CHECK AGAINST DELIVERY

PRIME MINISTER

SPEECH BY THE PRIME MINISTER
OPENING OF TELESCOPE AT SIDING SPRING OBSERVATORY
WEDNESDAY 16 MAY 1984

I am delighted to be here today on Siding Spring Mountain to perform the official opening of this new optical telescope.

The ANU is to be congratulated for its initiative in developing this telescope which sets new international standards in astronomical engineering and is the most advanced optical telescope ever built.

There are good reasons for Australians to be proud of this achievement.

- The design and development of the telescope is very much a co-operative Australian venture

- Apart from several components which could not be manufactured in Australia, construction took place in the ANU's own workshops and involved a large number of Australian engineering firms, supply and service companies and consultants.

The astronomers, engineers and technicians at Mount Stromlo and Siding Spring observatories, with the support of the ANU and co-operation of industry, have created a facility which clearly demonstrates Australia's capacity to contribute to the advancement of high technology.

The telescope is a particular tribute to the entrepreneurship of Professor Mathewson, for it is he who sought out the elements from a variety of sources and has been responsible for their synthesis into an impressive piece of research equipment.

In these times of rapid change and the tendency to measure our performance in terms of international comparisons, I cannot but feel that we often give insufficient credit to the many excellent achievements, of which this telescope is an example, quietly taking place within Australia.

Allow me therefore to highlight, without getting technical, some aspects of this facility which makes it so important and provides many lessons concerning Australian initiative, ingenuity and dedication of individuals.

Let me at the outset refer to the factors which led to the construction of the 2.3 metre telescope. As the admirable booklet distributed today notes, the main factors were:

- An acute shortage of observing time .
- the need for a large telescope versatile enough to take full advantage of modern instrumentation
- the lack of advanced facilities for the training of students, and
- a desire to stimulate the development of astronomy in Australia.

With these factors in mind, the original specifications called for a versatile, precise, and efficient telescope, equipped with advanced astronomical instrumentation, but costing a fraction of the price of a conventional telescope.

The end result stands before us.

The convergence of interest of the scientific and technological communities has produced a facility of unprecedented versatility and power, bold in concept, elegant in design and professional in implementation.

At a time when up-to-date research equipment is difficult to fund, it is good to find an instance where the cost of major equipment has been contained in such a creative manner.

This facility is noteably different from other comparable facilities.

The different physical appearance of the facility, compared with the other telescope structures on this mountain, is immediately apparent.

- the building is cubical and rotates with the telescope inside allowing the building to be much smaller and considerably less costly than the conventional domed astronomical telescope building.

Other important differences between the 2.3 metre telescope and its predecessors are its alt-azimuth mounting and its thin mirror which allow a lighter structure, with consequent reduction in complexity and cost.

And the final aspect of design of particular note is that the control computer has been integrated into the telescope systems so thoroughly that it is capable of controlling all of the building and telescope functions.

The telescope has already attracted attention internationally with visits by Japanese, Italian, American, British, and Dutch scientists and engineers interested in building similar telescopes in their own countries.

Its great advantage is its simplicity and relatively low cost. Countries, which previously could not afford to build conventional telescopes, can now participate in astronomical research. In this respect, it is pleasing to note that several countries in our own region have shown interest in the telescope.

The development of this facility enhances the ANU's position as a leading institution in the field of astronomy. Its two observatories, at Mount Stromlo and here at Siding Spring, together form one of the world's major optical astronomical installations. In scientific terms, the work of the observatories places the ANU amongst the world's leaders.

Australians are proud of the achievements of Australian astronomy. The radio telescope on the $50 bill and John Tebbutt on the $100 bill are elequent testimony to this.

One reason Australia is so prominant in international astronomy is because we have had men who have had the foresight to push for the establishment of world class observatories.

Optical astronomy has grown in Australia as a result of facilities established by two pioneers:

- Dr W.G. Duffield, who established Mount Stromlo Observatory, and

- Dr B.J. Bok, who established Siding Spring Observatory

Duffield first conceived of an Australian observatory when, as a young Australian studying spectroscopy at the physical laboratory of the University of Manchester in 1905, he attended the Oxford meeting of the International Union for Solar Research. The enthusiasm kindled at that time sustained him through the next two decades.

Mount Stromlo was selected as the site of the new observatory in 1910. The Commonwealth Solar Observatory, as it was first known, was put into operation in 1925 and the observatory buildings on Mount Stromlo were occupied by the end of 1926.

Duffield died suddenly in 1929.

