of the *albedo* effect on firn and ice adjacent to rock outcrops, or carrying rock debris, or merely strewn with windblown grit and dust. The resulting melt-water pattern is often astonishing in complexity and, when refrozen, splendid in the colourful beauty of all imaginable shades of deep bluish-green, emerald green, pale pastel green, greenish white, and the pure white of driven snow.

Lesson for SANAE

I have never been to the South African Base in the Antarctic; but I know that geological fieldwork from there with currently available means of transport is fraught with considerable difficulties. The hinterland of SANAE is one of the geologically least-known regions of the Antarctic. I am filled with admiration for what the few young South African geologists have achieved under often very difficult conditions; but it is time that geological and geophysical exploration from SANAE is stepped up by the provision of much more adequate logistic support. This simply *has* to be done if South Africa is to make really significant contributions to the vast pool of data rapidly being accumulated elsewhere in the Antarctic by other nations.

The South African Government would be well advised to follow up the suggestion submitted by Mr. D. C. Neethling, co-ordinating geologist for Antarctic geological and glaciological research, who visited McMurdo Base in November and December 1964.

If helicopters of the South African Air Force can be made available for meteorlogical purposes on Bouvet Island, why not for geological work in the Antarctic? The enthusiasm and enterprise of South African geologists would be boundlessly stimulated.

ANTARCTIC "INDOOR" TEMPERATURES

by
V. von Brunn

Following on J. J. la Grange's contribution to the *Antarktiese Bulletin* (No. 7, January, 1965), the purpose of this short article is to demonstrate the difference in temperature between occupied and unoccupied buildings under the snow.

In his article La Grange dealt with temperatures recorded in, firstly, the heated apartments and, secondly, the ice corridor, passages and tunnels of the main building of Norway Station (70°30′S, 2°32′W) during the course of 1960.

In order to appreciate the relative "warmth" of the unheated parts of the main building, it is necessary to glance at the temperatures prevailing in the magnetic hut which was completely isolated from the living quarters.

Main Building

A block plan of the building is given by La Grange, who also points out that the station was overlain by 3 to 4.5 metres of snow (firn) at the time of occupation in 1960. The temperatures of the ice corridor and passages leading off it were influenced by warmer air originating from the meteorological and radio offices, kitchen. sleeping hut, diesel generators and electric bulbs which illuminated the passages for 24 hours of the day. On the other hand, cold air from outside was free to enter through the ventilators and the open hatch/hatches, while low temperatures could also penetrate the firn surrounding the building.

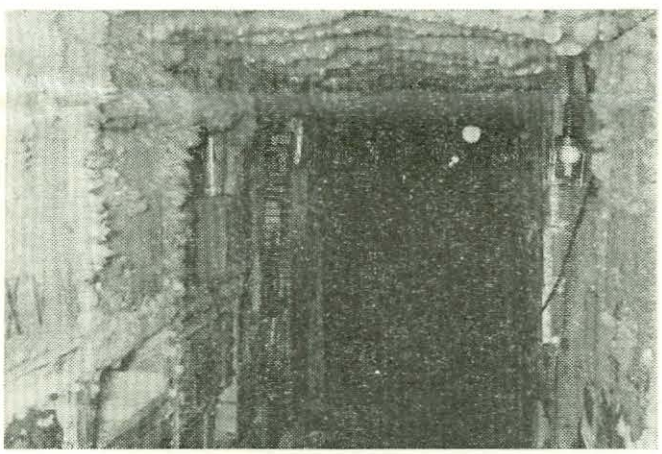

Fig. 1—Ice corridor, main building.

Magnetic Hut

The magnetic hut housing the variometers was situated 150 metres from the main building, beneath a cover of approximately 2.5 to 3 metres of firn. Its dimensions were 2 by 3.5 metres of which 1 by 2 metres was taken up by an ante-room which was separated from the variometer room by heavy curtains. The ante-room was accessible through a hatch, which was closed at all times, on the snow surface. The magnetic hut was built of a wooden framework covered with black cloth and canvas. Temperatures within the variometer room were recorded daily at 12 noon when the magnetograms were changed, a process which lasted only a few minutes. The hut was never occupied except on a few occasions when the instruments had to be calibrated or adjusted.

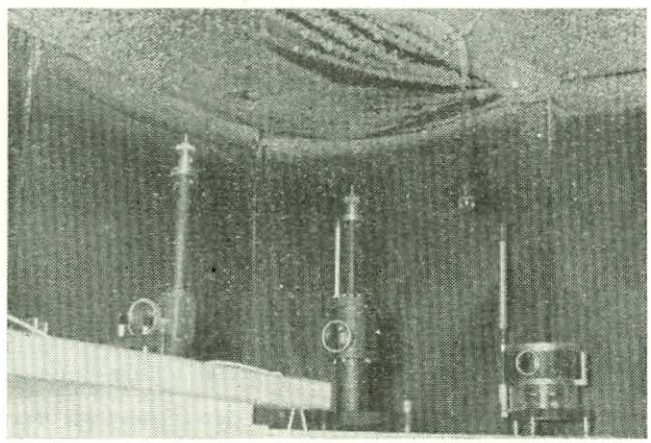

Fig. 2—Interior of magnetic hut.

