

**FIELD TRIP REPORT  
EASTERN COASTAL JOURNEY  
1954 ANARE C-21**

## EASTERN COASTAL JOURNEY

Personnel. Dovers Storer, Stinear, Harvey.

Materiel No 1 weasel, No 2 weasel, both barge caravans, two weasel sledges and the manhauling sledge.

Object To explore the coastline eastward as far as petrol and safety permit.

### General

The weasels will remain together at all times. A travelling space between weasels of 200 yds will be maintained. Fuel will be depoted at any point on the coastline where a safe depot can be found. No food will be depoted.

One barge caravan will be used as a cargo carrier whilst the second will be fitted out as a survival unit and will carry five months sledge rations fuel and other necessities. Petrol will be carried on the weasel sledges. Loads in the weasels will be reduced to the minimum.

Sleeping and eating in pairs in the weasel cabins.

Relay driving is anticipated.

I anticipate about a month for this trip.

### Gear

1. Manhauling sledge as at present loaded.

2. No 1 Weasel. SCR 694 not fitted, vibrator mounted.

1 Astro compass	1 set tools Weasel
1 Azimuth circle	1 coil SWR rope
1 Wind compass	4 U shackles
1 Wilde T2 Theodolite	1 Marlinspike
1 Tripod for the above	1 shovel
1 Survey cameral	1 four foot pinch bar
4 doz plates for the above	1 fire extinguisher
1 pr binoculars	1 spalling hammer
1 magnetic compass	6 bulldog clips
1 chronometer Longines	1 gas cylinder
Charts and navigation gear	1 gas torch
2 Coleman Stoves	1 electric hand lamp
2 Sponge rubber mats	3 rolls toilet paper
2 Aluminium camp sets	1 roll paper towelling
2 Knife fork and spoon	2 biscuit tins (empty)
1 snow whisk	1 120 ft nylon rope
2 doz matches	1 ice axe
	1 cylinder oxygen, fittings and mask.

3. No 2 Weasel. Fitted with SCR 694 complete

1 Astro compass	1 gas cylinder
1 Azimuth circle	1 gas torch
1 Wind compass	2 Coleman stoves
1 Set tools weasel	2 Sponge rubber mats
1 fire extinguisher	2 Aluminium camp sets
4 U shackles	2 Knife fork and spoon
6 Bulldog clips	1 snow whisk
1 marlinspike	2 doz matches
1 coil SWR	3 rolls toilet paper
1 shovel	1 roll paper towelling
1 four foot pinch bar	2 biscuit tins empty
1 spalling hammer	1 120 ft nylon rope
1 electric hand lamp	1 ice axe
	1 rubber tube for siphoning.

Eastern Coastal Journey. Page 2

4. No 1 Weasel sledge
  - 6 44 gallon drums of petrol
  - 1 Weasel track (To be depoted at Scullin Monolith)
  
5. No 2 Weasel sledge
  - 6 44 gallon drums of petrol
  - The manhauling sledge (Towed)
  
6. No 1 Barge caravan
  - 600 days sledging rations (man days)
  - This is 50 ration sacks
  - 24 gallons kerosene
  - 5 pkts Meta tablets
  - 1 bottle meth spirit
  - 2 Primus 41 sp and spares
  - 1 Austramax lantern
  - 24 candles
  - 2 Aluminium camp sets
  - 1 set al billies
  - 4 knife fork and spoon
  - 1 electric ice tester
  - 1 pump
  - 1 rifle 303 plus 200 rds
  - 1 marine sextant
  - Complete set Nav tables
  - The pair of Longines deck watches
  - 2 jerycans petrol
  - 1 bag emergency clothing
  - All sleeping bags
  - All spare clothing
  - 3 sponge rubber mats
  - 14 days camp rations 4m2n
  - 2 tin openers
  - 12 rolls toilet paper
  - 1 gross boxes matches
  - 6 rolls paper towelling
  - 2 snow whisks
  - 6 Field notebooks
  - 300 ft steel chain
  - 2 haversacks
  - Sealing knife and steel
  - SCR 694 complete less vibrator
  - 1 MCR1 Receiver
  - 1 Gibson Girl transmitter
  - 1 set weasel bridging
  - 1 weasel medical kit
  
7. No 2 Barge caravan
  - 1 600 ft nylon rope
  - 2 gallons lub oil
  - 3 gallons transmission oil
  - 2 gallons pure glycol
  - 2 3 ton jacks
  - 2 shovels
  - 2 picks
  - 2 1 gallon tins premixed glycol and water
  - 2 1 gallon tins lub oil
  - 200 ft 2½" rope
  - 1 large crowbar
  - 1 Amplion charger
  - All available marker flags
  - 1 fuel pump (Filter type)
  - 1 cable cutter
  - 1 axe
  - 1 2 ton chain block
  - 2 empty 2 gallon red tins
  - 1 bottle sulphuric ether
  - 2 gas rings
  - 1 small cylinder rock gas
  - 5 lo ft strops SWR
  - 1 track jack
  - 2 prs skis and stocks
  - A quantity of lashings
  - 1 Declinometer and tripod.
  - Mechanical spares for weasel as per attached list
  - 1 set weasel bridging

## EASTERN COASTAL JOURNEY

### Personnel:

*Robert* Dovers- Navigator and ~~mech repairs mechanic~~  
*William* Storer- Radio operator and weasel driver  
*Bruce* Stinear - Geologist and spare weasel driver  
*William* Harvey - Weasel driver

OBJECT. To carry out exploration to the east of Mawson as far as petrol and safety permitted.

EQUIPMENT. No. 1 weasel, No. 2 weasel, two weasel sledges, two barge caravans and one manhauling sledge. The loadings at departure from Mawson are as shown in Appendix 1 "Eastern Coastal Journey Instructions", and were not substantially altered until the loss of No. 1 weasel.

RESULT. This trip is classed as a failure. No 1 weasel and one caravan were lost due to a breakout of ice at the Scullin Monolith. Geological and survey work as well as tidal and magnetic observations were carried out but a large part of the results was destroyed when No. 2 weasel caught fire the very night the weasel returned to Mawson. Geological notes and specimens were saved and the results of astric fixes and declinometer readings calculated in the field were preserved in diaries.

Further experience was gained in sea ice travel and the fact that the party were able to survive a breakout of sea ice proved that our present gear and techniques are good.

Duration of journey 17th May to 19th June.

### DAILY JOURNAL

17th ~~May~~ 5-1954

Weather: Light variable SE winds. Overcast sky. Barometer 29.26

*The party left*  
Departed Mawson at 1200 ~~hrs~~ *hours* with two weasels each dragging a weasel sledge and a loaded barge caravan. No. 1 weasel was dragging in addition a packed manhauling sledge. Early in the day the gear ~~in addition~~ box of No. 2 weasel began to overheat and throw oil whilst travelling in ~~high gear~~ *first gear* high ratio. By dropping down to third gear low ratio this was adjusted. At 2000 ~~hrs~~ *hours* we stopped ~~radio contact~~ ~~which was maintained until 2315~~. The surface was good and nowhere did we find ice less than two feet thick. We arrived at a small group of islands which we took to be the Austskjera and made camp on the centre of the western side of the largest of these.

Stinear made a brief geological examination.

~~In general the Norwegian chart is accurate so far.~~

18th ~~May~~ 5-1954

Weather: Wind 30 to 40 knots ESE. Sky obscured by drift until evening. Medium drift all day with wind dropping and drift ceasing at 2000 ~~hours~~ *hours*. Temp ~~was~~ *was* -10.5. Barometer 29.45 1100 ~~hrs~~ *hours* Temp ~~was~~ *was* -11.5. ~~Bar~~ 29.62. 2100 ~~hrs~~ *hours*. ~~The party~~ camped in weasel cabins all day. The weasels were refuelled and 34 gallons of petrol were deposited for return.

When the weather eased at 2315 ~~hrs~~ *hours* after taking an observation for position we broke camp and commenced to run down easterly. At 3.4 miles we passed a group of islands which answered the description of the ~~Austskjera~~ *on the Mawson map*. They are the lost land to the Scullin Monolith.

~~at~~ 25 miles ~~from~~ *the surface* the surface was rough rocky pinnacly ice in belts of about a mile with occasional light hummocks. At this point water sky and distant frost smoke were seen in the North. I considered seriously the advisability of turning back here but finding no direct evidence of open water continued on.

