FARTHEST SOUTH

By Carl R. Eklund

Ornithologist

United States Antarctic Expedition

In a desolate wilderness of ice, 1300 miles south of Cape Horn, two men sat listening to a radio message. They were 400 miles away from their camp, the East Base of the United States Antarctic Expedition. Eight of the fifteen dog team with which they had started were dead, and the remaining seven were in no condition to pull the sledge. They had just finished mapping a sector of the Antarctic continent on which no man had ever set foot before.

The message they heard was not intended for them. The operator at the base was talking to another party in the filed. He was answering the question -

"What do you hear from Ronne and Eklund?"

"We've heard nothing from them for five days, and the last we got was not so good. We promised to go after them by plane, but no telling when we will get good flying conditions. If only they could send us word what the weather is like at their end----!"

The two men stared at each other. Ironically, out of a cloudless sky, a blazing sun beat down on their dead radio transmitter.

This is the story of how they went out to map a new path through the icefields near the South Pole, and how they returned.

******

I'm not going to linger over a description of how we reached the Antarctic Continent and established our camps; one the West Base near Admiral Byrd's old location at Little America, and the other, the East Base, where I was, 1400

miles to the eastward in a circumpolar course along the edge of the continent, on the Palmer Peninsula. If you have a globe or a map of the world, look south of the tip of South America and you will see a knob of land projecting out from Antarctica. This is the Palmer Peninsula. They look off to the south and west and you will see the known, the mapped areas, fade out into the unknown. Then imagine two men with a dog team, a tiny speck in a vast field of snow and ice, crawling out into this unknown land where once away from the open water, there is no living thing, save for an occasional bird.

Twenty-six of us landed at the East Base in March, 1940. We had barely enough time to build our camp before the winter was upon us. Then it was inky night all around the clock, hurricane winds and icy cold for nearly six months. When the first gray haze of daylight appeared again we were ready for our job of exploring, which was to further strengthen the claim of the United States to a large section of the Antarctic Continent.

A twin motored Condor transport plane was part of our equipment and we worked like "a glorified WPA project" unburying it from the snowdrifts. Dick Black, leader at our base, planned to use this for exploration, as well as a sort of ferry boat for sledging parties by flying the trail men and their equipment into the field. Like the best laid plans of mice and men, what might have been a great aid, as well as an inovation in polar exploration, our plane was kept inoperative because of bad flying conditions in the early part of the summer.

The plan was to have the plane take our party, dogs and all, to the vicinity of Charcot Island, 250 miles westward, for a flying start, but September and October brought weather too blustery for flying. When good flying conditions did not materialize and the ground continued too rough for a take-off, it was decided to start with the dog sledges. The summer season is too short to dally, so on November 6, 1940, we were heading south.

My start was an exciting one. I'd just completed lashing the canvas covers of the sledges when I saw a penguin waddling toward the dogs, who were all hitched up waiting my command of "Yake". Apparently Mr. Penguin was bent on paying a friendly social call. I grabbed the "G" pole at the front of the sledge, but stopping the team was impossible. They were after that penguin as one dog. Taken somewhat by surprise, he skittered away as fast as he could go on his short legs, then flopped to his breast and skidded over the snow by paddling madly with legs and flippers. For about 300 yeards he kept ahead of the team which was now in high gear, while I, on my skis, hung on like the tail on a comet.

When they caught up to the penguin, old Grub, my lead dog, put on his brakes, but the rest of the team couldn't stop. They piled up on top of each other like a football team on top of a ball-carrier. Immediately an epic battle was on and the harness was in a mad tangle around the snapping, snarling dogs. I was in it, too, swearing, cuffing, jerking them apart. From under the thickest of the heap slid a very indignant penguin. Totally unharmed, he waddled

away for a short distance, then turned, and I don't know who cursed the dogs more eloquently, he or I. I could almost hear the rascal say to himself, "What a silly bunch of dopes."

Everything we were going to need on the trail had to be taken with us via dog power with the result that luxury items were left at home. Seven of us made up the starting party, and we had fifty-five dogs, divided into five teams. Most of these were pure husky, some born and raised at Little America during the second Byrd Expedition in 1933-35. Paul Knowles and Don Hilton were to help us advance our supplies for the first hundred miles, after which they were to return to camp, when they would again start out on their own sledging trip into the unknown areas along the Weddell Sea to the Eastward. Glenn Dyer, Lytton Musselman, and Joe Healy were to help advance our supplies for an additional hundred miles, after which they would turn to the southeast for a two week sledging trip to the unexplored Eternity Range. Finn Ronne and I were then to sledge south and southwest into the unknown as far as time and our supplies would permit.

Finn was the leader of the sledging party and was second in command at the East Base. By inheritance, inclination, and training he is well fitted for the explorer's trade. His father, Martin Ronne, was with Amundsen on his Northeast passage around the North Pole, and also with Amundsen on his South Pole Trip; and he was one of the mainstays of the first Byrd expedition to these regions. Finn himself was a member of the second Byrd expedition. Although now an American citizen, he was born in Norway and was a noted skier in that land of ski champions. Finn did the surveying and navigating

on our trip, while I was the naturalist, geological observor, and radioman.

On our two sledges, hitched one behind the other, we carried a load at starting totaling 1080 pounds. There was a minimum of extra clothing--we each had six extra pairs of sox but only one change of underwear. The small, orange-colored, Byrdclothe tent, radio transmitting and receiving equipment, transit, shovel, tethering lines, alpine rope and axe, plus all our personal gear, weighed 245 pounds. Rations for ourselves, mostly pemmican, came to 140 pounds. Dog pemmican, which we had enriched with melted seal fat, was the heaviest item--597 pounds. We carried a primus stove and pots for cooking, meta tablets for starting it, four gallons of kerosene--total--38 pounds. Our trail box, trail and beacon flags, weighing 60 pounds, completed the load. Many times we wished it were lighter. These supplies were augmented by those of the support parties, and were cached along the trail to be picked up on our return.

