# The Beginning: 2 The first South African national Antarctic Expedition, 1959-60


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This is not the full account of the first SANAE but a summary of some of the events which formed the foundation for later South African expeditions to Antarctica.

*In September 1959 it was decided that South Africa would send an expedition to Antarctica to take over Norway Station from the Norwegians. The necessary arrangements had to be made in a great hurry as the expedition was to leave from Cape Town on the* Polarbjørn *early in December. The South African National Antarctic Expedition departed on 3 December and seven days later encountered the first pack-ice. Heavy ice conditions made progress difficult and for days on end impossible. The expedition arrived at its destination on 8 January 1960. A considerable amount of time had to be spent on repairwork and modifications to the station as it had exceeded its originally planned lifetime. The site for the future base of South Africa's succeeding expeditions was selected. After the winter several sledge journeys were undertaken in various directions, the longest being by dog sledge to the southern mountains and nunataks covering 561 km in 38 days. The expedition arrived in Cape Town on 20 January 1961, having accomplished successfully what it had set out to do — establishing South Africa in the Antarctic and initiating an extensive scientific programme. The foundation was laid for future South African expeditions.*

*Dit is nie 'n volledige verslag van die eerste SANAE nie, maar 'n samestelling van sommige gebeure wat die grondslag gevorm het vir latere Suid-Afrikaanse ekspedisies na Antarktika. In September 1959 is besluit dat Suid-Afrika 'n ekspedisie na Antarktika sou stuur om Norway Station van die Noorweërs oor te neem. Die nodige reëlings moes in groot haas getref word aangesien die ekspedisie vroeg in Desember uit Kaapstad, aan boord van die* Polarbjørn *moes vertrek. Die Suid-Afrikaanse Nasionale Antarktiese Ekspedisie het op 3 Desember vertrek en sewe dae later die eerste pakys teëgekom. In swaar ystoestande was vordering moeilik en vir dae aaneen onmoontlik. Die ekspedisie het op 8 Januarie 1960 sy bestemming bereik. Baie tyd is bestee aan opknapping van en veranderings aan die stasie aangesien die oorspronklike duur waarvoor dit beplan was reeds oorskry was. Die terrein vir die toekomstige basis van Suid-Afrikaanse ekspedisies is uitgesoek. Na die winter is verskeie sleereise in verskillende rigtings onderneem, die langste was per hondeslee na die berge en nunatakke in die suide, 561 km in 38 dae. Die ekspedisie het op 20 Januarie 1961 in Kaapstad aangekom na die suksesvolle voltooiing van wat onderneem is — om Suid-Afrika in Antarktika te vestig en om 'n uitgebreide wetenskaplike program van stapel te stuur. Die grondslag was gelê vir toekomstige Suid-Afrikaanse ekspedisies.*


## INTRODUCTION

### How South Africa became involved in an Antarctic Expedition

Late 1959. The International Geophysical Year (IGY) of 1957-58 had been completed. Negotiations were going on between the South African Government and the Norwegian authorities about the continued use of their IGY-Base, Norway Station, for meteorological purposes. At one stage it was considered that the Norwegians would carry on at the station while South Africa would pay for the expenses. Then the Norwegian authorities informed South Africa that they were to evacuate Norway Station and that South Africa could take it over if they so wished. Many in the South African decision-making hierarchy believed that the country would be unable to man its own expedition as South Africans were not accustomed to the harsh Antarctic conditions.

The Cabinet decided that South Africa would take over Norway Station and send its own expedition down south. It was put to me that this could be done if I was willing to take part as I was then the only person in the country with any previous Antarctic experience. On 9 September 1959 I was requested to be the leader of the first South African National Antarctic Expedition. I accepted.

Everything happened at an enhanced pace. It was arranged that we would sail south in the same vessel that was to bring the Norwegians back. This vessel, the *Polarbjørn*, was scheduled to depart from Table Bay on 2 December. We had only two and a half months to organise an expedition from scratch, with no Antarctic back-up and to get it under way. The task was assigned to Messrs H P Smit, Deputy Director and S A Engelbrecht, Assistant Director at the Weather Bureau and myself as expedition leader. Support was also received from a few administrative officers in the Department of Transport's Head Office and several others in various ways. Mr D J Joubert as Secretary for Transport, was in charge of the department responsible.

It was decided that the main task of the expedition would be to take over Norway Station and establish South Africa amongst the participant nations in Antarctica — a somewhat political motive. The second but equally important task could be to carry out as much scientific work as possible and establish the country in the Antarctic scientific community. The question was what could be organised in such a short time?

The scientific work was, as far as possible, to be in accordance with the requirements of the Scientific Committee for Antarctic Research (SCAR) and we should endeavour to continue the Norwegian scientific programmes. For this purpose we would require an expedition of ten members — myself as leader, four meteorologists doing surface, upper-air and radiation observations, one medical doctor, one radio-operator, one radio-technician, one

diesel mechanic and a geologist who would also be responsible for the disciplines of geomagnetism, glaciology and auroral observations. Professor Eric Simpson of UCT put forward a postgraduate geology student who was to fill this "superman"-post; he would receive geophysical training from Andrew van Wyk, head of the Magnetic Observatory at Hermanus.

The Weather Bureau provided three of the meteorologists. With five posts now filled, the other five were advertised with fortunately, an excellent response.

Apart from some items of food, the necessary clothing and most of the equipment could not be obtained in South Africa. The usual relief voyages to the Islands were undertaken by the SA Navy. As we had no polar vessel suitable for voyages to Antarctica and the authorities now had to plan for the future, especially with regard to the relief of our First Expedition after the first year, it was time to initiate the necessary arrangements to procure future polar vessels.

It was with all this in mind that Messrs H P Smit, S A Engelbrecht, Capt R A Robertson of the SA Navy and myself left for Europe on 16 September.

