of séracs and snow draperies.

"The day had a dream-like quality. We seemed to progress through a world of pure forms where the everyday rhythm was retarded because of the unexpectedly large scale of the landscape. Walking with snowshoes made my feet heavy, as though gravity had somehow increased. Slowly the peak to our right was turned and we drew into a quiet little box canyon closed off by the northwest ridge of our peak. We then made radio contact with Tony at Advance Basecamp to check on the fortunes of the other party. It had been a day of rare beauty; clouds were already forming and we were not to see its like on the morrow.

"I began the next day with a hideous inadvertence, eating a bacon bar and glucose bar that had been meant for the three of us! Eagerly I quit the scene of the crime as we mounted the walls of our valley to the col where the ridge began. Here we were again met with a snowstorm. The tiny triangle of the tent below disappeared into swirling gusts of wind-driven snow. Van led strongly on, holding to the little rock teeth along the comb of snow, which became hard again underfoot just as we neared 5000 feet. We were again denied a view but camera shutters clicked briskly all the way to the top, where we delightedly raised the Canadian Centennial, American, and (for Arno) Austrian flags. It was and remains our impression that the peak was higher than Mt. Raleigh and Mt. Gilbert, but we hesitated to regard altimeter readings or visual impressions as accurate. We propose as a name for this mountain which characterizes most of our summits, "White Wind Peak", from the snowy gales that buffeted us on its crest.

"We descended the way we had come, struck the tent, reported by radio to Advance Basecamp, donned our snowshoes, roped, and began a rapid return trek into the wind and rain. We took some comfort from the slight downhill slope, and even more from the piping hot dinner which the girls were able to offer us almost at once on our return. The warm glow of satisfaction (and hot pemmican) persisted all through another day of rain, by which time we had to think about breaking up camp for our return journey. And now Van Cochran continues:"

After the weather abated we returned to Basecamp. To take advantage of a scheduled monthly Nordair flight from Cape Dyer on August 17 we had arranged for the Eskimos to come back around Cape Dyer and meet us in the west arm of Sunneshine Fiord. Hence we indulged in endless hypothetical discussions as to the consequences of the boat not arriving. According to plan this would have required us to retreat to "Southwind Fiord", then walk about 30 miles to Cape Dyer over the known way of Eskimo Pass and the route of Gribbon. It was not a popular idea as it would have taken 2-3 days with light packs and would have required the abandonment of all but the most essential or valuable equipment. In the end our friends did not fail us and were patiently waiting at

the head of the fiord despite a rugged voyage around Cape Dyer in heavy seas. Sunneshine Fiord was a beautiful place to conclude our expedition, surrounded as it was by 1000-foot cliffs, while three glaciers calved miniature icebergs into its waters.

For the future many climbs are still available close to this fiord and at the head of the Virginia Glacier, as well as just west of the "Southwind Glacier". These objectives might be most enjoyed, however, by an expedition with another primary purpose. A purely mountaineering venture would now find more of interest further west beyond the valley of "Boas Fiord" as well as to the west and north of the head of Clephane Bay. Here lie some impressive 6000-foot mountains that we could identify from the summit of "Delta Mountain". The entire country in that district is on an even larger scale than the area we visited. More difficulty could be expected from river crossings, which we managed to avoid almost completely. The northern sector of the region to the west could be approached as we did by boat from Broughton Island to the head of "Boas Fiord" or Padle Fiord, or in the spring by dogsled, before the ice breaks up. The southern sector would be accessible by boat from Cape Dyer. As there are no boats there, one might bring in by air one of the inflatable craft such as used by Miller[25] in the Magellan Strait or by Shipton in the Chilean Archipelago. Boat travel is of course undependable, because of ice, before late July; but air travel, other than to established landing areas, is no more reliable.

Although neither the mountains nor the terrain of the region we visited present great technical challenges, the rewards of mountaineering in the larger sense in the unique and beautiful atmosphere of the eastern Arctic are great indeed. Although the writer once experienced the joys of Coast Range bush en route to the Homathko Snowfield, he found that this time he was not disappointed at the thought of leaving his machete at home!

ALPINE NOTES AND TECHNICAL CLIMBING

The B.C. Coast Mountains Project

By Dick Culbert

During the summer of 1967, the Geological Survey of Canada did initial mapping of the geology from the Monarch Icecap south through Waddington Range to Homathko Snowfield. The major proportion of this work was covered from the coast under the direction of Dr. J. A. Roddick and Dr. W. W. Hutchison; while the eastern fringe (of sedimentary rock) was mapped from Tatlayoko Lake by a project under Dr. H. W. Tipper.

The layout sounds ideal for mountain-inclined assistants, and three were from the B.C. Mountaineering Club, most with some degree of climbing experience. In effect, however, the majority of the summer was spent mapping the coastline (some 4000 miles of it).

The Coast Range itself was mainly a helicopter mapping exercise—somewhat frustrating to the climbers, but a grand opportunity to look at the inaccessible and unexplored areas. Most of the country within the zone of inlet penetration has been ground down by over-riding glaciers and exhibits little in the way of outstanding peaks. A vast and nondescript area (loosely referred to as "The Rabble Range") stretching from Monarch Icecap to the Silverthrone Complex proved to have few summits which really stand out, but several pockets of sharp rock summits will provide interesting climbing when access is more reasonable. Much the same generalization may be made

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concerning the Silverthrone region and its extensions to the south and east.

Niut Range (between Mosley and Homathko Rivers) was more outstanding than had been expected, and many of the virgin summits were climbed during the summer, either by traverse teams of Dr. Tipper's crew, or by the B.C. Mountaineering Club expedition to Pagoda Peak country.

The Homathko Snowfield was once again an area of no great elevations, but revealed several sharp rock summits, especially in the Klattasine Glacier region.

"Rabble Range"

Despite heavy dependence on helicopters and on areal rather than detailed mapping, the climbers did have the occasional chance to climb. The most prominent of these events was called "Quarter-mile Traverse"—which was not derived from its length (about 35 miles total), but from the sampling interval. It was divided into an eastern and western section. Starting at the head of Lemolo Creek, Tony Ellis and Monty Lasserre worked their way along the Machmell-Sheemahant Rivers divide clear to Owikeno Lake. Astride this divide is one of the finest looking summits of the "Rabble Range". Denoted only as "R" Peak (8000 feet) in the vernacular, it survived attempts from two directions and remains unclimbed. They fared better later, ascending the two 8000-foot summits farther west toward Kull Creek. The eastern of these was called "Windcirque Peak".

Meanwhile, Mike Warr and myself were busy on the eastern portion of the "Quarter-mile". This began in the region south of the small lake at the head of Machmell River, and the first obstacle was a shapely 8000-foot summit we called "The Three-corner Hat". This is the one split by the boundary of Rivers Inlet and Waddington map sheets. Its northeast arête was a loose class 4, with a class 5 finale. Four miles to the northeast is an 8500-foot summit which we named "Mt. Innocuous" and traversed from the north without much difficulty. This was the last noteworthy peak climbed until our traverse reached the jagged ridge across the valley S.S.E. of Mt. Monarch.

"Rampart Peak" was the name bestowed on the 9137-foot summit (likely the highest in the "Rabble Range") 3 1/2 miles southwest of the south tip of Knot Lake. It is offset from the main divide, the wall adjoining the connecting ridge being very abrupt and steep. Happily it was also firm and well supplied with holds. There were four leads in the class 4-5 bracket—perhaps the best climb of the season. By contrast, our other first ascent in that group, "Crumble Peak" (the second 9000-foot summit southwest of Rampart), was of comparable difficulty, but done in poor weather and on loose rock.

Monarch Icecap

Monarch Icecap was the scene of much helicopter hopping and photography, but little mountaineering. The one exception was the first ascent of "Mt. Elfrida" (R. Culbert, M. Warr). This peak was named in 1953 after the late Elfrida Pigou. Weather on our traverse was foul, and there was much groping about in a whiteout, followed by a good-old-fashioned bivouac near the head of Marvel Creek.

Next day we were given an afternoon traverse—projected as a restful hike over the hill (6500 feet) southeast of Sumquolt Glacier. Much of the afternoon was lost when we discovered fossils, which are as bad as blueberries when it comes to absorbing time. Then there was 4 hours of roped climbing on rock and steep snow to reach the summit, known as "Obstreperous Ridge". Luckily a ledge allowed us to get off the summit and complete our traverse to camp by dusk.

Waddington Region

Waddington Range was almost a washout for climbers, proving all too vulnerable a target for the helicopters. The western buttress of Mt. Bell (10,670 feet, R. Culbert, T. Ellis) was the one outstanding exception. Typical of these selected traverses, the rock was rotten. Climbing from above the Dorothy Glacier we gained the col west of Bell, where Glenn Woodsworth and myself had crossed some 4 summers before en route to the first ascent of Mt. Dorothy. Reflecting on those 6 weeks of heavy packs, blizzards, and cold rivers on that expedition there is much to be said for helicopters in mountaineering. That evening we would be back at sea level for a leisurely dinner at a cookhouse. The climb itself was long, loose, and not recommended. It was class 4. Bell's incredible northeast face did not look as hopeless from above as it does face on, but will be very dangerous.

The other climb of interest in the Waddington Range was a first ascent of "Mt. Wiessner" (9500 feet, R. Culbert, solo) southwest of Remote Mtn. The southwest ridge had one surprise gap of class 4 calibre just before the summit.

Queen Bess Region

The Mt. Queen Bess region was mostly the stamping grounds of the group based at Tatlayoko Lake, but Mike Warr and I did get a few days' operation out that way. The first ascent of Majestic Peak (9500 feet) was done up the north-west arête. This proved a reasonably pleasant class 4, with one rappel from a subsidiary summit en route. Descent was on the easier west ridge, and camp regained by breaking through the main divide just south of "Regal" Peak.

"Regal" Peak displays a very nice summit tower—but only on the 100-foot contour maps. In reality it is a rubbly lump of no height or importance and hardly seems to deserve a name, let alone "Regal". We crossed over "Regal" on the way to traverse the shapely horn of Consort Peak (8900 feet) which proved a fine class 4 first ascent. Loose slabs while descending the north ridge marred an otherwise very pleasant rock climb.

From camp near the Mantle Glacier, we had designs on a new route on Queen Bess. The weather, however, dictated otherwise, and a blizzardy first ascent of the southwest (higher) summit of Mantle Peak (8900 feet) via its easy southeast ridge was the only mountaineering to record.

Later Ken Kirkland and Bob Keith climbed the unnamed 9100-foot summit on the southwest end of the divide between Reliance and Mantle Glacier. This was not difficult from the south.

Meanwhile the boys at Tatlayoko Lake were by no means idle. Jim Simpson and Barry Calder got one of the highest first ascents of the year in 9980-foot Mt. Moore, 8 miles due south of Tatlayoko Lake. They approached over a glacier from the east to gain the easy south ridge.

Niut Range

The range south of Mt. Ottarasko, between Nude and Ottarasko Creeks, is locally known as the "Langara Range". Its highest summit, "Mt. Cloud-drifter" 9600 feet), was climbed from the southeast by Bob Woodsworth and Dave Watkins, while 9100-foot "Mt. Sleepwalker", about 3 miles northwest, was climbed by Woodsworth and Simpson, who also climbed the 8500-foot summit dominating the next ridge south, directly above Homathko River.

Several ascents of interest from Tatlayoko Lake camp were of mountains which had been climbed at least once before. The impressive Homathko Peak (9866 feet), for instance, was climbed by Woodsworth and Simpson, proving not very difficult over snow and rock from the southeast. They also did the class 3 northeast ridge of Blackhorn Mtn. And finally there was the

second recorded ascent of Niut Mtn., a very ragged peak and the most outstanding of the summits immediately above Tatlayoko Lake. It was a fairly long rock climb by Jim Simpson and Bob Park from a valley to the southeast.

Mt. Monarch Area

By Joan Firey

In July 1967 a party of 5 ascended 11,720-foot Mt. Monarch from the west, repeating John Dudra's route of 1953. We packed around from Success Lake to the glacier between Page and Monarch in a 12-hour day, slowed by ice fall wanderings on the lower portion of this unnamed glacier which we began calling 'Empire Way'. Our ascent of Monarch was also a bivouac climb, which we were prepared for but hoped to avoid, having reached 11,000 feet in less than 8 hours. Unexpected difficulties were encountered in finding a route up the final step on rock shot through with ice and snow so that even piton cracks seemed unavailable. A turn around on the precipitous east side on tiny ledges gave us access to the summit ridge and the summit was reached after time consuming ups, downs and arounds. The ice conditions on the 'roof' were probably similar to those encountered by Dudra, requiring great caution and causing us some concern.

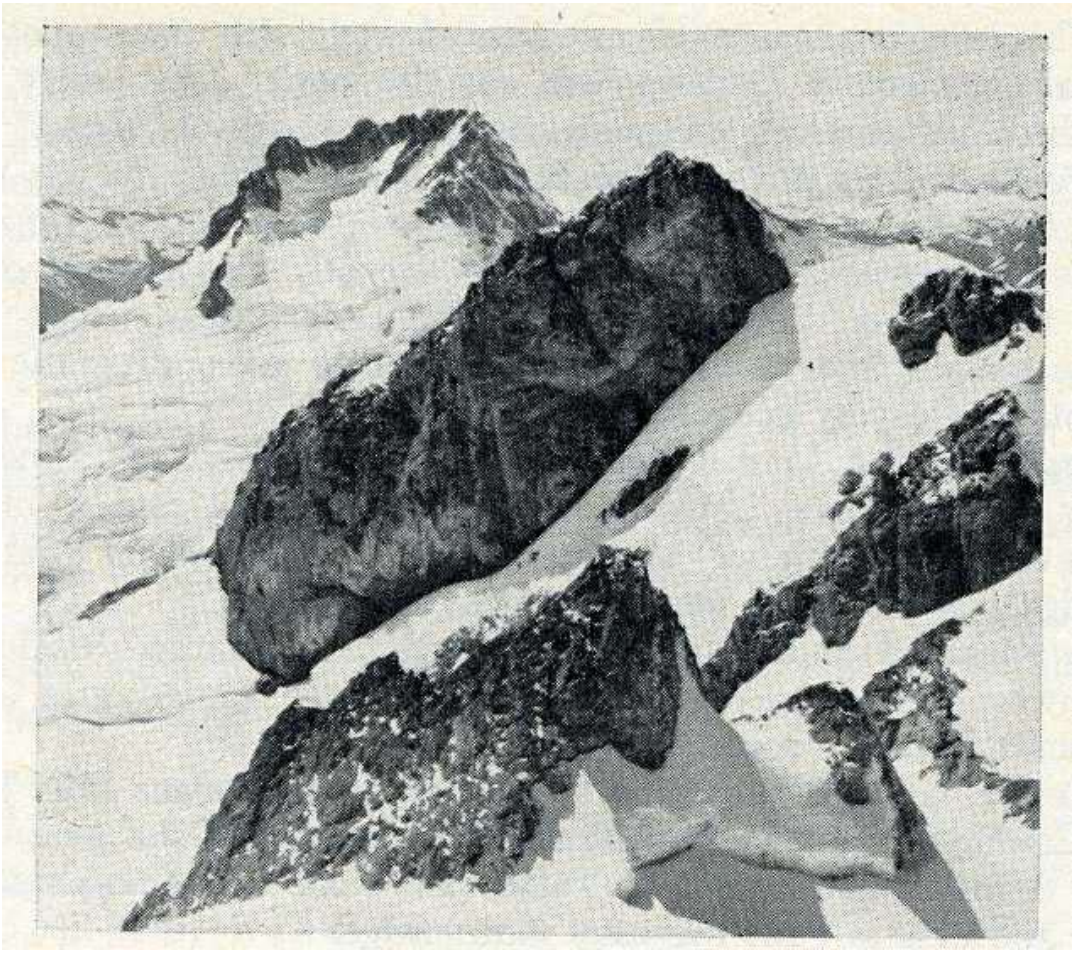


Photo Joan Firey

Princess Mtn. with "Camelot Spires" in foreground.

The party ascended Princess Mountain 4-5 miles west of our Monarch camp via an east-facing glacier that joined the original north ridge route to the summit. An attempt on Page was aborted after a fortunately minor accident, leaving this mountain the only one on which Joe and I have not repeated Dudra's first-ascent routes on the Bella Coola Icefield in 1953. The party also made some first ascents in a group of 5 peaks of about 9000 feet altitude that lie at the head of the Page Glacier, dubbed 'Camelot Spires'. On one of them was an enjoyable 150-foot class 5 pitch on somewhat rotten rock led to the summit.

Our route over the snow col between 'Empire Way' and Page Glacier, which we frequently used, came to be called 'West Portal'. It was a wonderful though brief 8-day camp on the ice of those beautiful Coast Mountains. The excellent pilots of Wilderness Airlines flew us in and out of Knott Lake and made an air drop at base camp. Knott Lake to Success was for us a 10-11 hour pack on a relatively brush free route about 200 to 400 feet up on the north side of Success Creek. A mid valley rib near Success Lake was circled to the south. The party consisted of George H. Bloom, Gary Glenn, Irene Meulemans, Ben Sandilands, Joe and Joan Firey.

An Ambition Realized In 1967

By Neal M. Carter

In September 1923 a climbing companion Charlie Townsend and I made the first mountaineering exploration of some of the peaks northeast of Alta Lake, 65 miles NNE of Vancouver, B.C. This area was not then a part of Garibaldi park as it is now. The highest peak visible from Alta Lake already bore the name Wedge Mountain, but there was no record of its ascent and maps showed little indication of what alpine features might lie between it and the valley containing Lillooet Lake.

During our exploration and amateur mapping we climbed Wedge Mtn., not guessing it would later prove to be the highest peak (9484 feet) in an expanded Garibaldi Park. From our cairn we saw many nearby glaciers and only slightly lower peaks that bore no names and presumably had not been climbed. One striking peak some 5 1/2 miles to the ESE particularly attracted us; 2 days later we climbed its steep southerly cliffs and named it Mt. James Turner, which later became the third highest summit (8913 feet) in the park. (Mt. Weart, 9300 feet, climbed in 1932, is the second highest.)

From photos and survey angles taken from Wedge and Turner I plotted the positions of most of the interesting nearby features, including a mountain we didn't have time to reach, some 3 miles NNE of Turner across a large glacier. Then we left to explore the mountains beyond the head of Fitzsimmons Creek.

The British Columbia Government added these regions to the original Garibaldi Park, and during the thereby necessitated government survey in 1928 my sketch maps may have been of some assistance because when the official map became available I found that the afore-mentioned mountain NNE of Mt. Turner was designated as Mt. Neal (about 8350 feet), with the Carter Glacier to the southeast below it. I wished then we had climbed it during our 1923 exploration when I did not know that 44 years were to elapse before I would again find myself in its vicinity.

In September 1967 my wife Peggy and I decided that as a sort of Centennial Year project we should climb Mt. Neal. The 1928 government survey had occupied two photo stations on a ridge not far south of the summit, and a mountaineering party had already made the first ascent

in 1949. Being the most northeasterly named mountain in Garibaldi Park, it is a long way in from the nearest convenient access point and we felt that at our age we were justified in "cheating" a bit by taking advantage of the growingly popular use of a helicopter to avoid backpacking miles up trail-less valleys and bushy mountainsides. So on September 17 we drove from West Vancouver up to the Whistler Mountain ski area parking lot, where we had already arranged for a Northern Helicopters Ltd. airlift. We lifted off at 1 p.m. with pilot Dermot Hallaran, who flew us up Wedge Creek valley, then spiralling northward from above Wedge Pass crossed the 7500-foot snow col at the west end of Fingerpost Ridge extending from Mt. Turner and took us for a reconnaissance around Mt. Neal so we could familiarize ourselves with the layout of the crevasses on the glaciers Peggy and I would have to cross when backpacking out. It was Peggy's first helicopter ride, and she found the swooping over the heads of Chaos and Needles Glaciers and tilting around the cliffs of Mt. Neal quite impressive.

On returning to the col below Fingerpost Ridge, Hallaran asked if we would like to be landed closer to the base of our objective; so hastily sorting out our food and equipment to leave some in a pack at the col, we certainly were not averse to being flown over the intervening 3 miles of glacier to the head of the Carter Glacier at 7600 feet just below the end of the south ridge of Mt. Neal. Here we waved goodbye to our transport, and felt rather isolated as we moved our packs onto a nearby badly shattered rock rib where by chance we found a reasonably flat platform big enough for a campsite.

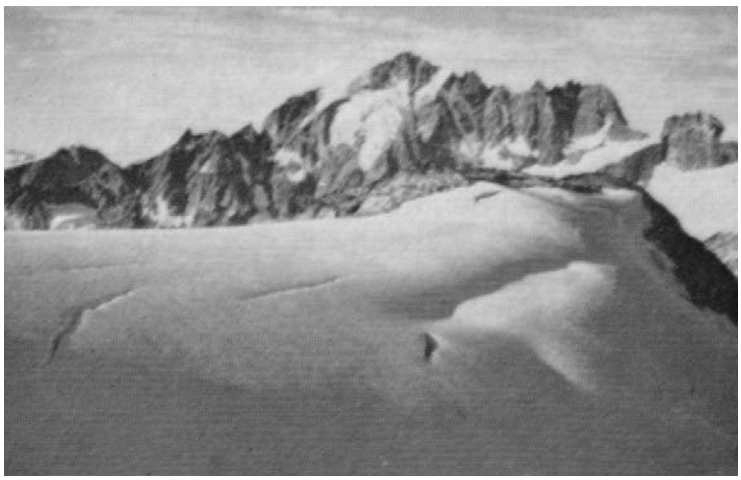
It was now only 1:40 p.m. with a hazy sky, and we thought we should try the remaining 750-foot climb up a ridge to the peak that afternoon in case the weather changed. We made good time up the ridge but some cliffs ahead prompted us to descend into the bergschrund between the glacier and the western face of the ridge. We crawled along in this narrow crack until we thought we were about directly below the summit, then forced a way up the steep face toward the skyline. In one place we encountered a "chute" filled with rocks so loose that they kept cascading between our legs as we climbed with our feet against its almost perpendicular side walls. At 6 o'clock we reached the skyline, by luck only a few feet from the summit cairn, in which we could not find any record. The view was somewhat spoiled by the haze, so after a snack and a couple of photos we left our record in the cairn just 44 years and 5 days after I had first seen this mountain.

To complete our project we decided to traverse the peak and descend its northwestern ridge until via some rock gully to our left we could find a way down onto the glacier. The sun was setting as we tried the first gully, but it was full of loose rock and ended in a cliff so we had to climb back to the skyline. In the growing dusk we leaned over the head of each gully we passed but could not be sure any reached the glacier, until just before dark we found a promising one. It was filled with treacherously loose rock that obliged us to use handholds on the walls, but after a bit of excitement near the bottom we reached the edge of the glacier in just enough light to find a place to bivouac on a rock outcrop, for our campsite on the shattered rib was now away above us across the headwall of a glacier.

Fortunately there was a trickle of icewater running down the outcrop so we slaked our thirst and ate the remains of our lunch by the light of our candle-in-a-can "bug". For a while we kept warm by shifting rocks around to make a flattish though hard place on which to recline, ensconsed in our spare padded jackets with the emptied day-packs over us. But the cold drinks had chilled us and we alternately dozed and shivered. Even exhausting my repertoire on a mouthorgan failed to induce sleep! Around 10 o'clock I decided to treat Peggy to a warm drink made by balancing an aluminum cup of water over the candle in our "bug". By dipping a cold finger into the water from

Pilot and author at drop-off point. Camp on near ridge behind

Mt. Neal on the northeast from head of Chaos Glacier.



Mt. Turner and Fingerpost Ridge (at right) from camp below Mt. Neal.

time to time, I eventually judged it was a "warm drink" and Peggy reached for it with her mittened hand, expecting it might be really hot; however a cold finger is a poor thermometer—the water was barely warmer than that from a cold-water tap in summer! With a little more patience succeeding drinks were warmer and we didn't shiver for a while. About midnight the full moon rose over the ridge of Mt. Neal behind us and we decided to make a moonlight trip diagonally up the glacier to our camp before the snow froze hard.

Tying in to our doubled 120-foot rope, I led off and found one good kick sufficed at first. But as the snow began to freeze harder and the glacier got steeper more kicks per step were necessary and we commenced belaying each other at 60-foot intervals. Shortly before our rocky rib objective hove in sight ahead of us I had to cut steps over particularly hard patches when above some nasty crevasses. Eventually at 4 a.m., still in bright moonlight, we reached the rib, almost at the campsite. Peggy collected ice for making "real hot" coffee over our can of Sterno while I cleared the platform for the sleeping bags, and we had an "early breakfast" in bed.

