

FIELD TRIP REPORT

SOUTHERN RECCONAISSANCE

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SOUTHERN RECONNAISSANCE

Personnel

- (a) Route reconnaissance - Russell , Gleadell Dovers
- (b) Dog sledging track to disabled weasel Macey Dovers Summers Schwartz
- (c) Final journey - Dovers Steinar and Summers

Object To exploit south to 70* Latitude and check the existence of suspected ranges and the extension of an arm of shelf ice from Cape Amery south of Mawson.

Note. The original plan envisaged two parties working together

- (a) a weasel man-hauling party under Steinar whose object was the suspected mountain range.
- (b) a dog group whose role was to work eastward from the support of the weasel group to investigate the arm of shelf ice.

However with the failure of a weasel track at Fifty Mile Depot and the subsequent loss of time dog sledging a track out caused us to modify our plans and send only one party to the southern mountains.

Results.

1. A weasel route was marked to 69-40 S at which point mechanical damage and other factors rendered further travel south inadvisable.
2. Magnetic Declination was observed at three points on the route
3. A geological collection was made at all rock visited.
4. A single mountain and a group of six others were discovered and visited.
5. Weather records were kept on a twelve hourly basis.
6. Plateau nevee temperatures at a depth of five metres were measured at each twenty five miles.
7. Data was collected to map all rock visited and sufficient survey photography to indicate the position of all exposed rock seen.
8. A large mountain range was discovered south of 70* extending SE from longitude 64 E to beyond Long 67 E
9. Depots of food and/or fuel were established at Fifty Mile Depot Mt Henderson and at the southern mountains.
10. Summers made a collection of lichens where found.
11. Bamboo marker flags were left at five mile intervals and measured as a check against future snow accretion

Narrative.Part One. Weasel Route Reconnaissance.

Before leaving for King Edward Gulf in October, with Harvey and Macey I located a depot site on the small rock exposure immediately south of Mt Henderson and whilst I was away on that trip Macey aided by most members of the camp established a strong depot at that point as a base for exploitation south (see Depot laying report by Macey.)

On return from the west it was our intention to push the weasel route reconnaissance a further thirty miles beyond Henderson before launching our two parties south - this to be sure we were really clear of coastal crevassing. However an unexpected demand for a variometer survey and a slight delay in the construction of the weasel cabin narrowed down the time margin.

With Russel Gleadell and Dovers we left Mawson on 2nd December . The parties for the southern journey were ready to leave Mawson 8th December which was considered the latest possible start for an effective journey.

We had very little trouble on the route reconnaissance. I already had a fair idea of the route from aerial flights early in the year I ran ahead with a team of eight dogs whilst the weasel driven by Russel followed with Gleadell with the weasel. One small zone of obvious crevassing was encountered about four miles from the depot and as this was in blue ice it was negotiated without difficulty by following each crevasse until a suitable crossing was located. Hereafter we encountered several series of small cracks in the nevee which indicated crevassing but the snow cover was so heavy that the weasel passed without any sign of trouble.

By midday 4th December we had passed the ~~FIFTY~~ thirty mile point but decided to carry on till fifty miles from Mawson . However at 48 miles the weasel snapped a track for no apparent reason since the going had been very easy. It was a complete break and although considered irreparable we patched the track with steel wire rope clipped on with wire grips and remounted it , hoping to limp back at least some of the way to Mawson. The weasel only made ten yards before the track broke again.

The next day we left the weasel closed down at this point which we now call the Fifty Mile Depot and with the dogs the three of us returned thirty eight miles to Henderson Depot where we camped the night. Base was contacted on the sledge set and requested to prepare a new track.

It was drifting solidly in the morning and we delayed departure until midday when the drift eased up a little. As soon as we turned the south east corner of Henderson we ran out of the drift. A few hours later we arrived back at Mawson.

We were now at the 6th December. A fresh track was prepared and we were then faced ~~the~~ with the problem of sledging the track out to the weasel with the dogs. My main worry was how to get the track up the first two steep ice slopes of the plateau. The dogs alone could not do it. It seemed the only solution would have to be a manhauling job on crampons. However Russell solved this very swiftly by deflating the tyres of the Ferguson tractor and heavily loading the machine. Thus he carried the track two miles from Mawson where he left it ready for the dogs to take over.

PART TWO. Dog sledging the track to the weasel at Fifty Mile Depot.

Party. Dovers, Macey, Schwartz and Summers.

Two teams each of eight dogs.

The party left Mawson mid morning the ^{ninth} eighth December.

Even though the two sledges were very lightly loaded each sledge needed a man roped and pulling ahead of the dogs on crampons to help them over the first two slopes which did not auger well for a speedy trip.

The track was carried on my lightly loaded sledge whilst from the Henderson Depot Schwartz's sledge carried food and supplies.

The dogs worked very well even though it was plain they hated the hard blue slippery ice and we arrived at Henderson Depot in fine style at 1500 hours. Here we loaded food and fuel. As the weather was fine and the dogs still fresh we pushed on till 2100 hours and camped 25 miles ~~from~~ out from Mawson. The next day was still fine and we were away early and after a brief halt for a cup of coffee and biscuit we went on and reached the weasel at 1600 hrs.

By the 2100 hours radio sked we had the new track fitted and were ready to commence the return.

At this stage the plan was that Summers would remain alone at Fifty Mile Depot with my team of dogs and I was to return to Mawson with the others in the weasel, pick up Stinear and then rejoin Summers at the Fifty Mile Depot. But at the 2100 hours radio sked we received a message from Mawson reporting an accident with the Ferguson tractor to Storer who had an injured right arm with possible fracture.

We were then unable to start the return as the dogs were too tired and there was insufficient dog pemmican at the Depot to leave both teams, so we prepared everything for a rapid ~~fast~~ start in the morning and turned in.

Macey and Schwartz camped in the tent and Summers and I in the weasel cabin. During the night a cylinder of rock gas in the weasel cabin leaked and in the morning both Summers and I woke suffering from severre gas poisoning. A shot of oxygen apiece helped. This accident could very easily have had fatal results in the fully enclosed weasel cabin. On the previous weasel route trip this cylinder had been used for cooking and we had had trouble turning it off but put the trouble down to a leaking regulator tap allowing residue unburnt gas in the rubber tubing to leak out. so we counted on the needle valve shutting off the cylinder. As it proved both were faulty and the needle valve though fully screwed down was not cutting out the cylinder and the only shut off was an innefficient regulator tap. The only way of avoiding a repetition of this is to put the gas cylinder out each night.

We got underway early and with Macey and I in the weasel and Summers and Schwartz each driving a near empty sledge behind we moved along fairly rapidly. Apart from a fine pair of headaches to Summers and myself all went very well and we were back at the Henderson Depot at 1730 hours. Here we staked out my dog team (the team for the southern journey), gave each dog four days ration of seal meat and stowed the sledge against the caravan. This done with self Macey and Summers in the weasel and Schwartz driving an empty sledge behind we descended to Mawson. About halfway down Schwartz team was tiring so we let them all run free, strapped his

Even so several of the dogs were too tired even to run free so they too joined us in the weasel.

We arrived Mawson at 2000 hours with ninety seven miles run in three days.

PART THREE

MAIN SOUTHERN JOURNEY.

Personnel

Dovers Navigator, surveyor, radio operator, weasel driver and mechanic
Stinear geologist, weather observation, glaciology,
Summers Botany, biology, spare weasel driver, care of dogs, doctor

Note. On return of Russel, Gleadell and myself to Mawson after the failure of the weasel track it became apparent that our chances of effecting the full plan for the journey had diminished. We held a conference, ~~and~~ and of the party who were to take part the following withdrew for the reasons stated.

1. Macey - health not good and stores work demanding his full attention
2. Harvey - did not want to go, he had already been out on the Eastern Coastal journey and felt his time would be better spent on local carpentry of which there was a great deal still to do.
3. Russell . health poor .. better engaged on a large amount of engine maintenance. Suffered on the short period of the route recce.
4. Schwartz.. health not good .. considered his first duty was with his tide gauge which had the difficult thaw period ahead of him

I would have preferred a larger party but as there was no one else available it became a party of three. Of these Summers and Stinear were in good health but I was still suffering from choleystitis and my health was only fair.

Transport One weasel. two weasel sledged, one team of eight dogs and one dog sledge. For loadings see Appendix "A"

Radio. SCR 694 c set mounted in the weasel and a Gibson Girl SCR 694c receiver carried in the dog sledge.

The programme was limited to a reconnaissance to Lat 70* S along the 64th meridian.