We first called on my former leader of the Trans-Antarctic Expedition, 1955-58, Sir Vivian Fuchs in London. Let there be no doubt that had it not been for his influence and assistance, we would not have managed to get SANAE 1 underway in December 1959. He introduced us to Sir Edward Luke and Messrs Cook and Hill of the Crown Agents, the agency that handled all the equipment and provisions for the British expeditions to Antarctica (Falkland Islands Dependencies Survey (FIDS) at the time.) Through Sir Vivian's greatly appreciated mediation, the Crown Agents kindly agreed to help us in our hour of need — we just had to state what we needed, they would purchase, pack and ship it all for us. But they all informed us that it usually took from one to two years to organise and equip an expedition such as ours — we were now trying to perform this mammoth task in two months. They provided us with the list of supplies they prepared for the FIDS expeditions, much of which we were obliged to order from them as these items would be unobtainable in South Africa. The items included clothing, sleeping-bags, certain food items, man and dog rations for sledging parties, Antarctic equipment and instruments, etc, etc. Our next port of call was Oslo where we negotiated with the Norwegian authorities (Norsk Polarinstitutt) concerning Norway Station and obtained lists of what would be available to us at the base. The help of the Norwegians, especially John Giaever, leader of the Norwegian-British-Swedish (Maudheim) Expedition, 1949-52, was immensely appreciated. We ordered the expedition's fuel in Norway as this would be cheaper than purchasing it in South Africa. In Berlin we placed orders for meteorological equipment and in Copenhagen we negotiated to buy a polar vessel for future use, from the Lauritzen firm, but without success. Returning to London on 28 September, we placed our final orders with the Crown Agents and flew back to South Africa.

There was enthusiastic support from a great number of people back home, unfortunately there were also government officials who insisted that everything had to be done strictly according to the rules and regulations of the Civil Service; we realised that if this were to be the case we would certainly not get away on 2 December. Despite this everything was progressing well and on 20 October the other expedition members were appointed. Fortunately I had the final choice in their selection.

The available expedition members were introduced to the Prime Minister, Dr H F Verwoerd and the Minister of Transport, Mr B J Schoeman and senior officals on 13 November in Pretoria. On that occasion I showed colour slides of the Commonwealth Trans-Antarctic Expedition and presented a short description of our own forthcoming expedition. The Prime Minister was satisfied and announced that South Africa had a permanent interest in Antarctica.

In the meantime it was decided that, as the country would in future be active in Antarctica, as many South Africans as possible should be exposed to "Antarctic experience" as soon as possible. Hence representatives from several relevant institutions were to accompany us on the first voyage south. It was also decided that publicity should be given to the expedition and representatives from the media were also asked to participate. Bearing in mind the limited available accommodation on the vessel, a small group of observers as they were called, were selected. They were: Rear-Admiral Stephen Mandarich, US Navy (Retd) from Washington DC as an observer in terms of the Antarctic Treaty, Commander J (Jack) Netterberg (SA Navy), Major W J B (Chappie) Chapman (SAAF), Dr J J (Jan) Taljaard and A B (Allen) Crawford (Weather Bureau), J A (Kosie) Jooste (SABC), J M (John) Venables (SAPA), G L M (Gert) Scheepers (Magnetic Observatory, Hermanus), R J (Robbie) Kleywegt (geophysicist, Geological Survey), G P (Gawie) van Niekerk (Department of Transport), L R (Laurie) Johnson (General Post Office), and A (Jannie) van Niekerk (photographer, SA Panorama). Throughout they all made a great contribution and worked extremely hard during the off-loading of the vessel.

By 16 November eight of the ten expedition members had gathered in Pretoria to help with final preparations. Some were to undergo special training. Ten days later we all gathered in Cape Town — J J (Hannes) la Grange (expedition leader), M J (Marten) du Preez (radio-technician), D J (Dick) Bonnema (senior meteorologist), G F (George) Strauss (meteorologist), M H (Theo) van Wyk (meteorologist), W T (Blackie) de Swardt (meteorologist), V (Vic) von Brunn (geologist, geomagnetist, glaciologist), A le R (André) van der Merwe (medical doctor, physiologist), C (Chris) de Weerdt (diesel mechanic) and N J (Nick) Erasmus (radio operator). Our ages ranged from 20 to 43, five of us were married.

The appointment of a deputy leader was initially suspended. I was to make a recommendation after the men had been at the base for some time. Marten du Preez proved himself to be the best man for this task and was appointed in this post. He was a great asset to the expedition.

## USING THE EXPERIENCE GAINED ON THE TRANS-ANTARCTIC EXPEDITION

My Antarctic experience was gained as a member of the Trans-Antarctic Expedition at its base at Shackleton and at South Ice during 1955-58, as well as from the TAE's New Zealand component at Scott Base in the Ross Sea, other expeditions whom we met, namely the United Kingdom expedition at Halley Bay, the United States expeditions at Ellsworth in the Weddell Sea, the South Pole and McMurdo in the Ross Sea as well as the Argentinian expedition at Belgrano Base in the Weddell Sea. This experience was an important factor in the organisation and performance of our expedition. The planning in Pretoria of our future activities, our activities during the voyage down south, the off-loading of the vessel, the routine activities in general, the handling of certain equipment such as snow tractors and sledges, ar-

rangements for and the carrying out of sledge journeys, handling of and care for the sledge dogs and many other aspects of the expedition, were founded on the above mentioned experience. It must be pointed out that we also learnt much from the Norwegians at Norway Station, they were after all the men on the spot. We did, however, make adjustments to suit our South African ways.