No. 2 weasel gave a little trouble with a leaking petrol unit which was temporarily patched with basket wool. This patching was unsatisfactory so I was obliged to solder the union which gave no further trouble.

One lone seal was seen en route lying alongside an old seal hole.

He took fright at the sound of the

he took fright at the sound of the weasels and dived into the water. He could still be heard crying under the ice and swimming at the ice and from time to time he surfaced in the hole to breathe. It was a crab eater.

19th May

The journey continued. We saw no sign of Martins or Stephens reefs but as we were travelling close to the coast we could have passed them without seeing them.

Most leads encountered were innocuous and could be passed without recourse to bridging. At 1700 hrs we encountered a nasty looking lead running from the coast to a berg five miles out. This required bridging and took fifteen minutes to pass. By this time all were tired so we closed in on the coast and found a reasonably safe camp alongside a small capsized berg.

20th May

Wind light and variable in morning to cyclonic conditions in evening. Overcast nimbo stratus. Drift visible about the Scullin Monolith in morning. Barometer falling slightly from 29.44 at 1700 hrs to 29.34 at 2000 hrs.

Broke camp at 1000 hrs and headed direct for the Scullin Monolith which was visible. We passed a field of shattered and broken ice refrozen in the vicinity of icebergs near the Monolith.

We ran into gale conditions on the last three miles to the Monolith and once within the bay the winds became tempestuous. About two miles out the set of bridging lashed on No 1 weasels caravan blew off and it was impossible to pick them up so they were left to be picked up when the weather moderated.

It was quite dark and we circled the bay with the foreshore illuminated by the weasel headlights looking for a place where the weasels could be put up on land. Not finding a spot offering we were obliged to make camp on the bay ice trusting in the morning to find a landing.

The night was very windy, the weasels shuddering under the gusts and the sledges and caravans being swung about.

I checked the ice in the bay and found it to be over two feet thick and that it had been unbroken for several weeks. Though not happy about being camped on ice instead of land I was not unduly worried about our situation.

21st May

Weather. Tempestuous winds from all directions. Overcast sky. Barometer in evening 28.60. Heavy swell running in bay and bay ice breaking up.

During the night I looked out on several occasions and apart from the high wind there seemed no cause for alarm, however at 0930 hrs with the first dawn I found slight cracks had developed about the weasels and a perceptible swell was working under the ice. I immediately turned over the motor of No 1 weasel and alerted Stinear and Storer in No 2 weasel starting their motor as I did so. As both weasel tanks were low in fuel I first endeavored to refuel them but in a matter of minutes the position became increasingly serious with the ice breaking up rapidly and the swell becoming increasingly severe.

Accordingly the refuelling was abandoned and the weasels were hitched to their loads. We tried to make the eastern tip of the bay which was lower lying than the rest of the bay. However the rapidity with which the ice was breaking up precluded this. Already the floes were individual sections heaving up and down in the swell. The weasels were truly magnificent scrambling from floe to floe. As the weight came on a floe it would sink and tilt leaving a gap and step to the next, but the weasels managed to proceed dragging their loads. Being denied the eastern tip we swung into a narrow cleft halfway along.

A stretch of brash and open water stopped any hope of scrambling the weasels onto land and we concentrated on the survival caravan containing all our food and survival gear. Unfortunately crawling across to land I dropped our only snatch block. As a result when we had established an anchorage on land we had to tow through a rope loop instead of a block with

with/ the weasel. The towing rope parted.

The ice by this time was so badly broken up that that had been our last chance to use the power of the weasels to tow the caravan to land by a rope attached from the weasel on the ice through the loop on land back to the caravan on the ice. We were obliged to leave the weasels on the floes on which they were standing to concentrate on getting the survival caravan to land.

The wind was incredibly violent, showering us with frozen spray and pieces of ice. Open water could just be seen on the western side of the bay.

With a chain block on land we then began to laboriously winch the security caravan towards land by hand. We were perched precariously on a tongue of non tidal ice clinging to hollows in the ice hummocks inching the caravan laboriously to us. How we managed to cling on there in that merciless wind was a mystery. We saw the manhauling sledge fully loaded flying through the air before crashing into the tide crack near us, narrowly missing Stinear in its trajectory. Our heavy bridging timbers wafted about the bay like matchsticks. The second barge caravan was turned completely over in a gust then a few minutes later a subsequent gust righted it again. Even the weasel sledges each carrying a ton and a half of petrol were moved about.

The security caravan had a large hole in the side and certainly would not float so as soon as we had the caravan on a solid floe I sent Harvey and Storer back onto the ice to patch it. Stinear and I remained working the chain block.

By this time all were suffering from exposure. I could not see us surviving a night on land without shelter, and further without the caravan and its food even if we survived temporarily we had little chance of getting back to Mawson. So once the caravan was patched and capable of floating I moored it as best I could to land and ordered all inside it for the night. At this stage it was sitting on a solid floe about 100 feet from land. All sleeping bags had been previously moved from the weasel cabins to the caravan.

During the foregoing period No 1 weasel heeled over and began to sink. Apart from cutting the motor and screwing in the exhaust plug we could do nothing for it.

A very worrying night then ensued. The caravan was under constant bombardment by ice fragments that rattled on the plywood walls. The floes outside were all detached and moving. We could hear water lapping against the hull and the caravan was continually bumped by moving floes that scraped loudly against the thin plywood hull. No water came through the patch.

Towards 0400 hrs 22 May conditions eased a little and most managed a little sleep. Casualties were Harvey with a deeply cut hand jammed by the weasel door and myself with a deep frostbite on the left hand. All had minor frostbites.

22nd May

Easing in morning to light variable wind in afternoon. Sky clearing Temp plus 8 Bar 29.18 1400 hrs plus 9 Bar 29.23 . Floes detached with open water about.

No 2 weasel was still with us sitting on a floe in the middle of the bay minus both cabin doors blown out by the wind but otherwise OK. No 1 weasel was still visible but lying deep in the water on one side completely flooded only held up by one track hitched on the edge of a floe. I considered salvage out of the question since the engine and batteries were completely under water. The two weasel sledges and the battered wreck of the second caravan were also on floes. The manhauling sledge in a battered condition was in the water but afloat.

We were mainly engaged salvaging gear and reinforcing the patch on the side of the caravan. Land is at the moment denied to us by the wicked state of the tide crack and the presence of water. Storer attempted to salvage the manhauling sledge but went into the water and had to be rescued. A trail of scattered gear over the surface of the bay testifies to the violence of the wind.

I made a reconnaissance to the eastern tip. As far as I could see the ice was still generally in but very much broken up

Here it is possible given daylight and good conditions we

4/

we/ might have got the weasels on land. I was pleased to see on the landfast ice signs that seals had been lying here.

Harvey's hand was washed in monacrine solution and dusted with penicillin and sulpha powder. After bandaging he wore a silk instrument glove to further protect it. Mine was similarly washed and covered with Unvita and salacrine then dressed similarly. Wireless contact made with Mawson and our sorry tale told.

23rd May

Wind 40 - 45 knots gusts to 60 5/8 alto stratus and cirrus. Wind moderating in evening. Temp -2.5 Barometer 28.93 gently rising. 3 inches of new ice formed over previously open water, floes still detached and moving in a light swell of 5 to 10 cm

We found an anchorage of solid rock and shifted the mooring cable and chain block to this.

With the aid of jacks and winching on the chain block we began pulling the caravan out of the water. It had been afloat but firmly jammed between floes and held by frozen brash. It was very solidly frozen in and took all our efforts to dig it out. We moved it thirty feet nearer land onto a substantial floe. The remaining distance to land is well broken ice and we do not feel like risking the caravan across this.

We made a further effort to salvage the manhauling sledge but the ice about it was small and well broken up and still moving with the swell and the attempt had to be discontinued.

No 2 weasel is still safe. We salvaged one door off No 1 and recovered an original door of No 2 with which we managed to re equip the weasel with its missing doors. The driving side door frame was badly distorted.

We moved one 44 gallon drum of petrol by hand across the tide crack by hand.

No radio contact was made with Base  
Both injuries are satisfactory.

24th May

Wind 20-30 knots moderating in afternoon. 1/8 cirrus in north varying Temp -13 Barometer 29.39 1700 hrs Gently rising barometer All loose floes cemented new ice now 4 inches thick and bears a man's weight. Swell 5-10 cm.