What with bad weather, the dog fracas, and checking supplies, we didn't get started until 3:30 P.M. but the smooth ice of Marguerite Bay made easy sledging and we covered seventeen miles before stopping. We spent an hour collecting specimens at the Red Rock Ridge penguin rookery, where there must have been 1200 birds busying themselves building their rock nests. Several days could have been spent watching these very funny birds go through their nesting antics, had time permitted.

We camped the first night on the bay ice, where we killed a Weddell seal for dog food. This meat is an excellant

conditioner for the dogs, as well as a good anti-scorbutic food for humans.

Second day out we made twenty miles, but as we began to climb up to the Wordie ~~shelf~~shelf we found rougher going. Ice was jumbled up in fantastic shapes, with bergs, open leads* and pressure ice. The edge of the shelf was so steep we had to relay each load. That was hard work. But ahead of us we had something worse to traverse--a tremendous crevassed glacier.

You must think of a glacier as a ponderous river of ice moving with infinite slowness toward the sea. As this river dips over a slope it must bend and this causes cracking. The crack formed is a crevasse. It may be 50 feet wide and 1,000 feet deep. Looking from the top it is often impossible to see the bottom, and it gives one an eric feeling to imagine himself hurtling down into these depths. To me, these are the real dangers of polar exploration.

Sir Douglas Mawson, one of the early Australian explorers of the Antarctic, was sledging with one companion and a dog team. He was skiing out in front. Looking around, he found that his companion, sledge, and dogs had all disappeared entirely. They had fallen into a crevasse while attempting to cross it on a weak snow bridge. Mawson lowered himself the length of his rope--150 feet-- into the crevasse, but could see nothing of his partner--crossed skis made his only tombstone. I couldn't help thinking of this sometimes as we crossed crevasses. I also had a vivid impression of how it would feel to walk from the Empire State Building to the next skyscraper on a plank which might possibly be rotten in the middle.

* Cracks in the sea ice caused by winds and tidal action

The snow bridges are drifts which have packed from the edges of the crevasse until they meet at the center. These may be five, ten, or twenty feet thick. The center is usually the weakest part. On November 11 we crossed at least 200 crevasses although we covered only 12 miles of distance. Sometimes we roped ourselves together with a rope long enough so that only one man was on the bridge at a time. Another method is to send the dog team across first, trailing a long rope. If they make it with their heavy load the driver uses the rope to pull himself across quickly on his skis. In any case, you must always be ready for a break-through when quick action is necessary to get men or dogs back to safety.

Once that day four of the dogs were hanging in their harness ten feet down in a crevasse, with their team-mates pulling back for all they were worth. We rescued them and I looked for a stronger bridge.

Sledging is hard work, especially when the snow is soft, and this, coupled with the constant strain in crossing crevasses, often makes for short tempers. Altercations usually consist of a few caustic remarks, after which both parties realize it isn't quite as important as all that, and the result is a hearty laugh and a friendly ending. I'll never forget one of these incidents because it lasted for two days, and resulted from something very trivial.

While on the trail one day, Don Hilton, whose sledge was in line ahead of mine, had thought up a very fine labor-saving device. Our only method of getting drinking water was to melt snow over the primus stove. However, Don, an ingenious guy, had found that a bucket full of snow placed on the back

of his sledge would melt in the glaring sunlight, furnishing him with a refreshing drink when he wanted it. Old Grub, my slant-eyed lead dog, soon found out about Don's bucket, and whenever he could get close, he sneaked a drink. It seemed even funnier when my two Malamute pups, Ole and Colonel, who were hitched immediately behind Grub, tried to join him at the drinking fountain. Two hours of this brought amicable Don back cussing.

"Listen, Carl! It's all right for Grub to take a drink. I like him and I don't mind drinking out of the same bucket with him, but you keep those damned pups out or I will!" With this he tapped the nose of the nearest pup for emphasis. Every dog driver is very jealous of his team and this, silly as it was, was too much for me--after a hard days travel. I didn't want anyone to discipline the pups but myself. We almost came to blows, and two days went by before we spoke to each other.

Don and I had always been the best of friends, but this seemed of major importance--until finally the humor of the situation struck us. We must have been something to laugh at. Two men on skis, our features smothered in luxuriant beards, looking not too much unlike the huskies themselves, sunglasses protecting our eyes from glare, but otherwise stripped to the hide, accumulating a fine sun tan. The dogs panting in their thick fur while hauling the sledges, with Grub and the two pups looking on in mischievous amusement.

The thermometer, which we had placed on top of a sledge in the direct sunlight, registered 102^0 above. Two hours later it was -12^0 below zero. There is no place which shows

such extremes in weather, and such abrupt changes, as Antarctica. One day you would think the ice caps must melt away and drool down into the ocean. The next day it would be sub-zero with a blizzard blowing. Moods and tempers sometimes follow the same curve.

When we had safely reached a 1200 foot elevation at the top of the Wordie Shelf Ice, 100 miles south of the base, Paul and Don started their return to camp. They had helped us through a very dangerous area, and it was safer for them to return while they could follow the fresh tracks across the snow bridges. We parted from them with much regret, for they were good company. It was a fine, clear day and we saw the plane from the base pass overhead, returning from laying a cache on King George VI Sound near the Batterbee Mountains, on the route ahead of us. Our plan was for the ground party and the plane to cooperate in the job of exploring--the plane to do aerial mapping; the ground party to fill in details and establish definite fixes (locations through sun sights), while each served as protection to the other in case of mishap.

