

A GARDEN IN ANTARCTICA

(Summarized from an article by I. du Plessis for Philips of Eindhoven, Holland)

When the South African research ship R.S.A. sailed from Table Bay just after Christmas last year, bound for Polarsirkelbutka, with the members of the 5th South African National Antarctic Expedition on board, its cargo included among many impressive instruments and equipment a modest pre-fabricated plywood and frame cabinet which was to house the first Antarctic garden at SANAE. This was accompanied by several pockets of garden soil, a translucent foam plastic box containing a variety of greenhouse plants in pots, and a carton of seeds, bulbs, fertilizers, insecticides, as well as the usual gardening paraphernalia. My son, André, was one of the two men who were to spend a second year at SANAE and the garden was my contribution to the Base, with the object of relieving the tedium and drabness of the winter months when the men are confined to their quarters deep under the polar snow cover, while blizzards rage outside and temperatures drop to -50°C .

The garden cabinet, a lightweight, easily assembled contraption of light timber, hardboard, plywood panelling and shelving, was designed according to the principles employed by the Philips research laboratories at Eindhoven, Holland, where advanced research is being done into the effects of various types of light on plant life. It rather resembles a squat man's wardrobe, without doors. It is divided into two compartments of 2 ft. by 2 ft for pot plants and 2 ft. by 3 ft. for the vegetable garden.

Garden soil of a light sandy loam texture, enriched by excellent compost donated by Mr. Bernard Hill of Durbanville, was provided. Two types of Lush fertilizing compounds, organic iron and the trace element mixture were supplied, together with strict admonitions from Dr. Jaaback, the originator of Lush, against the dangers of over-fertilizing.

Daylight, or the approximate equivalent thereof, is provided by a battery of seven 80 watt standard type Philips fluorescent tubes fitted into a canopy which forms the roof of the cabinet.

Ironically, heat presented the greatest obstacle to the successful operation of the garden unit at SANAE. The correct relationship between light intensity and temperature, an important factor in growing plants indoors, is indeed a *sine qua non* for rearing plants exclusively in artificial light. For this seven tube installation, technically rated as approximately 600 watts per square metre of growing surface, the maximum ambient temperature prescribed by the Philips research people was 20°C . The room temperature at SANAE base is maintained at approximately 16°C . Despite the fact that the fluorescent tubes generate a minimum of heat compared to conventional tungsten lamps, it was found that the temperature close to the lamps still rose to an alarming 30°C , in spite of the

relatively low room temperature. However, by devious means we were successful in maintaining a temperature of 20°C at a distance of nine inches below the lamps.

Another vital factor to contend with is the day-length, or seasonal requirements, of the various plants. Most plants can be divided into the categories long-day (18 hours of artificial light), short-day (10 hours) and daylight-neutral. Of the salad vegetables being grown at SANAE at present, lettuce and parsley, for instance, will only thrive under long-day conditions. Radishes, on the other hand, require short-day lighting, otherwise they are apt to run into leaf and seed. Pot plants all prefer long-day conditions. Flowering plants, particularly those grown from seed, are much more fastidious in their day-length needs and will often stubbornly refuse to flower until subjected to just the correct day-length conditions.

Viewed against the background of routine domestic duties and scientific tasks of the men at SANAE, the achievements of André du Plessis (geologist) and Trevor Robertson (geomagnetician) in successfully operating the garden unit are quite remarkable. It must take up much of their leisure time which would normally have been spent in playing snooker, chess, bridge and seeing cinema shows. These facts are mentioned to emphasize that the garden is not an official project and can therefore not always be run to schedule, bearing in mind such essential factors as the correct day-length requirements of the various plants grown.

Tulips undoubtedly provided the most spectacular floral show at SANAE. The first batch to come into bloom created great excitement—indeed the men claimed that they were the most photographed flowers in the world. A variety of some six or seven dozen specially treated bulbs were donated to the expedition by Ruyteplaats Estates, Hout Bay. They were imported from Holland to SANAE. The reds were most abundant and most successful. They produced perfect flowers while specimens of all other shades, except blue or mauve, also flowered. André reported that the last two batches, including speckled pink, yellow and white tulips, were apparently specially reared to be in time for the mid-winter celebrations.