Harvey and Stinger tidied up and restored the caravan. They sorted out the gear and depoted all our tinned food on land leaving only sledge rations in the caravan.

Storer made a third effort to salvage the manhauling sledge but found it too difficult.

We rolled a drum of petrol out to the weasel and refuelled it, running the motor for several hours to charge batteries and dry out gear and clothing.

We succeeded in the evening in salvaging the tent off the manhauling sledge.

Empire day was celebrated with a special meal from our tinned stocks.

We managed to get part of a signal to Mawson but radio conditions failed and we got nothing from them.

Both injured hands are healing satisfactorily.

25th May

Wind 40 - 50 knots with gusts to 60 generally south. 3/8 cirro stratus in morning to overcast in evening with increasing wind Temp plus 5 Bar 29.38 fairly steady at 1700 hrs

All floes still cemented together. New ice now 6 inches thick Slight swell in morning increasing to 20 to 30 cm in evening Tide crack very active

We bent our efforts to the salvage of the manhauling sledge which was now set in about a foot of ice. By dint of much work with picks ice axes and axe and with brute force in the shape of three ton jacks we finally succeeded in recovering the bare sledge minus boxes and steering handles which had to be cut away to clear it from the ice. It was stowed on land with the tent.

the ice at the tide crack is still too insecure to risk a crossing with our barge caravan. We remain some hundred feet from land anchored with a steel cable to the chain block which is secured to a rock anchorage. We listen with unconcealed interest to the creaking of the floes and the groaning of the tide crack with the ocean swell, wondering whether THAT was a new noise or just a variation of the old theme. Eventually we sleep

26th May Wednesday

Weather. Wind 60 to 70 knots with gusts to 100 knots. Overcast all day. Barometer steady at 29.34 No temps taken.  
Ice conditions. Floes separating slightly under wind and swell. Heavy swell running about 40 to 56 cm

Wind and weather outside too bad to do anything. Apart from periodically checking that No 2 weasel is still OK and in no immediate danger we all remained in the caravan curled up in our sleeping bags.

Icing up of the interior of the caravan remains an unsolved problem. If we could only keep a hatch open during cooking it would help a great deal but the ever present wind prevents that. I estimate half the icing comes from cooking and the remaining half from our respiration.

The generator for the SCR 694c radio packed up today. We hear Base calling on the radio but they cannot hear us.

27th May Thursday

Weather. Wind 45 to 50 knots very gusty up to 80. Overcast all day  
Barometer 1100 hrs 29.10 1700 hrs 29.07 2200 hrs 29.07 Temp 1400 hrs 6.0 -F

Ice conditions. No great change. Floes still showing fine open cracks Swell 15 to 20 cm. A swell visible in the ice running in from the sea

Another day held inside by weather. The short hours of daylight are very noticeable now that the moon is gone.

I found that the caravan has moved shoreward about twelve feet in the past 36 hours. This is measured by the slack in the steel mooring cable. The tide crack grinds up the floes as they are forced into it. No doubt it could deal just as effectively with the caravan. I took up the slack cable with the chain block.

The ice on the eastern side of the bay is under fair pressure against the land.

I could see a white line on the horizon which suggests a belt of broken ice at the edge of open water, a phenomena I have seen in Adele Land. However it is too windy to climb high enough on the rocks to verify this. It would account for the unusually heavy swell that is running.

Rations are proving more than adequate. We are not eating full rations except in sugar oatmeal egg powder salt and chocolate.

Wireless communication is still unsatisfactory. We hear Base about 1 to 2 (strength) but cannot make continuous contact. We are operating the set with the hand generator out of No 2 Weasel.

28th May Friday

Weather Wind 35 to 40 knots with gusts to 80. Overcast state cu with cirrus to north. Barometer steady at 29.03 Temp 1700 hrs 5°F. Sky cleared in late evening.

Ice conditions. All floes cemented together. Tide crack filled by pressure. Open sea visible less than five miles north, moving in during day. Swell about 15 cm.

Since the tide crack seemed better filled with ice than we yet have had it I determined in view of the proximity of open water to attempt to put the barge caravan on land.

Stinear and Storer cut a ramp down the nor tidal ice to the tide crack whilst Harvey and I started No 2 weasel and drove it with great care across the floes to the caravan.

We had no snatch block ours being lost in the original break up of the sea ice. We missed it badly. We attempted to tow the caravan with the weasel indirectly by passing a steel cable through a U shackle as a substitute for a snatch block then back to the weasel but the cable would not run through the shackle so we were obliged to do without the weasel and haul the caravan to land manually with the chain block. We needed the weasel however to pull the caravan back on the floes if



at any time it appeared to be in any danger or if time prevented us from getting it over the tide crack before night.

It was a slow tedious business. The caravan naturally moved in line direct for the rock anchorage which was not the exact direction in which we wanted to move, so from time to time we were obliged to use the jacks and manoeuvre the caravan across to where we wanted it. Eventually we got the caravan nose up the prepared ramp and the tide was as predicted. A little later we had the greater part of the caravan on the ledge of non tidal ice with only the stern hanging out in space. It was a simple matter then to locate an ice anchorage at right angles to the stern and with the bow anchored to the rock with the aid of jacks and the chain block swing the stern round. The caravan then was sitting along a narrow ledge of non tidal ice just wide enough between the rock wall and the edge to take the caravan. A rock ledge appeared to go under the ice ledge at a steep angle so it was reasonable to suppose the ice was supported by rock and not floating. In addition we moored the caravan fore and aft to the two anchorages pulling it in hard against the rock face so even if this ledge of ice collapsed the caravan should hang like a boat in davits.

Our situation now is enormously improved, we have food and fuel for five months if not on land on reasonably safe ice tied to land. We added a half empty 44 gallon drum of petrol to the full one already on land giving us now 70 gallons of petrol in safety.

Still on the ice are the second barge caravan (badly smashed by wind) NO 2 weasel and the two weasel sledges. Still showing is the frozen-in No 1 weasel now a uniform icy mass with its surroundings.

One seal was seen in the north about two miles away. He moved across from the nearest area of open water over the floes westerly.

I visited the eastern tip in the hope that pressure had pushed up a bridge of ice to land there which we might be able to use to drive No 2 weasel to land, but it was still inaccessible. There were however signs that seals had been up since my last visit there.

Radio contact was made with Base and traffic passed at strength 3. This was probably due to an improved aerial position and good atmospheric conditions.

We had a special meal to celebrate our move to solid foundations and everyone slept well. The gentle rocking motion of the ice under the swell was not missed at all as an aid to sleep, and the groaning and growling of the tide crack had lost its sinister significance.

29th May

Weather. Wind 25 to 35 knots gusting to 50. Medium drift. Overcast. Barometer. 1100 hrs 29.0 1700hrs 29.06 2300 hrs 29.15  
Ice conditions. No visible change but visibility  $\frac{1}{2}$  mile at most. Swell not measured but noticeably less than usual.

Due to the drift we have remained in the caravan all day. We cannot afford to get clothing wet at this juncture; we are barely holding our own against condensation and drying clothes and gloves is a slow business.

Everyone remarked how much they enjoyed last night's sleep. This is the first time we have gone to sleep reasonably certain that our caravan is safe and that we will not awake to find ourselves adrift or in a fresh state of emergency;

Now with food fuel and shelter on land I am reasonably sure of the safety of our group. My only worry is the safety of the weasel and stores still out on the ice. Even if these were lost we would still have the manhauling sledge left to us for return.

Up till now I had no illusions as to what was our immediate problem - it was ensuring our bare survival, but now that that is accomplished we can turn our efforts to the next which is ensuring the best possible means of return to Mawson which is the weasel and its associated stores. If we can achieve this end we can then turn to the last problem, the salvage of gear and stocking it on land.

There was no radio contact made today.

30th May Sunday

Weather. Wind 40 to 50 ESW with gusts to 80. 5/8 cloud strato cu and alto stratus mainly to the north. 1100 hrs Bar. 29.4 temp 4°F 1700 hrs bar 29.5 temp 5°F 2200 hrs bar 29.59 Light to medium drift all day.

Ice conditions. No observation to north - poor visibility. Local floes still cemented and pressure improving the tide crack. Very slight swell 4 to 5 cm.