## THE VOYAGE OF THE *POLARBJØRN*

The *Polarbjørn*, whose arrival from Norway had been delayed, docked late on the evening of Saturday, 28 November. She was a Norwegian sealer from Alesund, of 486 gross ton displacement. She was powered by 1080 hp engines, had a length of 39,3 m and was 8,5 m wide. Her complement was 16. Her Captain, Henrik Marø was a brother of Captain Harold Marø and Chief Officer Johan Ollsen a brother of Jonas Ollsen, Second Officer on the mv *Theron* four years earlier on the commonwealth Trans-Antarctic Expedition. It almost felt as if *Polarbjørn's* voyage would be a continuation of *Theron's*.

The following day my wife and I took Captain Marø for a South African "braai" near Hout Bay. Thus was laid the foundation of a long lasting friendship and mutual understanding between ship's captain and expedition leader during the voyage.

*Polarbjørn's* engines were tested on 3 December. Telegrams with good wishes for the expedition continued to pour in and many came to bid farewell and bon voyage. H P Smit stood on the quay with his hat in his hand; to him as well as to the Department of Transport our departure was a great and stirring moment. On the quayside there were calls of good-luck and many a cheek was covered with tears. Shortly after 20h00 *Polarbjørn* slowly pulled away. A murky cover of cloud shrouded Table Mountain as the ship's final sirens sounded.

Less than two hours later, with Cape Town's lights still clearly visible, the first disaster struck. *Polarbjørn* was rolling heavily and the steward Harold Hovde, with a brace around his neck due to an injury, while emptying bins over the side, slipped and fell overboard. The news leaked to the harbour and I hastily sent a radio message to shore to assure everybody that all the South Africans were safe. Using searchlights, *Polarbjørn* combed the choppy sea for the missing man throughout the stormy night. At daybreak the frigate SAS Natal and two Ventura aircraft of the SAAF joined in the search but without success. At noon the search was called off by Captain Marø and we proceeded south.

The weather remained foul for the following few days and most of us kept to our bunks. I had always been a bad sailor. Seven days after our departure from Table Bay the sea became calm although the wind was strong. Captain Marø took this as a sign that the pack-ice was near. Later that day we indeed encountered 2/10 pack ice. Just before 16h00 a loud bang was heard and we were faced with our second tragedy — the Second Officer was killed in a dynamite explosion on board. On the seventh day out of Cape Town we sailed past the western cliffs of Bouvet Island. Two days later, in a calm sea due to pack-ice and icebergs around us, Captain Marø stopped engines and in sombre circumstances we buried Reidulf Kwien at sea. In the afternoon the Norwegians shot the first seal for dog food and brought it on board. That evening we had our first group discussion also attended by Captain Marø and Admiral Manderich. I read all the telegrams we had received and had a discussion on clothing and our forthcoming period of off-loading.

The following day the vessel was beset in heavy pack-ice. Three dynamite shots to dislodge the ship produced no satisfactory results but a little later *Polarbjørn* broke free. The next day, 14 December, at 62°7'S, 52°W we were still about 740 km from Norway Station. The temperatures had now been around zero and the sea temperature was −1,5 °C. The men had acclimatised well. An engine piston broke and the necessary repairs with which Chris de Weerdt assisted, took two days. Some of the ice floes were more than a metre thick.

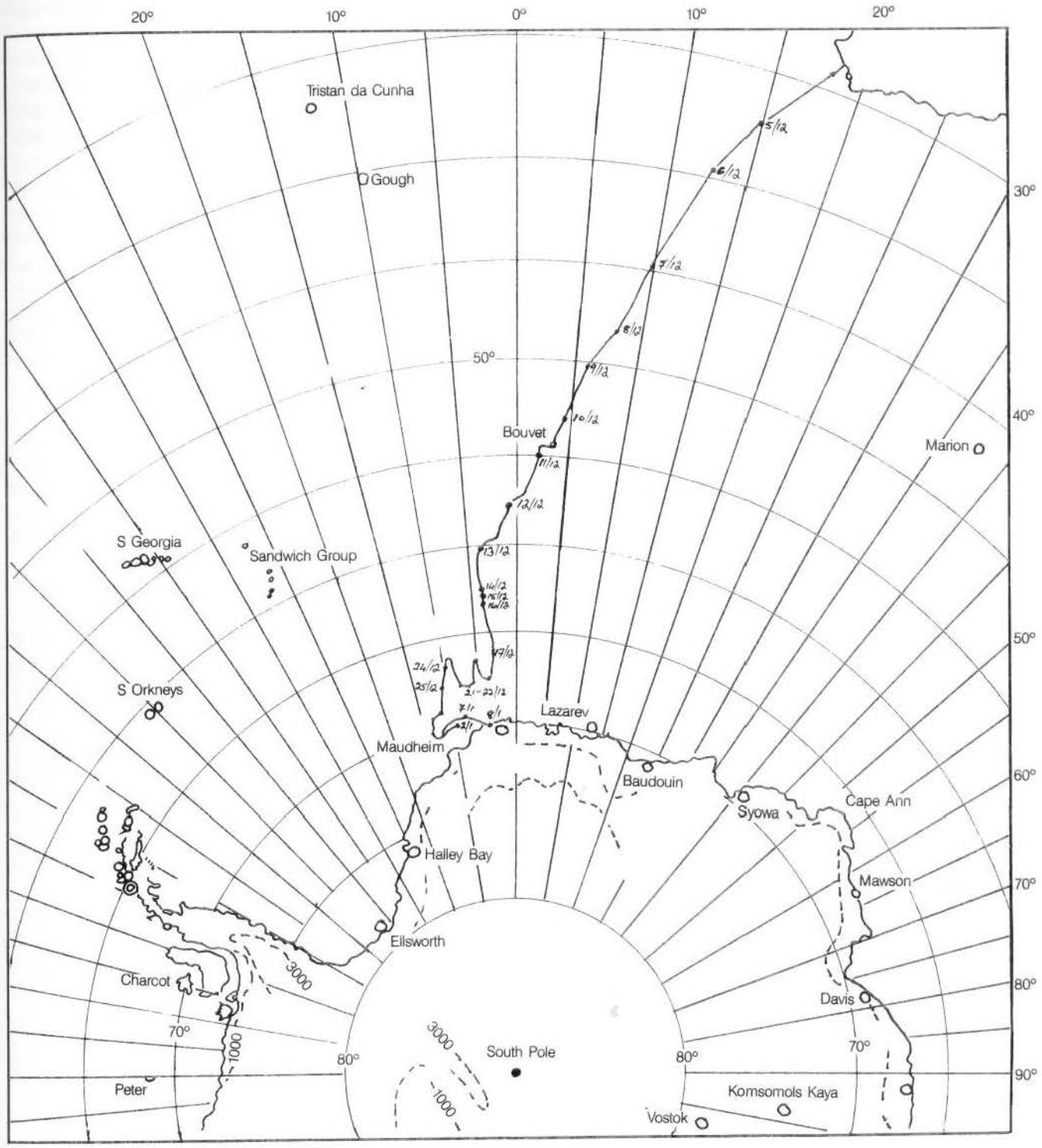
On any vessel progressing slowly through sea ice, men invent ways to fill their time of leisure. The prevailing craze was to autograph the thousands of envelopes that came down in mail-bags with requests that they be autographed. The Post Office had provided a special postmark to use as "first-day cover" but as we did not know what our arrival date would be, Laurie Johnson could not even secretly start cancelling the stamps with an appropriate date. He would have to cancel those envelopes with the correct date on the return voyage.