Our first concern when we reached the Wordie Shelf was to look for a cache which had been laid there for us the preceding May. It had been marked with an orange-colored flag on a twelve-foot bamboo pole, but we searched in vain. The high winds must have destroyed the pole and the cache itself was hidden in the snowdrifts. This was an important cache in that it would help cover or protect sledging and plane parties in case of trouble. We did not need food, but if we were to split up into two parties, an extra primus stove and another radio generator were needed. In a radio contact

with the base we asked if the plane could fly out with these articles, as well as with additional food for a new cache, while we were still there. In this way we could help push them off on their takeoff because sometimes a slow or sticky surface made it impossible for the plane to get loose once it had stopped. But with one of those characteristic changes in weather, the temperature had dropped below freezing, and drifting snow obscured the vision. We couldn't travel ourselves and obviously the plane could not.

For two days we were stuck in the tents, playing bridge and cribbage--with holeless socks as stakes--, or catching up on sleep. As soon as the weather cleared, the plane came out with everything we had asked, plus a special treat from Tiny Hill, the cook--a lemon pie with penguin egg merangue--and messages from home which had come in over the radio for us.

Everything was covered with a soft, fresh snowfall when we started next day. It was cold, with an east wind that blew the icy particles into our faces, and frosted our beards. Drawing the heavily loaded sledges was laborious for the dogs, and they could hardly make a mile an hour. We had to relay over the worst spots. When we called it a day we were as dead-beat as the dogs were. I used to crawl into my sleeping bag vowing it was the best place in the world. One night I dreamed of eating honey-dew melons and drinking Cuba Libres in Valparaiso, Chile, where once again we would be meeting friends at that infinitely distant time when we should leave the Antarctic. For three days we made no more than six, seven, or eight miles. We were climbing gradually and had now reached an elevation of 4,000 feet.

My trail diary shows this entry on November 19:

"Not all days can be bad, and this one was an improvement. The loads are gradually becoming lighter, the surface was a trifle harder, and the hills were not so steep, with the result that our odometer registered 13.6 miles. We have passed Latitude 70°S. and today we must have crossed the point where Rymill and Bingham, the Englishmen, sledged east toward the Weddell Sea. The tall, majastic mountains of Alexander I Land could be plainly seen all day, although we couldn't see King George VI Sound. The mountains on our side of the Sound look like the petering out of a range with only a few nunataks * and high snow mounds projecting up--otherwise the terrain is an endless succession of rolling hills, which doesn't always make for good sledging, but keeps up your interest because the eyes are always being opened to new panoramas beyond each succeeding hilltop. Our elevation is 4750 feet and temperature is 21° above. Our course is due south."

As we worked up into the heights the snow was hard-packed by the high winds, which made a better surface for traveling, but sometimes cloud formations came down and we were swathed in mist. This makes the going rather dangerous when you don't know what you may be stepping into. We always had one man skiing ahead with the Brunton compass to break trail and set a course.

When November 21st dawned clear we saw with joy that we were at the top of a long, smooth glacier that seemed free from crevasses. This indicated another parting of the ways. Glenn, Joe, and Muzzy were now to leave us for a side trip

---

* Pyramidal rock outcroppings in a field of snow and ice.

into the Eternity Range before returning to the base, while Finn and I were to head south and west into the unknown.

We had done some dog-swapping and now lined up our reconstructed teams. We were sending back several of the pups with Glenn because we didn't think they would stand the long trip ahead of us, and we wanted to save them. We were certain that not all our dogs would come through alive. I now had a 15 dog team, including Grub, Ole, Mascara, Chief, Dello, Colonel, Sandy, Arctic, Mike, Wray, Skippy, Tarzan, Cleo, Chick and Ben.

A dinner of frozen steaks that the plane had brought us, and which we had been saving for a special occasion, was our farewell banquet. Glenn, Mussy and Joe started us off down the glacier. For a long time we could look back and see them waving, then these tiny figures vanished. From then on we saw no human beings until the last of January. By 2 A.M. we had covered 13 miles. It didn't matter much what time of the day or night we chose to travel, because the light was always good except when a storm or fog obscured it. When it was hot we preferred to travel at night because the temperature always dropped, making the surface better. Our fine sledging continued for two days, during which we knocked off over 40 miles. We were now within sight of the Batterbee Mountains, a landmark important to us. We were to go down to the Sound, find a cache which had been laid down by plane, then proceed southwest. Since we had plenty of supplies ahead of us, we lightened load to ease the strain on the dogs, by making a food cache which we could use on our return.

My tough huskies were beginning to cause me some worry. The heavy loads which they had been pulling were starting to show on them. Some were suffering from infected bites. Although so tame and affectionate with me - every dog looked up for his pat when I came down the line - they will often fight each other whenever they can get within reach. Also Sandy and Dello were quite snowblind from the constant glare. They were all pulling as hard as ever, but the rough ice and crevasses we would have to cross getting down to the Sound were not a pretty view. But down we went, and the going proved to be even worse than looked from above.

The best we could do was five or six miles a day. We spent a hair-raising afternoon crossing the crevasses. They were worse than any we had yet seen, and more hazardous with only two men in the party.

Each man on the trail is allowed 32 ounces of food per day. Breakfast usually consists of a cup and a half of thin oatmeal made with powdered milk, three slices of bacon, and a cup of instant coffee with a trail biscuit. After an 84 day steady diet of oatmeal, my enthusiasm for it has dimmed somewhat! Lunch is simplified in order to eliminate setting up a cooker, and it consisted of a pint of cocoa, boullion, or lemonade, with five trail buscuits. Our evening meal was the largest, and most relished. The main dish was hoosh (pemmican stew). Pemmican is almost a balanced diet in itself as it contains beef, cereal and vegetables. All we had to do was melt some snow, add our pemmican ration, cook it about ten minutes, and we had a stew that no chef could equal, at least it seemed so to us out on the trail. I always fin-

ished up by wiping out the inside of the cup with my finger and licking the finger. This eliminated waste and also dishwashing.

