

**Date: Fri, Feb 12, 2010 at 8:15 AM**

**Subject: Scholes cabin 5 (p): SANAE IV**

Dear Stirling,

We finally touched the rock of Antarctica! After days of perhaps-we-will-perhaps we won't, we got a message to be ready to fly in an hour, wear full polar kit and carry nothing but a toothbrush. The takeoff and first few minutes of flight are quite tense, because the safety briefing makes it quite clear that if we go down in the sea, only a miracle would save us. But those thoughts were soon banished by our view of Atka Bukta from the air - a jigsaw puzzle of ice floes, many with seals or penguins on them. Then we crossed the ice shelf edge, and could see the white expanse of Antarctica reaching to the horizon and beyond. The surface, from our altitude of about 1000m, is finely textured by wind-blown snow ridges called *sastrugi*. Where the icecap passes over some big rock outcrop, spectacular fields of crevasses open up, big enough to swallow the Agulhas!

Then we suddenly passed over an outcrop of chocolate-coloured rock, and minutes later, landed at SANAE IV.

It is not so much a base as a space station! It stands on a lattice of steel beams, anchored to over 300 bolts drilled 3 m deep into the rock. The situation is spectacular: on the edge of a 200 m high, flat-topped dolorite outcrop (called a *nunatak*, an Eskimo word for a rocky peak surrounded by snow). It reminds many South Africans of the koppies you see in the Karoo, with the blinding plains stretched out below, and a single, arrow-straight line in the snow, the cat-train track to Atka Butka over 300 km away. To the south lie jagged mountain peaks. The name of the place is *Vesleskarvet* – Norwegian for small, barren mountain.

The site was not selected for scenery, but for the stability of rock foundations and the constancy of wind. SANAE I, the first base in 1960, was just a hut given to South Africa by Norway, who first explored (and claimed) this part of Antarctica. SANAE II and III, on the ice shelf only a few kilometres south of Penguin Bukta were more sophisticated, but followed the usual design of building: a large tube out of corrugated steel sheets, surrounding living spaces built into containers, and then allowing it all to be buried under snow. Each year it would be deeper, until the ice pressure made it unsafe. They had noticed that if they left materials on the surface on a scaffold more than a few metres high, the wind blew underneath it, preventing snow build up. But you still had to jack it up every year. So for SANAE IV they chose to build on rock, on a windy cliff-edge where any snow simply blew right past.

The base is enormous, over 3000 m<sup>2</sup> of floor area. That is more than twenty times the size of our Wakkerstroom house. The construction method is quite similar - prefabricated insulated panels - but the strength is provided by the steel skeleton, not the panels. It consists of three connected double-storey blocks (with futuristic rounded corners, to shed the wind). That is a fire precaution - if one burns, the others should be saved by the fire-proof doors. C-block has the helicopter hanger, workshops, generators and sewage plant (which smells rotten!). B-block has the dining room. The recreation room and kitchen are downstairs and bedrooms upstairs. A-block has more bedrooms, the labs and hospital. You can climb through a hatch onto the roof to observe the weather or the skies.

The snow-smelter (called a 'smelly') must be kept fed four times a day with shovels full of snow. There is a satellite communications dish in a weatherproof cube of its own, a fuel depot some distance away, a snow airstrip on the plains to the east, and various science experiments dotted around. Like the wind generator they installed this year, which burned out about a week later. Oh well, there is always next year. At least it did not blow down - yet. The wind can be ferocious. It has blown people away completely.

Inside, the base is quite open and light, thanks to the triple-glazed windows, giving glimpses of the spectacular surroundings. It is toasty-warm, heated by the waste heat of the generators. There is a library, a games room, a pub, a gym and a big movie theatre. The bedrooms are quite large, but shared by four people, and the bathrooms are communal. We could not shower, because the sewage plant has been overloaded by summer visitors. We slept in our clothes on bare beds. Except that we did not sleep - but I will tell you more about that later!

Love

Dad