Ruyteplaats have kindly undertaken to supply hyacinth, daffodil and lily of the valley, in addition to tulips, for next year's expedition to SANAE.

Among the pot plants cultured successfully are rubber plant, miniature ivy, creeping fig, wandering Jew, mother-in-law's tongue, African violet and philodendron. Vegetables include radishes, lettuce, garden cress, parsley, chives and mint. Flowering plants are petunias, cyclamen, red salvia and nasturtium.

The mid-winter festive menu proudly featured "André's vegetables out of season" and "radishes a la Robertson".

Nuus van SANAE en die Eilande

SANAE:—9 Mei:

Hier op SANAE begin die winter ons nou ook in alle erns oorval. Stormweer, jagsneeu, kort skemerdae en skerp koue is tekens van sy koms. Die laagste temperatuur tot dusver gemeet is minus 42 graad celsius en windstote van 70 myl per uur is al aangeteken. Meeste werk buite is afgehandel maar binne die basis gaan dit nog steeds bedrywig. Die weerkundiges probeer toe te stop sodat die koue daar by u afgeweer kan word. Al die ander wetenskaplike programme vorder goed. Pieter de Waal en George Bentley het in almal se harte 'n sagte plekkie vir die instandhouding en verbetering van kommunikasie met die tuistes. Goeie verbindings en gereelde pos word deur almal waardeur. Behalwe werk is daar tyd vir ontspanning en meeste van die manne beoefen 'n stokperdjie. André du Plessis se tuinierversnuf het nuwe hoogtes bereik toe daar nou die dag elf rooi tulpe gelyktydig in sy tuin geblom het. Saterdaggaand is fliekaand en onder leiding van Franco du Toit as teaterbestuurder het ons nou die laaste rolprent gesien. Bernie Booyens en Tienie het hulle huweliksdatums al vasgestel en Bernie klim van die een boot, die RSA, reg in die ander bootjie, in. Nog ander aankondigings word mettertyd verwag. Fanus du Preez se verstrooidheid is 'n ander voorbeeld van wat die koue aan 'n mens kan doen. Hy het laas week in die middel van die nag begin ontby

maak en tussen die derde en vierde eier eers tot volle besef gekom. Skokbehandeling was gelukkig nie nodig nie. So bied die lewe hier heelwat grappies en afwisselings. Aan al die mense tuis stuur ons liefdegroefte en beste wense.

SANAE—25 May:

We here at SANAE base have seen the last of the sun on the 21st instant. We hope to see it again at the end of July. Thus, outside working can only be done in the few precious hours of twilight at midday. Each day at about 12 o'clock midday Trevor Robertson, the big ginger-bearded geomagnetician goes outside to change his magnetogram in the variometer hut, or to read his BMZ or QHM magnetometers in the absolute magnetic hut situated some 100 yards from the main hatch. He says that regular adjustments to his instruments are necessary as a result of slight drift in the position of the base. His walk to his hut is often likely to be accompanied by a loud chorus from the huskies chained close to the magnetic hut. Trevor usually returns the compliment by calling to his furry friends of whose feeding he is in charge, together with Bernard Ezekowitz and André du Plessis. Every second day the huskies are fed with either seal or whale meat and kitchen scraps. The hard frozen meat is chopped up into suitable pieces

in the dog-tunnel. To make things easier for the dogs the meat is defrosted in the diesel shack before feeding. Trevor has a very full research programme for besides the magnetic work he is also responsible for the airglow and auroral programmes. He has successfully installed the new airglow photometer developed and built in the Physics Laboratories at the University of Stellenbosch under the direction of Professor P. B. Zeeman. Incidentally the airglow work forms part of Trevor's research for his M.Sc. degree. A new Allsky camera developed in New Zealand has also been installed. This is a great improvement on the old camera and was installed in a new raised hut built specially for this purpose. This new camera is likely to give very interesting results with regard to the Aurora Australis. Life here is rather unique and Trevor and Bernard have taken rather well to it, so much so that they are thinking of wintering over again next year. Should their venture succeed the experience gained this year will be invaluable to the next team.