Thanksgiving Day we had to lay up because of a snowfall so we celebrated with a fancy dinner. We had tea with powdered lemon, canned oyster stew, hoosh and cookies. Twice a week we added dried spinach to the hoosh to get additional vitamins. Another staple food was dried fruit, apricots or peaches, which we cooked over the primus stove, for dessert--peach duff we nicknamed it.

Next day we were traveling again with the sledges sinking deeply into the fresh snow. We made only six miles and we were so exhausted that when the dogs started fighting I let go and hit Ben on the nose with my fist. Result, a badly-swollen knuckle and another resolve to keep my temper. Ben seemed to know I came out a poor second on that! It was getting cold again, 18^{0} below zero. Every night I had to mold my ski boots into shape before they froze or I wouldn't have been able to put them on in the morning.

December first we had one of those amazing changes in weather--clear sky, sunshine, and so hot I travelled stripped most of the day.

After we got up the next morning and tock a sun sight, a horrible pain in the stomach and kidney region hit me. It was unbearable. Our method of drying socks at the end of a day's journey was to place them in our sleeping bags, where the body heat would dry them. My socks had become balled up and I had been sleeping on them and this had apparently caused by trouble.

Finn gave me some morphine and kept putting hot compresses on the sore spot. This was a very serious situation and we considered calleing the base by radio for advice from Dr. Sims. I snoozed under the morphine for three hours, awoke to find the pain eased, and then we started again for the Sound. In spite of the delay we ran off 14.4 miles and came down on the Sound at the northwest edge of the mountain range. The following afternoon we found the Batterbee cache, well marked with a bamboo pole and flag.

Now we were only 16 miles short of Stephenson's and Fleming's farthest southing, during the British Grahamland Expedition. We rearranged our load, leaving unnecessary gear at the cache, and headed for a table-shaped mountain we could see to the southeast in Alexander I Land. The smooth ice surface gave us fast traveling, and the next day found us in totally unexplored territory. Nineteen miles from the Batterbee cache we were surprised to find an area of pressure ice which had a salty taste. This seemed a sure indication that the sea extended this far into the Sound. Beyond it was a 50 foot high ice escarpment. Snow petrels were flying overhead, which also indicated open water not too far away.

Crossing the pressure ice, one of our sledges with the radio on it broke through and went completely under water. This gave us quite a scare, and an hour was spent hastily drying it and praying that it would still operate. It was a great relief to find it worked, for our operations would be seriously impeded if we were unable to contact the base. Our daily weather observations, with temperature and barometric recordings were of prime importance to the base be-

cause they governed any possible plane flights into these areas. We kept daily radio schedules with them with our small four tube receiving set and our 12 watt transmitter--power for which was supplied by a small, portable, hand operated army field generator. We transmitted by code and they by voice. One of our difficulties in talking to them was the interference from commercial stations on the North and South American continents, especially when the air-waves are loaded with them around midnight. Usually, however, the reception was quite good, and many nights I've laid in my sleeping bag, with the earphones on, listening to some swing band back home in the States. We could usually get the bi-monthly, shortwave Antarctic Mailbag broadcast from Schenectady, which carried messages from our friends and relatives, and this was a program we never missed if we could help it.

After we had climbed the escarpment we found good surface so that we were able to travel over three miles an hour, which seemed very fast after what we had been through. We camped at Latitude 72^0 15'S., Longitutde 69^0 40'W., and then turned due South to see what we could learn about the escarpment.

Skippy, our "alley hound husky," was one of the dogs I'd got in the swapping. We thought someone must have slipped him in among our huskies as we were sailing from Boston, for a joke. His short, black hair, long pointed nose and flopping ears made him look like an ordinary "dog about town." Being on the same team with our genuine huskies seemed to make him realize his humble origin. Even his bark was apologetic, but he pulled for all he was worth. When we stopped to rest, Skippy would not flop down immediately

as all the rest did, but would wait for my command. One day I forgot to tell him to lie down, and at the end of an hour when I returned he was still standing, looking at me sidewise, waiting for a word.

December 8th we traveled for five hours on a downgrade over an unusually good surface, making 17 miles. We seemed to be getting back to the Sound because the terrain leveled out quite flat. The following day we made eighteen and a half miles, in five hours, on a glassy flat surface. We were anxious for the plane to come out, so that the aerial mapping could be done and ourselves left free to penetrate farther south into territory no one had ever explored before. Then we got into a rolling terrain with large holes and crevasses. We headed for a small rocky nunatak standing alone among the pressure ice, and when we reached it after two days of rough going, we both climbed it.

What was that story about Balboa climbing a mountain to see the Pacific Ocean on the other side? I felt something like that climbing the nunatak. This thousand-foot knoll gave us a view over a radius of 75 miles. But there was nothing to be seen except ice caps and crevasses, clouds and the blue sky with a pinkish cast in the West.

Had to do my first job of dog-killing that day, something I had anticipated with dread because I had grown so fond of all these animals. Tarzan, one of our lighter huskies, was in very poor condition from the constant grind, and there was nothing we could do but to destroy him. It was one of the most difficult things I have ever had to do, but exploration and sentiment couldn't be mixed and it had to be done. We skinned him and fed him to the other dogs, and this made

quite a saving on our dog pemmican. Apparently the dogs also lacked sentiment over their departed brother, for they seemed to relish poor Tarzan. During our sleep there was wild barking and I got up to find that Arctic had broken loose and was finishing up Tarzan's entrails. Two South-Polar Skua Gulls had also popped up from nowhere and were getting their share. Where they had come from was hard to tell, for we had not seen this most southerly of birds since early in November when we were last on the bay ice.