Another diversion was observing the icebergs and various types of birds and seals, several of which we took in for food for the huskies at the Base. All sorts of cameras were used and numerous reels of films were exposed by enthusiastic photographers. There was always great excitement when the vessel was stuck in the ice. We then went over the side to "pole away" the broken ice with poles specially brought for this purpose, often without success.

Progress was slow, with only a few kilometres being covered each day. On 17 December at 3°12'W we crossed the Antarctic Circle (66,5° S). We still had about 370 km to go. Three days later, having averaged 74 km a day, mainly towards the west, we were still 296 km away from our destination.

On 24 December our noon position was 66°34'S, 9°45'W. That evening we celebrated Christmas in the Norwegian tradition. During the day I had made up several gift parcels for everybody. My wife had, amongst others, knitted a colourful woollen cap for every expedition member.

We were now making virtually no progress at all and had organised an ambitious entertainment programme for New Year's Eve; the crew would also take part. At 17h45 Bjorne spotted a ship on the horizon. This was unbelievable as we had been plotting positions of all the expedition vessels in that lonely part of the ocean and none had been in our vicinity! The other vessel only became aware of us after we had called its attention by Aldis lamp signals. As it turned towards us radio contact produced nothing, all we could vaguely hear was the word "San Martin". So this could only be the Argentinian ice breaker *General San Martin*. The failure in the radio contact could be ascribed to the fact that the Norwegian and Spanish-speaking operators, in their great excitement, could not understand each other. An hour later we hoisted the Norwegian and South African flags. They hoisted the Argentinian flag. The giant vessel came towards us, ploughing with ease through the sea ice, in which we could not move, almost as though it was open water. The ease with which she cruised towards us was amazing but after all she was an ice breaker of 5 500 ton displacement with engines producing 4 800 hp. About 300 metres from us somebody on the other ship shouted "Can we do anything for you?" They kept on telling us that there was open water to the north thinking that we were trying to go in that direction. The two ships docked next to each other and Captain Marø, Cmdr Netterberg and myself went on board and were led into a luxurious saloon. Captain Boffi was in charge of Argentinian naval operations in Antarctica,




*Voyage of Polarbjorn from Cape Town to Antarctica. Dec 1959 — Jan 1960*

*Source: LA GRANGE J J 1962. Notes on the birds and mammals on Marion Island and Antarctica (SANAE)* J.S. Afr. Biol. Soc. *3: 27-84. p 71*

while Lt-Cmdr Antonio Revvelto was master of the ship, which had about 200 men on board. They were on their way south to the Argentinian bases Belgrano and Ellsworth on the Filchner Ice Shelf to the west of where Shackleton Base of the TAE had been.

It was decided that we would follow in their wake as far as we wished. Captain Marø and myself returned to *Polarbjørn*. I called the men together and gave them all the information I had obtained. We would follow the *San Martin* for about 95 to 160 km and then turn east. Jack Netterberg and the Argentinian officers came on board and while entertaining them, the men of both ships crossed over and mingled freely. Shortly afterwards the *San Martin* pulled away.

We followed at remarkable pace of 5 to 8 knots through the solid ice that the ice breaker had broken up. To our disappointment the *Polarbjørn* often got stuck in broken ice pushed back by the twin screws of the other ship and the *San Martin* repeatedly had to turn back and again break a lead for us. During the night

we nearly had an accident as the *Polarbjorn* missed the *San Martin*, which had struck heavy ice and slowed down, by about one metre. The next day the *San Martin's* helicopter twice did a reconnaissance flight but found only solid ice with pressure ridges. That night at 22h30 they said farewell by Aldis lamp and turned to the south-west. We were again on our own, having made reasonable progress.

## OUR ARRIVAL

At 06h00 on 8 Janaury, 29 days after we first encountered the pack-ice, Captain Marø saw the ice barrier at about 70°0'S, 5°55'W and at 07h50 we turned east in open water as we had reached the coastal lead. There was great excitement as we approached the landing site in Polarsirkelbukta, a bay in the ice front, and saw four members of the Norwegian expedition of nine men, standing on the ice shelf. We had now been five weeks out of Table Bay having spent four weeks in the pack-ice. At 13h48 the ship's siren announced our arrival.