We awoke to a wonderfully clear sunrise view of the surrounding peaks that had been so hazy the day before. The steep north cliffs and hanging glacier on Turner with its jagged Fingerpost Ridge were most photogenic, with Wedge and Weart a close second, particularly from this new viewpoint. I took some pictures and crawled back into my bag. A while later we got up for "second breakfast" then admired the view until the sun had softened the snow sufficiently for us to start down the initial steep alternate rock and snow leading to a glacier pass 800 feet below. Then followed a long trudge up the gentle névé of the unnamed glacier we had flown over so swiftly 24 hours earlier, until by 4 p.m. we were on the 7500-foot col at the west end of Fingerpost Ridge where we had left our spare pack of food. A growing breeze had buffeted us on the way up the névé and now the sky was threatening, so we lingered only long enough for a bite to eat and to consolidate our packs, then began the descent towards Wedge Creek valley. Long slopes of loose tumbled rocks led us to the mushy wasting ice tongue of a glacier that drained over a cliff into an uninviting pea-soup-coloured lake. Sloshing off the ice, we side-hilled around a rubble slope towards a smaller, clear lake still above timberline. Here we camped on a heather patch. During the night the clouds wept slightly, but we had spread our tent over ourselves and gear so we just pulled the tent over our heads and dreamed of a wet bushy trip on the morrow.

However, an early-morning wind had evaporated the night's tears and the tent was dry even before the sun came out during breakfast. We had purposely used some old day-packs and foam rubber sleeping pads for this trip, so after breakfast we jettisoned these, some spare food and other extras before skirting the little lake to where a narrow rim dropped steeply into a valley. In a few minutes we were among the stunted timberline trees. When nearing a small lake beside which Townsend and I had camped in 1923 after traversing high around Wedge Mtn. to climb Mt. Turner, we side-hilled through the alternately bushy and wooded slopes towards Wedge Pass, glimpsing through slide alder about noon the beginning of Wedge Creek. I had been almost this far (7 miles) up Wedge Creek some 20 years earlier with Bill Wheatley to make several ascents in the Spearhead Range to the south, so assured Peggy we might pick up a trail that was rather sketchy on that earlier trip. Once we were through the slide alder and swampy area bordering Wedge Pass and into the forested hillside, we did see the occasional very old blaze and even found short stretches of faint trail; but these would peter out and we were back to climbing through the windfalls above now roaring Wedge Creek. We saw bear tracks, but no animal larger than a cute marten that quizzically poked its head around a tree trunk to size us up then descended to further investigate us. It followed us for a while. Not being in any hurry, we camped early beside a little waterhole amid the silent

forest filtering shafts of the westing sun.

Next morning the travelling became easier as the forest became opener, and after following a bit of trail that led to a non-existent crossing to the south side of Wedge Creek where we didn't want to go anyway, we gave up blaze-and trail-hunting in favour of making our own way around mossy open rock outcrops and through park-like glades until we came to traces of old logging on the western toe of Wedge Mtn. Then we headed down toward the P.G.E. railway bridge over Wedge Creek about a mile below the outlet of Green Lake, which we reached at about 1 p.m. My car was back at the Whistler parking area almost 10 miles away. Efforts to thumb a ride on a trainload of logs and a railway speeder were unsuccessful; we walked the railway to a bridge over Green River close to where it emerges from Green Lake and crossed to the highway. Traffic was sparse and not interested in giving a lift to two hot dishevelled mountaineers, so after hiking along the highway for a couple of miles Peggy parked with the packs in some shade beside the road while I hiked on. Near the head of Green Lake a truck stopped and gave me a lift to my car. I soon rescued Peggy and we headed for home happy that we had at last climbed "my mountain".

The Rampart East Face, Rogers Pass

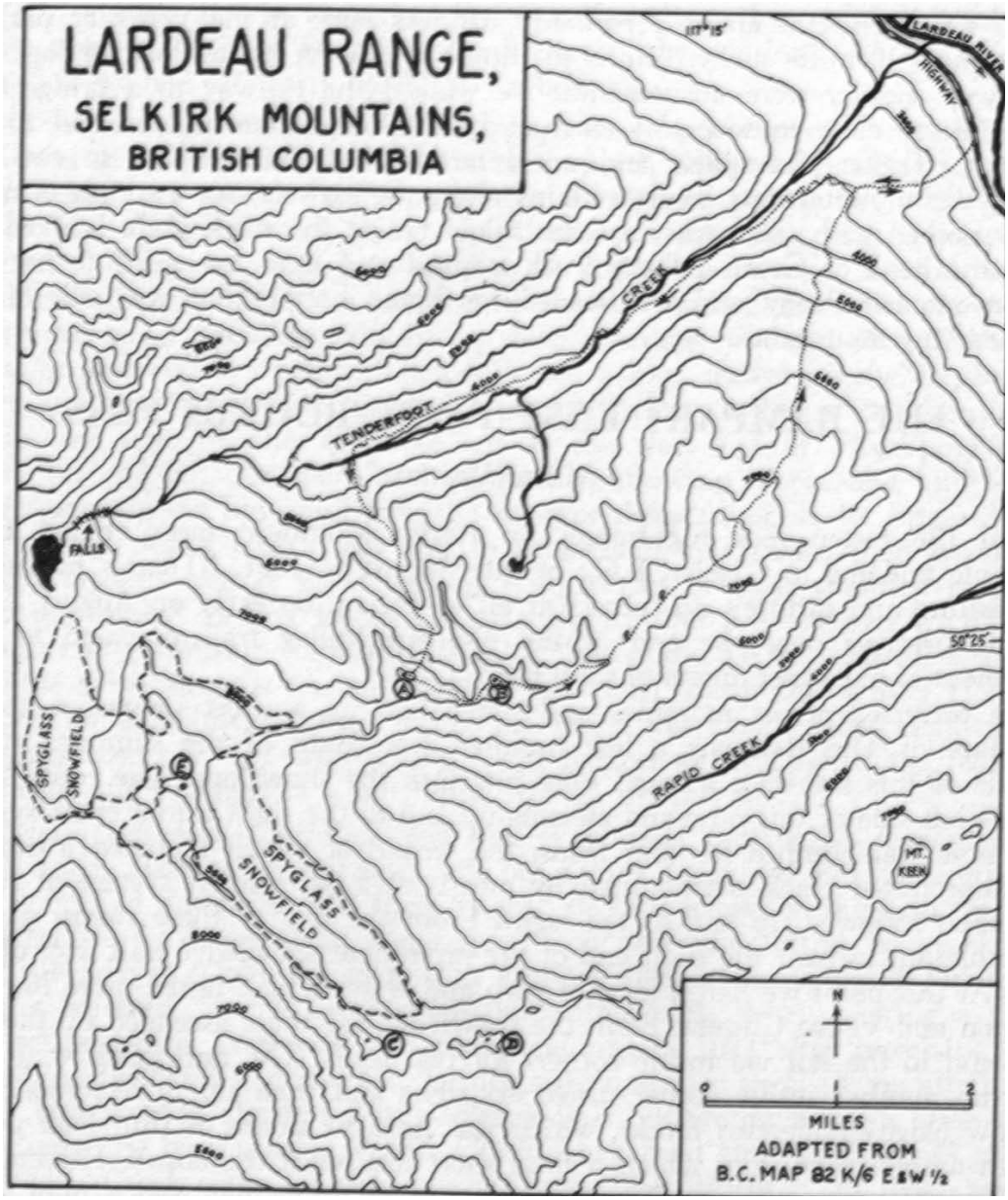
By Mike Wisnicki

Real life rotten rock nightmares on Rocky Mountain faces chased Earle Whipple and me to Glacier, B.C., in late August of 1967. "There's no success like failure and failure's no success at all".—Dylan. So early on August 29 we found ourselves near the end of the Asulkan Valley trail prepared to find fulfilment of our sweet dream of solid rock.

We traversed across moraines and slabs then up a short snowslope to the east face of The Rampart a few hundred feet south of the summit. In the middle of this slab face a small nose juts into the snowslope. The route starts on the left side of this nose and ascends up and to the right into a crack system. The nose was climbed for four leads, the second of which included a difficult 5.6 unprotected crack, surmounted by means of a fist jam. A system of ramps was then followed up and to the right. From the end of these ramps a short scramble put us near the right end of the prominent snowledge half way up the face. At this point we had a feast of gorp and water which tasted more like filet mignon and Veuve Clicquot. From the snowledge the route ascended up the slab face and to the left via inside corners for two leads. The next pitch went part way up another inside corner, traversed right and then up to a stance on a narrow ledge beside two blocks, which was hard to secure. A thin lead put us on an ample ledge from which a final short lead ends the climb. Descent was via Mts. Afton and Abbott. The rock is excellent throughout and a pure joy to climb on. Hardware selection on this climb should consist of 15 pitons ranging from a knifeblade to a 2-inch bong.

New Ascents In The Lardeau Range B.C.

William C. Fix and Terry Bech report that they made the possible first ascents of two peaks in the Lardeau Range of the Selkirk Mountains. By an approach via Tenderfoot Creek on July 29, 1967, from the Lardeau River Highway, on July 30 they ascended the north face of what they termed "Tripod Peak" (8610 feet, "A" on accompanying map), descended its east ridge, thence traversed from west to east another peak, which they called "Spyglass North" (8666 feet, "B" on map), and returned to the highway via a 7000-foot ridge between Tenderfoot and Rapid Creeks.



Both peaks were class 3 to 4 rock climbs, and although there was no indication of previous ascents, Bill Fix cautions against claiming first ascents in this area that has been highly prospected for years.

"Tripod" provides a great panorama of the 7-square-mile "Spyglass Snowfield" that stretches for 5 miles along the divide to a lake and a spectacular 450-foot waterfall into Tenderfoot Creek. The main watershed peaks are those indicated on the accompanying map as "C", "D" and "E", and Bill remarks that there seems to be some uncertainty about the allocation of the official name Spyglass Mountain to one of the peaks in this area.

Some old maps show Spyglass Mtn. as the peak ("B") most visible from the Lardeau River valley, but when climbing it on this trip Bill and Terry referred to it as "Spyglass North" because newer maps show a Spyglass Mountain on the "Spyglass Snowfield" watershed. Map Sheet 82K/SW indicates Spyglass Mountain by name (no spot height) as the ca. 9000-foot (from contours)

peak "D", whereas Map Sheet 82K/6W shows this name (no spot height) against a ca. 9220-foot peak (from contours) "C" about a mile west of "D". William L. Putnam's 1963 edition of Guide to the Interior Ranges of British Columbia gives on page 108 an elevation of 9310 feet for Spyglass Mountain.

Of these three contenders for the name Spyglass Mountain, Bill Fix favours the snowy-topped peak "C, so named on the Poplar Creek Map Sheet 82K/6W (1:50,000 scale). No name was suggested by this party for the peak "E" that has a spot height of 9277 feet on the 82K/SW Map Sheet but not on the larger-scale 82K/6W Sheet.

Mt. Edith Cavell, North Face

By Chris Jones

The imposing north face of Edith Cavell was first climbed by Beckey, Doody and Chouinard in 1962, and it had two attractions for us. First, it has no approach march, and, second, the east summit has an indistinct buttress leading directly up to it that should give a technical mixed climb. The route had been attempted by McCarthy, Hudson and Tejada-Flores in 1966, but they unfortunately had bad weather.

The north face, below the east summit, has a snowpatch some 1000 feet up. The route begins in shattered yellow rock to the right of the snowpatch, almost directly below the summit. After about 200 feet traverse left and begin the first difficulties, a crack system (F8). Follow up a series of chimneys and cracks, on generally excellent rock, which lead, in about 1200 feet, to a ledge system and good bivouac sites, with snow and possibly a small waterfall to the right. This is the only acceptable bivi we found on the whole climb, and, as we anticipated this, we reached it on the evening of the first day, after a mid-afternoon start. From the ledges go left about 100 feet and up easier angled rock and then a snowslope until at the foot of the rib, at approximately half the height of the face. Here the angle increases considerably. Stay on the rib as much as possible and do not traverse left into an icy scoop when the wall above steepens. The climbing is on steep sound rock and quite delightful. Depending on conditions one may encounter ice on the ledges and holds some 1500 feet from the summit, with connecting snow ridges and short ice pitches. The character changes and is predominantly mixed climbing, with a small summit cornice at the top. The total climbing time for our party, Chouinard, Joe Faint and Jones, was 20 hours.

North face, east summit Grade 5 F8 approximately 4000 feet. Climbed 1967.

North Howser Tower, Direct Route On The West Face

By William C. Knowler

The Bugaboos in British Columbia, whose excellent rock has made them a popular climbing area, also offer possibilities for mixed climbs on large alpine faces. We were attracted to the unclimbed west face of North Howser Tower, the highest peak in the area. The 2500-foot face appeared to have excellent rock, with its centre decorated by a large circular snowfield above a crescent-shaped snowfield. (See photograph.) We chose our route directly by the centre of the face, over both snowfields, and up the rock, some of which was ice-covered. Thus our face had a good variety of snow, ice, and rock climbing.

Returning to Boulder High camp, after an ascent of Mt. Stone, which is farther to the

west, I ran into Gay Campbell and Peter Zvengrowski, who had just climbed a pinnacle to the northwest of North Howser Tower with the rest of our party, the Simian Society. On the summit of the pinnacle, they were inspired to try the west face, and I was quite receptive to the idea, as I had been admiring the mountain all the way to and from Mt. Stone. The three of us decided to try the face. Gay, a member of C.A.F., and Pete are from New York, and I am from Iowa.

We went back to Boulder High camp for provisions and returned to camp at "Bill's Pass" at the foot of the north ridge of North Howser Tower. After enjoying a supper of dehydrated slop, we got a little bouldering practice while suspending our food so that it would be safe from snafflehound attacks (one nearly got it anyway). We slept until 4 a.m. on Aug. 5, 1967, when we started off for the base of the climb despite the threatening weather. We walked up the gentle snowslope leading up from "Bill's Pass", at the top of which we broke the ice on a pool to fill our water bottles. We rappelled over loose rock to the bottom of a steep glacier. As we cramponed up the glacier, the cloudy and hazy sky lightened with the coming of morning. We descended scree to a relatively flat, but crevassed, glacier leading to the rock at the base of the face. When we reached the face, we were separated from the rock by a 6-foot moat. We leapt across the moat, and our cold feet stung as we landed on a rock ledge 8 feet below.

It felt good to be on rock. We climbed five interesting class 5 pitches that led around a waterfall to the base of the finger of snow extending down from the right tip of the crescent-shaped snowfield. The climbing, all in the 5.5 to 5.6 range, involved laybacks, traverses, friction on wet rock, and an overhang on loose rock. According to Gay and Pete, it was comparable to the hardest pitches on the regular route on Snowpatch, which they had climbed a few days earlier. The difficulty of some of the moves was increased by the ice axes and snow pickets protruding from our rucksacks. We used two 120-foot ropes, with Gay leading the entire climb, me second, and Pete third.

When we got to the snow finger, we found the rock to the right of it to be easier than the snow itself, so we climbed it for several hundred feet, moving simultaneously most of the time. We climbed up the crescent-shaped snowfield on crampons, staying close to the rocks around its right and upper edge. Conditions were excellent with only occasional ice patches. Each pitch was anchored by slings to the nearby rock, so when I broke out of a step on the third pitch, Gay and Pete had no trouble holding my fall.

Five or six pitches brought us to the rock between the two snowfields. We soon reached the large circular snowfield that led to the 600-foot rock wall above it. It was 1 p.m., and we had come half the distance up the face, so our hopes of reaching the top that day rose. It was not as cloudy as before, although there was still a heavy haze. We circled the snowfield around its right edge so we could again anchor our pitches by slings to the nearby rock, as it was too icy, steep, and exposed to cross the centre of the snowfield. On the next-to-last pitch we found a bolt and a piton in the rock just above the ice, which seemed to mark the site of some previous bivouac. It was mysterious, because we knew of no previous attempt on the west face.

We could have climbed the rock face above the snowfield from anywhere around the top of the snowfield, but as this was a direct route up the west face, we decided the most elegant route would be the ice-laced wall standing directly above the centre of the snowfield. After about eight pitches on the second snowfield, it felt good to get on the rock again. We changed order, with Pete going second and Gay continuing to lead. We were cold, as the snowfield had been in the shade, but our hopes of being warmer on the rock were soon shattered, for the first pitch went up a waterfall. The next several pitches were quite interesting and, as an added attraction, we were

showered with ice from a snowfield on the ridge above, which was exposed to the sun. The sky was clear enough so that we were treated to occasional sunshine.

After finishing the second pitch, I could see Pete trying to climb what looked like an easy jam crack. When I asked him why he was having so much trouble, he told me to wait and see for myself. I soon saw how hard it is to jam when the rock is covered with ice. Both Pete and I needed tension here. Next came a chimney blocked by a chockstone, followed by an increased amount of ice on the rock which made some step chopping necessary. By the time I got to the top of the second iced jam crack, my arms were so exhausted that they cramped. I think it was only Gay's reminding me that the crack wouldn't be a good place for a bivouac and Pete's gentle pull on the rope that finally got me over the top.

After an easier stretch, we found we were rapidly being overtaken by darkness, but we still had another four pitches to the summit ridge. Above us, a ledge under a huge overhang looked as if it might provide us some comfort for a bivouac. Gay started up using direct aid for the first time. When the 2-inch crack ended after 10 feet, the move above was very difficult. Gay ran out of fingers and peeled off. Pete caught him easily, so he wasn't hurt, although he had scraped a few layers off his hardhat on the way down. This event, and the falling ice blocks earlier in the day, one of which bounced off my head, reinforced the affection Gay and I have for hardhats. Of course Pete, who won't wear one, was never struck. When we told this to Yvon Chouinard after the climb, he took it as confirming evidence for his belief that hardhats attract rocks.

After a pause for a chocolate bar, Gay tried it again, this time without his knapsack. He made it to the ledge and hauled up his pack. By this time it was completely dark, so Pete and I prussiked up by the light of our headlamps. Cleaning the direct aid pitch was left for morning.

We named our bivouac site "almost ledge", because it was narrow and sloped down to its rounded edge. Fortunately, it had a good piton crack at the back, so we tied ourselves and our rucksacks in. We secured our equipment and put on all our clothing to brace ourselves for the cold night. We savoured our salami, cheese, and mustard sandwiches, because every suggestion that we stop to eat that day had been answered "after just one more pitch!" Cold and exhausted, we settled down to sleep. The weather was still holding, but threatening. We could see no lights but the stars and some lightning to the northwest in the Conrads. We were reminded of our isolation and exposure. Gay and Pete had spots wide enough to sit on. I was fortunate to be on a long, straight segment of the ledge, and by tying myself into three pitons, at my chest, waist, and ankles, I was able to lie down without rolling off.

Just after I had gone to sleep, I thought I felt Pete's rucksack, which I had been using for a pillow, falling over the edge. Half awake, I thrust out my hand and grabbed something. I woke to find it was Pete, not his rucksack, that was over the edge, and what I had grabbed was a sling attached to him. It was 2000 feet to the glacier below. Pete grabbed one of the ropes that was tied to a piton, kicked his way out of his bivouac sack, and climbed hand over hand up the rope back to the ledge. He found that of the two pitons he had placed, one had popped out and the other hadn't been clipped into! Fortunately, nothing was lost except Pete's bivouac sack, a few pieces of hardware, his water bottle, and his peace of mind. We discovered later that the bottoms of his socks had also been lost when he scrambled back up to the ledge. Pete tied himself back in and I checked my pitons and knots. Gay and I went back to sleep, although Pete wasn't very sleepy the rest of the night.

The next morning put pink and yellow sunshine on Mt. Conrad, but on the cold west face of North Howser Tower we couldn't see the sun until we reached the ridge. Gay rappelled down

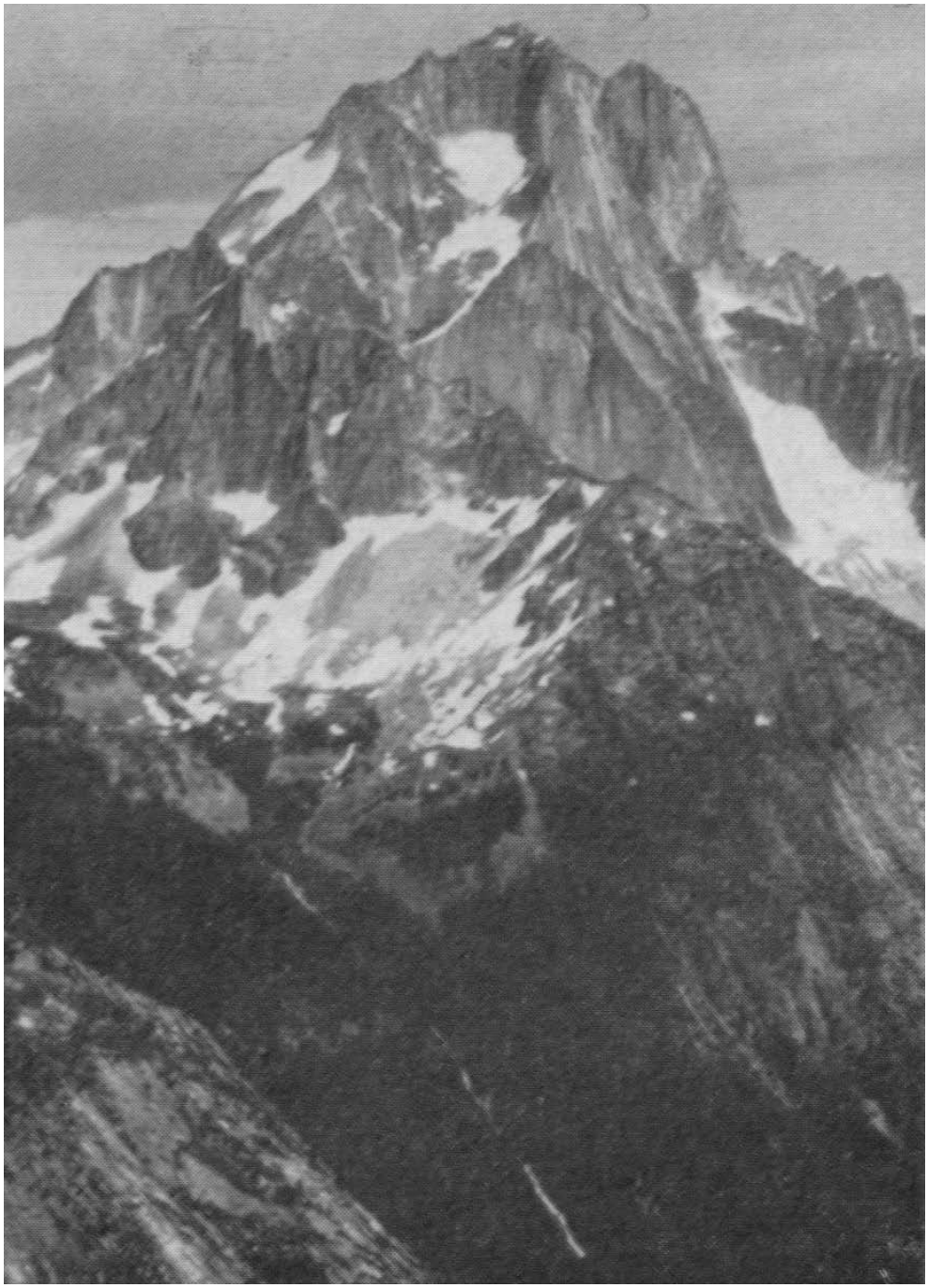


Photo: W.C. Knowler

West face of North Howser Tower.

to clean the direct aid pitch and prussiked back. The first pitch was easy except for some ice at the beginning. The next two pitches were more difficult, involving ice, a direct aid move on a traverse, and falling ice from the ridge.

We reached the ridge and the sunshine and felt warm for the first time in 2 days. We remained roped and moved simultaneously, as most of the climbing to the summit was straightforward. Pete slipped a few feet down a slab, but caught himself. We spent an hour and a half on the summit in

sunny but hazy weather. We were thirsty, as we had encountered no water that day, and the loss of Pete's water bottle at "almost ledge" had left us with only a few swallows at the bottom of mine. Sitting on the summit and watching people near Snow-patch on the Vowell Glacier below gave us a false sense of security, as we still had the descent ahead of us.

We descended the east face, rappelling over the bergschrund on a 300-foot 5/16-inch rope. We followed the steps to Pigeon Spire, where we delighted in our first water of the day. We made it back to our tents just before the weather broke. Safe, warm, and tired in our tents, we ate and went to sleep, thankful that the storm hadn't come a day earlier.

A Centennial Expedition

By Peter Lancaster

The members of the Department of Mathematics in the University of Calgary include several people interested in camping, hiking or mountaineering. The idea of a Centennial Year Camp originated in party gossip during the winter of 1966-67. We wanted a wilderness site not too distant from Calgary, some possibilities for hiking, and unclimbed peaks for the tigers. In short, a site offering something for everyone from the tigers to the families with infants.

On studying the maps a possible area was located near the head of Waiparous Creek about 56 miles WNW of Calgary as the crow flies. A reconnaissance of the area was carried out by a party of three on July 26th and it was found possible to get our station-wagon along the Waiparous Creek trail for about 9 miles due west of the Sundre forestry trunk road starting from the Girl Guide Camp. A further hike of 3 1/2 miles along an old jeep trail took us well into the mountains, where we located a good camp site just west of the confluence of the Waiparous with a tributary from the south. We shall call this tributary the South Fork.