NARRATIVE

We left Mawson on ¹³~~12~~th December and moved up to Henderson Depot where the dogs were waiting for us by themselves. Here we loaded supplies on the two weasel sledges from the Depot and pushed on.

In general we travelled all three in the weasel with the dogs running free alongside. The dogs gave little trouble except the usual early morning brawls, and under these conditions seem capable of about a steady thirty miles a day. Generally I drove whilst Stinear and Summers took turns at the navigation trap.

We travelled as near as possible to a straight line for the position of the two supposed outliers of the main south range reported by National Mapping. (Lat 68 45 Long 64 E) . This route was forced over eastby terrain I found as previously experienced that the best weasel routes lay up

dish valleys avoiding crests and ridges - all crevassing encountered after the Depot was on the forward and northern slopes of crests. Sastrugi was very light and bore 150 degrees changing to 170 after lat 68 45. Approximately every five miles a bamboo was left as a trail marker with a pennant flag attached. The flags were lettered

. A, B, C, series flags between Mawson and and the Henderson Depot (all these were already lost by ablation.

D series flags between Henderson and the Fifty Mile Depot

. E series flags to the first mountain discovered and F series flags south of this.

A low scud of crest cloud gave us a clue to their existence and location This cloud lay to the south west of the mountains not over them.

~~The~~ Plateau surface conditions were first encountered at about Flag D 14 but usual plateau weather conditions did not come into being until about Flag E9 and after Flag E14 we encountered the condition of morning and evening drift that I was familiar with from Adele Land. One could count, I should think, on almost constant surface drift once south of E14 with only very occasional driftless days.

After leaving the supposed position of the outliers (not seen) we decided to travel down the 64th meridian towards a scud of cloud in the far south. Shortly after we located a sharp mountain peak which is referred to provisionally in survey notes and this report as Depot Peak. It lay about 25 miles to south east. We decided to approach this from the western side and continued south making running fixes on the peak to locate it.

At E 14 the way ahead south was blocked by two heavily crevassed ice ridges so at this point we turned on a direct course for Depot Peak. It was during this period and during the stay around Depot Peak that we had continual trouble with the electric fuel pump and the fuel lines of the weasel.

At two miles from Depot Peak we encountered evidence of crevassing and stopped the weasel at this point (Flag E 18). This crevassing was not serious and the danger to a weasel was remote , however I did not consider it worth while exposing the machine even to a remote unnecessary risk for so short a distance.

The weather turned against us for three days and we were unable to visit the peak, but we were able to use much of this time trying to rectify our mechanical worries, making survey , declinometer observations etc.

We then visited the peak with the dog team. Although the western side was precipitous and inn accessible the eastern side has a huge built up snow drift from which the top except for the sharp main peak is easily accessible. The only crevassing at all troublesome for a dog team is on a patch of bare ice immediately ^{north} south west of the rocks.

From the peak we saw in the south a group of nunataks on the horizon with an ice horizon beyond these which seemed to indicate that there was nothing beyond them. At ten miles ESE there was an ice ridge with a small rock exposure showing at the top. With a few rough angles at the peak I was able to locate the position of crevassed ice ridges south and from this locate the best route south which was to return to Flag E 16 and then head SSw.

Stinear geologised , Summers botanised, and I surveyed about the peak for two days. As a check on our five metre snow temperatures we lowered a thermometer into an opened crevasse for fifty feet. I do not think this reading was of much value due to the air movement in the crevasse.

We depoted 28 gallons of petrol at ~~E16~~¹⁷ and proceeded on , rather painfully with frequent petrol vapour locks. At F2 it became apparent that we would have to find a fuel solution as our progress was practically nil over two days. I feared we would have to leave the weasel and proceed onward with the dogs. Both Summers and Stinear were very much against this mainly on account of me. Summers did not consider my health good enough for a dog trip and I must admit my complaint had deteriorated a little since leaving Mawson.

The fuel pump installed was a second hand one rejected from No 2 weasel during an overhaul prior to the eastern coastal journey that Russel had repaired. The weak point was the aluminium casting holding the diaphragm rubbers to the pump spindle which Russel had locked in place with a blob of solder on the brass spindle. On the spare parts list was a spare electric petrol pump . These parts were carried in a sealed kerosene tin which we opened for the first time. The spare pump was not in the tin nor anywhere in the weasel and subsequent investigation has failed to locate it. By cutting up a brass thermostat and from the metal hand filing a brass disc to replace the aluminium casting we were able to rebuild the pump so that it operated with reasonable efficiency. We then pulled down all fuel lines and re- arranged them , cutting the fuel filter out of the system. Thus we found we were able to proceed with the weasel as long as filters at the petrol pump and carburetter were cleaned every ten miles. An alternate solution was to re rig the mechanical fuel pump which was still attached to the engine but we were unable to locate unions. The original unions were american , the French had replaced some with metric threading and Russel had been obliged to replace other with gas threading off the rock gas equipment. As a result practically none were interchangeable. A supply of spare unions would have removed all our troubles.

We decided to approach once more from the western side of the nunataks and turn in when bearing taken had fixed their position for navigation purposes. At this stage we had no idea that the main range existed, on the contrary apart from a crest cloud scud which could originate from the nunataks we were approaching all evidence pointed to their non existence.

As it happens the nunatak area is the crest of the plateau in the area and to the south south east where the main range is situated the land falls away in altitude, thus the summit ridge of the nunatak area cuts out vision beyond. As a result nothing is seen of the main range until the summit crest is reached.

At Flag F 9 we could see a long drifted slope leading almost to the top of Peak 7 (the most south westerly of the southern mountain group of nunataks). We turned in on this slope and drove the weasel up the slope to a point only a few hundred feet below the top of Peak 7.

From this point we first saw the southern mountains and it was a most impressive sight with closely packed mountains stretching away to the south east horizon.

I was eager to push further south with either the dogs or the weasel but there were factors against this. To begin with there was such a complicated array of exposed rocks that a planned attack on the work was necessary, which could not be planned without some sort of a rough survey. Another was my health, Summers was very much opposed to my getting any further away from the surgical facilities of Mawson. The weasel was not in first class order, we had a leaf in one spring broken, serious wear on one front idler, and one bogey pin sheared with the bogey loose on the track as well as a rather dubious petrol pump. On the other hand we had a first class team of eight dogs and a moose's dog pemmican in hand. I asked Stinear whether from the point of view of his geology he would like to push on and do some reconnaissance geology of the main range but he stated that he did not, since the amount of work to be done in the area would keep a geologist busy for a long period and anything he could do in the few days available would not in his opinion justify going on. The last factor was the time factor which I considered unduly advanced to permit us to return to Mawson and present maps and information to next year's party to give them the maximum use of our results. Accordingly we decided to work the nunatak area and return to Mawson as soon as possible.

Although the arguments above seemed convincing I personally consider we made an error in not going on, and find it inexcusable that with a dog team provisioned for a month and the fuel reserves for the weasel return that a party turned back at this point. As leader of the party the final decision was mine and I was responsible.

Stinear geologised the nunatak area which was still a metamorphosed gneissic formation though in his opinion less metamorphosed than about Mawson and Depot Peak. Poor Summers made energetic but fruitless searches for lichens or any other form of life.

I carried out a rough survey using Peak 7 and Peak X (a nunatak about six miles WSW of Peak 7) as a base for a photographic survey of the main range. These give me the elements of mapping the north west and middle section of the ranges but I could not arrive at sufficient to define the south east extent of the range. I feel that the range can be best mapped from well chosen oblique aerial photographs based on my ground control and added ground control made next year.

As soon as the work was completed we headed back homeward. There was no need to navigate as our old tracks were still discernable. So we were able to travel on drift days which accounts for the speed of our return. All went well until we arrived back at the Fifty Mile Depot. We had at this stage one damaged bogey, one broken spring and one bogey with the bolt yoke to bogey ~~xxxx~~ sheared. We were carrying a spare spring but no spare bogeys. During the return I made several abortive attempts to free the bolts holding the bogeys to the damaged spring with a view to replacing it but the bolts were corroded to the faces and held as though welded - possibly a result of dippings received by the weasel in the sea earlier in the year. So we put off the job and decided to drive on until complete failure of the damaged part.

Stinear was interested in visiting Nunatak 1 two miles west of Flag D13 and I could use some photographs taken from this point. At D 13 we turned west and went to Nunatak 1. Up to now we had been cutting sastrugi at a good rolling angle but on this course (270-) we were cutting sastrugi bearing 150) at a bad angle and it was very rough. On reaching the nunatak we found only one leaf holding on the broken spring.

Here Stinear geologised, I took survey photographs and magnetic observations and Summers (at last) found himself among mosses and lichens. Work completed we returned to D 13 and homeward.