At midnight we began off-loading, 650 drums of fuel, 150 tons of stores in 1 500 boxes, cases and bundles, working around the clock in two 12-hour shifts. "Off-loading" rather took the form of "up-loading" as the surface of the ice shelf was much higher than the vessel's deck. The stores were stacked a small distance away and the vehicles towed the loads to Norway Station 29 km inland (70°30'S, 2°32'W, altitude 52 m).

I visited the base on 10 January and discussed the taking-over with Sigurd Helle, the Norwegian expedition leader.

Everybody worked very hard. Captain Marø was in a hurry to be off for the sealing season "up north". Before that they needed repairs to the vessel which was damaged during our battle in the ice. We also realised that the sooner our expedition could be on its own doing its own thing, the better. On 11 January off-loading was completed. This was also the cancellation date on our postage stamp. A great amount of stores still had to be moved to Norway Station, something which we would be able to handle on our own later on. In the meantime our expedition members had been moving backwards and forwards between *Polarbjørn* and Norway Station and gradually began to take over the running of the base. At 03h00 on 15 January, seven days after our arrival, *Polarbjørn* departed.

## SETTLING DOWN

The first days were difficult but we never regretted being on our own. The wind was usually strong, causing drifting snow. This together with conditions of white-out and low temperatures made travelling extremely difficult. Whenever possible we made a return journey hauling up stores. The outward journey took about three hours, the home run about four. By 20 February temperatures had gradually fallen to −15 °C and everything except the caboose and a dog-sledge had been hauled up to Norway Station.

There was little space for stores inside the base, so almost everything had to be kept outside. Groups of boxes and crates, which had been numbered were placed in long rows flat on the surface and were marked with flags. In this way it was possible, by using the check-list, to find a box containing for example sugar or tinned food. Eventually these rows were covered up to their top levels by drifting snow. The 100-litre fuel drums were stacked upright in pairs, one on top of the other. This caused a certain amount of wind scour with the result that they were not readily covered by drifting snow. Once they were covered it meant deeper digging to get them out. Some items were placed on scaffolds built on top of drums. The wind scouring underneath prevented drifting up, but the scaffolds standing transverse to the wind direction tended to be blown over during blizzards and then had to be dug out to be stacked again.

It took us a few weeks to settle down and arrange things as we wanted them, in some instances it took even longer.

## NORWAY STATION

Norway Station was built for the International Geophysical Year, 1957-58. We were thankful to inherit a ready built base but as it had now exceeded its originally planned lifetime it needed a great amount of repair, being crushed by the weight of accumulating ice.

The station, located 7 m below the snow surface, presented itself as a forest of chimneys, ventilators, radio masts and various other objects protruding above the snow with the 25 m high meteorological mast being the most prominent feature. Furthest to the north was the emergency hut in which supplies for an emergency were kept. Then, spaced to east and west, followed sledges, radiosonde boxes, caboose, wood, boxes with radio equipment, "green hut" (a movable vehicle workshop which we took down to the Antarctic but which proved to be no success), empty drums, rhombic aerial (which we erected), a stack of dead seals for dog food, all-sky camera hut, meteorological screen, radio masts (extreme east), fuel drums and a refuse dump (extreme west), the main buildings and furthest to the south the magnetic hut which was covered by 7 m of snow.

The main building complex consisted of the entrance, which was a vertical boxed shaft seven metres deep with a steel ladder extending down its length. To the right (in this underground dwelling) was a short corridor with boxes and fuel drums lining both sides. The straight main corridor was 62 m long and had 0,9 m walking width, with various side corridors giving access to the buildings. It was lined by food boxes and cases. On its right was a tiny drying room (for clothes) which obtained warm air from the adjoining diesel engine room, followed by a small carpenter's shop. To the left was the technical building containing three meteorological offices, radio room and doctor's office. Then followed another building containing the dining room/kitchen/recreation corner, small pantry, photographic darkroom and offices for the geologist and expedition leader. Further down the corridor was the sleeping hut with 12 cubicles and a "hospital". These were all wooden buildings. Then followed a rather primitive toilet, a "sledge room" (the Norwegians probably moved sledges in and out before the station was covered by snow) with a permanent opening on the side leading to a snow tunnel from which snow was brought in. Adjacent to this was the "bathroom" with two washbasins and a washing machine. At the south end of the corridor was the balloon hut and an ice cave laboratory for glaciological studies.

As the complex had only one entrance/exit that was open to the surface there was the danger that, in case of a fire, the men would not be able to escape. We therefore soon dug another shaft near the opposite end of the corridor.

A major problem was that, due to the immense weight of the

accumulated snow and ice on the flat roofs, the roof beams in some places had begun to bend and crack, the walls had been forced down and the floors, which did not move down with the walls, had started to curve upwards in a convex manner. This became dangerous and all that we could do to prevent further collapse was to install upright beams that would separate roofs and floors. Sometimes these "pillars" unfortunately had to be placed in the most inconvenient places. The roof of the corridor, where the roofbeams had snapped in many places, was reinforced with crossbeams. The problem of the corridor's ceiling, which was less than head-high, was rectified by simply digging, thus lowering the level of the ice floor so that one could walk upright. This ice surface, however, was continuously compacted by walking, creating a slippery surface which resulted in many a mighty and painful fall.

The bathroom without a bath was somewhat different. Chris de Weerdt welded together two halves of a drum and installed an electrical heating element inside. This was installed close to the ceiling in the "bathroom". After filling the container with snow it took two days to melt and heat the water to bath temperature. We took a bath tub down with us, and installed it in the same room where it was filled from the "geyser" above. Unfortunately the "bathroom" was more or less unheated with the result that one would sit in a steaming hot bath with the surrounding air far below zero. Thus one never spent too much time on this luxury. After a bath clothes were washed in the washing machine using the same water. As it took two days to heat the water for the next bath it meant that each individual could have a bath and "laundry day" only every twentieth day.