As the movement at the tide crack is the smallest that we have had I decided despite the unfavourable weather to attempt to put No 2 weasel on land. The only available place appeared to be that near the caravan, a very limited space, and bridging would be required over the tide crack.

Stinear and I then went to the southwest corner of the bay to collect one of the bridging cross pieces which had been blown over there. On our way we investigated the foreshore closely found an ideal place for the weasel on land based ice. This spot was completely camouflaged from the bay which accounted for our not finding it before. Even now it seemed possible to get the weasel up on land there and had we found it before the breakup our story would be very different. There was a certain amount of risk involved in trying to get No 2 weasel on land there; it being impossible to judge with certainty that the floes close to and in the tide crack would bear the weasel. So before deciding to attempt it I discussed the problem with the others explaining the degree of risk involved.

We then drove No 2 weasel towing a weasel sledge of petrol carefully across the floes. I drove with Storer at the navigation trap and Stinear and Harvey ahead on foot picking the safest route over the floes. The wind was very gusty and hampered them, frequently blowing them off their feet.

However all went well and the floes held. We succeeded in driving No 2 weasel up on land towing with it a sledge load of petrol. We then found a route overland back to the caravan.

This done all essential stores including the set of bridging timbers were moved off the sea ice to the caravan site including those still in the smashed caravan. All that now remains on the ice are, No 2 caravan in an extremely battered state, containing non essential stores, one weasel sledge with two 44 gallon drums of petrol and the sunken frozen in wreck of No 1 weasel.

Our position now is as secure as it possibly could be under the existing circumstances. All that is needed for our return is on land together with food and fuel for an indefinite stay. We can even consider an attempt to salvage No 1 weasel if the weather gives us a chance. The weasel is lying on its side with its hull flooded and only 1/3 of its bulk above the surface. The engine and batteries are completely under water which has subsequently frozen. Even if we can succeed in hoisting it back on the surface the flooded engine presents a great problem.

We were unable to make radio contact tonight due to drift interference. We could hear Base calling faintly but they could not hear us.

We broached our supply of tinned foods to celebrate the placing of No 2 Weasel on land.

31st May Monday

Weather. Wind 30 to 40 knots gusts to 50. Clear sky. 1100 hrs bar 29.54 temp 12°F 1700 hrs 29.47

Ice conditions. No apparent change. Swell about 10 cm

Stinear accompanied by Storer worked on geological collections around the bay.

Harvey and I commenced the attempt to salvage No 1 weasel; first we were obliged to pull the living caravan along the ice ledge with the chain block in order to get a clear line from the rock anchorage to the weasel for a towing cable.

We then found we had insufficient cable to reach the weasel and located a second rock anchorage (not so well placed) further north. By using all steel cable and linked weasel and caravan towing cables we were able to rig a line from anchorage through the chain block to the weasel. We then dug out the ice for a foot deep about the weasel stopping at this depth for fear that the hole would fill and refreeze if we went deeper. No radio contact tonight

1st June Tuesday

Weather . Calm. Clear sky. 1100 hrs bar 29.22 10\*f 1700 hrs bar 29.19  
t 4.2°F

Ice conditions. Open water to the north freezing over. Very slight swell but a very large tidal movement which has caused large sections of the land attached ice to break off.

Stinear accompanied by Storer continued the geological survey.

Harvey and I went on with the salvage attempt on No 1 Weasel. This time we transferred operations to the north of the cabin where we chipped out as much ice as we could in order to lighten the weight of the sunken hull. We had hoped that the holes where the water was entering the hull would freeze up and we would be able to empty the hull completely but the weasel was lying too deep in the water for this and the water continued to enter the hull.

At the close of today's work we are now approaching the critical test as to whether we can get the weasel out or not.

I noticed that further sections of non tidal ice have broken off during the afternoon. I trust that the rock shelf that appears to go under our piece really does do so.

Radio contact was unsatisfactory

2nd June Wednesday

Weather. Wind 40 to 45 knots with gusts to 70. Clear sky all day. 1100hrs bar 29.28 t 0.0°F 1700 hrs 29.30 t -3.0°F

Ice conditions. No apparent change.

All hands turned to the salvage of No 1 weasel. Ice was cut away all around the weasel for a depth of 2 feet at which water began to seep into the trench .

We then placed all possible strain on the chain block which was rigged from a solid rock anchorage on shore with a steel cable over a pair of sheer legs planted just aft of the weasel to give a lifting strain on the stern. At the same time we jacked the side of the weasel with the two 3 ton jacks. Whilst this was being done we cut away as much of the surrounding ice as possible. It was a complete failure , no sign of moving the hull; the weasel remained solidly frozen in.

Very reluctantly we had to decide to abandon the salvage attempt and accept the fact that the weasel was lost to us.

There was an extremely large range of tide during the day culminating at low tide at 2000 hrs. At this time we had just eaten and were trying to make radio contact with Mawson.

There was a frightful crash and the caravan gave a sideways lurch. I immediately went outside to investigate and discovered that the entire bank of non tidal ice had collapsed as with the low water the water receding had taken away supporting flotation.

Half the caravan was hanging over the void only the mooring ropes fore and aft had saved it from going altogether. All our salvaged gear was lying on the now floating ice which luckily had not rolled over.

With the chain block (as usual our lifesaver) we managed to edge the caravan against the rock face so that it hung on its fore and aft moorings and against the sheer face of the rock like a lifeboat in davits.

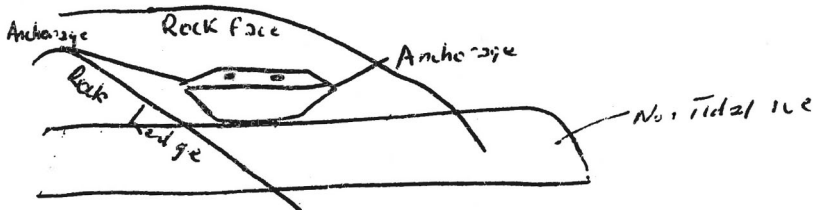
We then got all the gear up onto the rock. Our loss for the episode were two shovels and one short crowbar which fell into the water when the ice collapsed.

Radio contact interrupted by the foregoing episode.

We will have to find a new home , this is no place for anyone who likes a quiet life.

We saw two snow petrels over the sea ice today.

The sketch below illustrates the position of the caravan after the collapse.



3rd June Thursday

Weather. Calm. Clear sky. 1100 hrs bar 29.41 t -3.8°F 1700hrs bar 29.30 t -6.0°F

Ice conditions. Very stable. Very little swell but tidal range still very large.

I went on foot to No 2 weasel and examined the condition of the tide crack there. It was doubtful whether the weasel could get over it onto the bay ice but after an hour of so of work with ice axes and picks we decided to chance it. It was a hard decision to take to move our precious weasel off good solid land onto the bay ice again especially with the condition of the tide crack changing hourly but on the other hand the stakes involved justified a risk for to have all our gear concentrated at the weasel beach would be a good step forward.

We got the weasel across the tide crack and onto the bay ice without event and then working as quickly as we could used it to tow all our gear including the living caravan around to the weasel beach.

By dark we had put the weasel ~~across~~ and the living caravan up on land at weasel beach and had the remaining caravan and the second weasel sledge on the bay ice about 200 feet from the shore at Weasel Beach. They were already to be dragged up the next morning.

The ice off the beach was very rough and broken and it was impossible to tow a load through it, in fact the weasel alone had difficulty in negotiating it. The only way to tow was with the weasel on land making short backward and forward runs, hitching a steel towing cable to it each time.

Radio contact just made with base but no traffic passed.

4th June Friday.

Weather. Calm. Clear sky. 1100 hrs bar 29.30 t -2.0°F 1700 hrs bar 29.48 t 5.0°F

Ice conditions. No change. Very quiet at the tide crack. Tidal action less

Stinear and Storer went back to the old caravan camp and with the man-hauling sledge sledged back all the odd salvaged gear that was left there yesterday. These included two 44 gallon drums of petrol. This task took them all day.

Meanwhile with the weasel on land on short pulls as described Harvey and I dragged the remaining caravan and weasel sledge off the ice onto land. We then had some intricate manoeuvring to do in order to place all our belongings on the limited area of land available.

By nightfall we had all our gear on land, the only thing left on the ice was the sunken wreck of No 1 weasel.