Six peaks between 9500 feet and 9800 feet form a rough horseshoe around the Waiparous and South Fork valleys; all were believed to be unclimbed and were found to be defended from the north by formidable cliff bands (see sketch map). The central ridge also rises to 9500 feet and will be described here as Look-out Ridge, the nose of the ridge having been climbed by the reconnaissance party. The six surrounding peaks were known by numbers as indicated on the sketch although Number 1 is referred to as Castle Peak at a view-point on the forestry trunk road.

Plans developed fairly quickly after the reconnaissance, and the camp was set for August 20th-23rd. Thirty-one people attended, including 5 A.C.C. members and 10 children (with two 1-year olds). The equipment was taken in and out by pack-horses. Wilbert Olson of the "Mountain Aire Lodge" at the Red Deer River crossing made an excellent job of packing and entertaining horse-loving children.

Having established camp on the 20th, 17 brave souls set out on expeditions on the 21st. A party setting out along the South Fork found the head of the valley completely closed by cliffs but predicted a nice ascent of the summit of Look-out Ridge over easy rocks on the east face. No serious attempt was made to reach the summit as the party was not prepared for rock-climbing. An impressive waterfall with punchbowls was found about a mile up the South Fork.

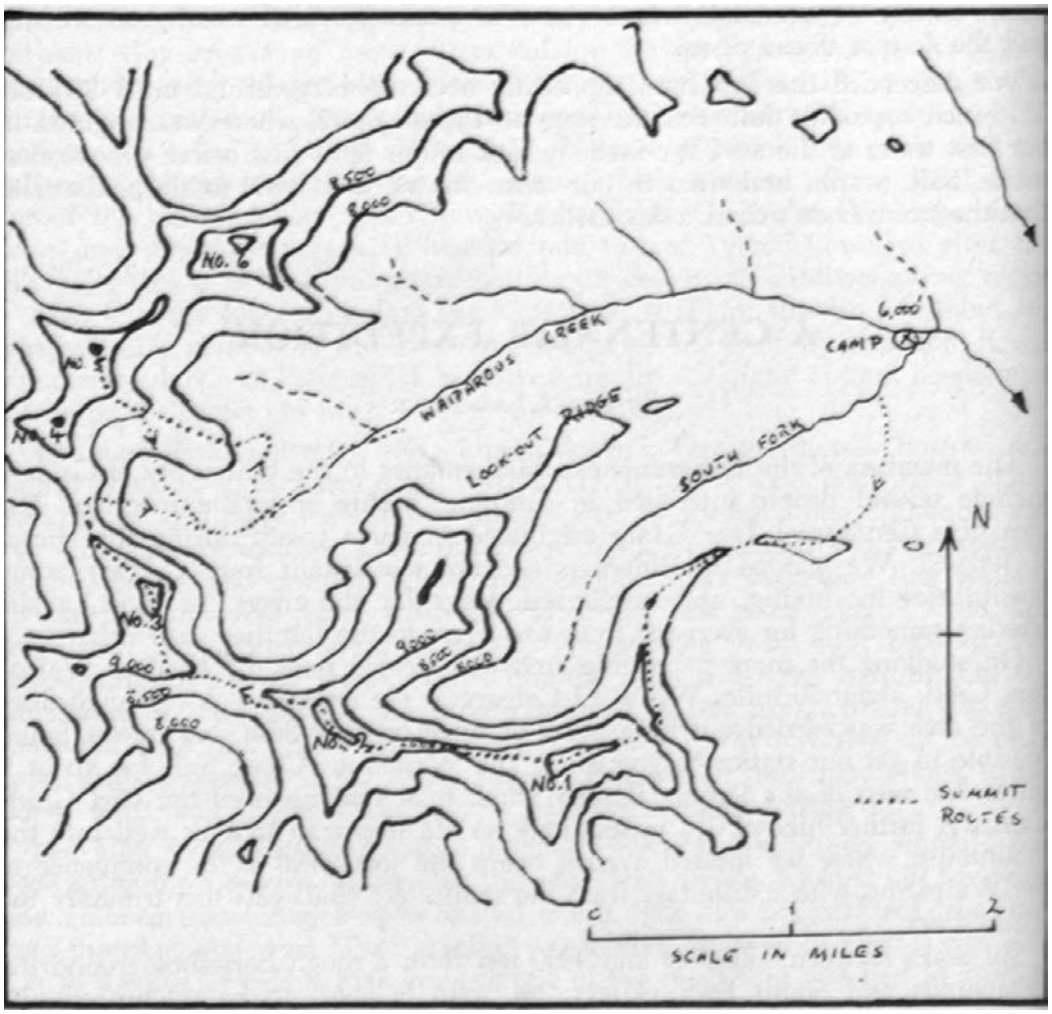
A party of 9 went to explore the head of the Waiparous valley and were unfortunate to be turned back at about 500 feet from the summit of Number 5 by a combination of circumstances including an afternoon thunder-storm. However, they pioneered a route up an obvious ESE ridge. A third party" containing 2 children approached No. 6 from the east and returned without attempting

the upper slopes.

Eckhard Grassmann and Jon Rokne set out to try the circuit of the 6 peaks, equipped for a bivouac. They succeeded in climbing 1, 2 and 3 and their story is reported below.

On Tuesday, the 22nd, a party of 3 completed the ascent of Number 5 aided by the experience of the party of the day before. An easy ascent was made up the ESE ridge with some scrambling in the last few hundred feet. A low cliff band that looked as though it might offer problems was ascended by an easy gully not visible from below. The descent was via the valley south of the ridge. The first ascent is claimed by Kim Kubinski (leader), Louise Guy and Peter Lancaster. The time taken was about 10 hours of which nearly 5 were spent in easy bushwhacking to and from the meadows at the head of the valley.

Camp was struck on the 23rd and the return trip went very smoothly; the party was back in Calgary by 6 p.m. Having been blessed with good weather and good fortune, the expedition was a great success. Numbers 4 and 6 (the latter is a prominent feature on the Calgary sky-line) remain apparently unclimbed. There are probably easy routes up No. 6, but at least from the northeast, No. 4 seems to offer more challenge.



Headwater peaks of Waiparous Creek, northeast side of Palliser Range, Alberta.

Three First Ascents.

By Eckhard Grassman And Jon Rokne.

We started out from camp along the South Fork about 7 a.m. and soon climbed up on the left-hand ridge. This was followed to the base of the cliff band that goes almost all the way around No. 1. A little to the left of where the ridge joins the cliff, a quite steep gully was found. To the left of the gully Eckhard (the leader) found a route that finally led into the gully higher up. After 3 rope lengths of F.5 climbing one could walk up easy rock onto the summit ridge which was followed to the summit over a number of small cliffs. The summit was reached at 1 p.m. Since there was no cairn on the summit, a small one was constructed.

After a lunch break we made an easy descent to the saddle between No. 1 and 2. No. 2 was climbed about half a mile to the left of the saddle and the summit was gained at about 4 p.m. after an easy scramble.

The descent from No. 2 proved cumbersome as the ridge between 2 and 3 had a notch of a hundred feet across and 200 feet deep. We therefore had to backtrack about a mile to circumvent the cliff band that extended backwards from the notch. The corresponding cliff band on the other side of the notch was climbed on the left-hand side, three-quarters of a mile off the ridge, and No. 3 was gained slightly to the left of the ridge over easy rock at about 7 p.m.

The descent from No 3 gave some trouble, but no rope was used. On the saddle between 3 and 4 the party decided to descend to the headwaters of Waiparous Creek. Darkness came too soon and we had to spend the night in the cliffs; we returned to camp the next morning at about 9 a.m.

1967 Published Or Advance Map Sheets, British Columbia And Yukon Territory

Compiled By Dr. John O. Wheeler

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. A list of new maps issued in 1966 was published on pages 82-83 of Vol. 50 of this Journal (1967).

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). Maps ordered from the B.C. Provincial Department in Victoria, B.C., require a

25-cent "handling charge" and a 5% sales tax, where applicable, over and above the cost of maps purchased.

The following are among the new British Columbia map sheets that have become available during 1967 and to March 1, 1968. 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)

82E —Penticton (2nd) 93i —Monkman Pass (1st st)
92J —Pemberton (3rd st) 93J —McLeod Lake (1st st)
92P —Bonaparte River (3rd st) *104F —Sumdum (1st)

1 inch to 2 miles scale, published

82 L/SW —Vernon (2nd st) 92 G/SE —Langley (2nd st)

1:50,000 scale, published as separate East and West Half sheets

82	K/ll	W —Trout Lake (1st)	93	J/14	E&W—Carp Lake (2nd)
82	K/12	E&W— Beaton (1st)	93	J/15	E&W—McLeod Lake (2nd)
83	D/14	E&W — Valemount (1st)	93	J/16	E&W—Anzac River (2nd)
83	E/3	E&W — Mount Robson (1st)	93	0/1	E&W—MountReynolds (1st)
92	F/16	E&W— Haslam Lake (1st)	93	O/13	E&W—Mount Selwyn (1st)
92	N/8	E&W— Stikelan Creek (1st)	93	P/l	E&W—KiskatinawRiver (1st
92	N/10	E&W— Razorback Mtn.(1st)	93	P/3	E&W—BullmooseCreek (1st
92	N/15	E&W— Tatla Lake (1st)	93	P/4	E&W—Sukunka River (1st)
92	P/4	E&W— Clinton (1st)	93	P/7	E&W—Sundown Creek (1st)
92	P/5	E&W— Jesmond (1st)	93	P/8	E —Tupper Creek (2nd)
93	D/7	E —Bella Coola (1st)	93	P/8	W —Tupper Creek (1st)
93	1/12	E&W — Missinka River (1st)		94	B/4-E&W Wicked River (1st)
93	J/7	E&W— Summit Lake (2nd)	94	J/4	E&W—Gathto Creek (1st)
93	J/8	E&W— Averil Creek (2nd)	104	N/2	E&W—Nakina (1st)

1:50,000 scale, advance prints (Federal)

92	F/15	E&W — Powell Lake	92	L/15	EW—Broughton
92	J/l	E&W — Pemberton Lake	92	L/16	E&W—Kingcome Inlet
92	J/2	E&W— Alta Lake	104	K/15	E —Nahlin River
92	J/7	E & W — Pernber ton	104	N/2	E&W—Nakina Lakes
92	J/8	E&W— Duffy Lake	104	N/4	E —Sloko River
92	J/10	E — Birkenhead	105	N/16	E&W—Tinv Island Lake
92	L/9	E&W— Minstrel Island			

1:40,000 scale, advance prints (Federal)

83	C/3	E&W—Columbia Icefield	83	D/2	E&W—Nagle Creek
83	C/4	E&W—Clemenceau Icefield	83	D/l0	E&W—Howard Creek
83	D/1	E&W—Boat Encampment			

2 inches to 1 mile scale, advance ozalid prints (B.C. Government)

82	L/7	E&W—Lumby	92	P/6	E&W—Green Lake
82	L/10	E&W—Mabel Lake	92	P/7	E&W—Bridge Lake
92	1/12	E&W—Lillooet	92	P/10	E&W—Deka Lake
92	1/13	E&W—Pavilion	92	P/ll	E&W—100 Mile House
92	J/15	E&W—Bralorne	92	P/13	E&W—Chimney Lake
92	J/16	E&\V—Bridge River	92	P/14	E&W—Lac La Hache
92	L/10	E&W—Alert Bay	92	P/15	E&W—Canim Lake
92	M/3	E&W—Belize Inlet	93	C/5	E&W—Atnarko
92	M/4	E&W—Cape Caution	93	D/8	E&W—Stuie
92	M/15	E&W—Goose Bay	93	1/14	E&W—Kinuseo Falls
92	N/l	E&W—Chilko Mountain	93	1/16	E &W—Red Willow River
92	N/7	E&W—Mount Queen Bess	93	O/6	E&W—Morfee Creek
92	N/9	E&W—Tatlayoko Lake	93	O/8	E&W—Lemoray Creek
92	N/16	E&W—Eagle Lake	93	O/ll	E&W—Cut Thumb Creek
92	O/13	E&W—Scum Lake	93	O/12	E&W—Blackwater Creek
92	O/14	E&W—Hanceville	93	O/14	E&W—Point Creek
92	O/15	E&W—Riske Creek	93	P/2	E&W—Flathead Creek
92	P/2	E&W—Criss Creek	93	P/5	E&W—Burnt River
92	P/3	E&W—Loon Lake	93	P/6	E&W—Gwillim Lake

M.C.R. 7 Centennial Range, Yukon Territory (Federal; 1.25,000).
P.S. - G.3 Western Part of Garibaldi Provincial Park, B.C. (B.C. Government; 1:63,360).

New (Canadian) Ascents And Various Expeditions[26]

Prepared by Don G. Linke

St. Elias Mountains Icefield Ranges, Yukon

The 1967 Yukon Alpine Centennial Expedition ("Y.A.C.E.") and the Alpine Club of Canada Summer Camp in the above area resulted in many first ascents, also ascents of some peaks that had been climbed only once or a few times previously. A list of first ascents of the Centennial Peaks is given on pages 97-103, followed on pages 129-136 by a list of first ascents (and non-first ascents of Mts. Wood, Walsh and Steele) made from the Summer Camp beside the Steele Glacier. Consequently a list of those ascents is not repeated here. The individual articles on each of the Centennial Peaks climbs (pages 34-97); the two phases of the Summer Camp (pages 106-120); Mt. Walsh (pages 121-124); Mt Steele (pages 124-128); Mt. Wood (pages 128-129); and the articles on the organization for Y.A.C.E. (pages 1-33) give further details. Non-Y.A.C.E. climbs in the above area included:

(UNNAMED) (a 14,000-foot peak on ridge of Mt. Steele, southeast of the Y.A.C.E. high camp on Mt. Steele). First mountaineering ascent (previously visited by helicopter), Aug. 2, 1967. H. F. Microys, Stan Rosenbaum. (See page 139.)

26 Names of features shown in quote marks are either unofficial or are pending acceptance by the Canadian Permanent Committee on Geographical Names.

(UNNAMED) (a 10,000-foot peak near head of Walsh Glacier). First ascent, Aug. 8, 1967. H. F. Microys, while reconnoitring during return of party from Mt. Steele via Kaskawulsh Glacier to the Alaska Highway. (See page 139.)

MT. LOGAN SOUTHEAST PEAK (ca. 17,900 feet). Probably first ascent; July 16, 1967. Vin Hoeman, Alex Bittenbinder, during an east-to-west traverse of Mt. Logan. (See page 141.)

Baffin Island

During the 1967 Cape Dyer Expedition (see page 185), in addition to the following first ascents the "Southwind Glacier" was ascended to its head; a new route was made across the Cumberland Peninsula; "Delta Col" and the pass of the Virginia Glacier were ascended for the first time.

"THE MITRE" (4990 feet). Aug. 5, 1967. Ascent via northwest ridge, descent by northeast ridge. G. V. B. Cochran, P. C. Ritterbush, from Base Camp.

"DELTA MTN." (4615 feet). Aug. 8. Ascent via west ridge, descent via northeast ridge. A. Dennig, P. H. Kruck, Cochran, from Advance Base Camp.

"DRIFT PEAK" (5375 feet). Aug. 8. Via glacier leading to col east of the peak and west of "The Eyrie". Ritterbush, Jane Titsworth, F. C. Grace, from Advance Base Camp.

"THE EYRIE" (ca. 5100 feet). Aug. 8. From col used on route to "Drift Peak". Ritterbush, Titsworth.

"EAGLE'S BEAK" (ca. 5100 feet). Aug. 9. Ascent via east face and ridge; descent included traverse of "The Eyrie" and "Drift Peak". A. Dennig (solo), from Advance Base Camp.

"GYRFALCON PEAK" (southwest summit, ca. 4600 feet). Aug. 10. Ascent and descent via west ridge. Grace, Titsworth, Monika Schwabe, from Advance Base Camp.

"WHITE WIND PEAK" (5510 feet). Aug. 11. Via northwest ridge. Cochran, Ritter¬bush, Dennig, from Bivouac Camp.

Coast Mountains, B.C.

NIUT RANGE (between the two branches of the Homathko River): (All first ascents; see page 155.)

RUSTY PEAK (9900 feet). Aug. 23, 1967. Ascent via west ridge. Esther and Martin Kafer, Barry and Rena Hagen, David Boyd, Dick Chambers, Paul Plummer.

PAGODA EAST PEAK (ca. 10,350 feet). Aug. 26. Ascent via two routes on north face. Party as above.

"TRIPLET PEAKS" (north of Rusty Glacier; ca. 9950 to 10,000 feet). Aug. 24. Ascent via southwest ridge to centre peak. Party as above.

CAMEL GROUP (six subsidiary peaks; ca. 8800 to 9500 feet). Aug. 1967. Whole party.

CAMEL MTN. (10,000 feet). Aug. 28. Via southeast ridge and face. Party as on Rusty Peak above, plus Bill and Signe Nickerson.

"CAMEL TOWER" (ca. 9400 feet) Aug. 29 Via southeast and south ridges. Barry Hagen, Bill Nickerson, Martin and Esther Kafer.

QUARTZ PEAK (9660 feet). Aug. 30. Via south face. Barry Hagen, Paul Plummer, Bill Nickerson. (See also "Mt. Cloud-drifter" and "Mt. Sleepwalker" listed below.)

MT. MONARCH AREA: (See page 197):

"CAMELOT SPIRES" (ca. 9000 feet). First ascent of west, middle and east; July 31, 1967. George H. Bloom, Gary Glenn, Irene Meulemans, Ben Sandilands, Joe and Joan Firey.
PRINCESS MTN. (9450 feet). Second ascent via east glacier; Aug. 1. Party as above.

MONARCH ICECAP TO HOMATHKO SNOWFIELD:

The following are reported as first ascents made during the summer of 1967 in the course of geological survey work aided by helicopter. (For localities of these ascents, see the article on page 195; some ascents of un-named peaks were also made.)

"WINDCIRQUE PEAK" (8000 feet). Tony Ellis, Monty Lasserre.
"THREE-CORNER HAT" (8000 feet). Dick Culbert, Mike Warr.
" MT. INNOCUOUS" (8500 feet). Dick Culbert, Mike Warr.
"RAMPART PEAK" (9137 feet). Dick Culbert, Mike Warr.
"CRUMBLE PEAK" (9000 feet). Dick Culbert, Mike Warr.
"MT. ELFRIDA" (height not stated). Dick Culbert, Mike Warr.
MT. BELL (western buttress, 10,670 feet). Dick Culbert, T. Ellis.
"MT. WIESSNER" (9500 feet). Dick Culbert (solo).
MAJESTIC PEAK (9500 feet). Dick Culbert, Mike Warr.
CONSORT PEAK (8900 feet). Dick Culbert, Mike Warr.
MANTLE PEAK (8900 feet). Dick Culbert, Mike Warr.
MT. MOORE (9980 feet). Jim Simpson, Barry Calder.
"MT. CLOUD-DRIFTER" (Niut Range) (9600 feet). Bob Woodsworth, Dave Watkins.
"MT. SLEEPWALKER" (Niut Range) (9100 feet). Bob Woodsworth, Jim Simpson.

LILLOOET ICECAP — MANATEE RANGE:

See the article on page 162 for details and personnel of the following first ascents made during the B.C. Mountaineering Club's 1967 Manatee Ski Expedition:
(These climbs were made by the whole or part of the following party: John Clarke, Judy Horgan, Brian Howard, Esther Kafer, Alfred Menninga, Hans Peter Münger, Dr. Paul Plummer.)
MT. SIRENIA" (9500 feet). May 1.
"DUGONG PEAK" (9100 feet). May 2.
"MANATEE PEAK" (9300 feet). May 3.
"REMORA PEAK" (9000 feet). May 3.
"OBELIA PEAK" (9200 feet). May 3.
"WAHOO TOWER" (9450 feet). May 4.
"MERMAID PEAK" (9000 feet). May 4.
"BONITO PEAK" (9100 feet). May 5.
"OLUK PEAK" (9200 feet). May 5.
"DOLPHIN PEAK" (8900 feet). May 5.
"TEREDO PINNACLE". May 9.
"ALBACORE PEAK" (8900 feet). May 9.
"MARLIN PEAK" (8650 feet). May 10.

LILLOOET ICECAP—SILT LAKE AREA: (See article on page 172.)

"DELTA PEAK" (9300 feet). First ascent; July 10, 1967. Esther Kafer, Sheila Pilkington, Rena and Barry Hagen, Brian Howard. "MU PEAK" (9400 feet). First ascent; July 9, 1967. Party as above.

GARIBALDI PARK:

"GUNSIGHT PEAK" (7800 feet). First ascent; July 2, 1967. John Clarke. Ascent from Lillooet River Valley.

Purcell Mountains, B.C.

BUGABOO GROUP: (See article on page 205.)

NORTH HOWSER TOWER (first ascent of direct route on west face). Aug. 5-6, 1967. Bill Knowler, Gay Campbell, Peter Zvengrowski.

HAMILL CREEK REGION:

"MT. SEAMARK" (10,300 feet (?)). Reported as first ascent of east (higher) peak, summer,1967. Bruce Beck, Curt Wagner. Cairn found on lower west peak (10,000 feet (?)).

Selkirk Mountains, B.C.

LARDEAU RANGE: (See note on page 203).

"TRIPOD PEAK" (8610 feet). Presumed first ascent; July 30, 1967. William C. Fix and Terry Bech; up north face, down east ridge.

"SPYGLASS NORTH" (8666 feet). Presumed first ascent; July 30, 1967. Fix and Bech ; traverse west to east.

ROGERS PASS AREA:

THE RAMPART (8486 feet). East face, Aug. 29, 1967. Mike Wisnicki, Earle Whipple. (See note on page 203.)

Rocky Mountains

MT. SMITH (10,200 feet; in Harrison-Peck Group). First ascent; Aug. 21, 1966. T. W. Swaddle, J. G. Rokne.

MT. ASSINIBOINE (11,870 feet). New route on north face; July 1967. Joe Faint, Chris Jones, Yvon Chouinard. (See note on page 181.)

MT. ROBSON (12,972 feet). New route variation, July 13, 1967. Ted Davis and Steve Heim made what they believe to be a first ascent variation of Emperor Ridge by climbing the west face, directly to the right of that ridge, then continuing up Emperor Ridge above the face. The variation is a nice NCCS IV-6. First winter ascent; Dec. 23, 1967. Charles Locke, Chic Scott, Eckhard Grassmann, Don Gardner.

MT. EDITH CAVELL (11,033 feet). New route direct up north face; Aug. 19, 1967. Royal Robbins.

North face, below east summit. New route, 1967. Yvon Chouinard, Joe Faint, Chris Jones. (See note on page 205.)

CLEAR WATER GROUP (Escarpment Creek):

"KAHL PEAK" (ca. 10,100 feet). First ascent; July 20, 1967. H. Thompson, R. Wallace, E. Whipple.

"MT. MARTHA" (ca. 9700 feet). First ascent; July 22, 1967. L. Steams, B. Swan, D. Wilkin, Carmen and Earle Whipple.

CLINE RIVER AREA: (See article on page 182).

"CORNICE PEAK" (ca. 10,400 feet). 4 miles ESE of Mt. Stewart. First ascent; Aug. 1967 Tom Stengle, Howard and Sue Stidham, Earl McWhorter, Joe LaBelle, Guy Perry.

"BERTRAM PEAK" (ca. 10,000 feet). 3 miles ESE of Mt. Stewart. First ascent; Aug. 1967. Party as above.

"MT. METAWAMPE" (ca. 10,100 feet). 2 1/2 miles southeast of Mt. Stewart. First ascent Aug. 1967. Party as above.

NORTHERN ROCKIES (north of Mt. Sir Alexander): (See article on page 176.)

MT. PETRIE. First ascent; July 23, 1967. Don Morton, George and Marcia Wallerstein, Bob O'Dell, Tom Grenfell, Lyman Spitzer.

WALRUS MTN. First ascent; July 29, 1967. Party as above.

MT. PLASKETT. (9600 feet). Aug. 7. Party as above.

EASTERN PALLISER RANGE:

See the note on Page 209 re first ascents in a group of six peaks (9500-9800 feet) near the head of Waiparous Creek, Alberta.

"PEAK No. 1" (CASTLE PEAK). July 21. Eckhard Grassmann, Jon Rokne.

"PEAK No. 2". July 21. Party as above. "PEAK No. 3". July 21. Party as above.

"PEAK No. 5". July 22. Kirn Kubinsky, Louise Guy, Peter Lancaster.

MEMBERS ABROAD

East Africa-1967

By Don M. Woods

Lothar Kolbig and I joined the Iowa Mountaineers' 1967 African Expedition to the Ruwenzori, Mt. Kilimanjaro and Mt. Kenya. By air we arrived in Nairobi from New York via Frankfurt. In Nairobi National Park we saw our first African animals in natural habitat. Our party of eleven went by air to Entebbe, Uganda. In two microbuses, painted white with black stripes to resemble zebras, we could approach the animals without arousing suspicion. At Kampala, the capital of Uganda, we spent the night at the Park Hotel. Next day we drove to the Mountains of the Moon Hotel at Fort Portal. Here we boxed, sacked and labelled 45-lb. loads of food and equipment at Bhimji's store. Driving to the road head, 2 miles above Ibanda village, we camped out for the night alongside the Mobuku River.