The mean monthly temperatures inside the magnetic hut and outside in the screen are given in Table 1 and depicted in Figure 3. Although there is a considerable difference in the temperature ranges inside the hut and in the screen, the arithmetic means for the year differ by a mere 1.4°C. Snow (firn) temperatures measured during the year at depths of approximately 150 cm beneath the snow surface compared favourably with those recorded in the hut and were similarly characteristed by a low monthly temperature range.

Table I

Mean monthly temperatures (°C) in magnetic hut and screen

	Magnetic hut	*Screen (outside)*
Jan.	−15·8	− 5·4
Feb.	−15·2	−11·4
Mar.	−15·9	−15·5
April	−17·2	−22·5
May	−19·5	−20·5
June	−20·5	−24·2
July	−21·4	−26·3
Aug.	−22·8	−28·2
Sep.	−23·5	−29·2
Oct.	−22·7	−18·6
Nov.	−21·7	−11·7
Dec.	−20·2	− 5·9
Year 1960 ..	−19·7	−18·3

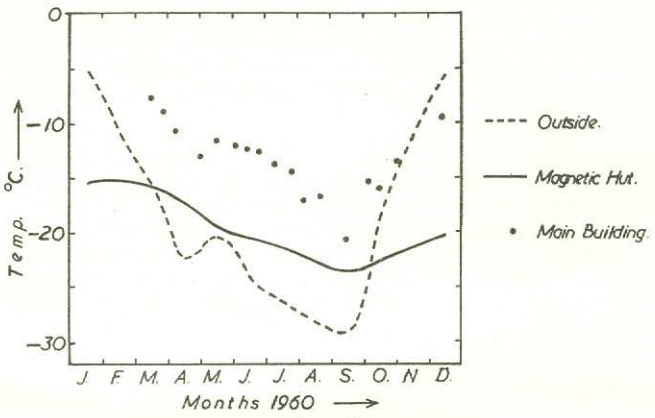

Figure III

Mean monthly temperature inside the magnetic hut, compared with the mean monthly screen (outside air) temperature recorded in 1960 (La Grange and de Swardt, 1961) and at a selected point inside the main building.

Temperature readings periodically taken in unheated sections of the main building (see La Grange's Table II) were higher than those measured in the magnetic hut during the corresponding months. As an illustration one of these sets of readings (No. 13 in La Grange's Table II) was selected and included in Figure 3. This particular point represents the end of the ice corridor farthest away from the living quarters and in close proximity to the large (closed) hatch of the balloon hut. These temperatures were recorded within three hours of the release of the meteorological balloon when cold air from the outside had entered the corridor through the temporarily opened hatch. In spite of this, the readings near the balloon hut were still higher than those recorded in the magnetic hut.

As indicated by La Grange, there was a considerable fluctuation of the temperatures in the ice corridor, whereas in the closed magnetic hut even daily temperatures showed very little variation, and strong surface winds had no effect on the latter. The small range of the magnetic hut readings, as opposed to those in the screen, is indicative of the insulation effected by the snow cover. Insulation with respect to the outside air temperatures was also noticeable in the main building when in summer the screen temperature exceeded that of the ice corridor.

It is apparent that in spite of the intrusion of cold air from outside, particularly on windy days, a certain amount of warm air from different heat sources in the main building is retained in the ice corridors and passages. The rafters, beams, wooden cases, plywood and canvas constituting the walls and ceiling which were mostly covered with a thick layer of intricately intergrown delicate ice crystals which provided a certain degree of insulation. The temperature in the magnetic hut, on the other hand, was mainly dependent upon the firn which enclosed it, and to a lesser extent on the outside air temperature which may have penetrated the closed hatch.

REFERENCES

LA GRANGE, J. J. and W. T. DE SWARDT: Some meteorological results obtained by the first South African National Antarctic Expedition (1960). *Newsletter* (Weather Bureau, Pretoria), No. 153, 1961.

LA GRANGE, J. J.: Notes on Biometeorology as observed at Norway Station by the first South African National Antarctic Expedition (1960). *Antarktiese Bulletin*, No. 7, January, 1965.

Results of Magnetic Observations made at Norway Station 1960. South African Antarctic Scientific Records, Geophysical Series, Report B1. Hermanus Magnetic Observatory, Department of Lands, Republic of South Africa.