December I4, a beautiful clear day, we climbed the nunatak again and put a rock cairn on top with a claim slip and a message, wondering if anyone else would ever climb up to find it. We could see for almost 100 miles around. It appeared that the nunatak with its surrounding ice caps, was an island in the Sound, and the pressure areas surrounding it the result of the ice coming onto higher ground. All this pressure ice would make sledging very difficult, but we did spy out a possible sledging routh to the southwest. To the South I could see the southern shore of the Sound clearly marked by the crevasses coming down from a higher elevation. The coast bends southwest and south. Far off to the northwest we though we could see a mountain range through the field glasses. Otherwise--nothing but snow plains. When I think of it this is really the most desolate country a man could find. "The inanimate works of nature--rocks, ice, snow, wind and the water all war amongst themselves, yet combined against man they reign in absolute sovereignty."

Dog trouble marred our nest start. In hitching up I momentarily let go of Mike's collar. In a flash he jumped at Chief, his pet hate. Chief slashed Mike's paw and split

most of the pad. This meant that Mike could not walk. Finn had quite an attachment for the old troublemaker, because he had raised him from a pup at Little America so we let him ride on the sledge in hopes his paw would heal. With thirteen dog-power in the harness we made 24 miles. We were nearing what appeared to be a cape in the south side of the Sound.

"December 17:"(from my diary) "Quite a red-letter day in the line of exploration. After traveling for several hours this afternoon we suddenly camp upon an open lead in sea ice! We didn't realize it--we though our elevation was about 100 feet and that we were on the Sound proper. The water in the lead was very salty and besides taking samples we took a sounding up to 153 feet, the length of our rope. Ahead we could see a definite barrier ice edge of what we are now sure is the continental coastline. This of course will mean that Alexander I Land is an island. If substantiated it will clear up one of the most perplexing problems of Antarctic geography. We thought we could see two mountainous islands far to our north, but on coming closer they turned out to be a huge long iceberg, 90-100 feet high. We had previously reported these as mountains. The fact that it is an iceberg is all the more important because it shows there is some movement in this ice, and that these bergs are moving nortward toward the open sea along the west side of Alexander Island. We have crossed three leads so far. The surface is as flat as a pancake and excellent sledging. The barrier edge runs northwest and that is our course at present. It well be quite a feat to delineate the continental coastline over to Longitude 75^{0}W, and we are putting on all possible speed to map as much as our days left in the field will permit. This

has really been a big day! Twenty four miles put away and it's now 5:55 A.M. and so to bed."

Finn and I found convincing proof in the next few days that Alexander I Land really is an island instead of a part of the continent as it has always been shown on maps. What we could see of the mainland was a low tableland with an elevation of probably not more than 800 feet. The party at the Base, after hearing our report, was leated at our discovery, and they were anxious to photograph the area by plane, but cloudy weather at their end made this impossible.

The dogs' feet were now beginning to show much wear from the sharp, salty ice. If we had foreseen this we would have come equiped with moccasins for them. I wrapped one of my windproof mitts on a very sore foot on Sandy. Limping, lean, and galled somewhat by harness and bites, the dogs still kept pulling for all that was in them, and I marveled at their stamina because it was all we could do to ski the distances without pulling a load. We cached part of the load to lighten the sledges.

After 24 weary miles we found pressure ice and saw tracks of a penguin and a seal, though the only living thing we saw was a skua gull. In this lonely and barren expanse even the track of an animal was exciting. We were then over 500 miles from any other human. A dark blue "water sky" to the northward made us feel sure we were heading toward open water, so we kept pushing on. Both Finn and I were very tired, and we didn't have to go any farther, according to plan, but we were so eager for each day's new view that we couldn't stop. One gets an almost indescribable feeling to realize that as you push forward the eyes are being opened up to scenes which no

other person has ever seen before.

The open sea! December 21, after climbing to the top of a cape, we saw the open, ice-free sea sparkling ahead of us as far as the eye could reach, bounded by pack ice on the West and East. It reminded me somewhat of the Ross Sea, and it removes all doubt that Alexander I Land is an island. Besides this being an important discovery, this open water, to me, signified ships and a means of escape from this desolate land. We pitched camp on the ice barrier within two miles of the water and debated what we should do next.

The plane flight west was due, so we rested and waited for it. On our four A.M. radio sked we heard the base faintly, and understood the flight was on. We were so exhaused we fell asleep and didn't wake till the middle of the morning. On our next contact we heard that the plane was northwest of the Seward Mountains and had landed at the Batterbee cache. We did not see it at all.

"We can't go any farther west," said Finn. "Let's deposit a claim slip here

This typewritten claim sheet from the State Department claimed this hitherto unexplored territory for the United States Government, and the following message was written on it by us:

----"sledging with dog team we reached this cape on the continental coastline which overlooks an open sea entirely free of pack ice. The coastline has been delineated to west cape, Latitude 72° 23' S., Longitude 78° 00' W. from Latitude 72° 15' S., Longitude 67° 10' W. Alexander I Land was proven to be an island by our findings. 21st December, 1940."

Both of us signed the message, which was enclosed in a

tin container and placed inside a nineteen-foot high snow beacon. At last I felt as if I had done a little bit for my country in the line of exploration--something which we could claim by right of exploration and not by bloodshed.

We wanted to go west in an attempt to reach Longitude 80° W., but after traveling four miles we were blocked by a deep, steep-sided inlet about 100 yards wide. This extended south back into the barrier and because of this and the possibility of other similar inlets which would retard our westing considerably, we decided to cal a halt to further exploring and start for home. When this decision was made I had a wonderful feeling of relief,for it meant the completion of that which we had come down here for, and that soon we would really be home in the States. Even the dogs seemed to sense they were homeward bound. We made 32 miles in one day, most of it over old trail.

Christmas Eve two bewhiskered Scandanavians were listening to Christmas carols from the UnitedStates and England on their little trail set. I was painfully homesick. We had traveled 18 miles and it was tough to get those out of the dogs. I was afraid to admit it, but several of them were ready to break down. Sandy could hardly walk because of sore feet, and several times he fell down and allowed himself to be dragged along by the rest of the team.. As a last resort I put my mitts on his front feet and this worked for several hours. Ole, Wray, Skippy, and Arctic were also in bad shape, Arctic especially. I'd always admired the pups spirit,but now he was the picture of dejection. We had very bad going because the surface snow had malted and then frozen in a sort of upside-down icicle formation, somewhat resembling stalagmites. This seriously

lacerated their feet. I fed them double rations as a sort of Christmas present.