By morning we were surrounded by dozens of black boys wanting to serve as porters. They were from the Bakongo tribe. For headman we picked Jovani Munuga and with his help selected 42 porters. Their wage was to be 6 shillings per day each, which is 84c. Selecting his load, carried

by a banana bark tump-line around his head, each one started off. A 7-mile tramp required 6 hours for some, less for others. We hiked through a flat area of tall grasses, some heavy jungle forest with many vines and flowers, a dense growth of bracken fern, heavy stands of tall bamboo, and finally reached a steep hogback covered with great hardwood trees. The first aluminum hut, Nyabitaba, was at 8800 feet elevation. A huge overhanging rock served as shelter for the porters, another for those who did not wish to sleep in the hut. The trail was mostly dry.

Next morning we climbed for a short distance and dropped 800 feet to the raging river. We crossed on a suspension bridge of rickety wire with wooden slats. Scrambling out of the canyon, we encountered a mile or two of trail through huge rocks, tedious and trying. Now followed miles of bogs with precarious footing. Hummocks of grass, sometimes a foot high, often 2-2 1/2 feet high, and from 1-3 feet apart, projected above a morass of black mud and ooze. Into this you would sink to your knees or deeper, if you missed a hummock. It was most exhausting. We passed the second hut, Nyamulegu, at 10,600 feet, and went on to Bigo hut at 11,300 feet. The trip was about 9 hard miles and took 8 1/2 hours for some. Much of the way was through forests of giant heather trees with hanging Spanish moss.

Beyond Bigo the terrible bogs continued for 6 more miles. We crossed a sun¬lit pass, and skirted Bujuku Lake to Bujuku hut at 13,000 feet. Along the way were countless giant groundsels and lobelias. Many took 5 1/2 hours. Two aluminum huts, built by the Uganda Mountain Club, afforded good shelter. One had bunks for 16, 12 of them outfitted with 2-inch foam rubber pads. In the smaller one there were 4 bunks but it was also used for our cooking and eating. Here we paid off all but 15 porters.

Next morning the 6 who climbed Mt. Speke, 16,042 feet, found the rock to the Speke Glacier very wet and slippery. A good route led across and around crevasses to the summit. Their day was foggy with poor visibility. Those of us who wanted to wait a day or so for better acclimatization were disap¬pointed. Weather conditions with heavy rains made climbing impossible.

By the next day one of the Speke climbers suffered chills and fever, head¬ache and nausea. Another had Cheyne-Stokes breathing. Neither had slept during the night. Evacuation was a necessity. Four left with 12 porters. The most serious was carried (on a metal stretcher found at the hut) nearly all the way to the Bigo hut. The porters alternated between loads and the stretcher. Fortunately the 2 invalids improved as they went lower and reached the cars on their own.

Meanwhile 7 of us with 3 porters went up to the Elena huts. The elevation was 14,900 feet. Here we found 2 A-frame aluminum huts, one sleeping 3 on the floor, the other 4, plus cooking and eating. The entire party climbed Alexandra Peak, 16,703 feet, the second summit of the Ruwenzori, next to Margherita Peak, 16,763 feet. Three climbers attempted the higher peak but were forced to descend by a white-out and difficult ice climbing only 200 feet from the summit. During the night we again had rain.

Returning to Bujuku hut in 2 1/2 hours, we found it good to be back. All night it poured with accompanying thunder and lightning. Mist hung over everything. Next morning we found bits of fresh snow on grass hummocks. Having only 3 porters, we waited a day. Our planned trip to Kitandara hut, with a climb of Mt. Baker, 15,889 feet, was called off. Some hiked out in one 16-hour day. Others took 2 days and I required 3 because of a sore knee. Due to the rain the trail was even worse. I spent nights at Nyamulegu and Nyabitaba huts, reaching the road at 12:30 the third day.

Our attention was now centred on Mt. Kilimanjaro. At the Kibo Hotel, elevation 4600 feet, we made arrangements to climb Kibo, its highest peak. Six of us with 13 porters and a guide,

Efatta, started out. An 11-mile jeep road led to the first hut, formerly called the Bismarck but now the Mandara, at 9000 feet. The first 4 miles were through beautiful cultivated plantations of bananas, coffee trees, and other tropical fruits and vegetables owned by the natives.

Arriving at the hut after about 4 1/2 hours, we were delighted to find a red and white checked cloth with yellow plastic dishes on the table. The food was excellent, served by our cook and porters.

The second hut, formerly called Peters but now Horombo, 12,325 feet, was 12 miles farther on and we made it in 6l/2 hours. The first mile was steep through a giant heather forest, then gradual climbing with 9 stream canyons to cross. Several furnished good drinking water. The final 7 miles to Kibo Hut at 15,535 feet took 4 hours. The route follows up through a pass then through a long basin between the two peaks of Kilimanjaro—Kibo, 19,340 feet, and Mawenzi, 16,890 feet. In the afternoon fog closed in. During the night snow fell, covering the basin between the two peaks. We rose at midnight, had tea and crackers, and left at 1 a.m. The temperature, usually freezing at this hour, was much warmer.

It is a long, gruelling grind to the crater rim through the lava scree. Efatta, Kyle Atkins, Jan Niedra and a German made the highest point, Uhuru. John Walker and our sixth member, an Englishman with his porter, made Gilman's Point, 18,635 feet, the lowest point on the crater and considered a summit climb. Lacking proper acclimatization, Freda Walbrecht and I turned back at 16,000 feet. Twenty-two of our total party of 30 Iowa Mountaineers made Gilman's Point. In addition, 2 bivouacked at Mawenzi hut and climbed Mawenzi Peak. The climbers descended to Peters hut for the night, Freda and I to the Bismarck in 8 hours. Reunited at the Kibo Hotel we paid the porters and left for the Narnanga Hotel in our bus, thence to Nairobi.

Our last objective was Mt. Kenya. By bus 6 of us went to Nanyuki, met Mrs. Amber Lockwood, who drove us to the roadhead in her Land Rover. Here we ate lunch and hiked 3 miles to a tent camp. An 11-mile hike over two high ridges and down, then up a final long slope, led us to Kami Tarn, 14,600 feet, at the base of Batian, 17,048 feet, and Nelion, the 2 summit towers of Mt. Kenya. These two are exceedingly austere and unfriendly rock peaks. There is a small aluminum hut here but we had 3 of Dave Lockwood's tents. Duffle was brought in by 12 pack horses, three of them zebroids. They are a cross between a mare and a male zebra and are brown with black stripes. We were told that they carry three times as much as a horse but eat twice as much.

Dave and 4 others left at 7 a.m. for the climb of Pt. Peter, 15,600 feet. It is a splendid rock climb with two excellent 4- and 5-class pitches. Jan and I climbed Pt. Lanana, 16,355 feet, an easy snow and rock scree climb. When the others returned, Dave and Father Braig went up to the amphitheatre below Batian and Nelion, to explore. Their verdict was that it would take 2 days for the climb and 2 climbers only, and at least 3 days if 4 went. We decided against it. Snow that night confirmed our decision.

At 6 a.m. next day Dave and I left for Pt. Peter. It was very cold. When we reached the 12-foot hand traverse my fingers were so numb with cold that I was afraid to trust them, so we came down. Three climbed Lanana and one climbed Pt. Dutton, 16,025 feet, after returning from Lanana. Once more it snowed at night.

After a good breakfast we started the long 14 miles out to the roadhead. Halfway out it started raining and kept it up for several hours. The trail was a series of bogs. When we reached the old road the last 4 miles were nothing but mud. We were certainly relieved to reach the Land Rover. At the Sports Club in Nanyuki we had a wonderful rest, bath and food, returning to Nairobi by bus.

SCIENTIFIC SECTION

Glacier Surges

W. S. B. Paterson

The Centennial Expedition enabled mountaineers to visit some of the most spectacular mountains in North America. It also incidentally enabled them to see, in Steele and Walsh Glaciers, examples of a rare and spectacular form of glacier behaviour, a surge. Many must have wondered why some glaciers behave in this way. This article will not provide any answers: the causes of glacier surges are still unknown. But perhaps a brief summary of what we do know may be of interest.

Isolated instances of glaciers making sudden rapid advances have been known since at least the beginning of this century. A glacier, after showing little sign of unusual activity for many years, starts to flow rapidly and its surface becomes transformed into a chaotic mass of séracs and crevasses. Typically the ice moves several miles in a few months or, at most, two or three years. (Such velocities, some 50 feet per day, are roughly 100 times those in normal glacier flow.) The rapid movement then suddenly stops.

A surge does not of course involve the rapid formation of large quantities of ice: it is merely a rapid down-valley movement of existing ice. The lower reaches of the glacier thicken, so that the ice towers above the old lateral moraines. Thickening is usually greatest near the terminus. Before a surge, the glacier, for a few miles above its terminus, may consist of stagnant ice, covered with a thick layer of rubble. This ice becomes reactivated and thickens greatly during the surge, and the boundary between active and stagnant ice advances as the surge proceeds. But this active terminus may not advance beyond the limits of the previously stagnant ice. In August 1967 for example, stagnant ice still extended more than a mile down-valley from the active terminus of Steele Glacier. Thus it is not strictly correct to speak of a "catastrophic advance". The term "surge" is preferable, while "galloping glacier" is popular with journalists.

During a surge, the surface level drops in the upper reaches of the glacier. The old surface level is often marked by fringes of ice left attached to the valley walls. Anyone who flew over the upper part of Steele Glacier must have noticed these, perhaps 200 feet above the present glacier surface. Tributary glaciers, their ends having been sheared off, form vertical ice cliffs at their junction with the main glacier. This is only a temporary condition however. The tributaries eventually start to move rapidly, and their surface levels drop. This happened in Hodgson Glacier, one of the main tributaries of Steele Glacier, during the winter of 1966-67.

The rapid discharge of ice from a tributary into the main glacier, or a normal discharge when the main glacier is stagnant, displaces part of the ice of the main glacier towards the opposite side of the valley. Thus the medial moraines, instead of running parallel to the valley walls as in a normal glacier, form a complex pattern of curves and bulb-like loops. In many cases, nearly identical loops are seen at intervals along the glacier. This suggests that surges occur repeatedly in the same glacier, although very few glaciers have actually been observed to surge more than once. (Tyeen Glacier in south-east Alaska is one: it surged in 1948 and in 1966.) The main features of these moraine patterns are not destroyed by a surge. This shows that different parts of the glacier must move roughly the same distance.

If a glacier has contorted medial moraines, and a long stretch of stagnant dirt-covered ice

near the terminus, one can be fairly certain that the glacier makes surges. Signs that the next surge is about to begin are much more subtle. None the less, Austin Post of the U.S. Geological Survey, who has studied surges extensively, predicted in 1960 that Steele Glacier would surge within the next few years.

Surging glaciers are found in many parts of the world. In addition to Alaska and the Yukon, they have been reported from the Andes, the Karakorams, the Pamirs and the Tien Shan. Arctic glaciers also surge: a large glacier in Ellesmere Island did so a few years ago. Several glaciers and small ice caps in Spitsbergen have surged, including one which advanced 13 miles, the greatest movement so far recorded in a surge, between 1935 and 1938. Glaciers in the same area do not necessarily surge at the same time. Susitna and Black Rapids Glaciers originate in the same icefield in Alaska. One surged in 1936-37, the other in 1953.

Surging glaciers are not found in all mountain areas however. Some hundred surging glaciers have been identified in the Alaska Range and the St. Elias Mountains: none in the Coast Mountains or Rocky Mountains. With perhaps one exception, no glacier in the European Alps appears to surge.

So much for what happens during a surge. Why does it happen? Normally, glaciers advance and retreat in response to changes in climate. However, as surges occur only in certain glaciers and in certain areas, as they occur periodically in the same glacier, and as glaciers in the same area surge at different times, some factor other than climate is probably responsible.

Two of the first people to study surges were Tarr and Martin of the American Geographical Society. They observed surges in nine glaciers in south-eastern Alaska between 1900 and 1910. They also suggested an explanation: the surges were a delayed response to the avalanching on to the glaciers of large amounts of snow and ice during a major earthquake in 1899. There was no evidence that large avalanches had in fact occurred. Moreover, two of the glaciers in question originate in wide basins; it is unlikely that avalanches could add significant amounts of material to them. Again, one might be tempted to associate the most recent surges in Alaska and the Yukon with the great Alaskan earthquake of March 1964. However, surges have occurred in glaciers hundreds of miles from the earthquake centre, whereas nearer glaciers have been unaffected. For these reasons, the "earthquake-advance" theory is now rather out of favour.

Most scientists think that a surge is brought about by some change in conditions at the bed of the glacier. A change in temperature is one possibility. An important factor as regards glacier flow is whether the ice at the glacier bed is at the melting temperature or below it. If the ice is frozen to the underlying rock, glacier movement will consist only of the plastic flow of the ice under its own weight. If the basal ice is at the melting temperature however, the glacier, perhaps lubricated by a thin layer of water, can also slide along its bed. Suppose now that, for some reason, the ice at the base of a glacier, originally frozen to its bed, was warmed up until it reached the melting point. The glacier could then start to slide. It has been suggested that this is how a surge might start.

One difficulty with this theory is to find a cause for the temperature change. There are other difficulties as well. Although no measurements have been made, it is likely that the surging glaciers in many areas are at the melting temperature, at least at their beds, whether a surge is in progress or not. Again, on this theory, one might expect surging glaciers to slide at speeds comparable with those of other glaciers, rather than a hundred times as fast.

Another suggested cause of a surge is an increase in the amount of water at the glacier bed. Such an increase might perhaps result from increased penetration of meltwater from the surface and sides during exceptionally warm summers. An increase in the amount of water at the bed

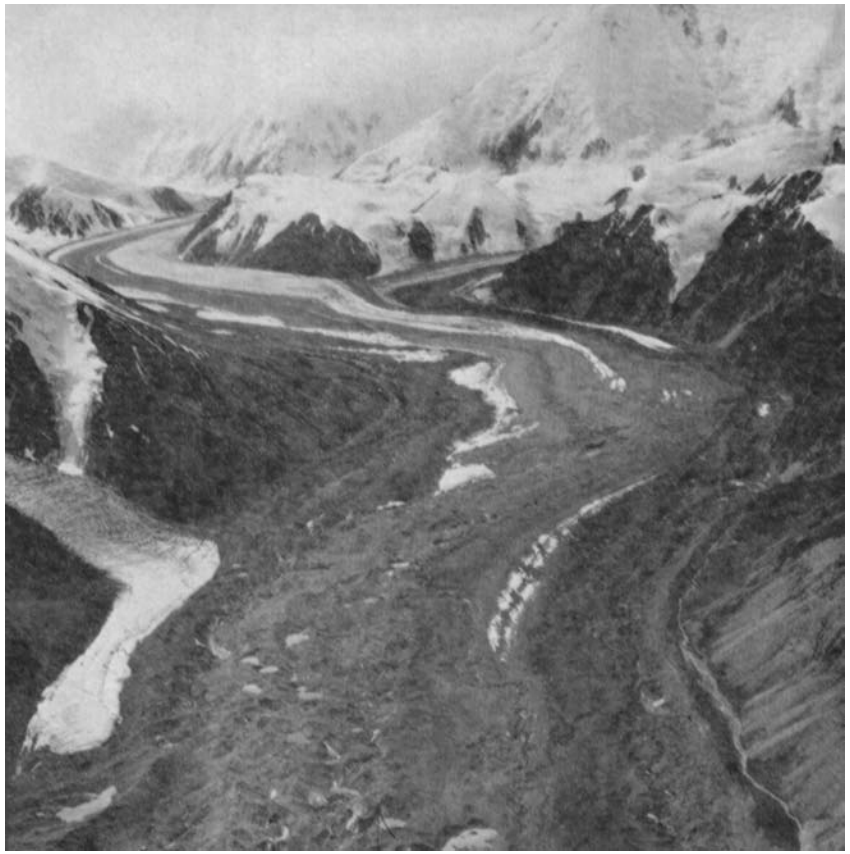


Photo Austin Post, U.S. Geological Survey

Steele Glacier, August 10, 1961

Mt. Steele (16,644 feet) at top right.

Photo: Austin Post, U.S. Geological Survey

Steele Glacier, September 17, 1966.

would, in theory at least, increase the sliding velocity. The detailed mechanism by which a glacier can slide over a rough bed, and the role of water in this process, are controversial topics at present. It is uncertain whether an increase in the amount of water at the glacier bed could produce the high velocities observed in surges.

In short, we don't know why a surge starts. Do conditions in the glacier build up over a period of years until some threshold is exceeded? Or is a surge suddenly triggered by some external factor? Or is a combination of both required? Nor are we sure exactly where the surge begins. It is not certain that it starts at the upper limit of the affected area. Effects could be propagated back up the glacier for some distance, as happens in the tributaries. The high velocities are also unexplained. Nor do we know why surging glaciers are found only in certain areas, or whether surges in one glacier occur at regular or irregular intervals.

Further investigation of these problems will not be easy. Most of the glacier is inaccessible during a surge: even routine measurements such as velocity or ice thickness become very difficult. How would one set about measuring the temperature at depth or the amount of water at the glacier bed? Observations before, during and after a surge are badly needed. But surges are completed in a few years or less: many are almost over before they are discovered. Fortunately, the Steele Glacier surge was noticed in its early stages in September 1965. The aerial photographs that have been taken should tell a good deal about movement and changes in thickness in different parts of the glacier during the surge. It is thought that "Fox Glacier", which lies between Steele Glacier and Mt. Wood, may surge within the next few years. Preliminary measurements were therefore made on it this past summer. These will be extremely valuable if a surge does take place. In such ways one hopes to obtain more data, a necessary first step to the understanding of glacier surges.

References.

Those wanting more information could consult the following:

Lliboutry, L. Traité de glaciologie. Masson et Cie. Paris, vol 2, p. 657-63, (1965).

Post, A. S. The exceptional advances of the Muldrow, Black Rapids, and Susitna Glaciers. Journal of Geophysical Research, vol. 65, No. 11, p. 3703-12, (1960).

Post, A. S. Alaskan Glaciers: recent observations in respect to the earthquake-advance theory. Science, vol. 148, No. 3668, p. 366-8, (1965).

Post, A. S. The recent surge of Walsh Glacier, Yukon and Alaska. Journal of Glaciology, vol. 6, No. 45, p. 375-81, (1966).

Post, A. S. Walsh Glacier surge, 1966 observations. Journal of Glaciology, vol. 6, No. 47, p. 763-5, (1967).

Mountain Temperatures

By J. Gardner[27]

During the past three years, studies on weathering and erosional processes have been carried out in the mountain area of the Lake Louise district (Gardner, C.A.J. vol. 49 (1966), vol. 50 (1967)). As part of these investigations, temperature data were collected at various sites in the area during the summer months. Most travellers in the high mountain areas have become aware, through experience, of the major characteristics of temperature conditions experienced there. Nevertheless, very few actual data are available in the mountaineering or scientific literature on mountain temperatures in Canada. The following paragraphs will probably not do much to fill the gap but they will present a few conclusions on such aspects as: temperature changes in the area over the last forty-five years; temperature change with gain in altitude; and temperature differences between north and south facing mountain slopes.

Lake Louise townsite is situated at about 5000 feet above sea level in the Bow River valley, and, as a result, cannot be considered as having temperature conditions representative of the surrounding mountain area. Temperature data have been collected at the townsite location since the early part of this century. In the following discussion, data for the period 1920 to 1965 will be considered. Some knowledge of the average conditions over such a period of time provides a sound basis for consideration of conditions as they exist in the surrounding mountains.

During the winter months in particular, this part of the Canadian Rocky Mountains is influenced by polar maritime air masses that have their origin in the Pacific Ocean off the Aleutian Islands. As these air masses proceed inland, they are forced to rise over the Cordillera with the consequence that most of the moisture they carry is precipitated onto the western slopes, leaving the eastern slopes with far less precipitated moisture. The eastern slopes of the Rockies also come under the influence of polar continental air masses that arise from the northwestern arctic interior of the continent. This air is largely responsible for the extremely cold and dry winter weather in the eastern part of the Rockies. In the main, the climate at Lake Louise is the result of the effects of these two air mass types and their interaction. Other air mass types do reach the area but their occurrence is less frequent.

The data from Lake Louise townsite indicate that the climate could be classified amongst the "snow forest" climate. January has been the coldest month with an average temperature of 6°F. while the warmest month, July, has an average (mean) temperature of 54.0 °F. The months of November to April all have mean temperatures below freezing (32°F.). The average annual temperature at Lake Louise is 31.6°F. Table I indicates that all the months of the year have maximum temperatures above freezing. Since 1920 the average maximum temperature in January has been 35.3°F. while in July the average maximum has been 85.0°F. These high maximum temperatures in an otherwise cold climate, particularly those in the winter months, exemplify the marked influence of the "chinook" or föhn wind. At the same time, all the months of the year have average minimum temperatures below freezing. July, for example, has an average minimum of 27.8°F. while the average minimum in January is a cool -34.0 °F.

The variability of temperature conditions from one year to the next is also of interest. It is alright to say that the mean temperature for January is 6.0°F. but one also might like to know how closely the January temperature for a given year will approach that value. A statistical measure

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called the standard deviation is used to indicate the year-to-year variability (see Table I). The analysis shows that while the January temperature is the lowest, it is also the most variable from year to year (standard deviation=8.6°F). On the other hand, July, the warmest month, has also been the least variable in temperature from year to year.

Table I
Temperature Record For Lake Louise Townsite 1920-1965

	Mean Temp °F		Mean Max °F	Mean Min °F
	X	S	X	X
Jan.	6.0	8.6	35.3	-39.0
Feb.	13.0	6.3	40.9	-32.2
Mar.	21.0	3.6	48.8	-26.1
Apr.	32.0	3.5	61.2	-4.3
May.	43.0	2.6	72.2	16.3
Jun.	49.0	2.2	78.4	24.6
Jul.	54.0	1.7	85.0	27.8
Aug.	52.0	2.1	81.7	25.9
Sep.	44.0	3.1	74.1	17.9
Oct.	35.0	3.1	63.9	3.9
Nov.	20.0	4.4	46.2	-19.3
Dec.	10.0	5.4	36.3	-34.2

Note: x refers to the average temperature; s is the standard deviation, a measure of the year-to-year variability from the mean temperature.

While the temperatures have shown varying degrees of variability from year to year, there are also trends in the data that indicate conditions are undergoing long-term changes. Very similar trends have been noted in Montana[28], while a general warming since 1880 has been noted in Canada[29]. Figure 1 illustrates the mean annual temperature values and the trace of the ten-year moving average temperatures. From 1920 until 1942 there was a general rise in mean annual temperature at Lake Louise. After reaching a high of 33° in 1942 there followed a general cooling until 1952. Since 1952 there has been a gradual rise in mean annual temperature so that it now stands close to 32°F.

In order to evaluate the temperature conditions as they exist today in the mountain area, data were collected at a number of different sites in the summers of 1965, 1966, and 1967. Air temperatures and the temperatures at the surface of the rock were recorded. Sites included in the study were: Moraine Lake, Plain of Six Glaciers, Mt. Temple—south face, the summit of Mt. Temple, Eiffel Peak—north face, Mt. Babel—north face, and Mt. Babel— northeast face. Table II summarizes the findings at these sites by using the statistics of average daily temperature, average daily range in temperature, average daily maximum temperature, and average daily minimum temperature.

Under normal conditions there is a general drop in temperature of 3.3°F. for every 1000 feet of altitude gained. Moraine Lake, which lies some 1000 feet higher than Lake Louise townsite,

28 Dightman, R. A. and M. E. Beatty, 1952. "Recent Montana Glacier and Climate Trends", The Toronto Meteorological Conference Monthly Weather Review.

29 Longley. R. W., 1954. "Temperature Trends in Canada", in Proceedings, 1953, p 207-211.

had a mean daily temperature of 3 to 4° cooler than that experienced at Lake Louise.

The Plain of Six Glaciers, almost 2000 feet higher than Lake Louise townsite, had a mean value of 53.9°F. compared to a value of 55.0°F. at Lake Louise. This is about 4° higher than the expected value if the lapse rate of 3.3° drop in temperature for every thousand feet of altitude gained held true. Generally speaking, the temperature values on the south face of Mt. Temple, the north face of Mt. Babel, and the northeast face of Eiffel Peak are also somewhat warmer than the expected values under normal lapse rate conditions.