## GENERAL ROUTINE

The routine was more or less the same as we had at the Trans-Antarctic Expedition's base, Shackleton in 1957-58. Everybody took a four-day turn at cooking — after four days the cook would have run out of "new ideas". Some of the men had very little culinary experience, but soon learnt from the more able cooks like Nick Erasmus, who was always prepared to give a helping hand. A "skiewie" assisted the cook in washing up, bringing in snow for water, filling the stoves with paraffin, removing the refuse drums, sweeping the floor and being of general use. We maintained a high standard of living throughout. Two things I insisted on were that everybody, except the night observer who might be asleep, attended every meal and that there was to be no reading during meals.

Saturday night was recreation time and everybody was present. Then the liquor and confectionaries for the following week were put out. For birthdays and other festive occasions there were additional supplies. We also had our weekly film show. As we had only a few films, Chris de Weerdt showed them repeatedly.

During March and April we assisted Marten du Preez with the erection of the rhombic aerial which was directed at South Africa for transmitting and receiving radio messages. This would greatly improve our radio communication. Synoptic messages were sent to Cape Town and each of us could send and receive letters of up to 200 words a week, everything in morse code. Nick Erasmus was always very popular when he delivered a letter. From June onwards it was arranged to have radio-telephone contact and we could thus actually speak to our relatives or friends once a month. Quite often radio conditions were poor and we would be left frustrated and disappointed when a "sked" would suddenly break down. Marten du Preez was a keen radio-HAM and soon established various contacts in South Africa. Often those of our wives, who could visit a HAM, had a conversation with us. Although such an arrangement was strictly against the HAM's code of conduct, they seemed to turn a deaf ear in our case in Antarctica, and we were extremely thankful. We had regular radio "skeds" with the other Antarctic bases.

As a member of the TAE I had helped to care for the huskies and had learnt to handle them. We took over 12 dogs from the Norwegians. In the traditional Antarctic way they were tethered to pickets outside. By May it had become cold and we experienced several blizzards. Following the TAE experience, we used our Oliver snow tractor and dug a deep trench, 37 m long. The snow was dumped some distance away so that it could not cause undue accumulation of driftsnow. A flat roof was put over the trench and at the end of this tunnel was a hatch to the surface. The dogs were brought in and they spent the winter in stylish comfort. The main entrance to this dog tunnel led from the engine room and we would thus enter without having to go outside. I always had voluntary assistance in caring for them. In the usual way they were fed every second day; a block of seal meat (on average 2,7 kg in winter) with the blubber removed, otherwise their furs would become soiled. On sledge journeys each dog ate a 0,7 kg block of pemmican every day.

Translation between Norwegian and English was not always easy. This led to a few misconceptions. One concerned some of the tinned food that we took over at the beginning of the year. It was not made easier by the fact that some of the labels had come off the tins. Marten du Preez, who was in charge of provisions, often did not know what was inside a specific tin. Another, this one being more serious, was related to the discovery that there were no oil seals for the diesel engines. Chris de Weerdt had to continuously fabricate some from leather to keep those engines going. The nozzles of the welding and brazing equipment of the Norwegians did not fit the gas cylinders which we took down south. Chris was a genius at improvising remedies for many problems.

By June we had learnt what an Antarctic year could be like. A brief summary of the weather during the year is given in Table 1.

There was another "first" for SANAE I. Right from the beginning we realised that for some terms relating to Antarctic matters there existed no Afrikaans terminology. We decided to use correct Afrikaans terminology and in many cases we had to invent new words. After our return a list of Afrikaans "Antarctic" words was compiled and submitted to experts for their comments. Finally a list of Antarctic terms with their Afrikaans equivalents was approved by the Language Bureau and published by the Weather Bureau in November 1961.

Life carried on in a typical Antarctic fashion. One day George Strauss was standing on top of the balloon hut with the radiosonde in his hand, ready for release when the ascending balloon from underneath would whip past him through the open horizontal sliding roofdoor, as it was always done. This time bad luck struck when his foot slipped and he fell down a few metres. Fortunately he was not badly hurt. But he, conscientiously as always, had held on to the radiosonde and it survived undamaged. This was our most serious accident.

The traditional Antarctic Midwinter's Day was celebrated with much festivity, excellent food and drinks and gifts for everybody, even from the Department of Transport. These had been or-

ganised before our departure from South Africa. Due to poor radio conditions we could only have our telephone calls the next day. On 29 June we received telegrams for Midwinter from the President of the United States and the King of Belgium.

On 18 July we saw a mirage of the sun and three days later it was visible above the northern horizon, the first time after a two months' absence during the Antarctic winter polar night.

## SCIENTIFIC PROGRAMMES

The meteorological programme under the able leadership of Dick Bonnema, went more or less according to plan. The four meteorologists, Dick, George Strauss, Theo van Wyk and Blackie de Swardt, worked in shifts enabling one man to be on night duty for observations and to keep a check on the engine room and everything in general against the slightest possibility of fire. They did three-hourly surface observations outside the base around the clock, radiosonde ascents (for most of the time every third day), radiation observations, microclimate observations at six different heights on the meteorological steel tower, tried various ways to measure snowfall and recorded the visual aurorae and optic phenomena. Blizzard or not, they had to go outside for their observations.

Andre van der Merwe regularly conducted various types of medical observations which comprised his physiological programme — monthly blood and urine analyses, basal metabolic rate, weight and skinfold thickness.