To celebrate Christmas I thought I would have a bath. We had camped to rest the team and ourselves. Water for washing was a luxury we couldn't afford, since it would use up our kerosene to melt snow, and we were not carrying any surplus beyond what we needed for cooking. I stripped down and filled my hands with snow, but after about three minutes of sandpapering myself with sharp-edged icy particles I gave up and contented myself with my one other clean suit of long underwear. The other I left standing by itself, after seven weeks of faithful and continuous service.

When I harnessed the team next morning Sandy was unable to stand up, and there was nothing to do but destroy him. He had been one of our finest pulling dogs and it was a sad moment when I did away with him. I wanted so much to get him back to camp even though by now he was stone blind. He was always so friendly around people yet among the other dogs he had them all buffaloed by his fierce snarl.

We went on for 21 agonizing miles that day, and then camped at what we thought was the southwest edge of Alexander Island. We considered going north for a few days to look at the edge of the island, but decided against any extra travel. There was doubt in my mind as to whether the dogs could even get us back to camp. Next day we traveled 2- miles toward the ice escarpment at the edge of the island. Ahead to the east and southeast was a straight wall of ice twenty or thirty feet high, which we figured was the differentiation between the temporary sea ice we were on, and the Sound ice which was probably permanent.

(From my diary) "December 28. Things are looking a bit black. Only I7 miles and it has been very hard going for the poor "perros". They are beginning to fall apart like the one-horse shay, and how they will be able to pull the remaining 450 miles to camp is a mystery to me. Both Finn and I realize the seriousness of the situation, but neither of us talks about it. Skippy, the game little cuss, will have to be done away with tomorrow because he can hardly walk, let alone pull. Chick and Wray are almost as bad.

"December 29. These days are more and more of a nightmare. Getting the dogs started is the hardest work we've had so far. Chick could not stand up and we had to destroy him. Shortly after this Skippy dropped in his tracks so he had to go, too. That brings us down to II dogs, with Mike still "hoeurs-de-combat." After we have been going several hours they seem able to pull better. Perhaps the cold surface paralyses the nerves in the pads of their feet so that they are unable to feel the pain. We traveled 24 miles along the edge of the escarpment. Before starting we jettisoned 120 cakes of dog pemmican. We're running practically "naked." Our distance from the Batterbee cache is about 75 miles and if the dogs can only hold up that long we can replenish our food supplies and give them a long rest.

After mounting the escarpment we had harder surface and pushed on to make 23 miles. Getting up the escarpment was a nasty job. One and Ben quit pulling so I unhooked them. Mike was pushed off the sledge to lighten the load, and he and Ben promptly lay down and went to sleep. I had to shoot them both. Ole came up and took his old position in the line.

refusing to quit, so I hooked him up again and he pulled with all his heart, like the true thorobred that he was. What regrets we had over these dogs we had to keep silent because it was now nip and tuck for all of us. New Year's Day was a honey; we sledged four hours with zero visibility, and we were a forlorn looking pair on New Year's Eve. Lying in my sleeping bag I listened to various dance bands all over the country, heard our boys broadcast greeting from the East Base, and listened to Dr. Harry Emerson Fosdicks address from New York's Riverside Church. I vowed my next New Year Eve would be spent under more pleasant circumstances.

Up on the escarpment the surface was much better and I felt more hopeful. We knocked off 2I miles on January 2nd. Ole, Arctic and Wray had very bad feet and I wondered how long they could last. The snow began to fall and I hoped desperately that it would make a soft surface to cushion their cut feet. Just to make things more fun, Finn was skiing on a crust of ice that had formed over a pool of melted snow water. He went through up to his knees so we stopped for a couple hours while he dried himself.

During this time I spotted some snow petrels flying around a nearby peak, and on climbing it I found that the birds had their rookery here. This extends the known breeding range of this species over 350 southward, in the American quadrant of Antarctica. The bird builds its nest in burrows in the ground, and I had quite a lively time collecting eggs for specimens. It is very active in defense of its nest, and in true petrel fashion, [illegible] by ejecting an oily spew at the intruder. [illegible] eyes are often scored at a distance of eight feet, and one has to step lively to avoid the simultaneous "wrath" of a dozen or so screaming petrels. My size 12 ski

boots made me none to nimble and, aside from my specimens collected, I'm afraid I came out on the short end of the fray.

In making geological collections on this peak I found the rock to be sedimentary. The whole of Alexander I Island seems to be sedimentary rock and its connection with King George VI Sound appears to be what geologists call a major fault in the earth's crust. The Antarctic Continent is comprised mainly of igneous and metamorphic rock and this sedimentary type is of considerable geological importance. From the sharply defined stratified rock layers, on this peak, I was fortunate in finding a considerable number of fossils, which heretofore have been rather rare in Antarctic geological collections. Most of these appeared to be ferns, and would prove that at one time this continent had a temperate climate.

On resumption of our travel we had to stick the base of the mountain to avoid the water, and it was rough going again. Wray dropped in her harness and could not get up. The pad on the bottom of her foot was completely gone. I shot her, commending her spirit to whatever heaven good dogs may find. She was born at Little America on the second Byrd Expedition and was the mother of Ole, Arctic, Colonel, Keeno and Cougar. She herself was one of the finest Malamust huskies that ever pulled in harness. Arctic refused to pull and I had to destroy him. Ole seemed to be keeping up on nerve alone. Even old Grub, the lead dog and most valuable member of the team, was limping. Going down from the escarpment through the pressure ice to the Sound we had to pick a new route because there had been considerable movement and much melting since we had been through before. We couldn't tell how thick the ice was; at one time both sledges broke through and went completely under. To round

off a wonderful day, we could not make our radio contact with the base. We were able to receive but our transmitter must have been damaged by the soaking.