Tonight I carried out a full series of observations for position consisting of 48 paired altitudes of stars. We were particularly fortunate with time signals getting one immediately before and immediately after the series of observations.

Radio contact was made with Mawson at strength three but conditions went out very quickly.

5th June Saturday

Weather Wind 15 to 20 knots with strong gusts. 1/8 alto stratus forming to the north. 1100 hrs bar 29.37 t -6°F 1700 hrs 29.61 t 4°F

Ice conditions. Ice now in solid to a horizon of 22 miles. New ice visible in large lakes to north. Tidal movement now normal. Swell not measureable at the tide crack.

Stinear did geological collection in the immediate vicinity of the weasel camp. Harvey worked inside the hull of No 1 weasel cutting into the ice in order to salvage the gear still there. Not with a great deal of success.

Aided by Storer I did some local survey work sketching the bay at sea level from a barometer measured vertical base of 379 feet. I hope to have time to occupy two camera stations at the eastern and western tips of the bay in order to complete the local mapping of the vicinity.

I would very much like to take No 2 weasel to the Murray Monolith but due to the risk involved on new formed ice I feel I cannot justify this action and must preserve our resources for the return to Mawson.

It is my intention to patch up No 2 caravan which is a wreck following damage sustained in the original gale and leave it as a shelter for

future visitors to this God forsaken spot. In it we will stow all excess gear that we cannot haul back. I will also put 4 twelve manday ration sacks and stow nearby the excess petrol. By so doing we will have established some sort of a depot with gear that would otherwise be lost.

A seal was heard breathing in the tidecrack but was not seen  
No radio contact with Mawson but received their weather .

6th June Sunday

Weather. Calm or light and variable. 1/8 cirro cumulus to north.  
1100 hrs bar 29.51 t 5°F 1700 hrs 29.51 t 4°F

Stinear collected samples about the weasel camp area. I carried out declinometer readings at the weasel camp an azimuths previously determined by star observations the previous night.

The point selected was a boulder showing above the ice bearing 140\* magnetic and distant 60 yards from the abandoned caravan.

The needle seemed very sluggish and individual readings varied widely though the means between groups of readings were in close agreement

Harvey worked on salvage in the hull of No 1 weasel but without a great deal of success , the ice in the hull being over a foot thick.

Later Storer and I joined Harvey at No 1 weasel and after cutting the exposed track commenced salvaging as much of the suspension and driving assembly as we could.

One snow petrel seen

Poor radio contact made with Base. We could just hear them and were not sure whether they could hear us.

7th June Monday

Weather. Wind 10 to 15 knots to calm in evening. 2/8 cirro cu in north  
1100 hrs bar 29.65 t 2°F 1700 hrs 29.73 t 0°F

Ice conditions . Very slight swell. Ice solid to a 20 mile horizon.

Stinear remained at the weasel camp tidying up the caravan and packing his specimens. Harvey worked all day at No 1 weasel trying to salvage gear.

Aided by Storer I visited the eastern and western tip of the Monolith with the theodolite and survey camera. After measuring the distance between them we took a series of angles and photographs from each point.

Later we joined Harvey at No 1 weasel and succeeded in getting off the exposed side the driving sprocket back axle and one set of bogeys.

1 snow petrel was seen .

Radio contact was poor. I do not think Mawson has had any news of us. for some time.

8th June Tuesday

Weather. Wind 15 to 20 knots Overcast cirro cu to north and alto cu and alto stratus building up overhead. 1100 hrs bar 29.76 t 2°F 1700 hrs wind 30 knots gusts to 40 Overcast Bar 29.69 t 1°F. Wind to gale force 2200  
Ice conditions . No apparent change swell 4-5 cm

I commenced a 24 hour tidal observation at 1830 hrs last night at half hourly intervals and continued it without interruption until 1830 hrs tonight.

We all worked at the weasel camp packing up ready for our return. We trust to leave a little before the full moon so we will be sure of having light for the return journey, but of course we will be ruled by the weather.

Harvey and Stinear patched up the wrecked caravan as best they could with the materials available with the object of making it drift tight. Storer and I packed up the two weasel sledges and made a depot of the excess drums of fuel.

Radio very poor. Only just heard Base calling.

9th June 1954 Wednesday

Wind 60 to 65 knots with gusts to 100. Overcast all day. 1100hrs bar 29.31  
t 7°F 1700 hrs bar 29.23 t 6°F  
Ice conditions . Marked swell at the tide crack 20 to 25 cm. No other observations.

Stinear and Storer commenced de-icing the caravan which now has  $\frac{1}{4}$  to  $\frac{1}{2}$  inch of condensation on all the interior walls

Harvey and I refitted the after door of No 2 weasel with bolts salvaged from No 1 weasel. Because of the wind we did not dare take off the ill fitting front door but contented ourselves with adding two more locking handles to brace it.

This done we carried out maintenance and overhaul of the engine as far as was possible. The machine is using engine oil unduly but the differential and gear box only required about a pint each. The radiator required about a pint of coolant.

We have transferred cooking to the cabin of No 2 weasel to cut down condensation in the caravan. In the weasel we are able to keep the condensation down by running the motor before and after cooking.

The wind has been very strong all day . Here at Weasel Beach we are fairly sheltered but even so the weasel is being heeled over in the gusts. We are also subject to bombardment of ice and small stones with each gust. No radio contact made.

10th June Thursday

Weather. Wind 50 to 60 knots gusts to 100 Overcast Slight drift.  
1100 hrs bar 28.91 t 5°F 1700 hrs 28.70 t 3°F 2000 hrs 28.58 2300 hrs 28.46  
Ice conditions. Increased ocean swell 40 to 50 cm . Tide crack ice breaking up and segmented floes in bay showin cracks. Ice in general so far seems to be staying in.

We have been unable to do anything outside today ; the weather is too difficult. Really there is not a great deal that we can do , all we are waiting for now is for conditions to stabilize for our return trip to Mawson.

Storer and Stinear are living in the caravan and Harvey and myself in the weasel.

The wind increased in ferocity in the evening and as a precaution we linked the caravan to the weasel with a steel towing cable.

At 0100 hrs the weasel was struck by an intense gust and was blown over on its side. This was not a great surprise to me as I had been lying in my sleeping bag expecting something of this nature for the last few hours. Whilst picking up ourselves in the capsized weasel Harvey and I decided to leave the weasel as it was for the rest of the night and join the others in the caravan. When I got dressed and was outside inspecting the damage I heard a faint cry for help in the direction of the caravan. The caravan had been blown over as well and Stinear and Storer were trapped inside unable to get out.

Apparently the same gust that had blown over the weasel had also blown over the caravan and the pull of the caravan on the connecting cable had probably helped to turn over the weasel.

I had to cut away the ice about the trap of the caravan in order to open the trap sufficiently to let out the two imprisoned inside. They escaped in light clothes and stockinged feet and so made straight for the shelter of the weasel.

Before they got there another heavy gust swept the beach RIGHTING the weasel back on to its tracks, in fact Storer and Stinear went inside without knowing it had been over.

Harvey and I then went to work on the caravan. We were rigging the chain block to right it when a gust blew it over right side up once more. We then secured the bow with a rope to the chain block and the stern to a rock anchorage. After getting inside the caravan we got Storer's and Stinear's sleeping bags and joined them in the ~~xxxxxx~~ weasel. We manoeuvred the weasel round to a better angle with the wind and the four of us curled up in the cabin and slept till morning.

No radio communication the aerial being carried away by wind.

11th June 1954 Friday

Weather. Wind 40 - 50 knots gusts to 60. Wind dropping in evening. Overcast all day . Light snowfall. Barometer 1100 hrs 28.59 1400 hrs 28.62 1700 hrs 28.69  
Ice conditions. Fair swell running all day, with visible wave motion in bay ice . Tide crack ice broken up. Swell 15 - 20 cm . No open water visible to a horizon of five miles.

We got to work late but as soon as the wind dropped. Damage to the living caravan was only one side window smashed, but the gear inside was in confusion after rattling round last night when the caravan went over.

The second caravan is now a total wreck and quite beyond our repair facilities. The whole of one side is caved in where the caravan was blown against a rock during the night. Considering that it was wedged tightly between two rocks and moored with rope it provides a good illustration of the destructiveness of last night's wind.