At D 9 signs of intense coastal ablation became evident and from D7 to D 6 (near the ice dome) a zone of crevasses had opened up considerably since outward bound. This was annoying since crevasse crossing demands more energetic driving than rolling over light sastrugi. It is necessary to maintain speed crossing a yard wide crevasse and it is not adviseable to linger on a wider bridge any longer than need be so as a result the weasel hits the far side of the crevasse heavily. We were in sight of flag D 4 when simultaneously a track and the last spring leaf broke.

We immediately got to work . By evening the following day we had the new spring mounted and a new track fitted. We still were unable to clear the damaged bogeys to mount them on the new spring. I now had the choice of moving one of the centre bogeys back onto the new spring (which was the rear one) and limping home on three out of four spring assemblies or obtaining a new set of two bogey assemblies from Mawson , only fourteen miles away. The latter seemed the better as I did not wish to risk further damage to the machine.

I asked Mawson on radio if Schwartz would sledge up two new bogey assemblies to meet our dogs halfway. Mawson replied that ~~Mawson~~ Schwartz was ill in bed but that Macey and Harvey would do the job. As neither were experienced dog drivers and we had no way of knowing how much deterioration had taken place between us and Mawson we declined their offer and decided we would go down to Mawson ourselves with our dogs the next day.

It was an infuriating situation. Three corroded bolts were all that were stopping us from mounting the damaged assemblies on the new spring but so far they had defied all our efforts.

The next morning dawned clouded and drifting so we postponed our start and made a last attack on the bolts. We filed bolt heads so that a spanner could just be hammered over them , this done we hacksawed the bolt housings and eased the threads with a wedge . Then by applying a complicated set of leverage we were able to withdraw the bolts.

Three hours later we had the old assemblies with a makeshift axis on one mounted on the new spring and our suspension was as good as new - almost anyway.

Towards 1700 hrs we were underway again groping rather blindly in poor visibility among the crevassing between flags D 4 and D 3. Due to bad visibility this passage took several hours for the bridges had deteriorated somewhat since outward bound and we had to run the length of most crevasses to find the best crossing.

Once this was over we were soon at Henderson Depot where we deposed all our excess material and checked the Depot. The last surprise was on the descent to Mawson. Here we encountered veritable rivulets of thaw water running down old crevasse channels. Some were four to five feet wide and quite deep. In places below the running water we could see the blue depths of the crevasse seperated from the water by a thin plate of clear ice. I broke one of these and the rivulet flowed down into the crevasse.

The surface was cut into small needles orientated northerly at an angle of about 30- this worried the dogs all of whom had sore feet on return.

We arrived at Mawson at 0200 hours 7th January, and needless to say there was no welcoming commattee only the snores from the hut at that early hour.

Weasel Travel on the plateau south east of Mawson.

My impression of the weasel route and surrounding country is that as long as the weasel is kept out of areas of obvious ice distortion most of the plateau can be visited by weasel. From the air early in February I formed the following conclusions. The coastal region on the western side of the Casey range for a depth of at least fifteen miles is impassable to weasels. I think that the David and Masson ranges can be visited by weasel on a line from Henderson to their northern tips - in any case blue ice exists where any crevassing can be seen. I investigated the possibility of weasel routes south between Casey and David ranges and also between David and Masson ranges and between Masson and Henderson and in each case found heavy crevassing between ten and twenty miles south in lines east west.

The present route was that chosen from the air and the only serious deviation from the air chosen route was turning Henderson on the western side since from the air the eastern crevassing did not appear to reach the mountain. The only critical area is at Flag D7, there is a comparatively narrow passage between the ice dome and heavy (from the air) crevassing to the east.

As long as the crevassing in blue ice between flags D3 and D4 is not hidden by light snow the present weasel route is a good one and if I was to do more work on the plateau I would use it at least as far as Fifty Mile Depot before turning either east west or south. For working south I would abandon Fifty mile Depot as being too close to Mawson and make the relay depot somewhere about Flag E 9. This is the furthest that I think adviseable or else the depot would be laid in an area of fairly constant drift

2. Sastrugi

True bearings. From Mawson to Flag E 7 the sastrugi bears 150 * and south of E 7 170-degrees

I do not know whether we were lucky or not but sastrugi never existed as a real problem this trip. This may be partly due to the fact that our route lay near parrallel to sastrugi for whenever we swung on an east west course we noticed it. It was considerably higher in the immediate southern mountains area but of whether this condition continues on to the main range I could not be sure.

I would reccommend doing as we did in Adele Land that is making zig zag courses to cut sastrugi at a good rolling angle to avoid excessive wear and tear on machines.

Dunes should not be confused with sastrugi, they are the great drifts thrown up by blizzard and usually lie across sastrugi.

3. Blue ice.

The blue ice between Henderson and Mawson is safe since most crevassing is filled with frozen thaw water which is as solid as rock. However in early January these running streams of thaw water are a nuisance as they cut in fairly deep and in places are too wide to jump with the weasel. I do not think that they are at all dangerous.

From our experience it seems that there is never any snow lying on this ice and it is steadily ablating away even in winter but it is too early to generalise - we may have had a very mild year.

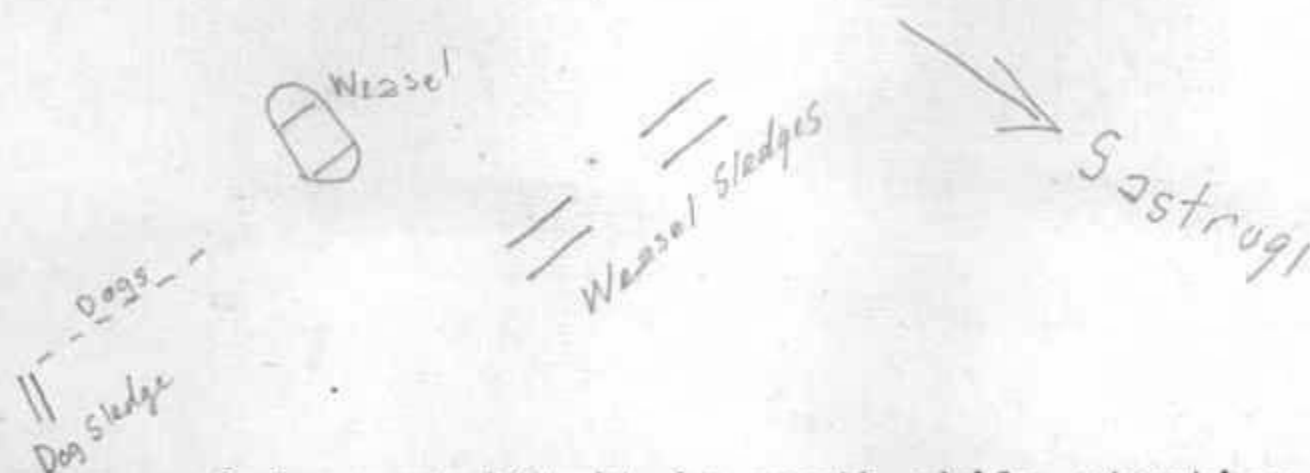
To sum up the foregoing - my experience has been that you can cross a large number of types of crevassing with a weasel but if possible I keep well away from any form of crevassing and avoid crests and ice distortions that may cause them. Once on typical plateau conditions of sastrugi and dune I do not think that there is much real danger for the snow cover is too heavy for open crevassing or thin bridges as long as the surface is regular.

However I would point out that the fatal weasel accident in which two of Expolaires were killed happened on the Greenland plateau in an area considered perfectly safe on similar grounds.

4. Procedure adopted at halts.

- (a) Weasel halted down the axis of sastrugi with exhaust plugged.
- (b) Weasel sledges halted and detached from weasel in an axis at right angles to sastrugi
- (c) Dogs staked out in an axis at right angles to sastrugi well clear of lee drifts from weasel or sledges

Sketch lay out at halts.



In case of dense drift it is worth while starting the weasel and moving the weasel sledges to avoid having to dig them out when the drift eases.

5. Water Food

It was our practice to carry a snow melting tin filled with snow over the exhaust channel of the weasel and also a day or two of tinned food in the same place to always have a supply of fresh water and tinned food thawed by waste engine heat. We adopted the practice in the weasel of using the basic ration pack and butter supplemented with tinned meat and fruit from normal ~~ratio~~ camp stocks, this way we conserved pemmican the most expensive item in the ration.

Egg powder was eaten as omelettes or scrambled eggs. A good soup can be made from onion powder, vegemite, a little pemmican, butter and powdered milk - this we considered better than the tinned soups. The quantities of the basic ratio worked out well except for coffee of which we carried excess tins of Nescafe. However we were not drinking any cocoa which would account for the heavy useage of coffee.