During a two-week period in mid-July 1966, a continuous record of tem¬perature was kept on the summit of Mt. Temple (11,636 feet). The mean daily temperature during the period was 34.2°F. During the same period at Lake Louise, the mean daily temperature was 51.9°F. Therefore, under normal lapse rate conditions, the expected temperature on the summit of Mt. Temple would be 30.4°F. The results from the three summers indicate that a drop in temperature of 2.7° to 3.0° for every thousand feet of altitude gained might be a better approximation for the summer months. The study pointed up more than anything that the drop in temperature with gain in altitude is nowhere steady. It seems that local effects such as exposure to solar heating and exposure to prevailing winds influence the temperature conditions greatly at any altitude in the area.

The influence of exposure or direction the slope faces, is considerable as the figures in Table II indicate. Generally, south-facing locations experienced slightly warmer air temperatures and a greater day-to-day variation in air temperature than the north-facing locations.

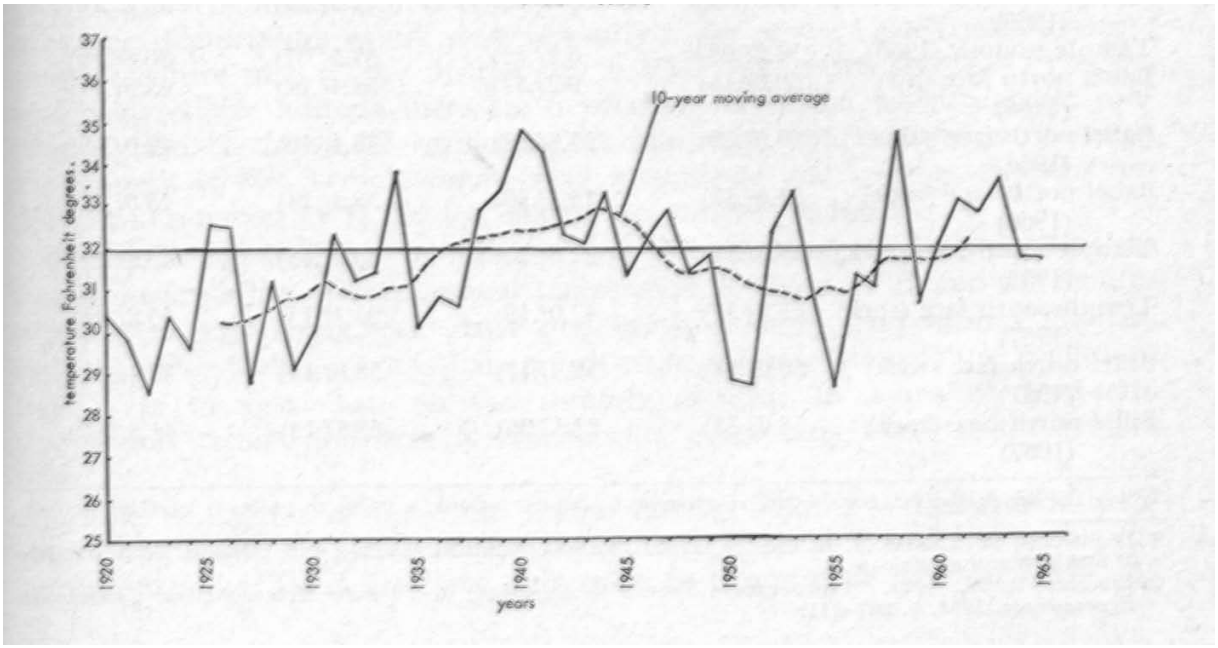

Figure 1 - Yearly Mean Temperatures at Lake Louise Townsite. 1920-1965

Rock-surface temperatures pointed out differences due to exposure more dramatically than did the air temperatures. The average daily rock-surface temperature on the south-facing slopes was 5 to 18° warmer than those on the north faces. Maximum temperature values were 10 to 30° warmer on the south faces. It is of interest to note that temperatures in the eighties and nineties were common on the rock-surface of the south face of Mt. Temple. While there was considerable discrepancy between the maximum temperature values recorded on the opposing exposures, the minimum temperature values were about the same.

Table II
Summary Of Temperature Conditions In The Lake Louise Area, 1965-1967
(All temperatures in °F)

Location & Time	Mean Daily	Daily Range	Mean Max.	Mean Min.
Lake Louise (1965)	55.3(.10)	29.2(.33)	70.1 (.14)	40.6(.12)
Lake Louise (1966)	51.6(.09)	30.9(.19)	67.0(.12)	36.3(.ll)
Lake Louise (1967)	56.5(.08)	37.3(.24)	75.2(.10)	38.0(.13)
Plain of Six Glaciers (1965)	53.9(.12)	13.4(.36)	60.5(.14)	47.1(.ll)
Moraine Lake (1966) Moraine	48.7(.ll)	16.9(.37)	57.2(.13)	40.1(.13)
Lake (1967) Temple south face	54.4(.09)	22.0(.31)	65.3(.12)	43.5(.09)
(air) (1966)	48.9(.14)	17.2(.41)	57.6(.16)	40.2(.14)
Temple south face (rock) (1966)	57.5(.16)	35.0(.38)	74.9(.20)	40.0(.14)
Temple summit (1966) Babel	34.2(.08)	6.7(.40)	37.5(.07)	30.8(.10)
north face (air) (1966)	50.0(.ll)	9.2(.37)	54.4(.12)	45.5(.ll)
Babel north face (air) (1966)	50.3(.09)	15.9(.22)	58.4(.10)	42.0(.10)
Babel north face (rock) (1966)	51.8(.12)	13.3(.39)	58.3(.14)	45.3(.ll)
Temple south face (rock) (1967)	59.3(.13)	22.6(.20)	70.6(.13)	47.5(.14)
Temple south face (rock) (1967)	68.7(.13)	47.0(.19)	91.7(.13)	45.2(.14)
Eiffel north face (rock) (1967)	50.6(.ll)	16.3(.17)	58.6(.ll)	42.4(.14)
Eiffel north face (rock) (1967)	53.6(.13)	21.1 (.26)	63.1(.13)	41.8(.14)

Note: the bracketed figures are the relative standard deviations, a value to indicate variability.

At 8000 feet above sea level, freezing temperatures were extremely rare during the summer months. The night time freezing only seems to become recurrent and effective in the second half of September. It was found that the average minimum temperature values were generally lower at the Lake Louise townsite than anywhere else in the district up to 8000 feet above sea level. For the region above this altitude there are insufficient data from which definite conclusions can be drawn. Nevertheless, the minimum temperatures recorded on the summit of Mt. Temple would seem to indicate that freezing temperatures are not uncommon at 11,000 feet during the summer months.

The data are sufficient to allow a few summarizing conclusions. At Lake Louise townsite the average annual temperature is about 32°F., and all months of the year experience both above and below freezing temperatures. January and the other winter months have much more variable temperature conditions from year to year than do the summer months. In terms of long-term temperature trends, this area is experiencing a warming trend at the present time.

In the mountains of the Lake Louise district there is a decrease in temperature with altitude

gain that is of the order of 3° per thousand feet during the summer months. There are some differences in temperature between north and south-facing mountain slopes. These differences are especially marked at or near the rock surface. As would be expected, maximum daytime temperatures on the south-facing slopes are far in excess of those on the north-facing slopes, while the minimum night time temperatures are approximately the same on both exposures.

Glacier Research In Canada 1967

By J. O. Wheeler

The following is summarized and extracted from the annual report of the National Research Council Sub-committee on Glaciers edited by Fritz Müller, Chairman. As usual the following synopsis stresses glacier studies in Western Canada with briefer descriptions of studies in the Canadian Arctic.

At present a major portion of the glacier research in Canada is directed towards long-term studies of the mass, energy and water balance of a number of selected glaciers in the Cordillera and the Arctic. Most of these investigations are part of the Canadian participation in the International Hydrological Decade.

Numerous maps have been produced, mainly by government agencies, on which perennial snow and ice masses are shown with more detail and greater accuracy than previously, making valuable contributions to the preparation of the I.H.D. Glacier Inventory. Two pilot studies for this inventory were successfully completed: 1) on the glaciers of the Steacie Ice Cap area of Axel Heiberg Island, N.W.T., and 2) on the glaciers of the Waputik Range of the Rocky Mountains, north of Lake Louise.

Glacier surges, as presently occurring in the Steele Glacier in the Yukon Territory, have gained considerable interest. Several glaciological and geological investigations have been initiated, and this Sub-Committee has started preparations for a "Seminar on the Origin and Mechanics of Surging Glaciers" to be held on 10 and 11 September 1968 at McGill University.

WESTERN CANADA

SOUTHERN CORDILLERA, BRITISH COLUMBIA AND ALBERTA (Glaciology Sub-Division, Inland Waters Branch, Department of Energy, Mines and Resources: A. D. Stanley).

Various studies were continued on 5 glaciers; Sentinel and Place Glaciers in the Coast Mountains, Woolsey Glacier in the Selkirks, and Peyto and Ram River Glaciers in the Rockies. A similar programme was started in co-operation with W. H. Mathews on Berendon Glacier 500 miles to the north of the Coast Mountains. The field programme was revised to eliminate winter visits while observations were continuous during the entire ablation period.

In the winter of 1966-67 the snowfall throughout B.C. was heavy, and in some areas accumulation was 20% to 30% greater than normal. Spring runoff was late and the snow at 2000 m. did not begin melting until late May. Despite the heavy snow pack on each glacier the mass balance for these glaciers was negative because ablation was exceptional in all areas but the north. On Peyto Glacier, particularly, most of the snow melted during the summer and by late September the snowline receded well above the normal position, exposing firn from the last three years.

ROCKY MOUNTAINS, ALBERTA

DRUMMOND GLACIER (University of Calgary: M. J. Chambers).

The accumulated information in the recession of the Drummond Glacier during the past 80 years is probably the most detailed available for any glacier in the eastern Rocky Mountains. Overall retreat is approximately 50 feet per year, but in fact the northern edge of the tongue is receding much more rapidly. The reason for this appears to be a decrease in supply of ice from the névé zone to the northern flank of the glacier. As the overall thickness of the ice decreases, so the bed-rock configuration has an increasing influence on the iceflow pattern.

Deformation of the stake line located approximately one mile above the ice front shows the movement on the northern side of the ice has also decreased, and is far less than at the centre or on the southern side, totalling only 16 feet in four years on the north, and 90 feet for the same period in the other sectors of the glacier. Measurements on these stakes show an average decrease in ice thickness of 2 feet per year.

ATHABASCA AND SASKATCHEWAN GLACIERS (Inland Waters Branch, Department of Energy, Mines and Resources, J. A. Reid).

During July 1967 these glaciers were surveyed by terrestrial photogrammetry and stakes near three boreholes tied-in to triangulation stations.

YUKON TERRITORY

THE ICEFIELD RANGES RESEARCH PROJECT (American Geographical Society and Arctic Institute of North America: R. H. Raigle).

The Icefield Ranges Research Project conducted its seventh field programme in the St. Elias Mountains between 15 May and 1 September 1967. Under the broad categories of earth and biological sciences, studies in eighteen disciplines were conducted by more than 38 investigators and their assistants.

"FOX GLACIER"

An intensive study of the "Fox Glacier" was begun in the anticipation that this small ice body may surge in the foreseeable future. Mass balance, surface movement, and water discharge measurements were initiated. A programme of seismic and gravity profiles and hot point drilling was carried out. Conventional and ground stereophotogrammetric surveying and mapping techniques were applied to the entire glacier surface and to periglacial features. A reconnaissance of the moraine sequences of the "Fox" valley was made.

STEELE GLACIER

The Steele Glacier continued its surging advance though at about half the rate of that observed in 1966. Ground triangulation in 1967 established a network of control which spans both the Steele and "Fox" glacier systems and is tied into the survey, conducted in July, by the Canadian Department of Energy, Mines and Resources.

Continuing a program of photo-chronology of the glacier begun in 1935, fifteen stations were occupied in 1967—five of them more than once—and photo panoramas taken. High oblique aerial photo coverage of the Steele Glacier— and of the "Fox"—was made on several occasions during the field season by IRRP.

RADIO ECHO SOUNDING

Appraisal of the Scott Polar Research Institute's airborne radio echo sounder for the study—and perhaps mapping—of glaciers in the St. Elias Mountains was begun. Flights over an established seismic profile gave promising results, and research will be continued in 1968.

GRAVITY MEASUREMENTS (Dominion Observatory, Department of Energy, Mines and Resources: J. R. Weber).

A gravity survey was carried out on the "Fox Glacier" in July to determine its thickness. A similar survey planned across the upper part of the Steele Glacier had to be abandoned because the glacier moved so fast that it was quite impossible to level the gravimeter.

MORAINE OF THE BIGHORN AND GRIZZLY GLACIERS (Geological Survey of Canada: N. W. Rutter).

The purpose of this study was to point out the contrasts in deposits formed by known surges and normal advances of alpine glaciers thus to provide criteria for recognition of these deposits in the glacial record. This was deemed necessary in order to prevent the erroneous interpretation that evidence of a glacial advance automatically implies a regional climatic change.

A recent "surge" moraine of the Bighorn and recent "normal" moraines of the Grizzly were selected for study because of their similarity in size, and climatic and geologic environment, and because of their proximity to each other and the surging Steele Glacier.

DEPOSITS OF THE SURGING STEELE GLACIER (University of Alberta and Research Council of Alberta: A. J. Broscoe).

Observations were made on the directions and rates of flow of ice at and near the terminus, and on sediment load and rate of flow of meltwater streams adjacent to the ice. The aim of the investigation was to obtain data which would distinguish the deposits of surging glaciers. The main concern was the mechanics of incorporation of debris into the surging glacier.

CANADIAN ARCTIC

BARNES ICE CAP (Geographical Branch, Department of Energy, Mines and Resources: O. H. Løken).

CENTRAL BAFFIN ISLAND

Mass budget measurements were made which revealed that the 1965-66 budget year showed a large deficit. The northeast-southwest asymmetry was evident with the heaviest mass loss on the southwest side. Movement studies indicated that all stakes inserted in May 1966 had moved more than 10 m. and suggest that the icecap is more active than previously assumed. Ice-depth measurements made by radio sounding techniques over about 80 km. on the southern part of the icecap reveal a maximum depth of 550 m.

DECADE GLACIER AND RIVER (Glaciology Sub-Division, Inland Waters Branch, Department of Energy, Mines and Resources: A. D. Stanley).

Accumulation measurements were taken but since all the snow had melted from the glacier by late July the mass balance was distinctly negative.

DEVON ISLAND (Arctic Institute of North America: K. de la Barre and R. M. Koerner).

A long-term recording meteorological station was set up on the northwest side of the icecap at an altitude of 1317 m. A traverse was made over the northwest, southeast, and southwest parts of the icecap. The 1965-1966 mass balance on the south side of the icecap was measured and the pattern of high accumulation in the southeast and low accumulation in the northwest was again recorded. The density of the August 1966 to June 1967 snow was the lowest on record.

MELVILLE AND MEIGHEN ISLANDS (Polar Continental Shelf, W. S. B. Paterson).

Mass balance measurements were continued on the four icecaps with all showing a net loss for the budget year 1965-66, the loss being greater than in any year since the start of measurements in 1963. The mean specific budget for 1965-66 for the Meighen Island icecap showed a deficit. Temperatures in the bore hole through the icecap were measured and agreed closely with those of the previous year.

AXEL HEIBERG ISLAND (McGill University: F. Müller).

(a) Mass Balance

The stake network on the White and Baby glaciers, established in 1960 and 1961, was maintained and surveyed twice; once in the spring and once in the fall. Pit studies were carried out on both occasions in an effort to assess not only the net mass balance of these two glaciers but also, in approximation, the gross mass exchange.

1966-67 winter snowfall in the area was average. The melt started early, on 15 May, however late June and all July brought bad weather with low temperatures, heavy overcast, frequent fog and snowfall. Consequently the equilibrium line on the White Glacier was lower than usual, at approximately 750 m. above sea level. The mass balance of the glacier was positive, though less markedly so than in 1964.

(b) Weather Observations and Automatic Climatological Stations

Six-hourly synoptic observations were carried out by J. Whiting and A. Ohmura from 17 May until 8 September and transmitted to Eureka and Resolute. The automatic climatological stations, at the base camp and near the equilibrium line on the White Glacier, had performed satisfactorily during their second winter of operation (1966-67). Between 17 May and 8 September approximately 2500 man-observations were collected under various weather conditions for evaluation of the automatic stations. During August and the first week of September a test program was carried out on a new German-made automatic climatological station which records the data on a digital punch tape capable of storing a year's three-hourly interrogation of eight sensors. So far only two sensors, humidity and temperature, have been tested; the overall performance proved to be excellent. A modified and improved version with seven or eight sensors is in preparation for next summer. Automatic stations of the type under development are essential tools for the study of the relationship between the climatic fluctuations and the changes in the snow and ice masses.

(c) The Thompson Glacier Push Moraine

The snout of the Thompson Glacier and its push moraine, still advancing at approximately the same rate as observed since 1959, were successfully rephotographed from 8000-foot and 11,600-foot levels.

NORTHERN ELLESMERE ISLAND (Defence Research Board: G. Hattersley-Smith).

(a) Tanquary Fiord Area

Mass balance and movement studies were continued on Per Ardua Glacier for the fourth successive year.

(b) Gilman Glacier, Central Icecap and Air Force Glacier

A traverse from the snout of the Gilman Glacier via the icecap to the snout of the Air Force Glacier indicated that the four summers 1963-1966 were the coldest sequence of summers since before 1925, that the former percolation facies of the icecap above 1800 m. had been changed to a dry-snow facies, and that the equilibrium line on the glaciers had been lowered to about 900 m. from a mean of about 1200 m. above sea level in the years 1957-63.

GENERAL

AVALANCHE RESEARCH (Snow and Ice Section, Division of Building Research National Research Council: L. W. Gold).

Observations continued at Rogers Pass, B.C., on the properties of avalanches and their dependence on the characteristics of avalanche site. Correlations are 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. The purpose of the studies is to develop 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 avalanche that might occur at a given site and the maximum amount of snow that may be brought down in one winter. Observations are made on the speed and impact pressures associated with avalanches. Attention is also given to improving methods of estimating and predicting the avalanche hazard, and to problems associated with building in deep snow areas.

GLACIER INVENTORY (McGill University: F. Müller, and Glaciology Sub-Division, Inland Waters Branch, Department of Energy, Mines and Resources: A. D. Stanley and C. S. L. Ommanney).

For the "Guide to the World Inventory of Perennial Ice and Snow Masses on and beneath the Land Surfaces" which gives instructions for a glacier inventory, two pilot studies were conducted in Canada—one in the Arctic and the other in the Rocky Mountains. The pilot study located in the SW part of Axel Heiberg Island (79°N, 90°W) included some 200 polar glaciers of many different types. The Rocky Mountain study was carried out in the Waputik Range (52°N, 116°W) where 100 temperate glaciers, mainly of the valley or cirque type, were assessed. In each area the critical problems of inventory making—identification, area delineation, snow line assessment and error estima¬tion—were investigated. Reproduction of results to ± 2% was obtained for area measurements using a dot planimeter and a random grid overlay.

A map was prepared by the Glaciology Sub-Division in late 1965 to show the distribution of existing glaciers in southern British Columbia and Alberta. This was the first of a series of 7 maps to cover all glacierized areas in Canada at a scale of 1 to 1 million. Significant data including location of meterological stations, snow courses and stream gauging stations are shown as well as the outline of glaciers as represented on the best available maps at the 1:250,000 scale or larger. All maps of the series have now been compiled and will be available early in 1968. On existing 1:250,000 maps the area of Canada covered by glaciers is 204,000 km2.

Mountaineering Accidents In Canada's Mountain National Parks

By J. W. Thorsell[30]

> "It is important to affirm and prove that we go to the mountains to live and not to die ; that we are not fanatics but firm believers ; and that the few accidents which occur are hard but not useless lessons . . ."
>
> Guido Rey as quoted by J. Monroe Thorington in "A Climber's Guide to the Rocky Mountains of Canada".

Introduction

An accumulation of authoritative data on the record of mountaineering accidents in Canada is long overdue. This survey begins the project by utilizing Park Warden Service accounts on accidents that have occurred in the Canadian Mountain National Parks. Since 1951, the National Park Warden Service Rescue Team, under the expert direction of Chief Warden Walter Perren, have kept detailed records of the many varied and indeed lifesaving rescues they have been called upon to undertake. Only the mishaps of a truly mountaineering nature have been abstracted for this study. Although other accidents did occur before official records were kept in 1951, the majority of accidents that took place in the study area are considered here. It is hoped that this analysis will be useful to park managers and mountaineers alike in formulating preventative measures and for noticing trends and patterns of use. As Dr. Walter Wood commented in the introduction to the American Alpine Club's first safety report (1948, p. 1): "Only through the co-operation of all who love the mountains can ignorance be replaced by experience, sound discretion and mature judgment. Safe climbing means more enjoyment."

Accident Chronology

In 1896 Philip Abbot fell nine hundred feet while leading a first attempt on Mount Lefroy and thus became the first mountaineering accident victim in the Canadian Rockies. In the subsequent 71 years of growing mountaineering activity in the parks, a total of 76 major accidents have been recorded resulting in 50 deaths and 63 rescues. Compared to the European record where over 300 were killed on mountains in 1966 and to Great Britain where about 200 mountaineering accidents occur each year, the Canadian National Park figure may be considered quite low. Since 1951 when detailed records have been kept, there has been an annual average of 3.9 accidents, 2.6 fatalities, and 3.5 rescues in the mountain parks. The year 1955 was the worst year when 9 deaths occurred, 7 of them in one accident. As Table I indicates, the number of accidents has fluctuated annually with a general increase in rate from 1951 to 1967 concomitant with the increase in use.

Table I
Accidents By Year—Mountain National Parks

Year	No. of Accidents	No. of Persons Rescued	No. of Fatalities
1967	3	3	1
1966	2	2	1
1965	6	7	1

30 National Parks-Planning, Department of Indian Affairs and Northern Development, Ottawa. The writer would like to pay tribute to the man who brought mountain rescue to Canada, the late Walter Perren, for his assistance in providing data for this study.

1964	8	6	3
1963	6	7	1
1962	5	3	2
1961	6	8	1
1960	5	12	0
1959	5	5	4
1958	2	2	1
1957	2	0	2
1956	4	1	3
1955	4	1	9
1954	3	0	6
1953	1	1	0
1952	1	0	1
1951	1	1	1
Total	**64**	**58**	**37**

Accident Rate Estimation

To obtain a crude accident rate it is estimated that since 1951 approximately 17,000 climbing permits have been issued by the Warden Service in the five Mountain National Parks.[31] On the basis of present knowledge of average size of party (2.7 climbers) and average duration of trip (1.3 days), a very approximate total of 60,000 man-mountain days of use is arrived at.

Number of man-mountain days 60,000
Total number of people involved in accidents.....93
Estimated accident rate per 1000 man-mountain days 1.55
Total number of fatalities 36
Estimated mortality rate per 1000 man-mountain days 0.60

These crude figures of 1.55 and 0.60 compare to an accident rate of 2.31 and a mortality rate of 0.60 as found by Ferris (1963) in the United States and to 2.04 accidents per 1000 man-mountain days as found by the American Alpine Club (1955). As Ferris has noted, although the accident rate for mountaineering is comparable to other outdoor sports the mortality is significantly higher.

Accident Locality

Several peaks account for most of the accidents. All are easy access peaks and popular climbs. In fact all accidents since 1951 have occurred within five miles of a park highway. It is interesting to note that a novice peak such as Mount Rundle claimed three lives in four accidents while the equally popular but much more difficult Mounts Edith and Louis have never had a major accident. This might be explained by the fact that inexperienced people usually do not attempt the latter without a qualified guide and that ordinary precautions on the seemingly easy peaks are foregone. (See Table II .)

31 National Park Service regulations state that all persons climbing or ski touring in the Parks must register in and out with Park Wardens. For the past five years these records provide a quite accurate record of the number of persons climbing in the Parks.

