



Derek Sharwood at the substation, operating the gravimeter by which the change in gravity, indirectly indicating the degree of up and down movement of the ice-shelf, was determined.

TIDAL EFFECT ON A FLOATING ICE-SHELF — *gravimetric determination*

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The scientific programme of the 6th South African National Antarctic Expedition, 1965, included a project for the gravimetric determination of the amount of vertical movement of a floating ice-shelf as caused by ocean tidal effect. The purpose of such studies is to establish to what extent the ice-shelf is actually a floating mass or whether it rests on a solid base at certain places.

The fact that no tidal observations along Princess Margaret Coast (19°W to 5°E) were existing made it appear necessary to start this programme during 1965. During the period of 2nd to 29th August, Derek Sharwood and myself stayed at the substation (70° 15'S, 2° 40'W), a little hut buried by nine feet of snow and located approximately 18 km. north-west of SANAE base.

Owing to the vibration of the ice-shelf it was not possible to read the gravimeter in the usual way. Therefore the position of the cross-hair was recorded at intervals of 5 seconds for a period of 10 minutes at a time, repeated bi-hourly day and night for a period of 20 days. The average eye-piece-values were converted into instrumental scale units which, when multiplied by the small dial constant, gave the required gravity values in milligal units.

Plotting of the data showed that two types of vertical motion of the ice-shelf exist, viz. a short period of oscillation which causes the gravimeter to act like a seismometer. These short period movements are believed to be mainly due to ocean waves and interference caused by the resultant vibration of the ice-shelf. The second type of movement was a long period oscillation due to the ocean tidal effect. Since the change of gravity with elevation in air at the surface of the earth is 0.3086 mgal/metre it is easy to work out the vertical movement of the ice-shelf from gravity values thus obtained. In our case, however, the instrument did not simply move up and down in air—we also had to apply a Bouguer correction, taking care of the changing thickness of the water column.

Taking all this into account an average peak to peak movement of the ice-shelf in the range of 0.70-1.65 metre (28-66 inches) was calculated. These results compare favourably with the theoretical average tidal range of 1.20 metre along Princess Martha Coast as given in the Oceanographic Atlas, 1957.

Museum for Science and Industry of South Africa

On 26th August, 1960, Dr. P. J. du Toit, F.R.S., former president of the C.S.I.R., opened the Permanent Exhibition of Modern Science in Pretoria. This Exhibition, now known as the Museum for Science and Industry of South Africa, was established under the auspices of the Pretoria Centre of the South African Association for the Advancement of Science to commemorate the Union Festival of 1960.

A few public-spirited scientists had taken the initiative in establishing this institution in the capital of South Africa, and rightly so, for nowhere on the continent of Africa is scientific research and activity more concentrated than in and around Pretoria.

The exhibits, made available by research establishments and numerous industries and covering some 30,000 sq. ft., were temporarily but somewhat poorly housed in one of the halls at the Pretoria Show Grounds. Nonetheless, the Museum has drawn some 100,000 visitors a year as well as many thousands of high-school pupils. It also successfully maintained its monthly lectures by prominent scientists in its film auditorium, thus not only creating a forum for scientists, but bringing the general public into contact with contemporary scientific concepts and technological developments.

In view of the Republic's spectacular advances in science, technology and industry, the need had been felt for some time to develop the permanent exhibition into a national museum after the style of the famous Deutsches Museum, the Palais de la Découverte, the South Kensington Science Museum, and the Chicago Museum of Science and Industry.

To help realise this aim, the Pretoria City Council generously donated a full erf near the centre of the city within a stone's throw of the Transvaal Museum, to provide a permanent home for the Museum.

This magnificent gesture inspired the S.A. Association for the Advancement of Knowledge and Culture—the publishers of *Lantern, Spectrum* and *Archimedes*—to pool its resources with the organisers of the Museum and thus was founded the Foundation for Education, Science and Technology.

The S.A. Association kindly donated its ground adjoining that donated by the City Council and it is on these two full erven that the Museum for Science and Industry of South Africa as well as the offices of the Foundation have been erected. Later the building is to be extended to provide further exhibition space for the Museum (see photo on first page).

Visions of the endlessness of space are conjured up by a scale models of radio telescopes and space probes a few inches high. The exhibits in the first 20,000 sq. ft. have been supplied by the Government and Semi-Government Departments. C.S.I.R., Atomic Energy Board, Department of Agricultural Technical Services, Fuel Research Institute, Department of Water Affairs, Post Office, etc., and the space has been hired by them. A small exhibit in the Museum has also been made available by the S.A. Antarctic Association.

On completion the Museum will have a restaurant and an auditorium with projection facilities. These facilities will be made available to all the different scientific associations and bodies in and around Pretoria.