On January 5th we made contact with the base, reporting that we had only seven dogs left and two of these in bad shape, and that, though confident we could make the Batterbee cache, we would have to rest there until the dogs' feet had healed. Ashley Snow, our chief pilot, suggested that the plane should fly out, pick us up, dogs and all. This sounded perfect, because from there on in the area had been previously explored and there was nothing we could add. We pushed on through to the cache that same day. What a relief to let those poor huskies lie down and lick their bleeding feet! We settled down here determined to let them repair themselves whether the plane came out or not.

Though we didn't know it, January 6th was the last time we would talk to the base. They were uncertain about coming out with the plane. You must be very sure of good weather when you fly in the Antarctic. We fooled around camp and decided a bed with springs would really be nicer than a sleeping bag. After several hours the snow under the hips melts away from the heat of the body, giving you a most unpleasant sag in the middle. I designed a canvas boot for the dogs, cut several sets out, and stayed up all night sewing, using canvas from the sledge tank and a ship's needle and palm which we had brought with us.

The radio generator had definitely quit. I cleaned the commutator and brushes, but we couldn't get a spark out of it. The base called us, but we couldn't answer. What we got from them was confusing. At one time we heard that the plane was

taking off within the hour. Several days later we picked up a conversation between Earl Perce, co-pilot and radioman at the base, and Harry Darlington, radioman on the Weddell Coast Sledging Party. Harry was asking the news about us. Earl told him they were flying out to get us, but weather had so far prevented it.

"My beard is long enough right now," I told Finn. "Let's make a break for it."

We did not have a very great margin of time because the ships were already on their way to pick up the expedition and take it home. We cut down our supplies and equipment to one sledge load, and improved the sledge by putting a runner in the middle, which we hoped would prevent it from breaking through the crust. Practically everything except a minimum of food, sleeping bags, tent, instruments, and our geological and biological specimens was thrown out. If anyone ever visits this cache again he will find several barrels of gasoline (for the plane), a couple hundred cakes of dog pemmican, several man-food rations, and sundry other articles discarded in this business of polar exploration.

January 15th we listened to the midnight radio sked, but no mention was made of a plane flight, so our battered party started out. We sledged due north, on the Sound, for eight hours, negotiating 24 miles.

The moccasins were of some help to the dogs, but not all of them appreciated my efforts and would worry them off with their teeth if they got a chance. Chief, the old devil, kept his boots on, but picked up any discarded ones and ate them. The dogs were always ravenous, and Finn and I were not far behind them in this respect. Possibly because we were on such

concentrated rations, we never had the feeling of being "full up." Sometimes we debated whether we should sneak half a cake of pemmican from next day's rations. We had 125 miles to go to reach the Wordie cache where we would have canned beans and other luxuries. We sometimes talked about the wonderful meal we would have when we got there.

After wangling another 23 miles out of the huskies I was full of apprehension. Chief and Colonel were the only two who appeared in good condition; Dello was going along but not pulling. Cleo had developed a bad limp, and Ole's feet were going bad again. Overcast sky, a strong north wind and poor visibility added to the gloom. We were traveling over blue ice where the surface had melted and then frozen about two inches thick. Under this was a foot of water above the solid ice. Warm weather which would melt the surface ice would put us in a dangerous spot, because we were sledging down the middle of the Sound, which at that point was about 15 miles wide.

"To play safe we should go over closer to the east bank," said Finn. "But do you think the dogs can stand the extra distance?"

"I'd rather gamble on the weather staying cold," I replied. "If it does we can get through this in two days."

We heard the Mailbag program over the radio, and it was reassuring to get messages from friends and relatives back home. There was also a piece of news very signigicant to us--the ships would reach the East Base about the middle of February. Now we were really in a fever for fear we wouldn't make it by that time. The ships would have to leave soon after their arrival due to the danger of their being beset in the ice for the winter.

The dogs began to perk up, except when the sun came out to

give us a sticky surface. January 17th we made twenty-three and a half miles. Finn reckoned our position as Latitude 70° 34' S., Longitude 68° 07' W.

From my diary: "January 18: This has been a very encouraging day. From the fix made yesterday we calculate that we are now 100.5 miles from the Ratterbee cache. The weather and surface have been perfect and the dogs have worked well. We passed through three miles of pressure area where huge hummocks of ice had piled up into high domes. It was neither difficult nor dangerous, however. At present we are camped off a point on the east side of the Sound and it is up this which we hope to ascend to the Wordie cache, some 52 miles away. We heard Dick on the radio tonight and though reception was very poor we managed to hear that they were sending out fresh dogs to meet us. We passed our thousandth statute mile today, and that is a hell of a lot of sledging.

"January 19: On our midnight radio sked we tuned in just in time to hear the following conversation between Earl Perce, operating the radio in the Condor airplane, and Elmer Lamplaugh at the base radio--

"NPQ (Base) O.K. Earl, good luck to you and Ash on your flight!"

"NPQ I (Condor call letters) O.K., Lamp, Ash is giving it the gun and we're on our way."

"On our radio we could distinctly hear the roar of the motor. Then there was a crash as though the propellor had struck something. Through the noise we heard Earl say,

"We've had an accident!"

Finn and I sat there, our imaginations running wild. For

about five minutes the radio was silent. Then Lamp called our letters, NPQ 3. "Stand by for something important!" Dick Black came on the air and told us that the plane had cracked up in making a takeoff to come out to us. One of the skis had dropped into a crevasse and the propellor had cut the ski in half. One of the wings was also badly sprained. The silence at our end since our last message has Dick seriously concerned. He said that a party of five was preparing to start out from camp to bring us help in the form of fresh dogs. They are traveling by way of the "troth" along the top of the Palmer plateau because the seacoast route over which we came out had melted so that travel there would be too dangerous.

