

ADDRESS DELIVERED BY DR. F.J. HEWITT AT THE SIXTH ANNUAL DINNER OF THE
SOUTH AFRICAN ANTARCTIC ASSOCIATION



Dr. F.J. Hewitt, Vice-President van die WNRR, gas spreker by die dinee die aand van die Antarktiese Vereniging. Aan sy regterkant Mev. Hewitt en aan sy linkerkant Mev. O. Baker.

Foto : R. van Heerden

I am greatly honoured, Mr. President, to have been invited to speak on the occasion of this the Sixth annual banquet of the South African Antarctic Association. It is an honour which should surely be bestowed on someone who is himself more closely associated with the Antarctic than I am, someone who has been actively engaged in exploring the Antarctic continent or the sub-Antarctic Islands, whereas my association has only been from the comparative comfort of the committee room chair, in an atmosphere which expedition members probably feel is not conducive to clear thinking or rapid action. This derogatory impression of the office bound administrator or manager is not however peculiar to expedition members. It reminds me of the story of the civil servant who was sitting at his breakfast table reading his newspaper. Somewhat absentmindedly he pushed out his now empty cup and said, 'Another cup of coffee, please.' His wife dutifully refilled his cup and looking at the clock said, 'You must hurry up George, or you will be late for the office.' 'Oh, my dear,' said the civil servant, 'Am I still at home? I thought I was at the office.'

What I would like to try to do tonight is to examine the changing pattern of our South African programme for Antarctic research and look of our programme in relation to international research programmes and their development over the years.

We, in South Africa, are now in our second five-year period of serious Antarctic scientific activity. After our initial rather hastily prepared programme which was very broad in relation to our resources of manpower and money the situation is clarifying and our programme and methods of programme management are being modified in the light of experience. When I first wrote these notes I was going to say also in the light of the changing pattern of international science but, much to my surprise, I find that it is rather the scale than the principles of international scientific endeavour that has changed so remarkably in the last 10 years.

It is interesting for us here, at a function of the Antarctic Association, that the concept of international co-operation in geophysics originated in relation to Polar exploration. This occurred at a time when Arctic exploration subsisted on the hope of discovering new lands and on the emotional desire to reach the north pole. It was an Austro-Hungarian naval officer, Karl Weyprecht who in 1875 described previous Arctic expeditions as 'constituting an international steeplechase to the North Pole, a system opposed to true scientific discoveries.' He maintained that the Polar regions offered greater advantages than any other part of the globe for observations of such phenomena as magnetism, meteorology, aurorae, geology, zoology and botany.

Obviously he would have included the ionosphere and cosmic rays if these phenomena had been known at the time! Weyprecht died before the International Polar Conference was convened in 1879, to deliberate on his plan for orderly and scientific examination of the polar regions; but this conference in fact set out the goals not only of the First International Polar Year of 1882/83 but also, unwittingly, of the second Polar Year of 1932/22 and even of the I.G.Y. - to the very great credit of the naval officer in question and the scientists attending the conference.

Remembering that this conference met over the years 1879/81 it is perhaps permissible for me to read the precedents then established.

These precedents were :

- (a) The principle of international collaboration and co-operation in geophysics.
- (b) An emphasis on geophysical studies in both polar regions combined with strong support in temperate zones.
- (c) The hope for a continued existence of some of the stations expressly established for the International Polar Year.
- (d) The adoption of the principle of strong support by military and naval forces of participating countries.
- (e) The use by co-operating nations of both governmental and private funds to finance International Year operations.
- (f) A study of the planet in as many geophysical fields as technology and interest permit.
- (g) The principle of standardised instruments, common techniques and synoptic observations, where necessary.
- (h) The definition of intensified periods of observations i.e. 'term days, international days', etc.
- (i) The extensions of observations to mobile craft (e.g. merchant and naval vessels).
- (j) The principle of common interchange of data.
- (k) The principle of publication of results within reasonable time periods after the conclusion of the International Year.

It is amusing to note that the authorities even then had difficulty in persuading participants to work up their results for publication - as we still have today; but is it not remarkable that in the 1880's, bearing in mind the problems of transport and telecommunications, these precedents, which are so apt even today, should have been drawn up even before the first international programme had taken place.

Although the First Polar Year is generally associated with the Arctic, of the fifteen expeditions inspired by it, three were intended for the Antarctic.