6. Pre heating of engines.

Never required this trip. The engine started easily under all conditions encountered. I had a bottle of ether in the weasel for cold starting if we did strike a sudden cold snap but it was never required.

7. Spares and tools for mechanical repairs.

(a) Spares. This is always difficult to decide particularly with a single weasel. However for a group of two weasels I consider the following essential items

1 spare track	1 spare petrol pump
1 spare bogey assembly	1 spare clutch plate
1 spare main spring	spare fan and generator belts
1 spare starter	spare generator brushes
1 spare gear box	2 spare thermostats
1 spare half shaft	Penetrene oil
1 spare radiator	Spare bogey pins bushes and bolts

Above this that which we were carrying would prove adequate.

b. Tools

We particularly lacked a heavy monkey wrench of good quality. I would like to see with each weasel group a full set of sockets and a speeder wrench. Although most work can be carried out with the tool kit we used a lot of time can be saved with a suitable socket instead of an OE spanner.

Apart from spanners etc the weasel should be a small travelling workshop capable of repairing or even improvising small spares

Some items should be

- 1 3 inch vice .. ours was too small and too weak
- 1 breast drill and a good range of bits
- 1 hacksaw with six blades
- 1 soldering iron, solder and suitable flux for all metal parts.
- emery paper and wire brush
- 1 blowlamp
- Several files
- rubber solution, gasket goo and gasket cement
- 2 cold chisels, one small one large.

Miscellaneous spares. It is the odd bits that seem to save the day odd bolts and nuts, a small piece of bar metal, wire, brass plate copper tubing, spare unions for oil and petrol lines, mostly items without a specific purpose which can be classified under the general heading of junk. Pick bolt and nut threading to match weasel threadings - an odd bolt with the right threading gave us a makeshift axis for the bogey with the sheared axis.

Preventive maintenance. One lesson I learnt this trip is that all suspension nuts and bolts should be checked before departure and any that appear stubborn loosened, oiled and retightened - I felt b----- silly with three stubborn bolts holding us up for two days.

Weasel Cabin I hand full marks to Russel for the cabin he built on No 3 weasel .. it is the best cabin I have used. His sliding doors are a new idea and extremely practical. I might mention that he built this cabin out of salvage material from the charred ruin of No 2 weasel plus whatever odd bits he could make up.

Weasel operation at high altitudes. Discounting our fuel line trouble which was purely mechanical we had no trouble with the machine operating at 6000 feet.. We had main metering jet No 159 & 59 (0 to 4000 feet) fitted and although the NSBX reported trouble with these jets under similar conditions we had none.

Petrol consumption This worked out at 2.2 miles statute per gallon exactly the same figure as we had in Adele Land under similar conditions Total consumption of engine oil was about one gallon and transmission oil nil. On the whole trip we used less than one gallon of premixed fifty per cent water glycol in topping up the radiator.

Note. Using 10 W transmission oil we could not use low gear high ratio as the oil throws and the gear box rapidly overheats. Most of our travelling was in top low ratio.

Drawn loads.

At full load eg at departure from Fifty mile Depot, 2 tons less the weight of sledges but as half the load was petrol and the remainder mainly seal meat and dog pemmican all of which was consumed regularly our average drawn load over the trip would be about one ton.

Sleeping and eating.

All done within the weasel cabin using Coleman stoves for cooking We had with us for trial a small cylinder of propane gas with a burner head that screwed onto it (marketed in France as Camping Gaz) which gave us twenty hour of cooking for an all up weight of 8 lbs. This was quite the most convenient field cooker I have ever used but hardly as economical as the kerosene primus for dog sledging.

Wireless.

We carried an SCR 694 c set mounted in the weasel and a Gibson Girl transmitter with a battery powered SCR 694 c receiver with the dog sledge. The weasel set was used for all communication and the only time the sledge set was used was to receive a time signal for survey purposes whilst away from the weasel.

Communications were excellent. There was not one day on the whole trip on which we failed to make contact and pass traffic to Mawson.

Macey made up a full wave length antenna for the weasel from heavy copper wire. This clipped on an insulator at the rear of the weasel and was laid out direct on the snow, quite frequently it was partially buried in drift. Orientation was always towards or away in the azimuth of Mawson.

The only improvement I can suggest in the radio equipment is to mount the antenna on a cheap heavy fishing reel attached to the rear roof of the weasel.

Navigation.

The Wild T2 carried for survey purposes was used for navigation also. Where possible we adopted the practice of an morning and evening longitude with a noon latitude, carrying position lines by course and distance. All courses were run on the astro compass and distances measured by weasel speedometer.

DR positions plotted agreed generally very well with sun observations for position. Due to sastrugi orientated SSE the tendency was always to work over east of the desired course due to running down the crests of large sastrugi before turning back on course. Track slip averaged 1 in 37 (this included also small deviations in track), that is for thirty seven miles made on the weasel speedo the actual distance made good was thirty six miles.

Time signals were relayed from Base ex WWVH once per day. The chronometer which maintained a good rate with the dog sledge

on the western journey was erratic on this trip. This was due to large temperature changes with the weasel engine running. In the weasel it should be carried in the large insulated box as on eastern journey.

Plotting was done on 1/500,000 scale which proved adequate for this work.

An azimuth circle was mounted on the weasel roof. The only modification made to this was to insert a sponge rubber strip around the base to prevent the counterweight bar from hammering against the support arms which happened on the eastern trip resulting in damage to the instrument.

Hour angles were changed every quarter hour on the azimuth circle.

Survey

Very little need be said on this subject.

The main gear was the Wild theodolite with the survey camera mounted. Heights were by aneroid checked where possible by vertical angles to any visible land. Not a great deal of work would be involved in carrying trigonometrical heighting from Mawson to the main southern range.

The small survey aneroid is too restricted in range for work beyond 5,500 feet. Altimeters will be needed in the southern range area.

The survey camera was as usual excellent and gave no trouble but extreme distance objects are slightly out of focus on the negatives, possibly due to contraction of metal components with the cold.

The diaphragm of the T2 clouded during the last stages of the trip. I do not know the cause of this .. it cannot be cold since the instrument has performed satisfactorily under much colder conditions than those experienced. It appears that Canada balsam gluing two glass faces has split.

The photographic base is 5.73 miles statute in length and well orientated. Its length is based on latitude observations at Depot Peak and Peak 7 (forty nautical miles)

A recurring trouble with the theodolite is the lock thread of the tripod which ices and takes a lot of time to clear.. I got over this trouble in Adele Land by inserting a large spring washer but forgot to do this this trip.

Weather Conditions.

See the attached Met observations. For approximate mean annual temperatures see the list of temperatures taken at five metre depth during the journey.

Clothing and Equipment.

This proved adequate. None of us had any criticism to offer. The eiderdown parka was used by Summers but not by Stinear.

Magnetic Declination

On the field maps results of these determinations are marked down. This covers Scullin Monolith to King Edward Gulf and south to Pk 7.

Field Equipment.

Dogsledge little used but proved satisfactory

Crampons and skis were not used. Ice axes were mainly used as anchorages for the dog lines. I made up a dog mooring line from the 2000 lb rappelling nylon which proved excellent better than the mooring line in light flexible steel wire rope.

Sun goggles. No one suffered from snow blindness. However I consider neither type satisfactory, too fragile and easily damaged, and neither type dark enough. Summers used two lens in the glacier goggles and found them satisfactory

The best goggles I have ever used were the Everest pattern which consisted of wide orange lenses and stockingette sides. I used these on Heard Island and in Adele Land.

Medical.

Little demand was made on the weasel medical kit. We worked mainly off the personal kits. Heaviest user was myself with APC, soneryl and physeptone to ease pain.

Stinear and Summers found the parasol cream adequate for sunburn, as I was driving most of the time I was not exposed to the sun.

The Mawson Henderson route.

The original route was marked out in April before we knew much about local conditions. It was remarked with dural flags in October before I left westward. Since then despite maintenance all marker flags except those in neevve near Henderson have been lost through ablation. During depot laying by Macey the route was swung a bit westward in the centre portion but not marked. When dog sledging the track out to the weasel we went over even further west. This latter route seems the best and has been used ever since. In any case there is ample room to wander about on the western side.

It is quite easy to go up to Henderson but in coming back without marker flags the route usually becomes lost and you finish too far east. If you run into crevassing three miles from Mawson you are too far east.

The route is almost entirely over blue ice except the last bit on the lee drifts near Henderson

It is a waste of time putting in dural stakes. We asked for some ~~MEAL~~ form of cheap dye to mark the route.