Victor von Brunn did more than could be expected of one man. Indeed he was responsible for more scientific disciplines than any subsequent expedition member. He did a reconnaissance survey of the geology of the nunataks in the region south of the station. His time in the field was far too short for any more detailed work — unfortunately we also had a logistics problem and only a limited quantity of rock samples could be brought back. These specimens were subsequently studied at the University of Cape Town and the geology was written up. The geomagnetic programme included the maintenance of the variometers that continuously recorded the daily variations in the Earth's magnetic field, and also absolute measurements measured by means of the QHM and BMZ magnetometers in the field. Sigurd Helle introduced him to the use of the Stoffregen All-sky camera which automatically recorded aurorae displays. He had to teach himself how to handle the glaciological observations for which the only available apparatus was a Rammsonde. The glaciological programme included studies of snow accumulation, snow stratigraphy and temperatures in pits up to three metres deep, compaction of ice layers near the surface, snow crystal photography, morphology of the surrounding region, erosion of sastrugi, and observations and investigations of sea ice and the ice-front.

Of far lesser importance were my daily microclimate observations of temperatures at various levels at different places within the station. To prevent continuous dripping from melting snow above, we kept the temperatures as low as possible. Thus, for example, the average temperatures at one metre height during May and June respectively were: my office +10,0 and +11,8 °C, Kitchen/dining room +11,3 and +12,9 °C meteorological office +15,7 and +15,0 °C, radio room +16,4 and +14,4 °C, engine room +9,0 and +7,6 °C, sleeping hut passage +6,3 and +6,5 °C, water tunnel −9,2 and −10,0 °C, main entrance −13,6 and −9,6 °C and the dogtunnel −9,7 °C. For the same months the outside mean temperatures were −21,6 and −15,5 °C. We found that with strong winds outside, there was a considerable drop in inside temperatures. The mean temperatures in the ice corridor was −25 °C. I also acted as general handyman to anyone who needed assistance.

The biological programme consisted mainly of observations of the various types of seals and birds, bird migration and the collecting of rock samples with lichens growth.

Unfortunately, on our return to South Africa, no provision was made to process and publish the results of the scientific programmes in a systematic way as had been the case with the TAE. In some cases the results were processed, such as those of the geomagnetic programme, at the expense of expedition members and the results were published in a variety of scientific journals — in some cases records of valuable work ended

## TABLE 1: SUMMARY OF SOME METEOROLOGICAL PHENOMENA (TEMPERATURES °C)

| | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| mean outside temperature | −6,2 | −11,4 | −15,5 | −22,8 | −21,6 | −25,5 | −27,4 | −29,2 | −28,2 | −18,7 | −11,7 | −5,9 |
| mean max temperature | −2,1 | −6,5 | −11,3 | −17,7 | −16,7 | −20,7 | −22,6 | −23,1 | −23,7 | −14,3 | −8,1 | −1,6 |
| mean minimum temperature | −10,3 | −16,2 | −20,3 | −28,0 | −29,3 | −31,6 | −32,5 | −33,7 | −35,6 | −24,9 | −17,1 | −10,7 |
| highest max temperature | +5,0 | −1,2 | −4,3 | −8,6 | −4,7 | −7,0 | −9,6 | −14,4 | −9,8 | −6,5 | −1,1 | +2,1 |
| lowest minimum temperature | −18,3 | −31,3 | −28,5 | −42,0 | −43,2 | −42,2 | −43,6 | −47,8 | −45,8 | −32,4 | −29,5 | −15,3 |
| mean hourly windspeed (knots) | 15,0 | 9,0 | 15,8 | 12,6 | 14,1 | 14,0 | 12,9 | 12,6 | 14,4 | 13,4 | 17,8 | 13,5 |
| highest wind gusts (knots) | — | 36 | 94 | 61 | 67 | 47 | 70 | 60 | 94 | 67 | 97 | 66 |
| number of days with | | | | | | | | | | | | |
| (i) gale force wind | — | 1 | 6 | 9 | 10 | 9 | 5 | 9 | 5 | 5 | 9 | 5 |
| (ii) white-out | 6 | 14 | 7 | 3 | 2 | 0 | 1 | 2 | 1 | 5 | 3 | 0 |
| (iii) high drifting snow (above eye level) | (6) | 4 | 9 | 9 | 11 | 10 | 10 | 11 | 14 | 12 | 14 | 9 |
| (iv) snowfall | 13 | 14 | 16 | 5 | 16 | 19 | 13 | 14 | 8 | 13 | 12 | 10 |
| (v) aurorae | nil | nil | 3 | 18 | 11 | 10 | 13 | 12 | 13 | 5 | nil | nil |
| mean daily sunshine (hours) | — | 6,49 | 3,87 | 3,16 | 1,01 | nil | 0,05 | 1,17 | 4,88 | 5,40 | 8,09 | 12,51 |
| amounts of clouds (in eights) | 6 | 6 | 6 | 4 | 5 | 5 | 5 | 5 | 4 | 6 | 6 | 5 |

up on shelves or in drawers somewhere.

The scientific work in particular and the smooth running of the expedition as a whole would not have been possible without the excellent logistic support provided by Marten du Preez (radio-technician), Chris de Weerdt (diesel mechanic) and Nick Erasmus (radio-operator).

Throughout the year there was a great spirit of willingness and cooperation by everybody to assist everybody else in some way or another. Everybody felt that in some or other way he had an important contribution to make. So for example when Vic von Brunn was in the field, Blackie de Swardt took over the geomagnetic routine work. Marten du Preez, Nick Erasmus, Andre van der Merwe and Chris de Weerdt assisted with the radiosonde receiver.