The Second Polar Year of 1932/33 was broadened by the advance in knowledge over the intervening half century and was more critical and more scientific. Apart from collecting data it was also more concerned with describing the physics of the events observed. It was the intention that special attention should be paid to work in the Southern Hemisphere, though the originally intended effort in Antarctica did not materialise through fund limitations. (Another precedent which still seems applicable today!) It is interesting to note that some stations were proposed not solely for observing and studying Polar phenomena but primarily to allow an integrated examination of polar and global processes - a considerable step forward from the First Polar Year.

During the Second Polar Year 22 nations despatched expeditions

or implemented studies beyond their borders, data were collected in equatorial regions for use in studies of the general atmosphere circulation and various Southern Hemisphere stations were instituted. The Magnetic Observatory at Hermanus dates from this period. In all, 44 countries participated.

The I.G.Y. itself is, I am sure, more familiar to you all. It set the pattern for international science on a scale never realised or perhaps even envisaged before. Not only did active participation by South Africa in the I.G.Y. pave the way to South Africa being invited by I.C.S.U. to become one of the permanent members of SCAR, but the theme of international co-operation had a significant impact on our programme and has certainly been one of the reasons for increased emphasis on those activities, such as upper atmospheric physics which may be regarded as part of a world-wide synoptic programme. The I.G.Y. was remarkable, specifically for the scale of international endeavour with 66 nations taking part involving some 4,000 professional observing stations and some 30,000 scientists and engineers. The similarity in nature, if not in size, between the I.G.Y. and the two Polar Years is quite remarkable in view of the tremendous strides made by technology even between the second Polar Year and the I.G.Y. Developments in electronics had made possible radio astronomy, radio meteorology and radar auroral studies. Rocket developments had made possible direct observation of the upper atmosphere, and during the I.G.Y. were to introduce the artificial earth satellite - the most international observing station of them all, circumnavigating the world in some 90 minutes. Quite apart from measuring techniques, the supporting sciences of physical and tele-communications, both now looked upon as so essential to international programmes, were revolutionised between these two events.

If we now look at the way the South African Scientific programme has crystallised in the course of the first five years, we find that from initial emphasis on programmes in the main restricted to the Antarctic base proper with some emphasis on the study of transient phenomena, but otherwise a rather wider coverage than perhaps was desirable in view of limitations of resources, the Scientific Committee has now for the recent five-year programme recognised five core programmes, namely :

Geology, Glaciology and Seismology
Cartography and Geodesy
Geomagnetism and Aurora
Cosmic Rays
and the Ionosphere.

These fall broadly into two classes, the first two programmes being exploratory in nature and by no means restricted to the base, whilst the last three reveal the increased recognition that is being given to those programmes which contribute to the 'integrated examination of polar and global processes' - to use the phrase coined some thirty-five years ago.

These research programmes relate of course to the Antarctic proper. The question of biological studies of the sub-Antarctic Islands, possible oceanographic studies in the southern oceans and the possibility of a co-ordinated meteorological research effort are under consideration or have been proposed by the Scientific Committee in addition, and of course it must not be forgotten that it is the meteorological observing functions of the base that provides the backbone of the South African expeditions.

I would also like to make a few remarks on managerial aspects,

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but, before I do so, could I recall the story of the fashionable young lady who attended a function such as this though her interest in coming was more to show off her new clothes than in what the speaker had to say. After the function was over she managed to get an introduction to the speaker. 'Oh', she said, 'What a wonderful talk you gave. I think it was absolutely superfluous. I do hope it will be published.' The speaker was a little taken aback but recovered quickly and said 'Thank you, my dear, if its published at all, it will be posthumously.' 'Oh good', she replied, 'I do hope that's soon'.

To return to management aspects I should emphasize first that the call for a South African scientific effort in Antarctic has come at a time when South African science is already hard pressed. Quite apart from a general shortage of scientifically trained and experienced personnel, the general increase in international scientific activity has already placed on our shoulders considerably increased responsibility. South Africa, surrounded on three sides by ocean and by large developing (to use the presently accepted phraseology) areas to the north, provides the only land mass for scientific observations representative of a portion of the earth's surface totally out of proportion to our scientific manpower - and yet, for the study of many transient features of our environment, it is an area from which data must be available for the proper understanding of the phenomena on a global scale. Our magnetic conjugacy with Europe has accentuated this problem. During the past years greatly increased burdens have as a result been placed on the Government Departments involved in the disciplines concerned, e.g. those responsible for the Weather Bureau, the Magnetic Observatory, etc. on the Universities and on the CSIR. Thus, whatever effort is diverted to Antarctic research must be particularly appropriately and well applied.