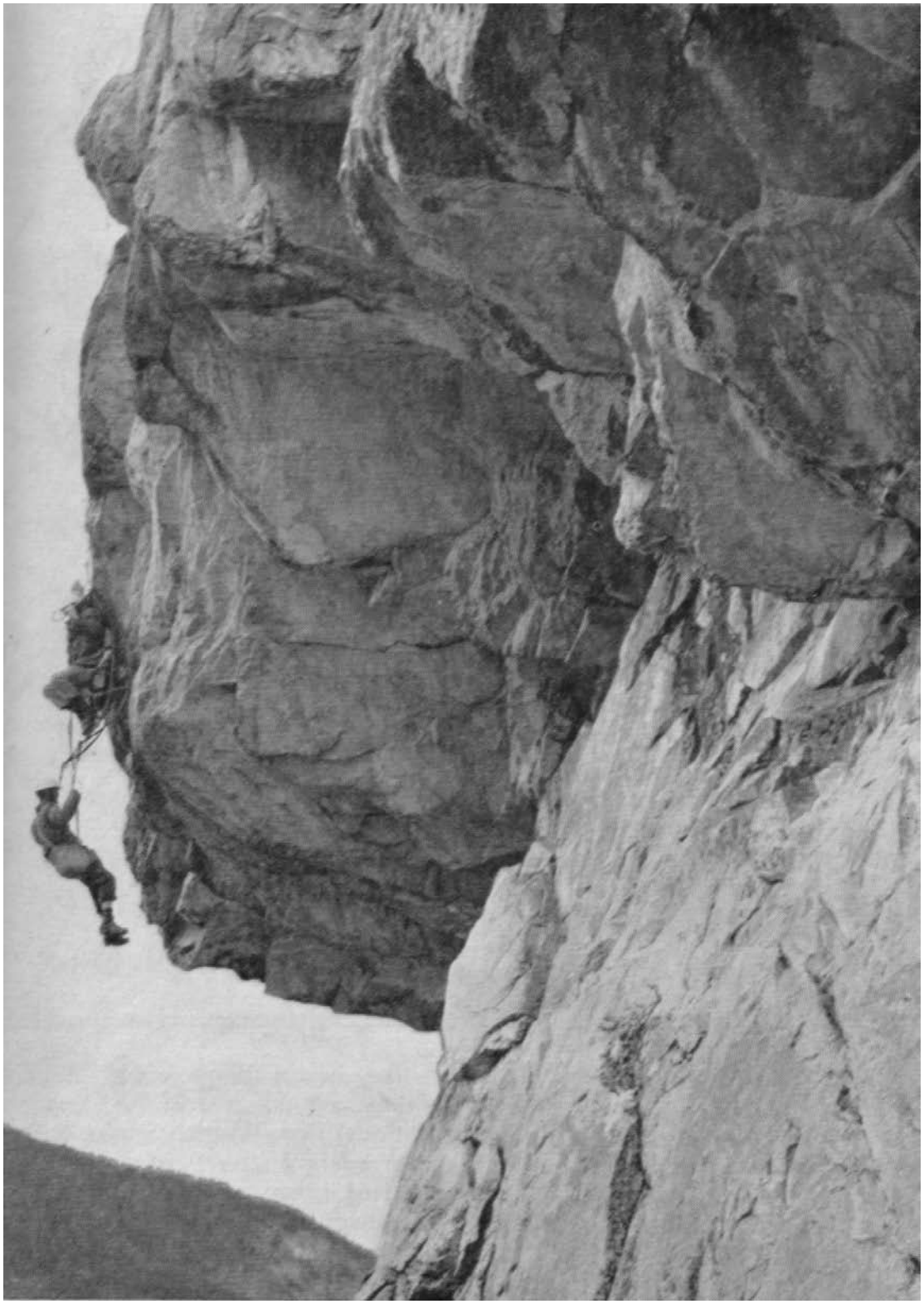

Photo: Courtesy Banff National Park Warden Service.

Chief Warden in charge of mountaineering for National Parks, (the late) Walter Perren conducts a rescue school on Tunnel Mtn. in Banff National Park. The "injured" warden is being lowered to safety in a Graminger rescue seat.

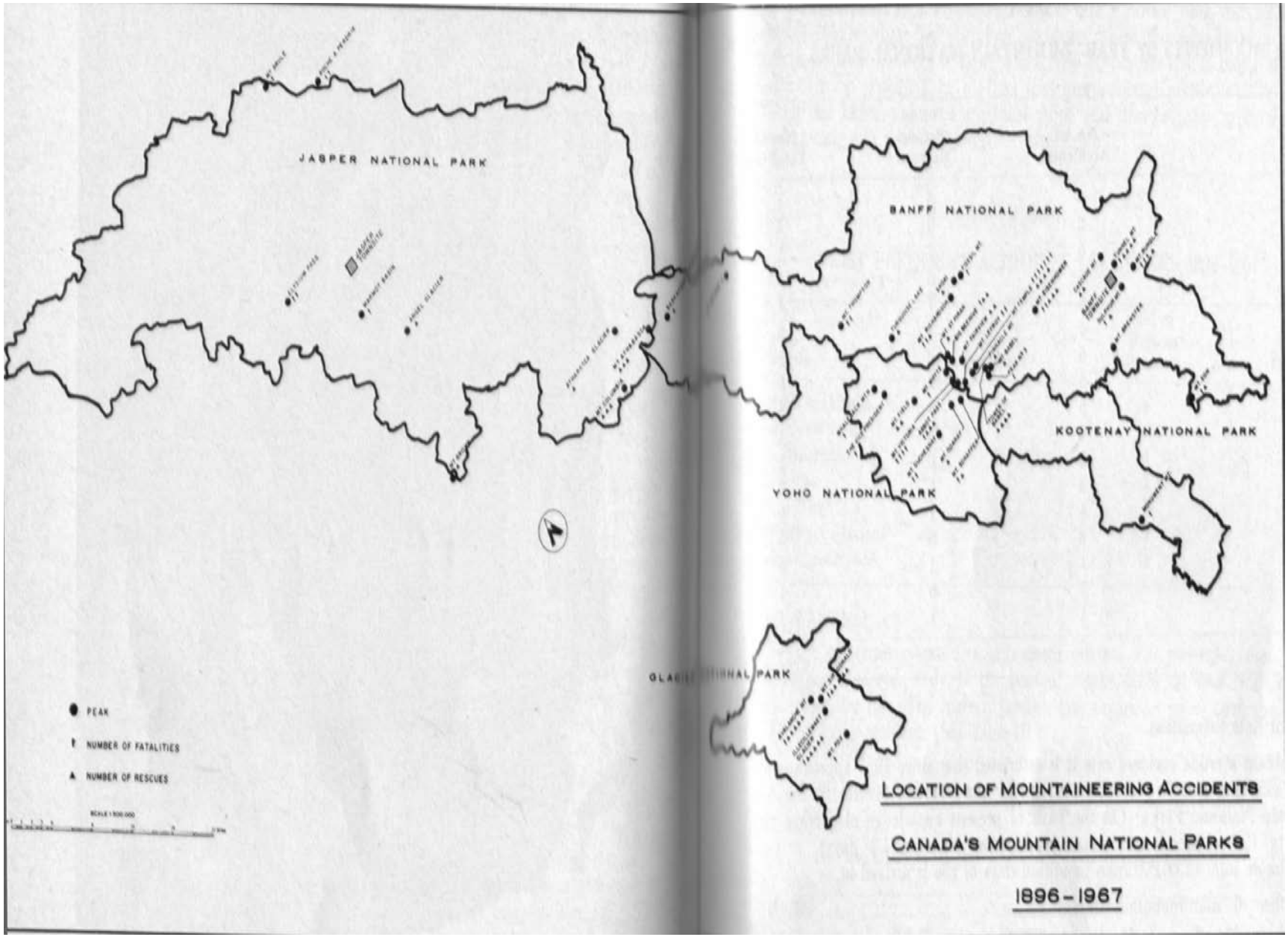
JASPER NATIONAL PARK
BANFF NATIONAL PARK
KOOTENAY NATIONAL PARK
YOHO NATIONAL PARK
PEAK
NUMBER OF FATALITIES
NUMBER OF RESCUES
LOCATION OF MOUNTAINEERING ACCIDENTS
CANADA'S MOUNTAIN NATIONAL PARKS
1896 - 1967

Table II
Most Frequent Accident Localities 1896-1967

Mountain	No. of Accidents	No. of Persons Rescued	No. of Fatalities
Mount Sir Donald	4	5	1
Tunnel Mountain	4	4	1
Mount Rundle	4	1	3
Abbot Pass	4	3	1
Mount Temple	3	4	7
Illecillewaet Glacier	3	5	1
Mount Eisenhower	3	3	2

Type of Accident

By type of terrain, more accidents occur on rock (57 per cent) than on all other types. However, only 40 per cent of deaths occur on rock, indicating a lower mortality rate. The highest fatality rate occurs on snow terrain with 1.3 deaths for every accident. (See Table III.)

Table III
Accidents By Type Of Terrain 1896-1967

Type of Terrain	No. of Accidents	No. of Persons Rescued	No. of Fatalities	Accident/ Mortality Ratio
Rock	43	37	20	0.48
Glacier	14	17	6	0.42
Snow	7	7	10	1.43
Ski-Mountaineering	12	2	14	1.16
Total	**76**	**63**	**50**	**0.67**

Reasons for Accidents

The exact reason for an accident is a moot point in accident analysis. Often the victim is climbing alone or unseen by his companions. Usually too there are contributing causes such as inexperience, bad weather, climbing unroped, or poor physical condition, none of which can be assessed in importance on paper accounts. The usually obvious and immediate causes have been grouped into twelve categories in Table IV.

Table IV
Causes Of Mountaineering Accidents In The Canadian National Parks 1896-1967

Cause	No. of Accidents	No. of Persons Rescued	No. of Fatalities	Accident/ Mortality Ratio
Slip on Rock	20	10	11	0.55
Caught in Avalanche	12	2	19	1.58
Fall in Crevasse	11	10	2	0.18
Loose or Falling Rock	10	6	6	0.60
Lost or Stranded	9	17	1	0.13
Loss of Control on Glissade	4	1	3	0.75
Slip on Snow or Ice	4	11	4	1.0
Missing	2	0	3	1.50
Exhaustion	2	2	0	0.0
Hit by Lightning	1	2	0	0.0
Failure of Equipment	1	2	0	0.0
Total	76	63	49	0.66

It is apparent from Table IV that although a slip on rock is the most common reason for a mishap, the most lethal mishaps are caused by avalanches, with an average of 1.58 deaths resulting from each accident. In all but one of the accidents caused by avalanches victims were skiing in known and posted avalanche areas. There were two incidents of physiologically caused accidents (pulmonary edema?) and one instance (Sir Donald, 1964) where this was an important contributing cause.

Literature Cited

AMERICAN ALPINE CLUB
1948-1966 Accidents in North American Mountaineering.
Annual Report of the Safety Committee.

FERRIS JR., B. G.
1963 Mountain Climbing Accidents in the United States.
New England J. of Medicine. Vol. 268, No. 8, p. 430-31.

KIRKMAN, N. F.
1966 Mountain Accidents and Mountain Rescue in Great Britain.
British Medical J. Vol. 1, p. 162-164.

Appendix
Mountaineering Accidents In The Mountain Parks 1896-1967

BANFF NATIONAL PARK

Year	Site	No. of Fatalities	No. of Persons Rescued	Type of Accident	Immediate Reason
1967	Gonda Traverse	0	2	rock	Lost or stranded
1966	Mt. Babel	0	2	rock	Failure of piton
1965	Big Beehive	0	2	rock	Slip on rock
1965	Gonda Traverse	0	1	rock	Loose or falling rock
1965	Tower of Babel	0	1	rock	Exhaustion (?)
1964	Peak No. Three	1	0	rock	Loose or falling rock
1964	Fairview Mt.	1	1	rock	Lost or stranded
1964	Mt. Rundle	0	0	rock	Missing
1964	Mt. St. Piran	1	1	snow	Loss of control in Glissade
1963	Pinnacle Mt.	0	1	rock	Loose or falling rock
1963	Fairview Mt.	0	1	rock	Slip on rock
1963	Skoki	0	1	ski mt.	Slip on snow
1963	Saskatchewan Glacier	0	1	glacier	Fall in crevasse
1962	Turquoise Lake	0	1	rock	Exhaustion (?)
1962	Tower of Babel	0	1	rock	Slip on rock
1962	Mt. Eisenhower	1	0	rock	Slip on rock
1962	Abbot Pass	0	1	glacier	Fall in crevasse
1961	Mt. Eisenhower	0	0	rock	Slip on rock
1961	Abbot Pass	0	1	glacier	Fall in crevasse
1961	Gonda Traverse	0	1	rock	Slip on rock
1961	Mt. Rundle	0	1	rock	Slip on rock
1961	Mt. Temple	0	1	rock	Loose or falling rock
1960	Cascade Mt.	0	2	rock	Lost or stranded
1960	Mt. Eisenhower	0	3	rock	Lost or stranded
1959	Mt. Temple	0	3	rock	Lost or stranded
1959	Mt. Rundle	1	0	rock	Loose or falling rock
1959	Abbot Pass	1	0	glacier	Fall in crevasse
1959	Tower of Babel	0	2	rock	Lost or stranded
1959	Mt. Thompson	2	0	ski mt.	Avalanche
1958	Sulphur Mt.	1	1	rock	Loose or falling rock

1957	Mt. Richardson	1	0	ski mt.	Avalanche
1956	Mt. Whyte	1	0	rock	Slip on rock
1956	Lower Victoria Gl.	0	1	glacier	Fall in crevasse
1955	Mt. Temple	7	0	snow	Avalanche
1955	Brewster Mt.	1	0	ski mt.	Ski over cliff
1955	Big Beehive	1	0	rock	Slip on rock
1954	Mt. Rundle	1	0	rock	Slip on rock
1954	Mt. Victoria	4	0	glacier	Slip on snow
1952	Tunnel	1	0	rock	Slip on rock
1945	Mt. Richardson	1	1	ski mt.	Avalanche
1933	Fossil Mt.	1	0	ski mt.	Avalanche
1927	Mt. Lefroy	1	0	snow	Loss of control in Glissade
1927	Mt. Wilson	1	0	rock	Slip on rock
1927	Mt. Redoubt	2	0	rock	Missing
1921	Mt. Eon	1	1	rock	Loose or falling rock
1896	Mt. Lefroy	1	0	rock	Slip on rock

JASPER NATIONAL PARK

Year	Site	No. of Fatalities	No. of Persons Rescued	Type of Accident	Immediate Reason
1967	Roche a Perdrix	1	0	rock	Slip on rock
1966	Roche a Perdrix	1	0	rock	Slip on rock (?)
1965	Angel Glacier	0	1	glacier	Fall in crevasse
1964	Athabasca Glacier	0	1	glacier	Fall in crevasse
1964	Mt. Athabasca	0	2	glacier	Lightning strike
1960	Mt. Athabasca	0	1	snow	Avalanche
1957	Brule Mt	1	0	snow	Loss of control in Glissade
1956	Marmot Basin	1	0	ski mt.	Avalanche
1953	Mt. Brown	0	1	rock	Slip on rock
1948	Mt. Columbia	0	3	rock	Lost or stranded
1938	Elysium Pass	2	0	ski mt.	Avalanche

YOHO NATIONAL PARK

Year	Site	No. of Fatalities	No. of Persons Rescued	Type of Accident	Immediate Reason
1967	Mt. Schaffer	0	1	rock	Slip on rock
1963	Vice President	1	0	glacier	Fall in crevasse
1962	Whaleback Mt.	1	0	ski mt.	Avalanche
1960	Mt. Field	0	1	rock	Slip on rock
1955	Mt. Field	0	1	rock	Lost or stranded
1951	Mt. Odaray	0	1	rock	Loose or falling rock
1938	Mt. Schaffer	1	0	ski mt.	Avalanche
1933	Mt. Duchesnay	2	0	ski mt.	Avalanche

KOOTENAY NATIONAL PARK

Year	Site	No. of Fatalities	No. of Persons Rescued	Type of Accident	Immediate Reason
1957	Monument Mt.	1	0	rock	Slip on rock

GLACIER NATIONAL PARK

Year	Site	No. of Fatalities	No. of Persons Rescued	Type of Accident	Immediate Reason
1965	Illecillewaet Gl.	1	0	ski mt.	Lost or stranded
1965	Mt. Sir Donald	0	2	glacier	Fall in crevasse
1964	Mt. Sir Donald	1	0	rock	Loose or falling rock
1964	Mt. Sir Donald	0	1	rock	Slip on rock
1963	Mt. Sir Donald	0	2	glacier	Fall in crevasse
1961	Illecillewaet Gl.	0	4	glacier	Slip on Ice
1960	Avalanche Peak	0	5	snow	Slip on snow
1958	Illecillewaet Gl.	0	1	glacier	Slip on Ice
1954	Mt. Fox	1	0	rock	Loose or falling rock
1909	Avalanche Peak	1	0	snow	Loss of control in glissade

CLUB CAMPS, PROCEEDINGS, AND SECTION CAMPS[32]

1967 A.C.C. Ski Camp - Tonquin Valley

Art Schwartz

Twenty-six people attended the 1967 Ski Camp, based at the Wates-Gibson Hut in the Tonquin Valley of Jasper National Park. This included guide Leo Grillmair and cook Myrna Collins; Myrna's early departure was the saddest event of the 10-day camp.

Weather during the first half of the camp ranged from rotten to indifferent, with obvious effects on the skiing. The first day was spent clearing snow from the hut roof, rescuing the "Ladies" from the drifts, and skiing on small slopes within easy reach of the hut. Restoration of the "Ladies" came close to costing us our guide, who suddenly found himself bridging a rapidly widening chimney with the pit yawning beneath him, while onlookers made remarks calculated to lift his spirits, and took pictures. A rescue was eventually effected.

Attempts at the Fraser Glacier on Sunday and Monday were both turned back by poor weather and bad light. Complete absence of shadow made it impossible to tell where the bumps were and which way was up. Wind added to this bad light gave the impression of moving while actually standing still, and the other way round. By the end of the third day, the small practice hill was packed hard.

Another attempt at the Fraser on Tuesday reached the col, but the weather meant no view from the top, and the run down was not as good as it could have been, once again because of bad light.

Wednesday saw the weather break, and a large party headed into the Eremite Valley in bright sun, which lasted to the foot of the last slope below The Angle-Three Blind Mice col. Here the party split, most heading for the col itself, while three headed for the summit of Three Blind Mice. Both descents were made in white-outs, though conditions improved with a drop in altitude. Snow began to fall in the evening and continued into the next morning.

When the snow cleared well into Thursday morning, a party of four was on its way to the first ski ascent of Thunderbolt (first winter ascent, 1939), and a larger group was back on the Fraser Glacier, hoping for weather good enough to give a chance at the new powder. Clouds swelling up in the valley behind forced a retreat before the col once again, but the party was high enough to enjoy a long run down on 6 inches of fresh powder, which made for magnificent skiing. Turkey dinner finished off the day, and the dessert put everyone into even better spirits. The quartermaster and his assistants deserve a vote of thanks for that one.

The next day was the climax of the camp. Perfect weather saw everyone up to the top of the Fraser, and a party of sixteen going on to the summit of McDonell, which was crowded. Visibility was clear over a wide radius, with impressive views of the Ramparts, Cavell, and a multitude of lesser peaks in all directions.

The descent was the best skiing of the year. Even so, we were all eager to stop regularly along the way to watch others making new tracks of their own or adding more threads to the network already strung across the snowfield. Every style of skiing, from the agonised snowplow

32 The Club's Kootenay Section staged a "Pocket Alpine Centennial Expedition" during the last week of July 1967 in Earl Grey Pass, Purcell Mountains, B.C. An account of that camp is given on pages 37-60A of the Fall 1967 issue (Vol. 7) of that Section's publication The Kootenay Karabiner.

to the turns that threw up six-foot plumes, had something to add to the effect.

Camp began to break up the next day, when about one third of those present packed up and skied out. Wayne Smith and Jack Whellams, the camp tigers, charged up Clitheroe, while others ambled partway up the Fraser or toured in the Amethyst Lakes area, with the weather still perfect.

Though Bill Ruddy's skidoos were available, the hardier types packed out on the Sunday, the whole party making the trail in under 4 hours. Bright sun, blue skies, and a magnificent view of Cavell from the viewpoint brought a fitting close to a fine camp.

Annual General Meeting, 1967

The 62nd Annual General Meeting was held at the Banff Club House on August 27th, 1967, at 10:00 a.m.

The President, Roger Neave, occupied the chair and Miss Elizabeth B. Walker acted as Secretary for the meeting, with 68 Members in attendance.

The President welcomed those who attended the meeting, this being the first time the Annual General Meeting had been held at the Club House. A special welcome was extended to our Honorary Member Mrs. Phyl Munday who was recently elected an Honorary Member of the American Alpine Club.

It was moved by Miss Lillian Gest and seconded by Val Stewart that the minutes of the 61st Annual General Meeting be adopted as printed in the 1967 issue of the Canadian Alpine Journal. Carried.

It was with regret the President read the names of those who had passed on since the last Annual Meeting: Mrs. Mary L. Jobe Akeley, Brian R. F. Cook, A. Neil Brown, Heinz Kahl, Dr. A. H. Rolph, D. M. Sinclair, Lorin Tiefenthaler, David Measuroll, Miss V. G. Walters, Peter Whyte. The sympathy of the Club was extended to the families and friends of the deceased.

Camp and Expeditions Committee Report:

The Alpine Club of Canada Board of Management made allowances for a Camps and Expeditions Standing Committee last summer, and appointments to it in the autumn. This year the committee has been responsible for the supplies and equipment for all phases of the Yukon Alpine Centennial Expedition, sponsored largely by the Canadian Centennial Commission and administered by the A.C.C. All Club equipment for which the committee is responsible has now been inventoried, and all existing tentage has been inspected and where advisable, repaired. The repairs amounted to $1,032.75, plus an additional $62.05 for extra tent packing bags. The tents averaged approximately $12.00 each for the inspection and repairs. Most tents were found to contain varying amounts of mildew, and a few were found to be beyond repair. The main kitchen tent roof (top) was among these, and was replaced at a cost of $198.85, using our own fireproof canvas. The committee drafted their Job Description, which includes a description of the Camp Manager Job, and has had it approved by the Board of Management.

Committee meetings dealt with Yukon Alpine Centennial Expedition matters, on which occasions plans of action and specifications and/or brands and models of equipment were decided. Section members and Y.A.C.E. participants in Calgary and Edmonton were called upon for extensive assistance in the Spring and early Summer; Calgarians were responsible for packaging and packing the food rations and the existing A.C.C. gear, while Edmontonians were responsible for overall Yukon packing and shipping, and the main medical kit. Y.A.C.E. purchases included 20

custom 4-man "Centennial" mountain tents and main camp propane cooking units, and purchase of stock models of propane heaters, 8 Meade 2-man tents, 31 single burner Optimus stoves, 52 Kernmantle climbing ropes and 4 rappel ropes. Quantities of smaller items, such as snow shovels, ice axes, pitons, carabiners and additional pots and pans and bowls were also acquired.

The existing A.C.C. Camps and Expenditions equipment has an approximate replacement value of $10,500 and has depreciated in all probability an average of 50%, for a present value of approximately $5,250. This would suggest that about $5,250 of the $70,331.28 shown in the A.C.C. accumulated depreciation fund could appropriately be assigned to the Camps and Expeditions assets. The durable goods acquired for the Yukon Alpine Centennial Expedition has an approxi¬mate replacement value of $11,500. Should this equipment be turned over to the Club, it would be a worthwhile addition to its assets, and would greatly broaden the scope of the camps and expeditions which the Club could economically afford to conduct. It would appear desir¬able and reasonably accurate to account 10% depreciation on the basic summer camp equipment, and 20% on the lighter, more specialized equipment used for the high camps and expedition camps. This would make maintenance and replacement of equipment a budgetable item, and ensure a continuously adequate set of appropriate equipment. As labour and service costs continue to increase, especially for transporting and packing into camp, it will be necessary to regularly evaluate our operating efficiency, including location, size and duration of camps, and lighter, more modern equipment for them.

It is probable that our multiple-camp system will evolve along the following lines:

The summer camp may be equipped to cater to a set number of climbers, perhaps 75. A smaller camp (such as this) operated at a uniform size for several weeks would make the operation more efficient in most aspects. Such a camp would continue to operate as at present, including provision for a camp manager, climbing committee, climbing guides, outfitting crew including cooks and waitresses, etc. The cost of such camps would largely reflect the cost of these services.

Additional (Second) or expeditionary camps should essentially be unstaffed operations with a maximum of 25 climbers. They would probably be run by the expedition leader who would handle most responsibilities, and assign various operating tasks, probably on a rotating basis, to the participants. These expeditionary camps should be located at areas which are challenging, unusual and somewhat difficult-of-access. They should be made to appeal to the climber seeking more difficult climbs, new areas, and smaller, more closely knit groups of experienced climbers. These camps should not be open to novices or people unable to lead ropes on moderate-difficult climbs, thus making it possible to operate them with less restrictions and more individual independence. They also would probably be closed to non-members. Cost of such expeditionary camps should be kept as low as possible, with the cost of such camps largely reflecting the cost of access for climbers and equipment. It appears that the responsibilities and activities which should be carried out by this committee will involve extensive work and planning. Success of the camps and expeditions programme will depend not only on the active participation of the Camps and Expeditions Committee members, but also on the active co-operation and assistance of the Club members as a whole.

This report is respectfully submitted by
R. Donald Lyon, Chairman,
Camps and Expeditions Committee.

Moved by Don Lyon and seconded by Phil Dowling that this report be adopted. Carried.

Camp Site Committee Report:

Peter Vallance reported that new roads were opening up new areas such as the Italian Military Group which was recommended for the 1968 General Camp, and was now approachable from Canal Flats. Moved by Peter Vallance and seconded by John Wheeler that this report be adopted. Carried.

The President commented that the Board of Management had approved the choice of the Italian Military Group for the 1968 camp and they had under consideration Fairy Meadow in the Northern Selkirks as a site for a smaller secondary camp in 1968.