We had considerable trouble pulling a load up the first two ice slopes with a weasel on standard tracks. The heavy duty tracks plus track crampons are the best. Macey arrived at a useable solution by cutting away the rubber pads on standard tracks (see Depot Laying report.)

The other trouble was sledges overrunning the weasel on descent which was overcome in two ways.

1. A brake built on one sledge by Macey .. this works well and leaves a deep scratched track on ice or snow, a very useful secondary service.

2. A rigid towing attachment built by Russel to replace steel wire rope towing cables. The rigid towbar is not advantageous on plateau snow or sea ice but for the Henderson Mawson stretch it controls the sledge well.

Weasel Route from Henderson Depot to Flag F 10

These are the DR courses and distances run and have not been adjusted to fit astronomical positions. For geographical positions of Flags see the southern reconnaissance maps. Altitudes are shown on the maps also.

Henderson Depot

Speedo 110.7

		Course 093	
D1	Black Bamboo	Speedo 12.1	
		Course 093	
D2	" "	Speedo 13.4	
		Course 114	
D3	2 red durals	Speedo 14.8	Crevassing in blue ice route through wandering
		Course 140	
D4	Black bamboo	Speedo 16.5	
		Course 104	
D5	" "	Speedo 17.7	
		Course 140	
D6	" "	Speedo 19.2	
		Course 150	Crevassing troublesome late summer
D7	" "	Speedo 20.2	Close to east face ice dome
		Course 162	
D8	" "	Speedo 21.3	
		Course 150	
D9	" "	Speedo 22.4	
		Course 142	
D10	" "	Speedo 23.5	
		Course 148	
D11	" "	Speedo 25.0	
		Course 142	
D12	" "	Speedo 26.2	
		Course 164	
D13	" "	Speedo 28.0	
		Course 174	
D14	" "	Speedo 30.0	Faint signs crevassing in nevee
		Course 160	
D15	" "	Speedo 31.7	
		Course 174	
D16	" "	Speedo 33.9	
		Course 143	
D16a	Black dural	About mid distance	
		Course 144	
D17	Red bamboo	Speedo 36.2	
		Course 154	
D18a	Black dural	About mid distance	
		Course 149	
D18	Black bamboo	Speedo 39.2	
		Course 146	Faint signs crevassing in nevee
D19	Red bamboo	Speedo 39.3	
		Course 138	
D20a	Black dural	About mid distance	
		Course 144	
D20	Black dural	Speedo 43.5	
		Course 154	
D21	Black dural	Speedo 44.5	
		Course 160	
D22	Black dural	Speedo 45.1	Faint signs crevassing in nevee
		Course 162	
D23	" "	Speedo 46.9	
		Course 162	
D24	" "	Speedo 47.9	
		Course 155	
Fifty Mile Depot. Two drums petrol high with red bamboo marker			
		Speedo 48.4	

Note . Due to a crest the Depot is not seen until D 24 but it is visible for five miles from the south.

Weasel route from Henderson Depot to Flag F 10.

<u>Fifty Mile Depot</u>	Speedo 50.3	
	Course 154	
E1 Black Bamboo	Speedo 51.3	
	Course 137	
E2 " "	Speedo 52.3	
	Course 145 1 mile	
	Course 151 1 mile	
E3 " "	Speedo 54.3	
	Course 167	
E4 " "	Speedo 58.3	
	Course 169	
E5 " "	Speedo 63.4	
	Course 167	
E6 " "	Speedo 68.4	
	Course 167	
E7 " "	Speedo 73.4	
	Course 167	
E8 " "	Speedo 78.4	
	Course 168	Evidence of crevassing hereabouts
E9 " "	Speedo 83.4	
	Course 180	
E10 " "	Speedo 88.4	
	Course 208	
E11 " "	Speedo 95.5	
	Course 179	
E12 " "	Speedo 100.5	Zone of steady plateau drift onwards
	Course 179	
E13 " "	Speedo 105.6	
	Course 181	
E14 " "	Speedo 108.6	Crevassed ice ridges ahead on 180
	Course 180 122	
E15 " "	Speedo 110.6	
	Course 122	
E16 " "	Speedo 115.8	
	Course 121	
E17 " "	Speedo 120.8	
	Course 121	
E18 Red bamboo	Speedo 124.2	
From E18 Depot peak bears 123 degrees 40 minutes distant seven thousand feet. The intervening ground is crevassed and hardly far enough to warrant risking a weasel over it.		
E17 Black bamboo	Speedo 00.0	
	Course 220	
F1 Black bamboo	Speedo 04.5	
	Course 193	
F2 Black bamboo	Speedo 09.5	
	Course 166	
F3 Black bamboo	Speedo 14.6	
	Course 168	
F4 " "	Speedo 19.6	
	Course 166	
F5 " "	Speedo 19.7	
	Course 170	
F6 " "	Speedo 24.7	
	Course 169	
F7 " "	Speedo 29.7	
	Course 168	
F8 " "	Speedo 34.7	
	Course 168	
F9 " "	Speedo 39.7	
	Course wandering about 146	
F10 Final camp on north slope Peak 7 South Mountains. Depot is situated (Speedo 45.0) on a rock rib marked with a red bamboo.		

Stores and sledge loadings.

As part of the load was picked up at Henderson Depot and a sledge load of 220 gallons of petrol picked up at Fifty Mile Depot, loadings are as at departure from Fifty Mile Depot southward.

Weasel equipment.

1 Wireless SCR 694 c installed complete with spares
 1 Vibrator unit SCR 694 c
 1 Hand generator for SCR 694 c
 3 pkts Velpak
 1 snow melting tin
 2 Coleman stoves
 1 coleman field repair kit
 1 2 gallon fuel tin
 2 Aluminium billies
 3 Canteen sets
 3 Knife fork spoon sets
 3 enamel mugs
 2 rolls paper towelling and toilet pper.
 2 snow whisks
 2 sponge rubber mats
 6 dozen matches
 1 weasel medical kit
 1 oxygen cylinder and mask
 2 prs skis
 2 prs stocks
 3 prs crampons

Not carried in weasel but weasel gear

600 ft nylon rappelling cord and one 120 ft nylon rope (crevasse rescue)

Loaded on the two weasel sledgesNo 1 sledge

5 forty four gallon drums petrol
 2 gallons Engine oil
 2 gallons transmission oil
 2 gallons pure glycol
 2 short bridging timbers
 7 sacks cut seal meat
 (approximately 650 lbs)

No 2 sledge

1 weasel track
 12 twelve man day ration packs
 240 lbs dog pemmican
 120 lbs of station rations
 6 gallons kerosene
 1 declinometer and tripod
 30 bamboo marker flags
 20 dural marker flags
 spare lashing
 3 sleeping bags
 3 personal sacks

Carried in the front coffer for convenience.

1 bottle sulphuric ether
 1 gallon 50/50 premixed glycol
 1 gallon engine oil

Weasel tools etc.

1 standard weasel tool kit
 (2 sockets
 (1 speeder wrench
 (1 Allen key for tightening fan belt
 1 special track jack (six piece)
 2 3 ton trewella jacks
 3 SWR 10 foot strops
 100 ft 1 1/4 SWR
 4 U shackles
 1 Marlinspike
 1 pick
 1 axe
 2 shovels
 1 large crowbar
 2 small pinch bars
 1 spalling hammer 4lb
 1 snatch block
 1 2 ton chain block
 10 SWR grips
 1 petrol pump (refueling)
 200 ft 1 1/4" lashing
 Verrey pistol plus ten cartridges

Mechanical spares

1 Main spring
 1 self starter complete
 1 set gaskets
 2' HT lead
 20' LT lead
 2 fan belts
 2 generator belts
 1 clutch plate
 1 th^r throwout race
 1 fuel pump complete
 1 12v ignition coil
 2 condensers
 1 rotor
 1 contact set
 2 generator brushes
 2 starter brushes
 3 spark plugs
 1 radiator hose top
 1 " " bottom
 4 radiator hose clips
 1 water pump impeller
 2 flexible oil lines
 2 U bolts for spring
 2 thermostats
 1 universal joint
 1 half shaft
 1 spare diaphragm electric pump
 1 tin spare nuts bolts etc

Mounted on the weasel was one astro compass and one azimuth circle. We carried in the weasel a duplicate set of navigation accessories as those listed with the dog sledge equipment.

Stores and sledge loadings.Dog sledge.