## SLEDGE JOURNEYS

Unfortunately, mainly due to the time we spent on refurbishing the base which had to be used for at least two further years, it had not been possible to get Vic von Brunn to the mountains before the winter. On 3 August, in a light wind and with a temperature of −34 °C, we harnessed six dogs for the first practise run and did about 8 km. After that we had daily runs. The men took turns to help — to them it was a great new experience. Training runs were done with empty sledges. As the dog team set off at a frightening speed over the first few hundred metres it was always great fun to aim correctly and to jump onto the bouncing sledge or just to hang on for dear life. If you missed, you were left behind. As South Africans, the men, not accustomed to snow, found that skiing was their weakest department. With a heavy load on the sledge, travelling was done by skiing alongside. There are only a few things in life as exhilarating as skiing behind a well-trained strong dog team on a hard polar surface in sunshine, even if this might be during the "night".

29 August was a great occasion. At −33 °C Vic and I set off with the dog sledge for the small Norwegian substation near the landing site, from where we would do meteorological and glaciological observations and map the configuration of the ice front. About halfway we camped and on a small mast that we had made for this purpose, we hoisted the South African flag for the first time in Antarctica. Bad weather during most of the time made things difficult for us. After several blizzards we arrived back at Norway Station on 14 September. Some of the men came with a snow tractor to meet us some distance from the base.

Earlier we had selected the site for the new station, the future SANAE Base which was to be built in the summer of 1961/62. Because of the danger that the shelf-ice in a particular bukta could break off and make it unsuitable for off-loading (as happened later) we selected this site (70°16'S, 2°21'W). It was about equi-distant from the various buktas as they were then. The selected site was about half the distance from the sea as Norway Station's distance.

Several more short journeys were undertaken by other men. Some of them were, due to the nature of their specific task, more base-bound than others but by the end of the year everyone had had the opportunity to experience a "sledging journey".

For the forthcoming journey to the mountains Andre van der Merwe and I laid a supply depot by tractor, some 60 km to the south on 7 to 9 October. From this point the distances to the mountains and nunataks, seen on the horizon in different directions to the south, would be about the same. It was envisaged that provisions would later be picked up at this depot. We flagged the route with a marker every 3 km and as usual measured the height of its tip above the surface. Passers-by could subsequently measure the heights again and thus determine the snow accumulation.

Without my prior knowledge, the men had requested the Secretary for Transport in Pretoria that this new depot be named Hannes la Grange Depot. Permission was granted and on my birthday party on 13 October, to my great surprise, this was announced. I was deeply touched.

On 31 October, Vic von Brunn and I set out by dog team on our expedition's longest and most important journey into the nunatak region. As the snow surfaces were soft during the day, we sledged "at night". On the second day out we discovered that the radio receiver had broken down. Marten du Preez had built us a small transmitter and assuming that the men at the base would hear us at pre-arranged radio schedule times, I dutifully but rather in an amateurish way tapped out our messages on a morse-key every night. Unbeknown to us, this set had also broken down and for a few weeks nobody knew what had become of us. We did geological, glaciological, meteorological, magnetic and mapping work and collected, apart from the geological samples, also rock samples with lichens on them. We had no maps to guide us. We used a cyclometer on a bicycle wheel mounted behind the sledge and a prismatic compass to map our route. We crossed some unknown badly crevassed areas. Fortunately a ski-runner broke the snow bridge over a crevasse only once and we easily freed the sledge. We experienced many white-outs and the worst blizzard that I ever encountered in Antarctica. We estimated the wind to have reached a speed of 100 knots, which probably coincided with gusts of 97 knots recorded at Norway Station at that time. Some of the cases, not empty ones, were blown away, two of the tent's four poles broke and an ugly tear was ripped into the tent's side. This we had to mend after the blizzard and also several times later, using a needle and cotton from the "house-wife" and a cut-up blanket to patch the tears. Fortunately there was no damage to the sledge or injury to the dogs as these had been picketed down thoroughly.

After hearing nothing from us for a month, the men at base, officials in Pretoria and our next-of-kin, who had in the meantime been notified of our absence became worried. Not knowing of the anxiety we had caused, and having visited the mountains, 22 nunataks and covered 561 km in 38 days, we arrived back at Norway Station on 7 December.

## THE LAST DAYS

Now remained the finalising of our year's work. Preparations for the arrival of the *Polarhav* which was to bring SANAE II down, included runs to the ice-front to inspect the ice conditions, marking the routes with flags, etc, etc.

The *Polarhav*, a more modern and bigger vessel than the *Polarbjørn*, arrived on 26 December. Due to a bad ice-wall in Polarsirkelbukta, Captain Sigmund Boë tried Otterbukta and eventually tied up in Polarbjørnbukta. We assisted the new team in off-loading and hauling the loads to the two bases. On 9 January, one year and one day after our arrival, we departed on the return journey. Dick Bonnema had volunteered to stay on for a second year.

This time our going through the ice was uneventful. After three days we reached the edge of the pack-ice, after another three days we passed Bouvet Island and five days later, early on 20 January 1961, we docked in Table Bay where we were welcomed by our relatives and friends and were entertained to an offical reception in the Castle.

We were satisfied that we had successfully achieved what had been planned. We had proved that South Africa was fully capable of maintaining an Antarctic base, and established South Africa as a viable member of the Antarctic Treaty. We had initiated a scientific programme, despite adverse and difficult conditions, lack of certain equipment, extremely short time for preparation and little prior knowledge of what was to be expected in this region. We laid the foundations for subsequent expeditions, mainly with regard to logistics and recommendations. We had proved that a South African expedition to Antarctica could be successful.

## AFTERMATH

Research during the expedition yielded Vic von Brunn's MSc degree and also a large number of published scientific and popular articles. At the initiative of expedition members, after our return, the South African Antarctic Club and the South African Antarctic Association were formed. Three members of the expedition, myself, Vic von Brunn and Marten du Preez were the recipients of the first three South African Antarctic Medals.

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