Club House Committee Report:

During the summer of 1966 your committee, besides becoming familiar with their new job, was mainly occupied in constructing the Climber's Kitchen, under the capable direction of Walt Sparling. This addition was prompted by the many requests of climbing members, inconvenienced by the hours of the dining room. Its continual use is evidence of its success.

With this new facility and with the kind co-operation of our 1966 hostess, Mrs. Tuerck, it was decided to experiment with an extended season, including winter months, without staff services. Although revenue and expenses were about equal, it served to point out the demand for this service and the problems involved. The availability of keys on short notice was a problem. This could be overcome by leasing individual cabins on a monthly or weekly basis. Casual over¬night accommodation is impractical to administer.

This year the committee was authorized to purchase fourteen new beds and hopes to replace the remainder cabin-standard beds next year.

To facilitate the need for extra dormitory space, Seaver, the topmost double cabin, was converted to this standard at a small increase in dormitory rate.

Due to insufficient water pressure to the main building, a new plastic pipeline was installed with favourable results.

New screens were put on the dormitory to provide maximum fresh air.

Fire protection equipment was checked, up-dated and increased and a fire school was held with the staff, simulating actual emergency conditions.

A Guide School was held in the Club House under the direction of Hans Gmoser from June 4th to the 18th, resulting in a healthy revenue to the Club. It is hoped that this School will continue on an annual basis.

The Club House Committee is grateful to the Management Committee in their recommendation of a resident official guide at the Club House. The Rocky Mountain Guide Association has provided professional guides who are member-applicants and are accommodated as paying guests. Results indicate that this is a real step forward in increasing the revenue of the Club House. These guides are also contributing to the social life of the Club House with their excellent lectures and films.

In spite of Expo, a drop in tourist traffic in Banff, and the absence of a camp in the local area, indications are that the Club House will enjoy an increase in revenue.

It has been recommended by the Club House Committee that the Long-Term Planning for the Development of the Club House and its Management, be turned over to professionals on a paid fee basis, employing such persons as an architect, engineer and recreation expert. The Committee has held meetings during the year to explore the future development of the Club House

but without terms of reference. A budget for research and the time and skills to do this research was also considered; however it is the Committee's decision to carry on only the maintenance and management, which to volunteers is a full time job and concern.

The Committee would like to express its thanks to the following: Barbara and Walt Sparling, retiring committee members; to those members of the Calgary Section who were generous in their financial contributions and to those members who contributed their talents and time to work projects.

Whether it is a quiet retreat in a rustic atmosphere that is wanted, or the fun and fellowship in the Lodge, or the privilege of joining others in a challenging climb, each member and his friends can find it at the Club House.

Respectfully submitted,
V. L. Hawkes, Chairman,
Club House Committee.

Moved by Doug Hawkes and seconded by Mrs. E. Garrett that the Club House report be adopted. Carried.

Phyl Munday questioned whether the fees for the dormitory were too low in comparison to those charged for cabins when both types of accommodation had the same privileges.

The President reported that the Board of Management had the matter of charges under review.

Bill Moran asked about the water supply for the Climber's Kitchen during the wintertime. Doug Hawkes replied that the problem was one of keeping the water line open in winter and that the cost had to be studied in relation to other costs of the Club House.

Peter Fuhrmann asked if the Club had investigated the possibility of lowering the tax base by getting grants from the Federal Department of Health and Welfare. Doug Hawkes replied that the Club House was in the lowest tax area under the National Parks scheme.

Hut Committee Report:

In relation to new huts the following has taken place since the last General Meeting.

The Edmonton Section completed the Robson installation last Fall. This Section donated most of the cost for equipping the Shelter for cooking conveniences. In addition to this, the Section has also installed a Section Hut below the west face of Mt. Colin. This hut is Pan-abode construction and is completely equipped to serve 8 people.

The Vancouver Section has erected a Section hut at Garibaldi. This is to serve both climbers and skiers. This Section is looking for financial aid from the parent Club to complete the inside of what is presently a very large empty A-frame. At the same time this Section is proposing the building of a memorial hut on the Serratus Col, an excellent site for a hut to extend the range of safe comfortable mountaineering.

The second Igloo at Bugaboo was erected. It was decided by the Board not to erect the Oblong this year. This was decided in the light of Bill Putnam's offer to erect a permanent hut at Boulder Camp in 1968.

Maintenance to the following huts has occurred or hopefully will come about. Wates-Gibson was given a good grooming by the Ski Camp party and additional foam was laid down.

A small mountain of wood was cut by the Jasper Members. The Edmonton Section has done considerable work at the Pocahontas Hut. The Wheeler Hut now has foam in the secondary loft and a new outhouse. A sink and drain will be installed in the early Fall. This is in preparation for Ski Camp next year. Sufficient foam was left over to equip Sapphire Col Shelter. An interested party has been approached to effect the repairs to the Assiniboine Huts. This is pending on an estimate and Board approval. It will be remembered that the majority of materials were taken in by the Packer at last year's summer camp.

It will be noticed that the Alpine Club has been obtaining permission from the Parks Department for various shelters not erected by the Club itself. The explanation is this:

A ski-touring and summer climbing complex has got under way in the Bow and Peyto Glacier, Yoho and Wapta areas. This is a scheme started in the Calgary area and endorsed by the A.C.C. Present shelters are at Balfour Pass and on the shoulder of Thompson on the Peyto Glacier. The next phase calls for a large hut just below the Bow Glacier in the near vicinity of Mt. Nicholas. Pending Parks approval, two more will be erected to tie in with Wapta and Little Yoho. The area is beautiful and the idea shows great promise of promoting mountaineering and ski-touring.

The Federal Parks Department has met in Calgary with all interested mountaineering groups with a view to ultimately take over some of the responsibilities for these huts which the various clubs have been building. This of course was one of the stipulations laid down, that the Department would assume responsibility for all huts built without leases. At the same time these meetings would seem to imply greater participation in the future.

The Alberta Government has made a tentative offer to set up a yearly Leaders course throughout the Province, to give classroom and perhaps practical knowledge to up and coming Leaders. Unfortunately nothing further has been heard on this worthwhile project.

Hut usage seems to have fallen off slightly from the two previous years. This is perhaps due in some measure to the influence of the Centennial Projects. Great Cairn and the Fairy Meadow Huts are averaging two parties a year. Ski-tour usage of the huts has started to pick up in the last couple of years. Increased membership and a greater interest seems to be the answer.

The Board of Management together with the Chairman of the Committee are in the process of drawing up a set of rules to bind other than non-member usage of the A.C.C. huts. This will come into effect at the beginning of the 1968 season.

A brochure on the Club huts, other than the Red Book, is being compiled for the 1968 climbing year. This will also show a picture of each hut. It is not presently decided how wide the distribution will be.

It is the personal opinion of the Chairman that a non-paid custodian is desirable at the A. O. Wheeler and Elizabeth Parker Huts, and perhaps at a later date the Stanley Mitchell Hut as well. The project will need member support to succeed.

Respectfully submitted,
Ron Matthews, Chairman,
Hut Committee.

Moved by Phil Dowling and seconded by Phyl Munday that this report be adopted as read. Carried.

Finance Committee Report: Year ending December 31st, 1966.

While the Job Description for this Committee was passed only late in 1966 a general understanding of our responsibilities had been arrived at considerably earlier and some activity had resulted.

Club finances, and particularly the rising costs attending our overhead activities were thoroughly reviewed and as a result the groundwork was laid for our recommendation that fee increases along the lines of the Report on Club Organization suggestions be implemented. This culminated in the ballot at the end of the year and in the new fees schedule becoming effective for 1967. As tighter expenditure controls have also been implemented we trust that our operations will be self financing and that we will no longer rely upon investment income and donations to meet routine operating expenses.

During the year Vancouver Members of this Committee were able to spend an evening with the Club President and the Club Manager discussing Club finances and accounting and reporting prac¬tices. As a result some modest changes were made in our financial reports and we trust that further progress will be made along these lines so that the membership may receive simple, understandable reports.

One item for which we pressed but which did not become incorporated in the Reports was a breakdown of the depreciated value of the respective Club fixed assets. This might be summarized as follows:

	Balance Sheet Value	Depreciation Accumulation	Net Book Value
Club House plant	$43,375	$34,405	$8970
Huts and Furnishings	$54,963	$24,608	$30,335
Camp, office and sundry	$12,231	$11,318	$913
Total	$110,569	$70,331	$40,238

Our thought is that it should be made clear to the membership that three quarters of our net fixed assets are represented by climbing huts, and that other assets have been reduced in value to nominal figures. In our opinion the values expressed do not represent any carryover for unusable assets. A practical rate of depreciation is already being applied to write off our huts.

Following a review of our investment holdings certain recommendations were approved by the Board of Management. These resulted in the sales of holdings of B.A. Oil Company, Dominion Bridge and B.C. Telephone 4 3/4% Preferred shares and reinvestment in General Motors Acceptance Corp. of Canada 7% Debentures maturing in 1986.

Several other holdings matured during the year and were redeemed. The resulting cash is reflected in our accounts as at December 31, 1966. It appears that some funds now on interest bearing deposit may be employed more productively and a request for permission to invest these in long term bonds is being made to the Board of Management.

We also expect to develop some means of anticipating seasonal cash requirements so that greater investment use may be made of funds than in the past.

The Club's capital position is on a comfortable basis as a result of conservative accounting policies which appear to have prevailed for many years past. Failing unforeseen extraordinary expenses in 1967 we look forward to next year's Financial Reports clearly showing that our day-to-day operations have ceased to result in a drain on our capital resources.

Respectfully submitted,
L. R. Naylor, Chairman,
Finance Committee.

Moved by Reed Naylor and seconded by Jim Hudson that this report be adopted as read. Carried.

Journal Editor's Report:

I have pleasure in submitting the report of the 1967 Journal.

The Club ordered 1,575 copies of the 1967 Journal, intending some to go on the market in Vancouver. The copies for mailing were securely wrapped, with both ends protected and they must have arrived in good condition.

The slim Journal must have been quite a surprise to many. It was the result of the urgent request to keep ever rising of all printers costs down.

Mr. Harrison of Evergreen Press Ltd., gave us many ideas to help. You will notice the margins are much narrower—hence more words per page. Care was taken to see articles fitted into signatures. (Note binding.) Illustrations are good, and were kept to a minimum, grouped and generally smaller. I would recommend, in future, not quite so much economy in illustrations for our Journal, as pictures explain so much. With the many compliments on the 1967 issue of the Journal there were several remarks about the paucity of pictures, as compared with recent years' issues.

Technical climbing has been added to the Alpine Notes Section, as there seems to be an increase in this specialized type of climbing.

We suggested Don Linke, now responsible for summarising new ascents, collect and record available information of as many climbs and expeditions in Canada as possible. Many people, especially non-Canadians, climb our mountains and leave NO record, except perhaps in their own Journals or Sections, or newspaper articles. Yet if anyone wants information they expect to find it in our Journal as they look to the C.A.J. as the official medium for finding information on climbs and various mountain areas. When articles are not available just a listed record would help.

Many contributors have welcomed the present procedure of returning corrected manuscripts and editorial comments for their approval and re-typing. A few have not. The procedure, as established this year will be followed in the future, with other information on preparing articles for publication. It takes more work and time but does cut down Journal printing expenses. By this we hope to receive better prepared copy, maps and photos. This would save time and expense.

Frank Smith did a speedy job in preparing the index to Volume 50 from page proofs in order to have the completed list of new climbs in index form, to add to the Club Index as published.

Respectfully submitted,
Mrs. Phyl Munday,
Editor.

Moved by Phyl Munday and seconded by Gertrude Smith that this report be adopted as read. Carried.

Gazette Editor's Report:

The three regular editions of the Gazette have been issued in November 1966, February and May for 1967. We hope that the present set-up is agreeable to the membership and that matters of interest are being given in an easy-to-read fashion. There have been no complaints or suggestions recently. These are always welcome. I would like to thank Jack and Joan Miller for very welcome assistance with the mailing, Gillian Deane who stands by as Assistant Editor, and last but not least, David Fisher, the publisher and overseer.

Respectfully submitted,
Dorothy H. Peck,
Editor.

Moved by Jim Hudson and seconded by Bill Moran that this report be adopted as read. Carried.

Librarian's Report:

Four new books were acquired as well as several gifts. Among the gifts were two important albums containing photographs of the North Shore Mountains of Vancouver and Garibaldi Mountain taken in the early 1900's by A. T. Dalton who made the first ascent of Garibaldi in 1907. Six volumes (23 years) of The Mountaineer were bound. Several requests for information were answered by mail in addition to assistance given to those who came to the library.

Books were lent for review in the Canadian Alpine Journal and lists of books received were supplied to the Gazette Editor.

The five year loan agreement with the Vancouver Public Library ends in 1968 and it is urgent that the Club renegotiate this lease or consider accommodation elsewhere. I have prepared two major reports containing specific recommendations as to future policy for consideration by the Board of Management.

Respectfully submitted,
Elizabeth B. Walker,
Librarian.

Moved by Elizabeth Walker and seconded by Phyl Munday that this report be adopted as read. Carried.

Photographic Secretary:

The President commented that it was decided not to hold a photo competition in 1967 due to the Yukon Alpine Centennial Expedition. A new Secretary has been appointed in the person of Wally Joyce of Toronto. Comments were made regarding the possibility of stimulating more interest in black and white photography, with the thought that the Section winners be sent to the competition held during the Main Summer Camp.

Ski Mountaineering Committee Report:

The 1967 Ski Camp was held at the Wates-Gibson Memorial Hut at Outpost Lake in Jasper National Park from March 25th to April 2nd, 1967.

Twenty-three members and two guests attended this camp and there was a staff of three.

Attendance was as follows:

Calgary 9, Edmonton 6, Victoria 1, Banff 1, Verona, N.Y. 2, North Bay 1, Vancouver 3, Conshohocken, Penn. 1, Toronto 1, Dawson Creek 1, Olds 1, Williams Lake 1.

All food, equipment and personal baggage was transported to the Hut by Bill Ruddy of Jasper. The Chairman of the Ski Committee was Camp Manager, the cook was Myrna Collins, Camp Boy—Dave Vallance and Professional Guide Leo Grillmair.

Although the camp was not fully subscribed, a modest profit of $78.33 was realized.

The weather was not ideal but the skiing was generally good. Trips were made to the Eremite Valley, Amethyst Lakes and the Fraser Glacier. Ascents were made of Mts. McDonell and Thunderbolt. Perfect conditions of weather and snow the last two days was responsible for the most memorable powder snow skiing in many years.

Those attending the 1967 Ski Camp discussed many possibilities for next year's camp, but it was decided to hold the 1968 camp at the Wheeler Hut at Glacier, B.C., in Glacier National Park during Easter Week. The Hut's sleeping accommodation has been modified and will now comfortably sleep 35 persons. A preliminary notice about the 1968 camp will appear in the November Gazette and a separate notice will be mailed to all A.C.C. members at the beginning of the year. Ski Clubs across the country will also be advised of the ski camp and invited to fill the remaining places not filled by our members.

Respectfully submitted,
Bruce Fraser,
Chairman.

Moved by Helen Butling and seconded by Jim Hudson that this report be adopted as read. Carried.

President's Report:

You have heard the reports by the Chairmen of the Standing Committees. These cover many of the activities which have been carried out within the Club during the past year. My report will therefore be confined to filling in on other matters which were not covered in the Committee reports. This is perhaps the first A.C.C. President's report that has been written at an elevation of about 14,000 feet. However, it was not prepared on a peak in the Yukon, but while flying down from Dawson Creek on Friday afternoon to attend this meeting.

When I was elected to this office a year ago, the new Constitution had just been approved by the Membership, and the new Board of Management had just come into being. A Western Vice-President had to be appointed, since the only person eligible under the Transitional By-Laws was not able to accept the office. As the Vancouver Section already had an elected representative on the Board, it was felt that this appointment should be from one of the other British Columbia Sections. The Chairman of the very active Kootenay Section was therefore appointed to this position.

The Board of Management has met three times and there has been very good attendance at these meetings. Their agenda have been long, two of the meetings having taken a full two and a half days.

I have heard faint rumblings to the effect that some people think the Board is spending a lot of Club funds to finance their own travel expenses. This is not the case. Most of the Board

Members have paid their own, or part of their own travel expenses to meetings; meetings have been timed to coincide with business trips, and every effort has been made to keep the cost to the Club as low as possible. However, if the Club is to be run effectively it is necessary for the Management Board to get together occasionally.

During the past year an Honorary Vice-President has been appointed, and two Honorary Members elected. The Honorary Vice-President is the Honourable Jean-Luc Pepin, Minister of Energy, Mines & Resources, and the two new Honorary Members are Bradford Washburn and Walter Wood. A committee has been appointed to investigate and make recommendations for possible revisions to "Schedule A" of the By-Laws. This is the section of the By-Laws covering Section organization. Revisions to this were not included in the terms of reference when the Constitution was revised recently. Another Committee is being appointed for long range planning with regard to the Banff Club House site.

An item which is still in the planning stage is an Instruction Course in Mountaineering. If we are successful in developing this, and obtaining the necessary funds, the plan is to ask each Section to appoint a representative to attend this course.

The Yukon Alpine Centennial Expedition was, of course, the most outstanding and exciting of the Club's activities during 1967. The Centennial Range and Good Neighbor teams are to be congratulated on their achievements, and the fact that two teams did not reach their summits in no way detracts from their accomplishments, but only emphasises the poor conditions and technical difficulties which they encountered. The two general camps were also most successful. With regard to huts:—Negotiations are under way for a new hut at Boulder in the Bugaboos, to replace the two igloos now at this site. The igloos are hardly in keeping with the location, and something a good deal more elaborate and suitable is being planned. The Club has also made application to the Parks Branch for permission to errect several shelters in the Banff National Park. This application was made on behalf of a number of outdoor clubs, and the shelters, if approved, will not necessarily be built by the A.C.C.

During the last twelve months I was able to visit all but two of the Canadian Sections of the Club. I found these visits most helpful, as they enabled me to get to know more of the Section Members, and provided opportunities to discuss Club affairs with Members across the country.

In conclusion I would like to thank the Board Members, the Club Manager, the Chairmen of the Standing Committees, and the many others, who have given me so much help and support throughout the year.

Respectfully submitted,
Roger Neave,
President.

Moved by Roger Neave and seconded by Phil Dowling that this report be adopted as read. Carried.

Phyl Munday asked for a show of appreciation and confidence in the work of the President during the difficult transitional period under the new Constitution and By-Laws. This was unanimously given in the usual manner.

Report on Yukon Alpine Centennial Expedition:

Dave Fisher first of all welcomed back all Y.A.C.E. participants present at the Annual Meeting then presented his following report:

Going over the history of the Expedition in brief, the various landmarks were pointed out including the first Centennial Commission Conference at which the Club was represented in June 1965, the submission of the final combined plan with the Yukon Government to the Centennial Commission for financial assistance in January 1966, the air and ground recces in April and August 1966, the fight for adequate funds from August to November 1966 and finally the emergence of the Expedition organization in detail throughout the winter of 1966/1967. In the end, grants were received from the Centennial Commission, the Fitness & Amateur Sport Programme of the Department of National Health & Welfare, the Yukon Territorial Government, Northwest Territories, and the provinces of British Columbia, Alberta, Saskatchewan, Manitoba, Ontario, Quebec and Newfoundland. These grants totalled $77,000. The provincial grants were for $2000 except for Saskatchewan and Manitoba which were for $1000. These were the two peaks incompletely ascended! The total cost of the aircraft was about $60,000 including reconnaissance flying and all fuel costs, therefore the grants covered the cost of the aircraft with $17,000 over for other purposes.

The Good Neighbor Peak was ascended by the team in good time. They were flown in on June 18th and 20th by the two Helio Couriers owned by the Icefield Ranges Research Project and out by the Expedition Beaver on July 3rd. On July 7th the Expedition activities accelerated with the arrival of the first Centennial Range climbers and the various press reporters.

On July 8th the first twelve climbers were flown into the Range. The number was under that scheduled because of supercharger failure on one helicopter and the rescue of a member of another climbing party on Mount Logan who had been injured in an accident. On July 9th another 24 people were flown in but the remaining 16 were not flown in until July 12th due to bad weather. Five of the last group of 16 spent the 3 days at “Divide”, the change over point from fixed wing aircraft to helicopters. On the evening of July 10th, during a lull in the bad weather, all the lumber for the main Camp was flown into the campsite by helicopter. On July 11th the first Alaska Highway washout occurred at Silver Creek (Mile 1053) and a slide at Mile 1058.

The helicopters moved over to the Steele Glacier valley on the afternoon of July 12th after the last Centennial Range climbers were in their bases, and everyone worked hard in bad weather to get the main camp erected on time in the two days remaining before the participants arrived. Thanks to the assistance of the early arrivals, this task was completed on time. More helicopter problems meant some delays getting people in over the first weekend although some assistance was given by two other machines.

During the following week the Secretary of State paid a visit to the Camp and was flown to the summit of a peak of nearly 10,000 feet. Radio contact with Kluane was excellent but communication with the three Centennial Range bases, “T” Bone, Prairie and Fundy, was more intermittent partly because the teams were away from their bases for much of the time and partly because of lower powered radios. This meant that it was hard to determine exactly which peaks had been successfully ascended. The Centennial Range Climbers were flown out on July 22nd and 24th during a break in the weather.

At the end of the first General Camp, three days of continuous heavy rain caused severe washouts again on the Alaska Highway between I.R.R.P. (Mile 1054) and Burwash Lodge (Mile 1093). The telephone was also out for five days. Friday July 28th was somewhat chaotic but

through the radio and a portable telephone the second camp participants were held over for a day in Whitehorse. The turn around was accomplished successfully one day late by July 31st.

In spite of the poor weather of the first Camp, much climbing was carried out and one ascent was made of Mount Walsh.

The weather during the second Camp was much better and in spite of continuous heavy cloud to the south of the Steele-Walsh ridge it was mostly sunny at the Camp. Three more ascents were made of Mount Walsh, two of Mount Steele and one of Mount Wood. The first ascents were fairly evenly split between the first and second Camps. Altogether nineteen peaks were climbed from the main Camp, of which fourteen were first ascents.

The expedition climbed thirty-three peaks, of which twenty-seven were first ascents.

The Main Camp was evacuated very smoothly in excellent weather and by 5:00 p.m. on Monday August 14th all personnel and equipment had been flown out. The lumber was left for the Icefield Ranges Research Project to build a hut near the Camp site and some food and gas drums were also left for their use.

Many interesting facets of the Camps could be mentioned but the following are perhaps noteworthy: Jim Davies flying helicopter Bravo Hotel Charlie (CF-BHC) became known as the Stainless Steele Stud (quite a fellow with the girls) Derrick Ellis flying helicopter Romeo Lima Echo (CF-RLE) became Romeo. The sound of the two of them doing auto rotations down into Camp from about the 12,000-foot elevation was something that everyone got used to. The sight of no less than six helicopters flying up the valley in the first two weeks made a control tower almost mandatory and the Camp looked like a heliport at times. (The two Hiller 1200's belonged to the Army Survey party and the other two were working for various people as well as flying fill-in time for us when a machine was unserviceable). On the radio no one understood beer but most people understood bravo echo echo romeo. The Yukon Queen was the raft made from empty gas drums which was used to rescue gas drums from "Drum Lake" across the Steele Glacier from Camp; there were 150 drums with twelve gallons in each floating in the lake when Camp was set up since the lake rose thirty-five feet on spring thaw instead of the anticipated fifteen feet. Ninety percent or 135 of the drums were rescued after Dave Vallance had an inadvertent swim one day. The gasoline was found to be in excellent condition and was used for all the local camp flying. One Walsh Col Camp party with three to four days food at the high camp radioed that they were low on food after the first night: they were told that having eaten the pheasant and duckling out of the boxes that they would now have to drink cocoa for the next three days: No more was heard on this subject. Vera Norman wrote an interesting poem called "Kluane Standing By" since this was heard frequently on the radio after a conversation had ended: It was suggested that this might also be an appropriate epitaph on the tombs of any participants who failed to be evacuated by helicopter when the time came. One day on the radio the Kluane boys sang "Happy Birthday" on a frequency of 4520K. to the Logan High Camp at 17,200 feet and also an interesting discussion took place between Kluane and Divide on when a crevice became a crevasse after one of their skidoos got stuck in one, and there was the most impressive cafeteria at the four mile helicopter pick-up point below Camp where on the last participant evacuation day Bunny Tewnion was found dispensing all varieties of refreshment; this place was known as "Bunny's Brew-up".

The Expedition was given cameras, space and rescue blankets and sweaters, all of these items going to the sixty International and Centennial climbers. The sweaters were in Yukon blue with the A.C.C. colours in three stripes across the front. The Expedition is very grateful to these companies for their generous donations.