The South African Scientific Committee for Antarctic Research now recognises various criteria for Antarctic programmes. In particular it is considered most desirable that any programme conducted in Antarctica should be conducted by an organisation that is itself conducting an effective and substantial programme of a closely related nature in South Africa. Secondly, to make optimum use of limited resources, mutually interdependent programmes would appear to be desirable, the upper atmosphere physics programme embracing at least three disciplines is a good example; and finally, the Committee is endeavouring to secure some degree of stability and continuity in the various programmes by seeking for each programme a University, Government department or research organisation with an existing research activity or at least a capacity for such an activity, with whom some formal long-term basis of collaboration can be established.

We hope to alleviate the heavy load at present placed on

programme co-ordinators, or directors as we now call them, who themselves have other prior fulltime duties to perform, by the appointment of fulltime assistants to the programme directors in the various disciplines. Here we are faced with the problem of continuity of appointment in the light of the present practice whereby the Antarctic programme is financed on a five year basis. One possibility which is being examined is that an interested University actively participating in Antarctic research should itself accept the long-term responsibility for such an appointment, whilst recognising that expenses incurred during the period for which Antarctic funds are available would in fact be met by the fund. In one particular case negotiations are already in an advanced stage. We hope to extend the principle to other disciplines. We recognise fully the important role of the programme directors in the formulation and supervision of their programmes and we hope that by this means their continued participation in Antarctic research will be possible and much of the tedium removed.

We have also endeavoured to ease the lot of the Universities Departments in particular, who are participating in Antarctic research by simplifying certain managerial aspects. It is proposed for example, that funds will be provided, in lump sums bi-annually, thereby simplifying financial procedures. The Universities themselves will be responsible for the finding of their expedition personnel and their remuneration, though obviously the Department of Transport must be responsible for final testing and acceptance of expedition members, and for uniformity, for the determination of salary. In this latter regard, basic salaries, the principle of three year appointments, where necessary, for expedition members, and leave arrangements on return have been agreed.

En nou - ons hartlike gelukwense aan almal wat die ekspedisies meegemaak het. Die lede van die ekspedisie het, danksy hulle avontuurgees, die ongerief en gevare verbonde aan verblyf in Antarktika op die koop toe aanvaar, en die wetenskaplikes moes die frustrasie verduur wat onvermydelik daarmee gepaard gaan wanneer waarnemings onder uiters moeilike omstandighede gemaak moet word. Iedereen wat in die bevordering van Antarktiese navorsing belang stel, het die hoogste agting vir die bydrae wat hierdie betreklike klein groepie manne gelewer het.

U Antarktiese Vereniging, meneer die President, moet ook geluk gewens word. Dit is 'n verfrissende gedagte dat so 'n organisasie op vrywillige grondslag gestig is deur mense wat in Antarktika en Antarktiese navorsing belang stel is 'n tyd dat aktiewe deelname aan die bedrywigheid van geleerde genootskappe nie altyd met die groei van die wetenskaplike en tegniese gemeenskap tred hou nie en likmaatskap van sulke genootskappe dikwels meer op persoonlike voordeel as op die ontwikkeling van die wetenskap en die tegnologie toegespits is. Daarom is dit vir my 'n besondere voorreg om vanaand juis die gas van u Vereniging te kan wees.

Opmerking :

Die Suid-Afrikaanse Antarktiese Vereniging is in 1961 gestig om die nasionale poging in Antarktika deur ons eie Suid-Afrikaanse ekspedisies te bevorder en onder die aandag van die algemene publiek te bring. Dit geskied hoofsaaklik deur openbare lesings, filmvertonings en die 'Antarktiese Bulletin'. Lg. publikasie word nie net aan lede en biblioteke voorsien nie, maar het ook 'n oorsese distribusielys.

Besermhere van die vereniging is Dr. S.M. Naudé, President van die W.N.N.R., Prof. Stanley Jackson, vise-kanselier Universiteit Witwatersrand en Mnr. Danie Joubert, Sekretaris, Departement Vervoer.

(Die medalje word deur die petrolmaatskappy BP Suidelike Afrika geborg).