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 grade 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 verbindinge en gereëlde pos word deur almal waardeer. Behalwe werk is daar tyd vir ontspanning en meeste van die manne beoeffen 'n stokperdjie. André du Plessis se tuiniersvernuf het nuwe hoogtes bereik toe daar nou die dag elf rooi tulpe gelyktydig in sy tuin geblom het. Saterdagaand 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 ontbyt 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 geomagneticist 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