Storer and I commenced repacking the living caravan and de-icing the walls as we restowed the cargo. Whilst we were doing this Harvey and Stinear salvaged a window out of the wrecked caravan to replace the one broken in the living caravan. We then tied down the caravan with four ropes from the roof to ice pitons frozen in with sea water and then iced the hull to ground with brash and sea water.

During the night we altered the orientation of the weasel to the gusts which eased the strain considerably .

My survey rucksack was blown off the weasel sledge to which it was strapped but fortunately the contents spilled and only the rucsac was lost.

Our last thermometer was broken when the caravan was blown over.

I must give this place the palm for destructive wind. I have seen higher winds in Adele Land and gusty winds on Heard Island but the variable direction of wind and the intensity of gusts is worse than anything I yet have encountered.

Radio contact was not made with Mawson but their broadcast weather was heard clearly.

12th June 1954 Saturday

Weather. Wind 15 - 20 knots. Light drift. Overcast. Barometer 1100 hrs 29.47 1700 hrs 29.49 2000 hrs 29.53 Wind 25 - 30 medium drift.  
Ice conditions. Tide crack broken up but fairly quiet . Swell 8 - 10cm  
Light open cracks in bay ice.

Stinear and Storer completed de-icing the caravan and packing stores for travel.

Harvey replaced the smashed hatch on the caravan with one taken off the wrecked caravan.

I spent most of the day at No 1 weasel stripping off track rollers and bogey assemblies as spare parts . I noticed the rubber belts on the exposed track were showing considerable wear.

With bolts salvaged off No 1 weasel we refitted the the front door of No 2 weasel. This door is now solid enough but due to distortion of the cabin wall could never be classed as drift tight.

I checked over the motor of No 2 weasel and its transmission ready for movement onward.

One snow petrel was seen .

Radio contact was not made with Mawson but we received their weather and tide gauge information.

13th June 1954 Sunday

Weather. Wind 20 - 25 knots at 1100 hrs . Sky clearing with filaments of alto stratus and slight indications of forming cirro cu. Cirro cu thickening to light overcast from 1400 hrs . At 2000 hrs with wind the sky cleared and the cloud was driven north. Later it returned as overcast. Barometer 1100 hrs 29.32 1300 hrs 29.38 1400 hrs 29.42 2000 hrs 29.62

With favorable weather conditions developing we decided it was time to leave the Monolith and commence the dash for Mawson. As conditions were uncertain until 1100 hrs it was not until 1400 hrs that we had the weasel the two sledges (weasel) the man hauling sledge and the caravan on the ice linked up ready for departure. Until we actually moved we were not sure that the weasel could drag the load.

We cleared the Scullin Monolith at 1410 hrs and with the light of the moon began the long run down west to Austerjerat. Our dragged load was very heavy and consequently much low gear work was necessary.

I decided to travel closer to land than on the outward journey hoping to avoid rough surface. I do not think we gained a great deal in doing so.

Up to glacier camp (25 miles) the ice had definitely broken out and we were running on extensive areas of dark new formed ice which would average about ten inches thick by the way it buckled under the weasel. We stopped for radio sked at glacier camp but made no contact. From here to 50 miles ( Point of no return to the Monolith) there were areas where the ice had broken up and reformed and large areas that had remained intact. Running was very rough in places with miles of pinnacly ice and light hummock. I had the impression that by running about half a mile from the coast over this stretch we were having better surface than outward over the same area. At 45 miles out from the Scullin we ran out of petrol ten miles sooner than calculated, and had to refuel. At the same instant the self starter went out and the accelerator cable jammed. Stinear made a cup of coffee whilst I repaired these and after a delay of about an hour we got underway again. Storer replaced Harvey as driver. Harvey had driven since leaving the Scullin.

At 65 miles overcast was becoming heavy with increasing wind and drift. Up to now we seemed to be racing the weather which was looking very foul behind us. Here I made a mistake in the poor visibility and headed into the coast. In getting out of this we ran into a surface on which the weasel tracks spun and it was impossible to turn the machine. It consisted of a dry glassy ice surface overlain with 1 inch of dry powdery snow. We struggled on for a further ten miles in medium to dense drift and a wind of 60 to 80 knots. However then we found the weasel tracks spinning and the machine not moving and at the same time the moon which had seen occasionally to steer by vanished and we were beaten. We were obliged to halt and camp in the weasel cabin . This was at 0600 hrs 14 June.

The caravan was found to have the old hole in the hull smashed open again and drift was filling it. We packed up the hole as best we could and got into sleeping bags in the cabin of the weasel.

The barometer had begun to fall sharply and drift was becoming intense.

We were one mile from land and only ten miles from Austerjerat and safety.

I could see that our only way of getting our full load forward was relaying loads. It seemed tough that having won through this far with our salvage from the debacle at the Scullin that we should have to abandon it here. However I decided that should the barometer fall below 28.8 we would abandon our train and race the empty weasel through to Austerjare irrespective of conditions. I could not feel that with four men's lives at stake I was justified in staying out on the sea ice for the sake of the salvaged gear.

*Radio contact was not made with Base.*



16th June 1954 Wednesday

Weather. Mild Blizzard ESE

Weatherbound in the weasel all day. Carried out engine maintenance on the weasel. Changed two damaged spark plugs. Topped off engine oil (3 pints) and drained fuel filter which was very dirty.

Condensation on the weasel walls is our main enemy at the moment with the condensation of the four of us breathing all night and the accumulation from the breakfast cooking we end up with a fine coating of rime all over the cabin walls. Paper towelling is a great help in keeping this down, we all take a section each and mop away until it is rubbed dry.

Radio contact not made but Mawson weather report received.

17th June 1954 Thursday

Weather. Mild blizzard continuing easing in morning building up again in afternoon.

Nothing to report, we were confined to the weasel all day. We are running the motor at three hourly intervals to charge batteries and keep down condensation. We are well off for petrol having 35 gallons depoted here and 30 gallons brought back with us and there was 12 gallons in the tank tonight.

My main concern now is to get a break in the weather before the moon (past full) goes out. It will make it much easier for the rest of the return to have the light of the moon. Tide gauge reports 4 - 5 cm from Mawson indicate that this weather is not affecting the ice.

The weasel, sledges and caravan are becoming buried in drift so much so we had to move the weasel today.

No radio contact tonight but Mawson weather received.

18th June 1954 Friday.

Weather Mild blizzard continuing easing toward midnight. ESE

Nothing to report. Conditions remain unchanged. We continue to live happily in the weasel cabin watching the drift go sheeting by.

We eat two meals a day at the moment. Breakfast of porridge biscuits and coffee, and dinner of pemmican and potato stew. The rest of the day's ration is consumed in mouthfuls uncooked.

No radio contact made with Mawson but Mawson weather received.

19th June 1954 Saturday

Weather. Improving steadily from ~~mid~~ 0000 hrs to calm with clearing skies in afternoon.

We left Austerjera as soon as the weather began to break and started the run home to Mawson. The going was rather heavy in places with about 20 cm of soft sastrugied snow lying in places.

Passing between two islands we ran into a wide heavy drift of soft snow and had to relay for a mile or so. This relaying cost us about an hour. Other than this the return was quite uneventful and at 1000 hrs we were off Welch Island and half an hour later the weasel was halted at Mawson.

There was very little excitement at getting back since the return was accomplished when we reached Austerjera.

However everyone was rather tired since they had all been awake for the last 24 hours, and the first thought was a bath. The unpacking of the weasel and the caravan was left for the morrow.

At 2330 hrs just as everybody was settling down to bed Schwartz burst into the hut reporting that No 2 weasel was on fire. Despite our best efforts the fire damaged the machine beyond repair before it was put out. This was the crowning blow of an ill fated venture.

We survived the debacle at the Scullin though it cost us one weasel and one caravan.

We turned every effort to salvage as much gear as we could from the lost weasel to cut our losses.

We carried out our scientific programme at the Monolith.

We risked a slow journey home to drag the utmost of gear back to Mawson, and stayed with that gear on the sea ice during the gale on 14th June and then having won through the weasel caught fire at base

### Travelling in bad weather.

Although theoretically it is possible in an emergency to travel in blizzard in practice my experience has been that dense drift causes an enforced halt and camp. After a short period of travelling in drift direction becomes lost. The wind compass helps in such cases but near land or in the vicinity of icebergs the wind is frequently deflected so much as to be unreliable. It is better I think to make camp and have everything ready ready for movement as soon as conditions ease.