Rations men 3 twelve man day packs
 Rations dogs 64 lbs
 Fuel kerosene 2 gallons
 2 pkts Meta tabs
 1 primus No 41 sp
 1 Repair kit primus 41 sp
 1 filling tin primus
 Canteen sets 2
 1 Billy aluminium
 2 enamel mugs
 3 knife fork spoon sets
 2 Rolls paper towelling
 2 Rolls toilet paper
 1 Tent ANARE pattern
 2 sponge rubber mats
 1 garden spade
 1 eight place dog mooring line
 1 dog whip
 1 pistol .38
 12 rnds pistol
 1 ice axe
 1 pr crampons
 1 nylon 120 ft rope
 3 carabiniers
 3 sledge clips
 3 ice pitons
 1 sledge repair kit
 1 hank seine twine
 1 spare dog harness
 5 yds each lampwick 2" & 1/2"
 1 spare sledge bridge
 1 longitudinal repair bracket
 2 dozen matches
 1 geological hammer
 1 Gibson Girl Transmitter
 1 SCR 694 c receiver
 1 Battery box Receiver
 1 Box headphones, key signal pad.
 1 Box radio spares.
 1 dog sledge medical kit.
 1 set instruments and navigation gear

Contents set instruments and Navigation gear.

1 theodolite Wild T2
 1 short tripod for T2
 1 compass 6" magnetic
 1 Barometer aneroid
 1 Thermometer
 1 chronometer longines
 1 Nautical almanac
 1 Navigation Tables
 1 Computations book
 3 Field books
 6 Pencils
 1 Rubber
 1 pr dividers
 1 scale
 1 parallel rule boxwood
 1 map case and maps

Note. Duplicate of this set less theodolite was carried in the weasel

Mounted on the sledge 1 astro compass

Sledge boxes

2 small
 4 large.

Load lashing rope from 2000 lb nylon

Marker Flag	Date	Height ft	Glaciology	
			Temperatures of nevee at depth	
F9	30-12-54	8.15		
F8	"	7.60		
F7	1-1-55	8.30		
F6	1-1-55	7.10		
F5	"	8.35		
F4	"	4.50		
F3	"	6.80		
F2	"	6.00		
F1	"	5.30		
E17	2-1-55	5.95		
E16	"	5.90		
E15	"	6.25		
E14	"	6.65		
E13	"	6.75		
E12	"	6.70		
E11	"	6.30		
E10	"	7.75		
E9	"	5.55		
E8	3-1-55	8.00		
E7	"	7.50		
E6	"	8.30		
E5	3-1-55	6.50		
E4	"	7.55		
E3	"	6.30		
E2	"	7.20		
E1	"	8.35		
D24	4-1-55	4.05		
D22	"	4.20		
D21	"	3.20		
D20	"	4.95		
D20a	"	3.85		
D19	"	6.55		
D18	"	7.40		
D18a	"	3.00		
D17	"	8.00		
D16a	"	2.55		
D16	"	7.15		
D15	"			
D14	"	7.00		
D13	"	7.90		
D12	"	7.45		
D11	"	9.10		
D10	5-1-55	6.60		
D9	"	6.45		
D8	"	6.65		
D7	"	5.60		
D6	"	6.50		
D5	"	6.50		

Remaining stakes lost
by ablation.

Notes on temperatures at Depth. Two of the thermometers supplied by Loewe in inertia cases were taken. One was not used. Therm No 3 (an alcohol filled one) broke during travel. No 4 was one of my red spirit thermometers and was used in its normal metal carrying case, it is also the thermometer used on all field trip met obs. With breakage of No 3 we mounted the second of my red spirit thermometers in Loewe's inertia case and used this thereafter and called it Therm. No 5.

Station Flag E10				
Depth metres	time minutes	air temp Cent	Nevee temp C	Therm
5	24m	-6.5 C	-24.0	NO 3
5	"	"	-25.0	NO 4
5	68m	-7.0	-27.3	No 3
5	168m	"	-27.3	No 4
5	128m	"	-27.8	No 3
5	"	"	-27.2	NO 4
7	190m	-8.2	-27.8	No 3
7	"	"	-28.2	NO 4

This station was used as control and all subsequent readings were taken at an exact depth of five metres.

Station Flag E17	
Depth 5 metres	Air temp -5.0 C
Exposed in hole	60 minutes
Therm No 3	-28.2 C
Therm No 4	-27.8 C

Station Crevasse $\frac{1}{2}$ mile east Flag E 18	
Depth 46.3 feet	Air temp -6.0 c
Exposed	240 minutes
Therm No 5	-27.2 C
The thermometer was lowered through a hole in a crevasse bridge until it came to rest against a chock of snow	

Station Flag F5	
Depth 5 metres	Air temp -18.7 C
Exposed	360 minutes
Therm No 5	-30.8 C

Station Flag F10	
Depth 5 metres	Air temp -14.5 C
Exposed	210 minutes
Therm No 5	-31.2 C

Station Flag E6	
Depth 5 metres	Air temp -8.2 C
Exposed	60 minutes
Therm No 5	-25.2 C

Station Flag D13	
Depth 5 metres	Air temp -6.0 C
Exposed	65 minutes
Therm No 5	-20.8 C

SOUTHERN JOURNEY

METEOROLOGICAL OBSERVATIONS

Date	Time	Location	Alt.	Barometer		Temp. *C.	Wind.	Weather
				Cor'd.	Aner.A. Aner.B			
14.12.54	0800	D.6	2162	26.90	27.14	-5.5	30/130	Fine, cloudless, lt. surf. drift, vis.max
	2000	50m.D	3600	25.34	25.59	-7.0	25/140	Fine, cloudless, Vis. max.
15.12.54	0800	50m.D	3600	25.36	25.64	-9.6	30/140	Fine, cloudless, Vis. max.
	2000	E.10	5140	24.16	30.89	-11.5	20/150	Fine, cloudless, Vis. max.
16.12.54	0800	E.10	5140	24.19	30.96	-8.7	25/150	7/8 Ac/As. Fine, 0'cast. Vis. 5m.
	1400	E.10	5140	24.18	30.96	-6.5	30/150	8/8 Sc. Heavy 0'cast Surf. drift. Vis. 1/2m.
	1700	E.10	5140	24.20	30.99	-7.2	30/140	8/8 Sc. Heavy 0'cast Surf. drift. Vis. 1m.
	2000	E.10	5140	24.21	31.01	-8.2	25/140	As at 1700 hrs.
17.12.54	0800	E.10	5140	24.23	31.10	-7.0	20/160	5/8 Sc. scattered. Vis. 10m. Fine.
	2000	E.15	5620	23.82	30.49	-7.6	5/160	6/8 Ci/Cs. 1/8 Sc. Fine. Vis. 10m.
	2300	E.15/16	5640	23.78	30.43	-11.2	10/160	4/8 Ci/Cs. 1/8 Sc. Fine. Vis. 10m.
18.12.54	0800	E.15/16	5640	23.68	30.35	-10.5	25/160	1/8 Cs. to W. Lt. surf. drift. Vis. 5m.
	2000	E.18	5604	23.67	30.31	-7.6	30/150	3/8 Ci/Cs. Mod. surf. drift. Vis. 5m.
19.12.54	0800	E.18	5604	23.62	30.30	-9.8	40/150	Fine, cloudless, drift E. Vis. 10m.
	1100	E.18	5604	23.63	30.30	-8.2	45/150	Cloudless, mod. surf. drift. Vis. 2m.
	1400	E.18	5604	23.70	30.36	-7.8	45/150	As at 1100 hrs.
	1700	E.18	5604	23.68	30.34	-9.0	45/150	Cloudless, heavy surf. drift. Vis. 1m.
	2000	E.18	5604	23.65	30.33	-10.0	40/150	As at 1100 hrs.
	2300	E.18	5604	23.62	30.30	-11.8	45/150	1/8 Ci/Cs. to NW. H. surf. drift. Vis. 2m.
20.12.54	0800	E.18	5604	23.52	30.21	-9.2	45/150	3/8 Ci/Cs. 1/8 Ac. M. surf. drift. Vis. 5m.
	1100	E.18	5604	23.50	30.16	-8.2	30/150	5/8 Ac/As. 1/8 Cs. L. surf. drift. Vis. 10m.
	1400	E.18	5604	23.45	30.09	-5.5	40/150	6/8 Ac/As. 1/8 Cs. H. surf. drift. Vis. 2m.
	1700	E.18	5604	23.45	30.09	-6.8	40/150	3/8 Ac/As. 2/8 Cs. H. surf. drift. Vis. 2m.
	2000	E.18	5604	23.34	29.95	-8.5	40/150	Cloudless, H. surf. drift. Vis. 2m.
	2300	E.18	5604	23.28	29.86	-9.4	35/150	Cloudless, M. surf. drift. Vis. 5m.
	21.12.54	0800	E.18	5604	23.14	29.71	-12.0	60/150
1100		E.18	5604	23.13	29.69	-11.6	60/150	As at 0800 hrs.
1700		E.18	5604	23.18	29.73	-11.8	50/150	As at 0800. Vis. 50yds
2000		E.18	5604	23.22	29.79	-12.0	50/150	H. surf. drift. Vis. 100 yds.
2300		E.18	5604	23.27	29.85	-12.8	35/150	Cloudless, M. surf. drift. Vis. 5m.
22.12.54	0800	E.18	5604	23.36	29.95	-13.6	30/150	7/8 Sc. scattered. M. surf. drift. Vis. 5m.