SANAE—2 June:

It was news to us to hear on the radio that we at SANAE have seen the sun for the last time this half of the year on 15th May, because due to refraction we still managed to see part of the sun up to the 24th of May when it finally disappeared. According to our sun tables we might manage to see the sun again on the 19th of July if weather conditions permit and refraction is of the same magnitude as on the 23rd of May. *A new record low temperature of minus 51 degrees centigrade was recorded on the 29th of May.* The previous lowest temperature was minus 47.2. At this temperature a definite rasping sound is audible when exhaling due to instantaneous freezing of water vapour. Good seismograms were recorded of the big earthquake at the Sandwich Islands in the South Atlantic. Republic Day was observed by having a flag-raising ceremony at midday. A guard of honour was formed by three SANAE members who presented arms and fired a salute, after which the national anthem was sung.

SANAE—25 June:

The past month was certainly one long preparation for the mid-winter festivities. The living quarters were completely redecorated and everyone's heart went into it. With well-wishes and salutations from home and a great many foreign countries we all felt on top of the world. We hereby wish to extend our sincerest gratitude to all those who helped in the making of our day. Sunday morning the 21st we had a taste of what the day had in store for us when a news interview was held with the SABC by radio.

MARION—25 Mei:

Meer as drie maande is ons noual weg uit Kaapstad en dit voel nog maar soos gister. Die dae gaan vinnig verby maar die aande is te lank; dis dan wanneer die verlange langs mens kom sit en begin fluister van al die dinge en veral die mense wat jy mis, mense wat jy gewoon was om elke dag te sien en nou ewe skielik 'n jaar lank glad nie. Dis dan wanneer al die verliefdes onder ons somer so ewe stil-stil verdwyn na hulle kamers toe. Intussen lag ons dikwels, soms somer oor niks nie en net vir die lekkerte, want hier op Marion is agt manne wat uitstekend met mekaar oor die weg kom. Ons is nou baie alleen op die eiland; die pikkewyne het na hulle wintertuiste vertrek. Steve Quinn en Christo Wolfaardt het 'n vlot aanmekeer getimmer om op die dammetjie naby die huis te gaan ry. Soos mens kon verwag, kandel die spulletjie om en Steve en Christo beland in die water. Al die ander het die moleste baie geniet.

MARION—Einde van Mei:

Hier op Marion gaan dinge maar op die ou stryk aan. Die wind waai, dit reën en soms skyn die son selfs ook. Erg koue weer het ons nog nie juis gehad nie. Almal sien uit na die sneeu wat volgens die vorige bewoners van Marion nog sal kom. Al die geboue op die eiland begin nou baie mooi lyk te danke aan die fluks werk van die D.P.W. personeel. Wat die bolugwerk betref, gaan dinge voor die wind soos ons gemiddelde maksimumhoogte van 32 mb kan getuig. Ballonne word baie stadig en sorgvuldig opgeblaas. Quinn en Wolfaardt het die tegniek so baasgeraak dat daar hierdie maand nie een radiosonde beskadig is by loslating nie.

Ons wou Republiekdag vier met 'n vlaghysingseremonie, maar toe waai die wind die hele dag omtrent 35 knope. Op die ses-entwintigste is ons net mooi drie maande uit die Kaap weg en om die sake te vier hou ons toe braaivleis op die strand in die romantiese maanskyn.

MARION—1 July:

At present Marion is a drought-stricken area, or more specifically Marion House. Our water supply has been cut off since the 25th due to freezing of waterpipes. The tanks in the house are empty and carrying water for the kitchen has become a daily chore. For other purposes no water is available, which makes life a bit uncomfortable, to say the least. Up to midwinter's day we had very pleasant weather and reports of bad weather and snow in the Republic filled us with glee. After midwinter's day, winter caught up with us and snow fell almost daily and everybody enjoyed the snowflights which were inevitable.