High wind without drift however can be coped with, and distance made without undue discomfort. On the way back from the Scullin we were able to travel comfortably when a man on foot was continually being blown over.

### Light and visibility.

When planning a sea ice journey in winter months the journey should be arranged to make full use of the moon. From full moon to half moon either side gives a period of visibility nearly as good as daylight on an ice surface.

More than this under a light overcast sky the moon will show through when there are no stars visible giving a body for navigation. The short hours of daylight are no inconvenience with moonlight for the rest of the darkness hours.

### Depots

I work on the principle that the return can only be made on the sea ice on the outward route in the winter months and that a return via the plateau is out of the question by weasel or other means.

In the event of a breakout of sea ice either the party survives or they are swept out to sea where there is little hope for them. If they survive and do not lose their weasels they are either on land or on safe ice in which case they await the refreezing of the sea and return via the sea ice.

On the other hand if the weasels are lost as one of ours was they still have the manhauling sledge available. As a long distance manhauling on the sea ice is a dangerous undertaking their logical route back is to gain the plateau and manhaul home later in the season.

Granted that the barge caravan survives as it should under most circumstances they have ample food fuel and shelter to await the coming of summer.

For these reasons my attitude to depots is

- (a) Only petrol for the weasels is worth depotting (to lighten loads)
- (b) A depot on sea ice cannot be relied upon so depots have to be on islands or on land.
- (c) All food travels on with the group.

### Fuel consumption

For weasels drawing full loads on average terrain 1.7 miles per gallon is the best available figure.

This seldom becomes better than 2.1 miles per gallon and in rough ice or in soft sagged snow can drop to 1.2 miles per gallon.

The possibility of having excellent surface outward and bad surface on return must be born in mind and at all times a good reserve of petrol should be kept against this contingency.

#### Drawn loads.

Considerably heavier loads can be drawn on the sea ice than on the plateau. I consider we were drawing maximum loads on the Scullin trip at 3.6 tons per weasel including sledge and caravan.

### Carriage of cargo.

With the frame for carrying 44 gallon drums mounted on the weasel sledge we had no trouble with drums or refuelling. Each weasel dragged six drums on its sledge.

Other gear carried in the barge caravans carried well and was in excellent condition up to the time the caravans were damaged.

### Carriage of cargo (continued)

One error made by us was to pack the cargo in the fore and after sections of the caravans leaving the centre section empty. This resulted in the weight concentrated at each end stressing the centre section. The damage to the caravans was largely due to this. We should have concentrated the load toward the centre where it would be sitting on a flat surface supported directly by the ice.

### General Procedure in sea ice travel.

This depends largely on prevailing conditions. The leading weasel is under the control of the navigator and the navigator is responsible for choosing and preserving the correct course avoiding major obstacles and choosing route through hummocks etc. A system of hand signals between driver and navigator works well but voice communication is unsatisfactory due to engine noise.

The driver is responsible for avoiding minor obstacles in his range of vision driving the machine and checking the dashboard instruments.

It is most important that the navigator is experienced in this sort of travel and capable of recognising various ice conditions without having to dismount and examine.

The second weasel travels in the track of the first unless signalled to do otherwise.

Communication between the two weasels was by hand signals by day and by headlights by night. Signals should be arranged before departure.

Travelling interval depends on visibility but anything over a quarter mile is too far and under one hundred yards too close and liable to put both weasels on the same section of weak ice and leaves no room for turning the second weasel.

At halts unless otherwise signalled the travelling interval was preserved. When signalled to close up the second weasel always avoids parking too close to the first.

Before leaving a prearranged drill should be worked out to cope with the breakthrough of either of the weasels. Everyone must know exactly what he has to do to avoid unnecessary delay in extricating the weasel.

With a weasel broken through my experience has been that on a snow surface one weasel can pullout another. On blue ice however this is not the case and the surest method is to put in an anchorage and use the chain block. One method I have not used on blue ice which would probably work is to put down the weasel bridging spiking it down into the ice and put the towing weasel on the bridging. In deep snow when a weasel breaks through, nearly always I have noticed that there remains a raft of ice under the tracks. In such a case my experience has been that though the weasel cannot be driven out forward, in most cases it can be backed out without aid of its consort.

Meals and cooking were mostly done in the weasel cabins where engine heat will dry out condensation. When travelling cooking was done in one weasel usually when refuelling or when mechanical repairs force a halt.

When camped sleeping and cooking was done in the individual weasel cabins by their respective crews. Sleeping bags when travelling were carried in the barge caravan to keep the weasel cabin clear.

The weasels and caravans are always parked head on to the prevailing winds when camped.

At all opportunities when travelling a check on water, oil, and batteries should be made.

Snow melting tins carried over the exhaust channel provide ample water. It is well worth while when passing close to a berg or other source of fresh ice, to lay in a stock of ice for water, for although drift and sea ice are drinkable they are brackish.

When the weasels cannot be put on land, land attached ice on the landward side of the tide crack should be treated with suspicion. At the Scullin Monolith a large section of this apparently land based ice collapsed under our camp during an exceptionally low tide.

By watching the movement of the sea ice against land based ice at the tide crack a fair idea can be gained of the amount of swell running. Here the normal swell is 4 to 8 cm, above 10 cm commences to be doubtful and above 20 cm a breakout of sea ice is likely to occur in areas of instability. In no case either here or in Adele land has a break out occurred without a heavy swell being present.

When travelling watch out for water sky on overcast days, short of encountering open water this is an almost certain indication of its existence. Water sky associated with frost smoke is quite definite indication of open water.

When following an ice coast note down every point passed that could offer a safe harbour or access to the continental ice, either in the navigation notebook or on the chart.

Watch out for seals, the presence of seals usually indicates an open lead or an area of thin ice. If possible detour round an area in which seals are lying.

### Leads

Cross all leads at right angles to avoid slewing sideways should the ice break under the weasel.

Leads are always encountered when travelling usually in the vicinity of icebergs, joining two islands, across the mouth of a bay, or near a glacier tongue.

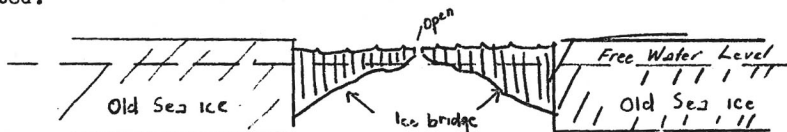
In hard blue ice such as encountered on the outward journey leads up to a yard wide can be taken safely without bridging, small cracks can be ignored. In this season May, leads are not a major problem; on the whole trip we crossed only one that required bridging.

Later in the year leads become more serious as snow cover prevents complete refreezing of the water between ice edges. Their detection is also more difficult. Seals give a good indication of the existence of leads.

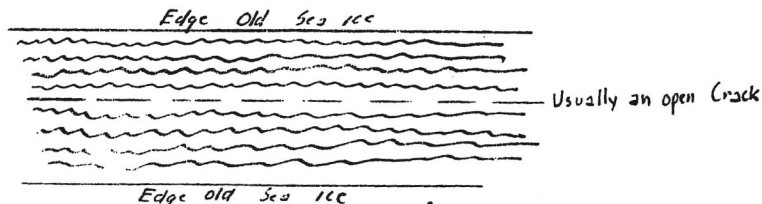
In general leads in pressure ice with the edges forced higher than the surrounding ice are safe to cross. Leads with their edges level or below the surrounding ice should be investigated with ice axe and crowbar.

From the end of July forward these low edged leads become increasingly dangerous to a weasel. Frequently on a level snow surface of deep snow lying the only indication of their presence is a faint barely discernable crack.

The most dangerous type of lead is formed by a slow moving mass of ice be it an iceberg or a glacier. This lead begins as a small crack and continues to widen as the year progresses. Only partial refreezing takes place across the lead and results in a lead ten to fifteen feet wide with a thin ice bridge hidden by snow across it. The bridge is usually open at the centre. In section it is as shown below, snow cover omitted.



In plan without snow cover it appears as below



The wavy lines represent little ice ridges developed by widening and subsequent refreezing. Once an example is seen the type is easily recognised.

Leads (continued)

As snow cover increases the lead deteriorates. It is then difficult to detect. Further the weight of snow depresses the bridge into the water causing warm sea water to flow over the top of the bridge forming a pool of brash hidden by snow over the bridge. This flooding can occur on both sides or only one side. The bridge then being completely immersed in warm water and insulated off by snow from the air softens and deteriorates.

