ZWO: past present and future

Arie de Kool reports from Rotterdam on the evolution of the Netherlands Organisation for Pure Scientific Research, which is 25 years old.

WHEN the first council of the Netherlands Organisation for Pure Scientific Research (ZWO) was ceremoniously installed on May 31, 1950, the organisation had already worked for a couple of years, and had thus gained considerable experience. Ever since, it has been held in general esteem, even by those who have not been entirely happy with what the ZWO did. Even they will readily admit that the ZWO did a great deal and that it more or less shaped the face of Dutch science. This year, a quarter of a century later, the ZWO installed its fifth council—during an equally solemn session, attended by Queen Juliana, members of the government and hundreds of prominent scientists—but it was generally felt that this might well be the last one.

As official proposals now stand, the ZWO is to merge with several other institutions to form the Council for Scientific Research (RWO). As far as Dr J. H. Bannier, the present ZWO director, is concerned, this would be just fine, with some important provisos.

- The RWO should have its own independent funds, with which it could react quickly to any request for support, without any of the red tape involved in government ministeries.
- The RWO should be able to manage research (mainly) by progress control.
- RWO should have far better formal contracts with universities than is provided for in the government proposals. (The ZWO has two representatives for each university and one for each specialised school, such as the institutes of technology, on its council, and even that is not found quite sufficient.)
- The RWO should provide interdisciplinary contacts.
- The RWO should not manage more than 20% of the total budget for fundamental research, albeit in coordination with the other, equally independent channel for money supply —the government through direct support for universities and other institutes.

It is difficult to determine just when the idea of an organisation for pure scientific research was born. Some trace it back to the German concentration camp of St Michielsgestel in the Netherlands, where a considerable number of prominent Dutchmen were kept in (relatively decent) custody—partly as hostages, partly to keep them from organising anything subversive.

This camp was a breeding ground for ideas on how to change the country at the end of the war. But when the concentration camp was liberated, the idealistic inmates found the country still at war and themselves without the means to implement what they had planned in such gloomy conditions. When at last the war was over, it took some time to find out in how much of a shambles the country was, and even more time to realise the size of the gap between the Netherlands and countries that had not been occupied.

Once this had been established, however, things proceded at a fantastic pace. Four months after the war, a new, more or less provisional government took over power from the military, and scientists started to meet again. They decided that a prominent member of their community should go to the USA and find out what the state of science was and how that country had managed such scientific marvels as the atom bomb. This scouting job was assigned to Professor Vening Meinesz, a geophysicist.

Physics seemed the most promising field, together with mathematics (the first computers had been built). A month after Meinesz returned, in January 1946, a mathematical centre was founded in Amsterdam, and in March 1946 the Minister of Education and Science, Van der Leeuw, one of those detained in St Michielsgestel, was instrumental in establishing a Foundation for Fundamental Research on Matter (FOM).

This foundation was immediately successful, and has been ever since. It has become the model for virtually all ideas in the Netherlands on how to organise science. Even the fiercest critics of the organisation still maintain the basic model when they propose their alternatives.

The main instrument is the 'working community'—in which each particular speciality is discussed. So there is a working community for solid state physics, one for nuclear physics, one for high energy physics, one for plasma physics and so on. The working communities submit their plans to the FOM and the council then decides who gets what, basically on scientific merit only; in practice, however, scientific, technological and social merits cannot always be clearly separated.

By August 1946 a report was brought out proposing the establishment of an overall organisation for scientific research, working essentially along the same lines as the FOM but on a larger scale.

There had been elections in the meantime, however, and a new government had come to power; the new Minister of Education and Science seemed to be far too busy restoring the ministry to its pre-war status to have either time or interest to devote to science and its organisation.

It took about 6 months to get any reaction at all, and he finally conceded that if those scientists absolutely wanted to, he would not keep them from continuing their study on how to organise science.

The scientists went further than that. They set up a provisional organisation for the stimulation of science by judgment (and selective support) of proposals. The organisation had one foot in the ministry itself: its secretary (a gift from the former minister) was a public servant who had had a scientific education and who headed the office of higher education and science—J. H. Bannier.

After a year the first chairman of the committee (director of the organisation) accepted a professorship and left, and by that time it had become a matter of course that Bannier would take his place. It took two more years, however, for the government to pass a law to establish the ZWO officially. During the first four years it worked merely as an advisory body, for the government did not really feel like handing out large amounts of money to scientists to divide among themselves. This meant that for every penny earmarked for the support of some project, at least 25 signatures from different departments were needed before the money could actually be made available.

In the first year the ZWO received the full amount of Dfl 1.5 million ($400,000 or £130,000 at that time). More than half of this was earmarked for the FOM which, with some other foundations, was made a sort of independent subsidiary of the ZWO. Last year, the ZWO administered some Dfl 125 million, the equivalent of $50 million or £20 million. Dutch government expenditure on research and development totals some Dfl 2,000 million ($800 million or £350 million), while the total research and development expenditure of the Netherlands is about twice that amount. Universities are thought to spend some Dfl 1,000 million on research, but nobody is very certain about that.