On the 6th we had a quite impressive thunderstorm with big bangs and lots of lightning. This phenomenon seems to be very rare on Marion. Midwinter's day was celebrated in the usual manner. Our maximum radiosonde height this month was 0.6 mb which was reached after 100 mins. on the 6th, with a Darex 800 gm balloon. We are all looking forward to the arrival of our scientific visitors in December, especially since we have run out of supplies of tomato sauce.

GOUGH—15 Junie:

Dit het al gereën, dit was ook al koud, maar toe kom die see en neem die 60 voet leer af na die see wat die krans vasgebout was met wortel en tak weg. Die gure weer het weereens die verskillende departemente hier op Gough se werksaamhede tot stilstand gebring. Die reën en wind het die nasionale padraad se poging om 'n pad na nie dorp by die Glen te kap tydelik tot stilstand gebring. Die rede vir die pad is natuurlik die gerug wat ons te hore gekom het dat die fliek op die dorp al die nuwe flieke eerste kry en Saterdag-aand is mos fliekaand. Fliekaand dan staan almal se koppe dorp-toe.

GOUGH—29 June:

The past three months were, from an educational point of view, very enlightening. Much time and effort were spent acquainting ourselves with the finer points of releasing balloons countering the hazards of cross-winds or radio theodolite antennas. Changing charts in the ever-present pouring rain has also been developed to a fine art. Although we are so far removed from civilization and its drawbacks and disadvantages we have still found the temperamental nature of the human present in both the low pressure hydrogen generator and the radio theodolite. Fortunately a general brains trust has been formed to cope with the mentioned problems with fair results so far. Little of the freak conditions which lately dominated the weather have been experienced here.

NUUS VAN DIE VERENIGING

Vergadering van 25 Mei 1964: Dr. S. M. Naudé, President van W.N.N.R. en Voorsitter van die Wetenskaplike Komitee vir Antarktiese Navorsing, het 'n gehoor van 80 (waaronder 23 lede van die Vereniging) toegesprek oor sy besoek aan Australië, Nu-Seeland en Antarktika gedurende Desember verlede jaar en Januarie vanjaar. Hy het eersgenoemde land besoek om die navorsing wat daar gedoen word i.v.m. die produksie en verwerking van wol te bestudeer. Daarna het hy op uitnodiging van Skout-by-nag J. R. Reedy, bevelvoerder van die Amerikaanse taakmag belas met vloot- en vervoeraangeleenthede vir die Amerikaanse ekspedisies in Antarktika, oor Nu-Seeland na McMurdo Sound, gevlieg, waar die hoofkwartier van die Amerikaanse ekspedisies geleë is. Dr. Naudé het sy praatjie met kleurskyfies aangevul.

Die vlugafstand tussen Christchurch in Nu-Seeland en McMurdo Sound is 2,260 myl en dit is met 'n Super Constellation afgelê.

Dr. Naudé het slegs ongeveer 'n week in Antarktika vertoef, waar hy en ander besoekers (insluitende Mnr. Pieter van Vuuren van die Suid-Afrikaanse Ambassade in Washington) op 'n hele aantal ekskursies geneem is, insluitende die Suidpoolstasie (Amundsen-Scott), Byrdstasie, Scott Base (Nu-Seeland se stasie), Kaap Royds (Shackleton se stasie in 1908) en Kaap Evans (Scott se tweede stasie, opgerig in 1911).

By die Suidpool het Dr. Naudé en Mnr. van Vuuren die eer gehad om die Suid-Afrikaanse vlag te hys en lede te word van die "Society of the South Pole". Die Suidpoolstasie is geheel met sneeu bedek, maar die vertrekke, laboratoriums, gange en selfs 'n hospitaal met teater is alles heel gerieflik ingerig. Daar word weerkundige, ionosferiese gletserkundige, geomagnetiese en ander navorsing gedoen. Die stasie is ongeveer 10,000 voet bo seevlak en die dikte van die ys is 8,000 voet.