Vierde Algemene Jaarvergadering van die Suid-Afrikaanse Antarktiese Klub

Die Suid-Afrikaanse Antarktiese Klub bestaan uit lede wat tenminste een jaar in Antarktika diens verrig het. Die vierde algemene jaarvergadering van die Klub is op 19 Junie in die Union Hotel, Pretoria, gehou en is bygewoon deur 22 lede wat verteenwoordigend was van al vyf die Suid-Afrikaanse spanne wat reeds in Antarktika oorwinter het. Tesame met die gades en vriendinne van lede, en mnr. H. S. van der Walt, Adjunk-Sekretaris van die Departement Vervoer, wat die eregas en geleentheidspreker was, was daar 49 persone by die vergadering en daaropvolgende dinee aanwesig.

By die vergadering van lede is die voorsitters- en finansiële verslae, sowel as ledegelde behandel. Martin du Preez is as voorsitter gekies, Charles Lautenbach as ondervoorsitter en Andrew Venter as sekretaris/penningmeester ("skiewie"). Na die amptelike besigheid is daar by die skoner geslag aangesluit en die eetmaal is geniet in 'n regte Sanniespos-gees.

Tydens die maal het mnr. Van der Walt sy toespraak gelewer. Hy het eerstens die geskiedenis en verloop van Suid-Afrika se deelname aan Antarktiese navorsing geskets. Alhoewel Suid-Afrika geen basis in Antarktika gehad het voor 1960 nie, was ons tog bedrywing op drie sub-Antarktiese eilande en het die Weerburo ook aktief belanggestel in die weer van die Antarktiese gebied. Sodoende is Suid-Afrika uitgenooi om in Desember 1959 een van die twaalf ondertekenaars van die Antarktiese Verdrag te wees.

Die Departement van Vervoer het opdrag gekry om Suid-Afika se deelname aan Antarktiese bedrywighede te behartig. Die Departement is eers bygestaan deur die "Suid-Afrikaanse Nasionale Komitee vir Antarktiese Navorsing" (SANKAN) en later deur die "Wetenskaplike Advieskomitee vir Antarktiese Navorsing" en 'n "Interdepartementele Komitee". Verteenwoordigers van verskillende staatsdepartemente, wetenskaplike inrigtings en universiteite het op hierdie komitees gedien, terwyl die "Interdepartementele Komitee" uit die Sekretarisse van Vervoer en Buitelandse Sake en die President van die W.N.N.R. bestaan.

Op 1 April 1963 is 'n vyfjaar-program in werking gestel, waarvoo die Staat altesaam R175,000 bewillig het vir opleiding van navorsers, aanskaf en onderhoud van apparaat en die publikasie van resultate. Daar is aanvanklik, d.w.s. in 1960, slegs weerkundige, geomagtiese, geologiese, gletserkundige en geneeskundige navorsing gedoen, maar gaandeweg is ionosferiese, seismologiese, kartografiese en biologiese waarnemings bygevoeg, asook die meting van kosmiese strale en luggloed. Die biologiese waarnemings is hoofsaaklik op Marioneiland uitgevoer.

Die gemiddelde totale uitgawe aan Antarktiese aangeleenthede, insluitende salarisse en toelaes, voorrade en vervoer, plus eenvyfde van die bogenoemde R175,000, bedra ongeveer R125,000 per jaar.

Die spanne vir 1960 en 1961 is onderskeidelik met die klein Noorweegse robbejagters "Polarbjorn" en "Polarbav" na Antarktika geneem, maar hierdie skepe moes vanweë verpligtings in die Noordpoolgebied ongeriflik vroeg in die somer na Antarktika vaar. Daarom is in 1961 oorgegaan tot die bou van 'n eie skip, die "R.S.A.", om ekspedisies na Antarktika en die eilande Marion en Gough te vervoer. Die "R.S.A." is in Japan gebou en in September 1961 tewartergelaat en was betyds in Suid-Afrika om die aflosspan vir 1962 na Antarktika te neem. Met hierdie eerste vaart van die "R.S.A." na Antarktika is ook die materiaal vir die oprigting van die nuwe en inderdaad eerste eie Suid-Afrikaanse stasie in Antarktika saamgeneem (die vorige twee jaar het ons spanne in die ou Noorweegse stasie, "Norway Station" verblyf gevind). Ons stasie is SANAE genoem, afkomstig van Suid-Afrikaanse Nasionale Antarktiese Ekspedisie. Met die tuiswaartse vaart is die "R.S.A." vir sowat 'n maand in die ys vasgekeer en die hulp van die Amerikaanse ysbreker *Glacier* is ingeroep, maar die "R.S.A." het losgekom voordat die *Glacier* op die toneel arriveer het. Die somer van 1961/62 was dus om verskeie redes 'n uitstaande tydperk in Suid-Afrika se bedrywighede in Antarktika.

Suid-Afrika het ook in ander opsigte aktief deelgeneem aan Antarktiese aangeleenthede, soos die bywoning van SCAR-vergaderings en die byeenkomste van die Raadgewende Vergadering