When working vessels near a glacier tongue or in the vicinity of icebergs special precautions should be taken to detect such leads and when detected each should be thoroughly investigated before a crossing is attempted. The electrical ice tester later described is invaluable for this and by feeling with a bamboo or rod under the bridge to each side of the centre locates the true sides and gives an idea of the form of the bridge. In weak bridges of this sort the bridge can be felt to shudder under foot from the blow of a crowbar some distance away. They always require bridging.

Where a lead of this sort is formed the iceberg or glacier causing formation can be several miles away from the lead.

The routine worked out for lead crossing where bridging is required was the same as worked out in Adele Land.

- (a) Detection of the lead visually
- (b) Examination of the lead by sounding and probing and selection of the best point of crossing.
- (c) Bridge built with timbers carried for that purpose
- (d) cargo sledges dragged as close to the lead as possible and parallel to it but clear of the bridge
- (e) First weasel driven across the bridge with one designated man directing the driver. If the weasel comes on the bridge askew it is better to send it back for a second try as turning on the bridge is dangerous. The second weasel and spare men are standing by in case of accident.
- (f) Second weasel brought across the bridge with the first weasel standing by on the other side. One man runs out towing cables to the sledges across the lead and attaches them for towing.
- (g) The sledges are then towed across the lead not over the bridge by the weasels whilst spare men pick up the bridging timbers.

Once all is packed up the weasels are on their way again

With four men it took fifteen minutes to put two weasels two barge caravans and two weasel sledges across a twelve foot wide lead.

Zones of Brash.

These occur from the first heavy snowfalls usually from August forward. I do not understand the mechanics of their formation but suspect it is due to deflections in the ice sheet under pressure causing undulations the hollows of which are more heavily charged with snow than the peaks. The weight of snow then forces the ice into the water so that the free level of water is above the surface of the ice as a result a lake of sea water covered with snow is formed. The ice below deteriorates and results in a formation of say 20cm dry powdered snow 25 cm of liquid brash and 70 cm of soft water logged ice. Preliminary investigations in Adele Land indicated that this theory is near the correct one.

Zones of brash are usually local in character being only a few square miles in area. When hard dry sastrugi is present they do not seem to occur. They are impossible to detect visually and rarely carry the weight of a weasel. Our usual experience in Adele land was that whilst the weasel was running straight at even speed it did not break through but at any attempt to turn or accelerate the weasel broke through. Extrication is difficult since the weasel is well into the zone before it goes in. Its charged sledges immediately behind prevent towing out backwards.

The electrical ice tester was designed primarily for quick detection and investigation of a zone of brash.

Wherever possible they should be avoided by detouring.

## SEA ICE TRAVEL BY WEASEL

### GENERAL COMMENTS ARISING FROM THE EASTERN COASTAL JOURNEY

#### 1. May as a month for travel on sea ice

As a result of experience in Adèle Land where we travelled all months except May and remembering the excellent conditions that prevailed there in this month I decided to use the month of May for the Eastern journey. Now having travelled in this season I feel May is a little early, not particularly on account of the trouble at the Scullin Monolith but because even before this water sky was observed on several occasions.

Our real problem was lack of climatic data, always a problem for a first year party. Were the marked barometric variations and period of sudden but prolonged high temperatures normal seasonal state of affairs or were they a result of a freak period of weather. Until the station has been occupied for a number of years there is no way of knowing.

It must be remembered that we had very good surfaces outward bound but on return there was a considerable amount of slight snow lying necessitating relaying of loads so if a journey in late June or forward is contemplated thick snow lying as we struck in Adèle Land must be expected.

#### 2. Prospects for further sea ice journeys by weasel to the East

I would recommend strongly against any further journeys eastward on the sea ice and that any exploration in that sector be done via the plateau in summer or by use of the ship at relief.

The first stage to Austsjera is quite safe provided reasonable precautions are taken but the long stretch of 80 miles to the Scullin Monolith is risky since at no place between can the plateau ice or land be gained.

Although we found (eventually) a place where weasels and sledges can be put on land the prevailing bad weather at the Scullin Monolith make it unsuitable for a base for further work East. Every high wind we had there reaped a harvest of loss and structural damage.

Also most bad weather comes in from the East so that weather reports from Mawson are not of much value since they cover the weather at the Monolith a day or so previously. The reverse is of course applicable to the West of Mawson.

#### 3. Winter Sea Ice Travel by Weasel in general

Despite our losses and numerous setbacks I do not consider that anything that happened justifies a modification of the views I expressed in my report on similar activities in Adèle Land. Though associated with the general ill fortune of the trip the loss by fire of the second weasel cannot be included in the losses of the journey. This weasel had returned safely to base. Our actual losses were one weasel and one barge caravan.

I would like to point out that we arrived at the Scullin Monolith at the exact moment to be caught in a break out of ice. A day earlier would have given us the chance to put our vessels on land a day later we would have been turned back by open water before we got there. The ice at the Monolith had been broken for at least a month.

What occurred to us was the big and very real risk of sea ice travel a fresh storm coming over a critical area of sea ice setting up a swell heavy enough to break up ice and causing a strong offshore wind to carry loose floes out to sea. Anyone who would travel on the sea ice automatically exposes himself to this risk at ANY TIME of the year, not particularly in this season.

At a private conference the participants all agreed that the party were warned of this time of day. The weather was very good, it is anticipated should they feel in their mind that this risk was too great.

There was not a great deal of discussion about this trip rather it served to lay emphasis on the safe harbor. I have put in the whole last report.

(a) The weasel must be able to carry a 200 lb. safe harbour to the next. To be able to do this the navigation must be able to permit non stop running for long periods.

(b) The only safe harbour is natural land. Camps on sea ice or bay ice adjoining land are not recommended, only where absolutely unavoidable should should camp be made on sea ice distant from land.

(c) Sufficient food must be carried to ensure survival for the whole year if cut off, that is to the end of September when seal and penguin become available.

(d) Except for very short journeys a lightly laden journey cannot be contemplated. The weasel group must be fully equipped at all times which means heavy loads and slow speeds. I found that the material listed in "Appendix A" met all our needs. However two sets of bridging are not vital, one complete set and one spare longitudinal would be enough.

(e) Accurate meteorological information should be available at all times. The amount of swell shown by the tide gauge is of the greatest importance to the field group. This information should be transmitted from base at the beginning of each radio sked. Due to the tide gauge being out of action we missed this information at the vital period. I cannot stress too strongly the value of tide gauge indications. Swell is the factor that breaks up ice. Wind is relatively unimportant.

(g) Ice thickness is relatively unimportant. At this season ice a week old will carry a weasel. Leads can be a nuisance but at this period most can be crossed without resort to bridging. Bridging causes little delay if a drill is adopted.

(h) The barge caravan is excellent. The party owe its survival to it. Minor modifications in design and construction are necessary. I would not contemplate a weasel journey without one.

(h) Although we did not have to use it the inclusion of a fully equipped manhauling sledge is necessary. Had we lost No 2 weasel we would have had to return manhauling. Rucksacs would not have been practical with the amount of gear necessary for survival.

#### Hummocky or rough ice

Our practice in Adele Land used to be to travel well away from land between ten and twenty miles offshore but on the Scullin trip we averaged about two miles off land and in so doing I consider we avoided a lot of hummocky or rough ice.

Hummocks or rough ice are usually caused by an early break up of ice and a subsequent refreezing of disturbed floes and fragments into a chaotic icefield with rafted and floes on edge in confusion. They can also be caused by a berg turning over or disintegrating. Usually near shattered bergs or in the vicinity of a glacier tongue another condition exists which I call pinnacly ice which consists of small sharp edged fragments up to two feet high frozen into the sea ice at close irregular intervals. This condition is particularly dangerous to weasels being liable to cut a track or de track the weasel.

Speed and petrol consumption are very adversely affected under these conditions.

Unless the zone is visibly limited in area such zones are best by passed by a long detour. Where limited in extent it pays to work through them on the straightest course possible.

In pinnacly ice it is better to choose a course and maintain it with no attempt to avoid minor obstacles.

Where turning is necessary the navigator must be careful to avoid turning with the tracks on irregular projections or else a track may be cut or slipped.

Courses should be kept away from bergs where possible to avoid pinnacly ice and associated leads.