In practice, the ZWO's influence is much greater than it might seem simply from these figures. In physics there is hardly any research done outside the coordinating influence of one of the working communities of the ZWO's 'subsidiary', the FOM. This is not quite the case in other disciplines,

although the ZWO subsidiary FUNGO (Foundation for Fundamental Medical Research) claims that it really controls about twenty times the amount of research it pays for. Other ZWO foundations (for pure chemistry, biological research, biophysics, and some smaller areas) claim a similar, but smaller, influence.

The method followed is quite simple. The ZWO (or one of its foundations) may support a project by providing one extra man, or a piece of costly machinery, or just the costs of publication. In the total project budget this may be a rather minor point, and a condition is, of course, that the project be brought in for assessment and co-ordination.

Lately, however, there has been some criticism of this method. Not on scientific grounds, for almost everybody agrees that the system is working well (although some would want more openness and some would go for a more democratic procedure in appointing the judges). But the method implies the existence of temporary positions—appointments of scientists for the duration of just one project.

Temporary positions were generally accepted for as long as scientific posts were plentiful. Doing a project for the ZWO (often as a way of obtaining a PhD) could often help a person to find a more permanent position. Now that the market is getting really difficult, people are wondering if temporary appointments are still socially acceptable. The ZWO does not want to behave in a socially irresponsible way, and the organisation has set out to ensure that its employees receive a normal income when unemployed after a temporary appointment. But according to Professor R. van Lieshout, now managing director of the ZWO and professor of physics at Amsterdam, the problem has not yet had its full impact. Unemployment is most serious where it has always been a problem—among social scientists mainly—and physicists can still find employment. But Professor van Lieshout does not have many words of comfort for ZWO scientists generally. His message is: "I advise most people on a temporary contract with the ZWO to find themselves a permanent job as soon as possible." □

international news

Australian science in turmoil

from Peter Pockley, Sydney

WITHIN 10 extraordinary days, the mood of science in the political fabric of Australia has passed from one of constructive optimism to destructive despair. The change has mirrored an upheaval within the Labour government precipitated by a massive reshuffle of Cabinet portfolios by Prime Minister Gough Whitlam announced late on the night of June 5. Australian scientists have been shocked to find their interests and their principal research organisation, CSIRO, subject to a totally unexpected battering. They have a new minister, Mr Clyde Cameron, who came into the portfolio with a public scream, and CSIRO is subject to surgery without the courtesy of consultation.

On May 29, only seven days before the Cabinet reshuffle, the long awaited Australian Science and Technology Council (ASTEC) held its inaugural meeting in Canberra. The formation and role of ASTEC had been announced by Mr Whitlam at the big ANZAAS Congress in Canberra in January but virtually nothing of significance followed the ASTEC announcement until late May. The then Minister for Science, Mr Bill Morrison, had expected ASTEC to get underway rapidly after the ANZAAS announcement, but as seemed to happen with many things in his 2½ years of scientific jurisdiction, matters ground along slowly.

It took four months to settle the interim membership of ASTEC ("interim" because it has been established before the passage of legislation to give it statutory independence). Rumours had flown around the scientific community of the difficulty Mr Morrison was said to be having in getting the agreement of people to serve. Probably more to the point was Mr Morrison's lack of regard for many of the longer standing leading figures of Australian science, who, he was heard often to say, kept cropping up repeatedly on government committees. As a result he was not disposed to appoint to ASTEC many of the names put up, for instance, by the Australian Academy of Science.

The final 12 nominations, although lacking weight in some fields, did show some ingenuity in the balance of interests represented, thereby lending credence to Mr Morrison's intention that ASTEC should have an influence on the wide range of government policies on which science and technology have a direct, if hitherto unrecognised, impact. The crucial post of chairman went to Dr J. A. Louis Matheson, an engineer by background, who will retire as Vice-Chancellor of Monash University at the end of the year, when he will be able to take up his ASTEC duties on a full-time basis.

The other part-time members can be classified in various ways—six university professors, two technologists, a managing director of a technological firm, and a trade unionist. The appointment of a philosopher, Professor John A. Passmore of the Australian National University, was an imaginative move (he had taught Mr Morrison years earlier) and the inclusion of Professor Sol Encel, a sociologist at the University of New South Wales and one of Australia's few students of science policy as a discipline, has been an insurance against ignorant parochialism.

The Australian National University, established in the national capital, Canberra, has four members on the council. The leading medical researcher and administrator, Professor Gustav J. V. Nossal, Director of the Walter and Eliza Hall Institute of Medical Research in Melbourne, will be sure to keep ASTEC interested in the strategy of Australian medical research, an area which earlier had been thought likely to be specifically excluded from ASTEC's purview.

The total number of members announced in mid-May was 11, not the 12, and this shortfall of one brought out the first sign of political trouble ahead for science in Australia. In announcing his 'First Eleven', Mr Morrison told the world that the Premier of the State of New South Wales, Mr Tom Lewis, had refused to make available the services of Mrs Marlene Brell, a teacher, nutritionist, and (above all, for Mr Morrison who espouses both the consumer and female causes) a woman and a