Date	Time	Location	Alt. Cor'd.	Barometer		Temp. *C.	Wind	Weather
				Aner.A.	Aner.B			
22.12.54	1100	E.18	5604	23.38	29.99	-13.0	35/150	8/8 Sc. 0'cast. Mod. surf.drift.Vis. 3m.
	1400	E.18	5604	23.43	30.01	-11.6	35/150	As at 1100 hrs.
	1700	E.18	5604	23.52	30.02	-10.0	30/150	Lt. pptn. M. surf. drift. Vis. 100yds.
	2000	E.18	5604	23.51	30.02	-10.4	20/150	7/8 Sc. Lt. pptn. & surf.drift.Vis.lm.
23.12.54	0800	E.18	5604	23.38	29.91	-12.5	35/150	2/8 Ac. scattered. M.surf.drift.Vis4m.
	1100	E.18	5604	23.40	29.89	- 8.6	30/150	8/8 Sc. Pptn. & Mod. surf.drift.Vis.150yd
	1400	E.18	5604	23.43	29.91	- 8.0	25/150	6/8 Sc. scattered.L pptn & s.drift.Vis $\frac{1}{2}$ m.
	2000	E.18	5604	23.38	29.89	- 8.8	10/150	8/8 Sc. 0'cast.Vis10m.
24.12.54	0800	E.18	5604	23.30	29.83	-13.2	25/150	Fine, cloudless.Vismax.
	1100	E.18	5604	23.32	29.83	-10.0	30/150	As at 0800hrs.
	1400	E.18	5604	23.36	29.85	- 9.5	35/150	1/8 Ci/Cs. Lt. surf. drift. Vis. 20m.
	2020	E.17	5605	23.36	29.85	-12.6	15/150	Fine, cloudless.Vis Max. Tce. Cs. to S.E
	2300	E.17	5605	23.38	29.87	-15.6	15/150	Fine, cloudless, Vismax
25.12.54	0800	E.17	5605	23.36	29.87	-13.0	20/150	1/8 Ci/Cs, to S.W. Fine, Vis. max.
	1100	E.17	5605	23.36	29.86	-11.0	25/150	As at 0800 hrs.
	1400	E.17	5605	23.40	29.88	- 9.5	20/150	8/8 Sc. 0'cast.Vis4m
	1700	E.17	5605	23.43	29.90	- 9.5	20/130	8/8 Sc. H. 0'cast. Fine, Vis. 3m.
	2000	E17/F.1	5680	23.34	29.80	-11.2	10/130	8/8 Sc. H. 0'cast. Lt.pptn. Vis. lm.
26.12.54	0800	E17/F.1	5680	23.38	29.88	-12.0	15/140	8/8 Sc. H. 0'Cast. Lt.pptn. Vis.150yds.
	1100	E17/F.1	5680	23.40	29.90	-10.5	20/130	As at 0800hrs.Vis.lm
	1400	E17/F.1	5680	23.42	29.91	-11.0	25/150	As at 1100 hrs.
	2000	F.2	5880	23.24	29.70	-12.2	5/150	As at 1100 hrs.
27.12.54	0800	F.2	5880	23.10	29.58	-12.5	30/150	8/8 Sc. H. 0'Cast. M. surf drift.Vis150
	1100	F.2	5880	23.10	29.57	-11.0	30/150	As at 0800 hrs.
	1400	F.2	5880	23.12	29.56	- 8.2	20/150	8/8 Sc.0'Cast.Vis4m.
	2000	F.4	6015	23.02	29.50	-14.2	15/160	As at 1400 hrs.
	2300	F.5	6065	22.95	29.50	-17.6	10/160	1/8 Sc.Fine.Vis max.
28.12.54	0800	F.5	6065	22.96	29.54	-16.5	15/170	Fine, cloudless. Vis. max.
	1200	F.8	6160	22.91	29.49	-12.5	30/170	Cloudless, Lt. surf. drift. Vis. max.
	1400	F.8	6160	22.94	29.49	-11.0	30/170	As at 1200 hrs.
	2000	Mount	6823	-	29.49	-15.2	15/170	Fine, cloudless. Vis. max.
29.12.54	0800	Mount	6823	-	29.57	-18.5	20/170	As at 2000 hrs.
	1100	Mount	6823	-	29.53	-15.0	25/170	As at 0800 hrs.
	2000	Mount	6823	-	29.52	-14.5	30/170	Cloudless, Lt. surf. drift. Vis. max.
	2300	Mount	6823	-	29.54	-16.7	30/170	As at 1100 hrs.
30.12.54	0800	Mount	6823	-	29.56	-16.2	35/170	Cloudless, surf.drift Vis. 20m.
	1100	Mount	6823	-	29.53	-12.5	40/170	1/8 Ci/Cs to E. Mod. surf. drift.Vis.15m.
	1400	Mount	6823	-	29.53	-10.5	30/170	As at 1100 hrs.
	1700	Mount	6823	-	29.52	-11.0	25/170	1/8 Sc. Scattered. Vis. max.
	2000	Mount	6823	-	29.51	-11.0	25/170	Fine, cloudless. Vis. max.

Date	Time	Location	Alt. Cor'd.	Barometer		Temp. *C.	Wind	Weather
				Aner.A.	Aner.B			
31.12.54	0800	F.7	6100	-	29.55	-12.5	35/170	8/8 Sc. H. 0'cast. M. surf.drift.Vis5m.
	1100	F.7	6100	-	29.52	- 6.5	40/170	As at 0800.Vis200yds
	1400	F.7	6100	-	29.51	- 6.0	45/170	Blizzard conditions Vis. 20yds.
	1700	F.7	6100	-	29.51	-	60/170	Blizzard conditions Vis. 10 yds.
	2000	F.7	6100	-	29.51	- 9.7	60/170	As at 1700 hrs.
1. 1.55	0800	F.7	6100	-	29.55	-14.2	30/170	2/8 Ci/Cs. M. surf. drift. Vis. 10m.
	2000	E.17	5605	23.28	29.76	-11.0	25/150	8/8 Sc. 0'cast. Mod. surf. drift.Vis.½m.
2. 1.55	0800	E.17	5605	23.26	29.77	-12.5	25/150	Fine, cloudless. Vis. 20 m.
	2000	E.9	4915	23.88	30.55	-10.5	25/150	As at 0800 hrs.
3. 1.55	0800	E.9	4915	23.83	30.52	-12.8	25/150	Fine, cloudless. Vis. Max.
	2000	50m.D	3600	25.14	25.36	- 6.0	15/130	2/8Ac.6/8Sc. Heavy 0'cast. Vis. 10m.
4. 1.55	0800	50m.D	3600	25.12	25.40	- 8.0	30/130	8/8 Sc. H. 0'cast. Vis. ½m.
	1100	50m.D	3600	25.15	25.41	- 6.0	30/130	As at 0800 hrs.
	1400	50m.D	3600	25.17	25.41	- 3.5	30/130	8/8 Sc. 0'cast. Vis. 2m.
	2130	Nun.1	2638	26.20	26.36	- 4.2	30/130	7/8 Ac. Vis. 20m.
5. 1.55	1100	D.4	2030	26.85	27.03	-	25/130	6/8Ac/As. 2/8Sc. H. 0'cast. Vis. 10m.
	1400	D.4	2030	26.89	27.05	- 0.4	20/130	As at 1100 hrs.
	2000	D.4	2030	26.88	27.08	- 2.8	20/130	As at 1100 hrs.
	2300	D.4	2030	26.88	27.10	- 4.0	15/130	8/8Sc. H.0'cast. Lt. pptn. Vis. 10m.
6. 1.55	0800	D.4	2030	26.87	27.09	- 6.2	30/130	8/8Sc. H.0'cast. Vis. 10m.
	1100	D.4	2030	26.90	27.09	- 1.5	35/130	8/8Sc. H.0'cast. M. surf.drift. Vis.3m.
	1400	D.4	2030	26.88	27.08	-1. 2	35/130	As at 1100hrs.
	1700	D.4	2030	26.89	27.08	- 1.0	35/130	1/8Ac/As.7/8Sc. H. 0'cast. M.Surf.drift Vis. 3m.