Lastly, I would like to thank the many people who helped to make this Expedition such a success and such a memorable occasion in Centennial Year. In particular the following should be mentioned especially: Fred Roots who wrote the submission to the Centennial Commission, our own Board of Management who backed the whole venture, Eric Brooks who carried out a herculean and thankless task chairing the Selection Committee, Don Lyon who as Chairman of the new Camps & Expeditions Committee was responsible for the purchasing of all new equipment, the arrangements for all our existing equipment, and the working out of all food requirements, and Phil Dowling who did a stupendous job with all the packing and shipping of gear and food from Edmonton to Kluane. A special mention must be made of the tremendous support given by Cam Ledingham during the whole Expedition both before, during, and after the event. Cam not only juggled all the accounts and kept things straight but he worked mir¬acles in keeping everything under control and running smoothly under normal and adverse conditions in the field. I hate to think what might have happened had he not been there. In the field our sincere thanks must go to Bill Harrison for doing his usual wonderful job as outfitter, to Dave Vallance who did all the heavy and light chores as well as acting as service station supervisor at the helicopter turn around points, to our three professional guides Hans Gmoser, Hans Schwarz, and Peter Fuhrmann who led many fine climbs for us, and last but perhaps most important of all to our four-man air crew based at Camp and Kluane. Surely Jim Davies and Derrick Ellis must be two of the most willing and proficient mountain pilots in the Country, with about 6000 hours mountain time between them. Peter Peachey worked all hours to keep our machines in the air and was not afraid to make unpopular decisions which sometimes necessitated grounding a machine. Lloyd Ryder flying the fixed wing Beaver out of Kluane not only was the main-stay for the first two phases of the Expedition but he also carried out the important free drop of all our main Camp tents in the Steele Valley. The whole Expedition was a resounding success with everyone doing their part to make it so. No accidents occured during the Expedition from climbing or with the helicopters and with 250 people involved in the St. Elias Mountains this is surely something to be proud of.

Respectfully submitted,
D. R. Fisher, Eastern Vice-President,
Working Committee.

Moved by Dave Fisher and seconded by Gertrude Smith that this report be adopted. Carried.

Gertrude Smith asked for a show of appreciation for the magnificent job of organizing done by Dave for the Y.A.C.E. This was unanimously accorded in the usual manner.

Appointment of Auditors:

It was moved by Dave Fisher and seconded by Reed Naylor that Clarkson, Gordon & Co. be appointed auditors for the ensuing year. Carried.

Silver Rope Award:

The President announced that the Board of Management had unanimously agreed to confer this award on John Tewnion for his work at the Centennial Camp and for the leadership given at other camps, and on David Wessel for his leadership at past Ski and Summer Camps.

New Business:

Mr. L. C. Wilson moved that the Government of Alberta be approached for a grant to the Club as the A.C.C. gives much free advertising to the Province through its headquarters in Banff. Seconded by Sylvia Evans.

An amendment to the above motion was moved by Peter Vallance, that the suggestion be tabled and referred to the Board of Management. Seconded by Doug Hawkes. The amendment carried, therefore the original motion became void.

Vote of Thanks:

Moved by Peter Vallance that a vote of thanks be given to Doug and Dorothy Hawkes for their work at the Club House and to Dave Fisher and Cam Ledingham for their work at the Centennial Camp. Carried.

Moved by Reed Naylor and seconded by Val Stewart that the meeting adjourn.

OBITUARIES

Laurence Edward Boylett 1930-1967

Laurence Boylett, his wife Marion and their infant daughter Susan, were innocent victims of a tragic car accident on October 9, 1967, near Ottawa.

Laurie was born and educated in England. His love of the mountains began at the sandstone cliffs of southeast England, which soon led him on to Wales, Scotland, Norway and the Alps.

In 1958 he came to Canada, settling in Montreal. During the next four years he attended many of the local climbing meets and most of the cross country ski outings. It was during these trips that he became known and liked as a quiet, dependable companion, who seldom hurried and always retained a thoughtfulness for others. He had great appreciation of the wilderness and his travels ranged from mountains and desert areas to remote canoe country. His landscape photographs were a pleasure to see and were valid proof of his keen interest in photography.

Laurie and Marion were married in 1960. The next year they both attended the annual camp at the Goodsirs. For Marion it was her first trip to the high peaks and even the rain there did not dampen her enthusiasm—in fact she became so taken with the hills, that they both spent the following spring and summer skiing and climbing in the Alps.

On their return to Montreal, work, studies, a new home and family affairs cut into their club activities, until recently. Their last outing was to attend the Montreal section's annual dinner, an outdoor barbecue at the section's Keene Farm in the Adirondacks, only a week before the accident. It was a fine fall day, with brilliant foliage almost overhanging the tables and Laurie, looking up from his meal to the Adirondack skyline, remarked that this was his kind of restaurant.

They will be greatly missed by their friends for many years to come.

To Laurie's parents and to Marion's brother the club's sympathy is extended.

R.M.

Neil Brown

"The best friends are the friends you make in the mountains", goes a saying and I fully subscribe to it.

One day I met with Heinz Kahl for a day's rock climbing in the Sawback Range and he brought another fellow along—Neil Brown. Neil was a searcher, sometimes drinking everything into him as if he were dying of thirst and immensely enjoying every drop of it, at another time hesitating after each gulp not quite sure whether he liked it or not. He wanted to lead a contented and quiet life, and to the world around him he presented an image of it, beyond which few people ever saw.

To me, Neil was the most unselfish friend a man could ever have. He gave of himself and his possessions without hesitation. He opened his home to me as if it were mine. He had a great appreciation of the beautiful things around him. He liked music; there were times of intense happiness when the mountains were friendly, forgiving and beautiful.

It was his restlessness, his searching, which many times brought him to a difficult climb and perhaps also drove him to sky diving; because to me he wasn't the hero type who jumps first and thinks afterwards.

To me he was the good friend who shared with you everything he had and felt, the friend who sat with eyes glowing and looked out over the rocks, the snow, the clouds and the sky who all seemed suddenly very friendly in the evening light, he was the good friend who struggled in the fierce wind his face caked with ice and in his look the question, "You think we will get out of this alive?" He was the friend with whom I sat in his home and listened to Badura-Skoda playing Beethoven's first Piano Concerto. He was the good friend who would listen to your problems, think about them and give you good advice—all this time concealing his own restlessness.

Last summer Neil died in a small plane crash on his way to another jump. May his sensitive, restless mind rest in peace. My sympathy goes to his wife and family.

H.G.

Brian Cook 1935-1967

On July 9, 1967, climbers in Toronto and across Canada were shocked to hear of the death of Brian Cook who fell while climbing on the Bon Echo cliffs at Lake Mazinaw, Ontario.

Brian had been in Canada only five years and in that time had become one of the leading members of the Toronto Section. He was recognized as one of our most skilful climbers and he enjoyed to the full the exhilaration and challenge of a demanding climb. Yet it was characteristic of him that he was often to be found on the easier climbs with a novice, for he was never too busy to help a beginner get started, by taking him up a straightforward route.

I was one of the many who first started climbing under Brian's leadership. I can still remember the first climb on the cliffs of the Niagara Escarpment where only advice and encouragement from the top enabled me to complete the short route. Again in the Laurentians, Brian led me up a magnificent climb where once more his leadership and encouragement turned impossibilities into mere difficulties. Never shall I forget one particular traverse, where toes and fingers got alarmingly close together, nor an awkward chimney, where they were too far apart for comfort. Both features had to be negotiated when strength was running low. Brian's accurate and precise instructions saved the day and enabled us to enjoy together the feeling of satisfaction and achievement at the top.

Brian came to Canada from England in 1962. Born in 1935, he was educated at Dulwich

College and at the Imperial College, London, earning a degree in Mechanical Engineering. After further training at the College of Aeronautics, he worked in a number of different engineering fields. His engineering interests came out in his hobbies too; he brought to electronics, to carpentry, or to skiing, the same meticulous care and analytical approach which he had while climbing. How often we saw him dealing with a problem, whether of design, or of climbing, or of small details for a club project. He would carefully think out all the issues and then come up with a solution which was clearly the best.

Brian had climbed extensively in Great Britain and Europe before he came to Canada. He joined our Alpine Club as soon as he arrived. From the outset he was an enthusiast and a leader. The help he gave in the design and construction of the club hut at Bon Echo was second to none. Brian's article on Bon Echo in last year's Canadian Alpine Journal shows how much he enjoyed this beautiful spot and all its associations. What does not show in that article is the fact that Brian himself was largely responsible for the many accomplishments and successes of the Bon Echo venture, not only in the physical setting of the club property, but, more important, in the establishment of the spirit and warmth which have become so much a part of climbing meets there. At Bon Echo and at most of the club weekends Brian was a regular climber with the club at most of the best climbing spots—the Adirondacks, the Schawangunks, the Laurentians.

A year before his death Brian had married another climber, the former Judy Gibb. Our hearts are with Judy in this tragedy. Our heartfelt sympathy goes too to Brian's parents and only brother who live in England. We shall not soon forget the day of his passing.

Willa Fuhrer

We regret to record the death, after a long illness, of Mrs. Willa Fuhrer, widow of the late Hermann Fuhrer, who died in an avalanche on Mt. Norquay in 1965. Mrs. Fuhrer is survived by a son and daughter, both of school age.

David Armstrong Gillies 1882-1967

Following a long illness, patiently borne, the death occurred on Nov. 2, 1967, of David Gillies of Arnprior, Ontario. He had been one of the earliest members of the Club following its organization and it remains for his sponsor and friend of many years to now write a note of record for the C.A.J. "Dave" attended the Club's second annual camp at Paradise Valley in 1907 and graduated to active membership on the climb of Mt. Aberdeen. He was an out-of-door man trained for travelling the waterways and woods of the Canadian Shield and on this, his first acquaintanceship with the Rocky Mountains, was enthusiastic with the opportunity they gave for the activities and objects of the new Club. He was one of the first members to make the trip from Paradise Valley over Mitre Pass, round the shoulder of Mt. Lefroy and by the Victoria Glacier to the crest of Abbot Pass and thence to Lake O'Hara. On the following day in company with the writer, the route was over Opabin Pass to the upper end of Prospector's Valley and thence over Wenkchemna Pass and down that glacier to Moraine Lake and its outlet. Here the tired travellers met the packer Travers Vickary by appointment and spent a pleasant evening around a camp fire within view of the Valley of the Ten Peaks, inspiringly seen by moonlight. It is of some interest to record that the Wenkchemna Glacier at that time was making a limited advance and this was carefully observed. In 1912 Dave was one of the party of Club members who made an exploratory adventure into what was a new provincial park on Vancouver Island and which was given the name of Strathcona. The main feature of the visit was the successful climb of the prominent mountain

named by the party as Elkhorn; of the nine members who made the ascent, Mr. L. C. Wilson of Calgary is the single survivor. Subsequently Dave had to lay aside his mountaineering pleasures by reason of business necessities but he did accompany the writer to the Golden Anniversary Camp at Glacier, B.C., and very much enjoyed the new contacts which this permitted.

Dave's great-grandfather came to Canada from Scotland in 1821 and settled at New Lanark with his wife and family; one of the sons commenced a timber operation that became the foundation of a family company which by 1942 had been continually increasing in extent for one hundred years. Commencing in his school days to tally lumber and successively employed in the various aspects of the industry, Dave succeeded to the presidency of the concern at the age of 57 and steered the fortunes of this family trust through the very difficult days of the great depression of the 1930's. He was one of the best known operators in the timber industry in the history of the Ottawa Valley and bore a high respect and esteem for his reputation of honesty and efficiency.

Born at Carlton Place, Dave took his boyhood schooling there and eventually entered Queen's University, Kingston, from which he received his B.A. degree in 1905. In later years his business duties permitted his service as a member of the Board of Governors of the University. He was also a past president of the Canadian Lumbermen's Association and the Canadian Institute of Forestry.

Following an active and industrious life, in company with his wife, he made successive trips abroad, interesting himself not so much in the pursuits of the ordinary tourist, but inquiring into the manner of life, the conditions of employment and cultural opportunities of the working classes. At Arnprior he enjoyed the amenities of life in a home built on the bank of the Ottawa River in a forested section of native and unspoilt Ontario forest and to which he gave the name of "The Grove". One of his pleasures was reading and he had a special interest in the early history and fur trade of Western Canada and built up a collection of Canadiana.

His death occurred on the day after ceremonies were held in Arnprior in connection with the opening of a building purchased jointly by his wife and himself for the establishment of a museum and public library.

Looking back on the first years of the existence of the Alpine Club of Canada, one must be grateful for the strong support Dave gave the infant organization. In every way he was a fine man with high standards of conduct and a great capacity for work. From his clear outlook on life he considered that character evolved from good relationships between people. He was as studious as time and occupation permitted and extended a warm comradeship to his friends. We must regret his passing at a point when life seemed to still hold out promise of worthwhile activities following the many preoccupations of his business. He was much respected for his sterling qualities and in regretting his passing we wish to express our condolences to his wife and relatives.

F.C.B.

Jean Parker

Miss Jean Parker who died in Winnipeg on October 3, 1967, aged 82, was one of the few remaining charter members of the Alpine Club of Canada. She was the daughter of Mrs. Elizabeth Parker, whose "Bookman" column had its place for many years on the editorial page of the Winnipeg Free Press, and who was one of the most active movers of the founding of the Club in Winnipeg in March 1906. Indeed, it was due to Mrs. Parker's efforts that the Alpine Club of Canada started its existence as a Canadian entity and not an appendage of the American Alpine Club.

Following the actual formation of the Club, a photograph was taken in front of the Y.M.C.A.

building on Portage Avenue, where delegates had met for discussion, and both Mrs. Parker and Jean are shown in it. A reproduction of the picture is shown opposite page 91 in the C.A.J. 1938, and Jean also appears in an article in the C.A.J. 1909, which illustrates her story of the climb of Mt. Tupper in 1908, the second climb of that mountain and the first by a lady.

Jean was for several years Librarian of the Club and also assisted her mother with the considerable correspondence which the latter's position as Honorary Secretary occasioned in the formative days of the Club.

For several years they both attended the annual camps and at these Jean found time for climbing. She graduated to active membership on Mt. Vice-President on July 12, 1906, and in 1907, following the annual camp which was held in Paradise Valley, when she climbed Mt. Temple and Mt. White, she made the ascent of Mt. Sir Donald in the company of Mr. F. W. Freeborn and was guided by Edward Feuz, Senior and Junior. This was the first climb of the mountain by a Canadian lady.

In 1909 she climbed Wiwaxy Peak and made a second ascent of Mt. Mitre. The last camp she attended was Robson camp in 1913.

She was elected to the Ladies Alpine Club (London, England) in 1911 and in 1922 was elected as their Canadian Vice-President, a position which she held for many years.

Jean Parker is survived by two nephews.

Walter Perren 1914-1967

Walter died on December 29th, 1967. He was 53. He is survived by his wife and three young sons. The President has expressed to them the sympathy of all members of the club.

Born in Zermatt, Switzerland, he was a member of a famous family of guides. Walter Perren came to Canada in 1950 to join the guiding staff of the Canadian Pacific Railway at Lake Louise. He found many guests, and among them club members, eager to secure his services.

Walter was not a member of the club, but he was official club guide at the Lake O'Hara Meadows camp in 1952, the Hooker Icefield camp in 1953, and the Goodsirs camp in 1954. He was very highly regarded by all club members.

However a new generation of climbers was then coming into being, at the same time as roads were being extended and improved, and motor vehicles of all kinds were appearing. The business of guiding, as it had been, in what might be called the Canadian Alpine Railway age, was withering at Lake Louise.

Walter joined the Government Parks Department in 1955 as Technical Officer. He soon became Chief Warden in charge of Mountaineering for the National Parks. His work in this capacity was invaluable. He founded the National Parks Mountain Rescue School and became instructor in moun¬taineering for Park Wardens and the R.C.M.P. The older Swiss Guides had all retired and Walter was called upon to organize and lead many rescue parties. As a Government officer Walter was invited to visit several of the Club's summer camps, and was always most welcome.

At the time Walter arrived in Canada, I worked for the Canadian Pacific Railway and I knew him then and ever since. I may perhaps be excused if I make some personal remarks. Walter led me on many delightful days. He was a joy to watch. He climbed with a precision and balance equal to that of a chamois, or in another exacting sphere, to that of one of the great masters of ballet.

On Mt. Hungabee, I was holding on with one of my hands when Walter asked what I was doing. I replied I had been taught wherever possible to have three holds or stances. "Yes" he

agreed, "on difficult climbs, but this is hiking!" and on he went airily stepping from one toehold to another.

Walter was always good company. He was gentle, humorous and kindly, ever ready to cheer the tired, or give a quick hand to a clumsy companion, as when he fished me by one heel out of the Whirlpool River.

He endured the discomforts and anxieties of his long illness with a patience and acceptance that will remain in the memory of all who visited him. He was attended with loving devotion by his wife.

My old friend Walter Feuz said in a letter to me "Walter Perren in my opinion, was one of the best I ever came in contact with in all my life." All who knew Walter Perren will agree.

H.A.V.G.

Gilbert Morris Taylor

Word has been received here of the death in Santa Barbara, Calif., on May 17 of G. Morris Taylor, 73, one of the two members of the Taylor family who gave the Oscar Taylor homestead to the Stephenson County Historical Society for use as a historical museum.

According to the Santa Barbara News-Press, Mr. Taylor was known as the "photographer of the North", having lived in the Yukon and photographed it for seven years and then for 25 years in the Jasper Park area of Canada.

He moved to Santa Barbara in 1948 and continued to spend six months of each year in Canada in the photography business.

Mr. Taylor was born in St. Paul, Minn., on May 15, 1894. He graduated from Cornell University in 1916 in forestry, and was a member of Alpha Delta Phi fraternity. He attended his 50th class reunion in 1966. During World War I he was a lieutenant in the Army. He has been an active member of the Alpine Club of Canada.

The Stephenson County Historical Society was organized in 1944 after Mrs. Frank Nelson Bass, the former Miss Charissa Taylor, left $5,000 for such a society if it should be organized within five years after her death in 1939.

In 1944 also her two residuary legatees, Gilbert Morris Taylor and Donald West Taylor, gave the society the 1857 family homestead, "Bohemiana", at 1440 S. Carroll Ave., for use as a museum. It was later made a park under a state statute for maintenance by Freeport Park District.

Mr. Taylor is survived by his wife Helen, 2253 Las Canoas Road, Santa Barbara, Calif. 93105, and by their two sons, R. Loring Taylor of Santa Barbara and Marshall W. Taylor of York, Pa.

Private funeral services were conducted in the Santa Barbara Cemetery Chapel by the Rev. William Heimbold of Unity Church.

Violet Walters

A faithful member of the Club for more than forty years, Miss Violet Walters passed away in Calgary after a long illness.

She was a native of Lanark County, Ontario, but came West at an early age and settled in Calgary where she secured employment as a stenographer and remained with the same firm in that capacity until her retirement.

Miss Walters graduated as an Active Member in 1924 and soon became an excellent climber, attending the annual camps regularly for many years. She served as a member of the Executive of

the Calgary Section and on its various committees during her active years, and when her climbing days were over rarely missed attending the annual banquet and other meetings of the Section. In recognition of her long and devoted membership she was granted Life Membership on completing forty years of continuous membership.

We regret that we have been unable to obtain obituaries for the following Members who have recently passed away:

Miss M. R. Baxter, Life Member, 1909.
Miss Alberta Chase, Assoc. Member, 1940.
Mr. Lorin Tiefenthaler, Member, 1941
Mr. D. M. Sinclair, Life Member, 1917
Mr. Abe Rother, Member, 1954

BOOK REVIEWS

Across The Olympic Mountains.

The Press Expedition, 1889-90. BY ROBERT L. WOOD. Published by The Mountaineers and the University of Washington Press. Seattle, Wash. 1967, 220 pages, illustrated.

This is the story of an undertaking by six men under the leadership of James Christie, to cross the central Olympic Range, hitherto unexplored, from north to south. The expedition was sponsored and financed by Mr. Bailey, proprietor of the Seattle "Press", a forerunner of the "Times", in exchange for the "Press" having the sole rights to all records, maps, etc., as might be produced by the explorers at the end of their trip. The book is based on a special edition of the "Press" of July 16th, 1890, compiled from the diaries of Christie and a Captain Barnes, who carried out the mapping and scientific work of the expedition. The party left the mouth of the Elwha river, near Port Angeles, on December llth, 1889, and emerged at the mouth of the Quinault river on May 20th, 1890, after experiencing many trials and tribulations, some comic and some tragic.

Misled by the information that the Elwha was navigable for thirty miles upstream the party transported lumber for a boat along with their supplies and equipment to a point on the Elwha above the first rapids. Here they built the boat in winter weather and called her "Gertie". After launching and loading her they commenced to struggle upstream. Ten days and five miles later they abandoned her as they found the continual unloading, hauling out and passing over log jams and up rapids, which apparently filled this "navigable" river, too much even for them.

Assembling all their supplies and equipment, some 2000 pounds, they then set out to back-pack up the Elwha valley in which they floundered around until early in May when they finally reached the central divide, now known as "Low Divide". Above towered Mount Seattle up which Barnes climbed and from the summit made observations which cleared up much of the mystery that surrounded the central portion of the range.

After rapidly descending the Quinault river to the flats below, they foolishly, in view of their experience with "Gertie", attempted to float down stream to Quinault Lake on a raft, a distance of about eight miles. Rounding a sharp bend they ran into a log jam and barely escaped with their lives, losing all their baggage including their guns, and managing to save only one of the packs, fortunately the one containing all the records of the trip. Thus, with only the clothes they stood up in, consisting mostly of rags, and with no food, they continued on downstream until overtaken by three hunters in a canoe they had previously passed. They were taken on board and finally reached

Quinault Indian Reserve Agency on May 20th, and Seattle on the evening of May 23rd, 1890.

Christie and his party were not efficient or experienced explorers of this type of country, even for that period, and the crossing was only a very minor event in the opening up of north-west Washington, but the fact remains that they made the first crossing of the central portion of the Olympic range, in winter at that, saw a lot of places first and dispelled most of the myths that had gathered around the area. They also displayed an unyielding determination to reach their objective which, coupled with a fine sense of humour, carried them triumphantly through all the trials and frustrations of this remarkable trip.

Mt. McKinley—The Pioneer Climbs.

By TERRIS MOORE. University of Alaska Press, 1967. 202 pages. 8 maps, illus.

The fascinating story of the exploration and early ascents of Mt. McKinley should have particular appeal for Alpine Club members in view of the interest engendered by several recent climbs of this mountain made by various members of the Club. Dr. Moore's intimate knowledge of Mt. McKinley, gained from various scientific expeditions on the mountain, as a member of the military testing expedition in 1942 when he climbed the highest summit, and during his term as President of the University of Alaska, is very evident in his detailed accounts of the first explorations of the area and the pioneer climbs made at the beginning of this century. The fact that he has known personally some of the early explorers and climbers renders the accounts of their trips more vivid and part of current rather than past history.

The reader is very impressed by the amount of data presented and by the fact that it is all so readable and interesting. It is sometimes a little difficult to remember who took part in the various expeditions and what each accomplished, but the claim of Dr. Fred A. Cook that he and one other companion were the first to stand on the summit of McKinley in 1906, after their main party had given up the attempt, and the various attempts to prove and disprove this claim, act as a binding thread that links all subsequent climbing expeditions. Dr. Moore's further enlargement on Dr. F. Cook's claim to have been the first to reach the North Pole two years later, and all the controversy surrounding this claim, build up the suspense theme so that the book has all the excitement of a novel.

The reader also shares the excitement of Dr. Moore in his description of the commencement in 1932 of air travel among these difficult and dangerous mountains. The story of the ill-fated Carpe expedition in the same year and the inclusion of pictures taken by Carpe and Koven and developed after their deaths on the Muldrow Glacier, all add to the drama of the story.

The maps are all easily followed and greatly enhance the reading of the accounts of the various expeditions. The fact that on reaching the end of the book one has a clear picture of Mt. McKinley's various geographical features indicates that the maps and illustrations have served their purpose. In fact, the reader almost feels as if he had climbed the mountain himself!

The black and white illustrations are all of interest to mountaineers, and the photograph of Mt. McKinley on the inside of the back and front covers, together with the frontispiece painting of the mountain by one of the pioneer climbers, add to the appeal of this extremely interesting book.

A Climber's Guide to the Squamish Chief and Surrounding Areas.

By GLEN WOODSWORTH, drawings by Tim Auger, Varsity Outdoor Club, Vancouver, B.C. 1967. 28 p., illus. $1.50.

This extremely practical booklet describes in detail the established routes on the Squamish

Chief and rock climbs in the immediate vicinity. Directions on how to get there and where to camp are included for the benefit of strangers to the area. The routes are clearly described and well illustrated by pen and ink drawings.

A History of Mountaineering in the Saint Elias Mountains.

By WALTER A. WOOD. Yukon Alpine Centennial Expedition, 1967. 45 p., 1 map.

Each participant of the Centennial Expedition was presented with a copy of this booklet especially written for the occasion. Dr. Wood, one of the acknowledged experts on the Saint Elias Mountains, traces the history of the exploration of the range from its first observation in 1742, concentrating on the portion north of the 60th parallel of north latitude. This publication is of general interest to all mountaineers, and should be of value to anyone planning an expedition to the Saint Elias Mountains.