"Fortunately we aren't in such bad shape as they think, because of the good surface we have had since leaving the Batterbee cache. The fact that a plane "rescue" is impossible now doesn't worry us. We are redoubling our efforts to catch Dick's party as close to camp as possible. Today we worked as hard as the dogs getting up off the Sound. We have rigged up some man hauling harness and pull along with the team on the steep grades. Our elevation is about 2600 feet and we are now about 30 miles from the Wordie cache and the de luxe groceries.

We didn't reach the cache until January 22nd because of some very rough weather, but we had no trouble finding it this time. Glenn, Muzzy, and Joe had built the snow beacon up again on their return from the Eternity Range in December. In anticipation of a glorious feast, we dug out a can of beans and one of vegetable soup, lit the primus and heated them up. The soup course we gulped, harly tasting it, but midway of the beans we both slowed down. I saw Finn rummaging around in the supplies.

"Pemmican?" I asked.

"Pemmican!"

"Yes, I think I'll have a little to top off."

"Put in some for me, too."

We'd come to think pemmican was the finest eating in the world. I still think so. We threw away the beans to save room for a dish of hoosh.

We felt so cheerful that we were talking of reaching the camp in six days. Coming to the crevasses, our tune changed quite a bit. Those crevasses were huge when we passed over them in November. Now they were enormous. Also the snow bridges had melted and dropped down. It gives you a chilly feeling to see the old sledge tracks go up to a crevasse, vanish into nothing at a huge gap, then come out on the other side. The melting sun had caused the snow bridges to collapse. We had to find a new route and thought we might be able to get through by skirting Finger Mountain. The sun was getting lower and lower on the horizon and the nights increasingly cold. We could only hope to find a mountain pass that would take us back to camp.

Every time we got into a crevassed area it seemed worse than the last one, but this really was the worst of all because the long summer's melting sun had made the snow bridges so weak and narrow. There was no way of avoiding it and we had to go across many of them. We had two days of this, all rough, uphill work. The dogs again were showing signs of breaking down, especially Ole, Mascara and Dello. When we reached the height where we could view the Terra Firma Islands out in Marguerite Bay it was like seeing an old friend.

On our radio schedule the morning of January 24th we heard that Dick and his party had started. Eight miles from camp they ran into a hurricane wind which had demolished one of their tents and badly damaged another; they had to return to camp for repairs.

as it is impossible to travel without tents, especially in the severe cold we were now having. They were just about to make another start.

We started out in fine shape the next morning, with a good surface, clear weather, and the dogs pulling well. After eleven good miles, at the point where we turned east up another valley and toward the "traffic circle" nunatak, the wind blew fiendishly cold and we came into snow so deep and soft we could make only six miles further. We were only about 50 miles from the base and yet it seemed so difficult to get there.

The "traffic circle" atop the Palmer Peninsula was so named because it has a general round appearance, and into this ten mile circle come five mountain passes. All it lacks is a stop and go light--and some traffic! We ran through it next day and into the Neny pass. Two happier men would have been hard to find when we made camp at the head of the Neny glacier only 36 milesfrom camp.

No sign of Dick and his party yet. We had been worried about missing them--had left a message for them at the Wordie cache in case we should pass without seeing each other--but now we were on a well-marked trail. I have the dogs a meal of man-pemmican, which we felt we could spare and were sure they had earned.

(From my diary) "January 27; My 32nd birthday and also a day I'll never forget. We started sledging at 10 A.M., uphill, and into a stiff north wind for 13 miles. At 5:30 we were thinking of making camp when I saw someone coming toward us on skis. Then three other heads came into view, and then their dogs. Of course it was Dick, Paul, Don and Joe, and what a pleasure it

was to see them! For 84 days we had been on the trail, most of the time only the two of us. As Dick and I met each other we simultaneously came out with the age old crack, "Dr. Livingstone, I presume?" I shook their hands with as genuine a feeling of happiness as I have ever experienced.

"These four started out to bring us help in case we needed it, not knowing where they would find us or how far they might have to go. It was a difficult thing to do, with the ships scheduled to arrive so soon.

"After considerable picture taking and more gabble than a penguin rookery, we made a cache of some of their extra food, and rearranged the teams to give our poor, gaunt dogs the help of their fresh ones. Even though we had been going all day we decided to sledge the remaining 23.9 miles into camp that night. By 6:30 we were off on the last lap, with good surface, newly broken trail and a downhill grade. By 10 o'clock we were on the bay ice in Neny Fjord and at 2 A.M. we pulled into camp.

"Herb Dorsey, our meteorologist, spotted us first and woke up the men. They piled into their clothes and came out to meet us. Tiny had some seal steaks on the stove when we came in the door. (I ate four)."

The picture that was taken of me when we met Dick's party shows a gaunt, hollow-eyed, hard-bitten old guy, crusted with dirt, burned black by the sun and wind, and with such a ragged bush of beard that a self-respecting hermit would cross to the other side of the street, were we to pass. I had lost eight pounds and was hard as a brick.

We had travelled a total distance of 1264 statute miles in 61 traveling days for an average of 20.7 miles per day, having had to lay up for 23 days for various causes. We had delineated

over 360 miles of hitherto unknown coastline, which will reinforce the claims of the United States to this area. It was one of the longest dog sledging trips ever made in history and we were both justly proud.

To the seven dogs which finished up with us--Grub, Ole, Mascara, Chief, Cleo, Dello and Colonel, I give my salute for the stamina and gameness that brought us through; and to the eight others we lost,--Sandy, Arctic, Mike, Wray, Skippy, Tarzan, Chick and Ben I would like to build memorials along that bitter stretch of trail. If there is such a thing as a dog valhalla I know they will be there because they worked until they dropped in their tracks.