Notes:

1. Aneroid A refers to 3" Watts Surveying Aneroid Ser. No.3565.
2. Aneroid B refers to 4½" Short and Mason Surveying Aneroid Ser. No.B343.
3. In the case of Aneroid B it will be observed that on 15th. December, recorded pressures rose from 25.64" to 30.89". In this instance, the indicated increase in pressure does not refer to reduced elevation. The instrument is graduated in a full circle from 24.8" to 31.0", hence when pressures fell below 24.8", readings were then made again on the upper part of the scale. It is clear therefore, that recorded pressures below 24.8" during the period 15th. December - 3rd. January, on Aneroid B are relative and not absolute.
4. Aneroid A is not graduated in a full circle and readings were not possible below 22.90"; thus no recordings are shown for this instrument during the period 29th. - 31st. December, when pressures were below 22.90".

Notes (Continued):

5. Temperatures were recorded by the same Centigrade Thermometer throughout the journey.
6. Wind speeds were estimated but directions were measured by compass.
7. Locations recorded above refer generally to marker flag positions. The actual geographical positions of these locations are as follows:-

<u>Location</u>	<u>Latitude (S)</u>	<u>Longitude (E)</u>
D.4	67* 46'	63* 18'
D.6	67* 47'	63* 23'
Nun.1	67* 53'	63* 26'
50m.D	68* 08 $\frac{1}{2}$ '	63* 48'
E.9	68* 34 $\frac{1}{2}$ '	64* 08'
E.10	68* 38 $\frac{1}{2}$ '	64* 08'
E.15	68* 56'	64* 06'
E.15/16	68* 57'	64* 11'
E.17	69* 00 $\frac{1}{2}$ '	64* 17'
E.18	69* 02'	64* 34'
E.17/F.1	69* 02'	64* 23'
F.2	69* 07'	64* 18'
F.4	69* 15 $\frac{1}{2}$ '	64* 24'
F.5	69* 20'	64* 28'
F.7	69* 28 $\frac{1}{2}$ '	64* 30'
F.8	69* 33'	64* 34'
Mount	69* 40 $\frac{1}{2}$ '	64* 42'

Mawson.

9th. January, 1955.

PHOTOGRAPHIC RECORD SOUTHERN RECONNAISSANCE

First series prefix 1S numbers 1 to 33

Second series prefix 2s numbers 1 to 33

Station	photo	Exposure	Subject or reference	Object	Angle	remarks
Fifty Mile	1S 1	1/100 16	Leaving Depot	southward		Stinear Summers
Flag E10	1S 2	" 11	Weasel camp	E10		Cloudy
Flag E18	1S 3	" 8	Weasel in plateau	drift		Drift
E18 North end base	1S 4	2 11	Pk 3 Depot Mts		00 00 05	Part stereo base
" "	1S 5	" "	" "	" "	" "	" "
E18 South end base	1S 6	1/50 8	" "	" "	" "	" "
" "	1S 7	" "	" "	" "	" "	" "
Peak 4 Depot Mts	1S 8	1/100 16	North end base		00 00 05	
Peak 4	1S 9	" "	" "	" "	45 03 30	
" "	1S 10	" "	" "	" "	90 03 30	
" "	1S 11	" "	" "	" "	135 03 30	
" "	1S 12	" "	" "	" "	180 03 30	
" "	1S 13	" "	" "	" "	225 03 30	
" "	1S 14	" "	" "	" "	270 03 30	
" "	1S 15	" "	" "	" "	315 03 30	
" "	1S 16	" "	" "	" "	225 03 30	Repeat 13
Flag F6	1S 17	" "	Mt No 1 South Mountains		27 44 25	Centred Mt No 1
Flag F6	1S 18	" "	" " "	" "	72 44 25	45 off Mt No 1
Flag F8	1S 19	" "	North East outlier	Mt No 1	00 00 14	
" "	1S 20	" "	" "	" "	45 00 14	
" "	1S 21	" "	" "	" "	90 00 14	
" "	1S 22	" "	" "	" "	135 00 14	
Flag F9	1S 23	" "	Mt No 1 South Mountains		00 00 07	
" "	1S 24	" "	" "	" "	115 00 07	
Pk 7 South Mountains	1S 25	" "	Depot Pk Pk 3 Depot Mts		00 00 10	
" " "	1S 26	" "	" "	" "	45 00 10	
" " "	1S 27	" 2	" "	" "	90 00 10	
" " "	1S 28	" "	" "	" "	135 00 10	
" " "	1S 29	" "	" "	" "	180 00 10	
" " "	1S 30	" "	" "	" "	225 00 10	
" " "	1S 31	" "	" "	" "	270 00 10	
" " "	1S 32	" "	" "	" "	315 00 10	
" " "	1S 33	" 11	Summers Stinear	Main range in rear		

Notes on Series 1

Photos 1 to 3 incl are pictorial

Photos 4 to 7 incl are taken at either end of a one thousand foot measured base for stereoscopic mapping Depot Mts.

Photos 8 to 16 are a panorama about Peak 4 Depot Mountains

Photos 17 and 18 covers South mountains from Flag F6

Photos 19 to 22 incl cover South mountains from Flag F8

Photos 23 and 24 cover South Mountains from Flag F9

Photos 25 to 32 are a panorama about instrument station at Pk 7 South mountains and pair with a panorama taken at a nunatak six miles south west for photographic mapping of the main range

Photo 33 is pictorial.

PHOTOGRAPHIC RECORD SOUTHERN RECONNAISSANCE

First series prefix 1S numbers 1 to 33
 Second series prefix 2S numbers 1 to 33

Station	Photo	Exposure	Reference	Subject or Object	Angle	Remarks
Pk 7 South Mountains	2S 1	1/100 16	Depot Pk Pk 3	Depot Mountain	00 00 07	
" " "	2S 2	" "	" "	" "	45 00 07	
" " "	2S 3	" "	" "	" "	90 00 07	
" " "	2S 4	" "	" "	" "	135 00 07	
" " "	2S 5	" "	" "	" "	180 00 07	
" " "	2S 6	" "	" "	" "	225 00 07	
" " "	2S 7	" "	" "	" "	270 00 07	
" " "	2S 8	" "	" "	" "	315 00 07	
At West end Base Sth Mts	2S 9	" "	Chairn Pk 7	South Mts	00 00 00	
" " "	2S 10	" "	" "	" "	45 00 00	
" " "	2S 11	" "	" "	" "	90 00 00	
" " "	2S 12	" "	" "	" "	135 00 00	
" " "	2S 13	" "	" "	" "	180 00 00	
" " "	2S 14	" "	" "	" "	225 00 00	
" " "	2S 15	" "	" "	" "	270 00 00	
" " "	2S 16	" "	" "	" "	315 00 00	
" " "	2S 17	" "	" "	" "	00 00 14	
" " "	2S 18	" "	" "	" "	45 00 14	
" " "	2S 19	" "	" "	" "	90 00 14	
" " "	2S 20	" "	" "	" "	135 00 14	
" " "	2S 21	" "	" "	" "	180 00 14	
" " "	2S 22	" "	" "	" "	225 00 14	
" " "	2S 23	" "	" "	" "	270 00 14	
" " "	2S 24	" "	" "	" "	315 00 14	
Flag F 7	2S 25	" "	"	South Mts from F7		
" "	2S 26	" "	"	Sledges drifted in overnight stop		
Flag E 12	2S 27	" "	"	Dogs and glaciologists inspect marker Flags together		
" "	2S 28	" "	8	Weasel train on the return journey		
Fifty Mile Depot	2S 29	" "	"	The Depot looking South (Return)		
Nunatak 1	2S 30	" "	11	Mt Henderson	00 00 25	
" "	2S 31	" "	" "	" "	315 00 25	
" "	2S 32	" "	" "	" "	270 00 25	
" "	2S 33	" "	" "	" "	270 00 25 Repeat	

Notes on Series 2

Photos 1 to 8 incl are a panorama at Pk 7 South mountains and duplicate Series 1 photos 25 to 32 incl.
 Photos 9 to 16 incl are a panorama about the small pointed nunatak six miles south west of Pk 7 which constitutes the west end of the photographic base of which Pk 7 is the east end.
 Photos 17 to 24 duplicate photos 9 to 16
 Photos 25 to 29 incl are pictorial
 Photos 30 to 33 incl are taken at Nunatak 1 which is two point five miles west of Flag D13 and were taken to aid in mapping the western side of the Masson David and Horden Mountains.