Bart Bok, who died only last August, was a dynamic person who did a great deal to stimulate the development of astronomy in Australia. In particular he will be remembered for his highly successful attempts to build one of the world's best graduate schools and for the establishment of Siding Spring Observatory. Bok put an immense amount of effort into bringing astronomy before the public. He toured Australia incessantly, making at least one trip per month to outlying towns, and, when invited to speak to groups such as Rotary or Apex, his reply was invariably "Yes, as long as I can also have one hour with the high-school students".

As you would all know the Southern skies provide a particularly great stellar variety.

Bok campaigned tirelessly for a large southern hemisphere telescope, and his efforts are widely acknowledged as having played a seminal role in the establishement of the Anglo-Australian observatory.

Bok's foresight in establishing Siding Spring Observatory has been one of the major factors that has allowed Australian astronomy to preserve its place in international science, even though our monopoly on the southern hemisphere facilities no longer exists.

What of the future?

The new telescope will play a key role in the exploration of the universe. Complete computer control may allow, in the not-too-distant future, astronomers in different parts of the world to make use of the telescope through satellite hook-up.

Space technology offers considerable attractions, not only for Australian astronomical research but for Australia generally.

In many ways, Australia is naturally suited, with its large land mass, extensive resource base and communication requirements, to the application of space technology.

As in astronomy, Australia has shown the ability to undertake research and develop space science initiatives equal to any in the world. We have the latent capability to develop a national space science and technology effort comparable with those of other advanced economies.

The potential exists in Australia for a viable level of activity in this area.

We have a respectable base level of skills and resources in areas related to space technology, although these assets are dispersed widely in industry, research institutions, Government establishments and as Australians in overseas space industry.

In the main, we have awaited the development and demonstration of space technology overseas before purchasing it for our own use. This approach has enabled the various agencies charged with servicing community needs to adopt space technology for our requirements with efficiency and alacrity. In many respects, this approach has served us well.

But of course such an approach does not allow us to develop fully our space science and technology capabilities. It ignores the benefits, in terms of technology development and domestic and international market participation, to be gained from having a local space manufacturing industry.

Canada had its own communication satellite in orbit 23 years ago - the world's first. This is a good example of what can be done in this area by a middle sized nation. What needs to be established is whether priority should be given to such activity. This, crucially, must depend on an appreciation of the net benefits flowing from such activity.

Any assessment of this requires that we consider carefully as a first step the prerequisites for success in this area.

The pre-requisites for achieving such capabilities can be perceived clearly in the strategies pursued by countries such as Canada, Japan and France. They are:

(1) Commitment by Government to the development of a national capability

(2) The setting up of high level advisory bodies to articulate national goals, select priorities and develop long-term planning and budgets

(3) The establishment of centres of space R and D in Government agencies or universities (with subsequent transfer of technology to or use of facilities by local industry)

(4) The emergence of locally owned industries capable of accepting major subcontracts from prime contractors, and

(5) Co-operation in large scale inter-governmental programs providing transfer or development of expertise in local industry, in space and related areas.

Whether and to what extent Australia should move to meet such prerequisites and pursue the development of a local industry, is a question to which there is no automatic or self-evident answer. The costs and benefits of doing so need to be carefully weighed.

A commitment of national resources to space science and technology on a scale sufficient to establish a viable local industry or even to fund particular space projects must be considered against other priority areas of technology identified by the Government and of interest to industry.

An important step towards addressing the local industry question was the convening in March this year of the national space symposium.

The objectives of the symposium, some of you will recall, were to:

- Identify what Australia's existing capabilities are
- Consider where we, as a nation, desire to go in the future
- Identify public arrangements by which industry and research agencies can profit from future developments
- Discuss possible options for Government.

As a result of the symposium, the possibility of establishing a working group representing relevant interests is being considered. Such a group could identify a set of goals for Australia and recommend on a structure to implement them.

There is an international as well as domestic dimension to our interests in outer space. Australia has a long and proud tradition of international co-operation in space matters, reflected in the fact that we were founder members of the United Nations Committee on the peaceful uses of outer space. Even now, an Australian - Professor John Carver, Director of the Research School of Physical Sciences at the ANU - is Chairman of the important Scientific and Technical Sub-committee.

These committees are involved in a wide range of space activities which directly affect Australian interests and include remote sensing, communication, resource management and development and such areas as astronomical research and meteorology. New areas are being explored such as search and rescue satellites.

The most urgent task posed by our representation in the Committee on Peaceful Uses of Outer Space appears to be a requirement for strong co-ordination of Government involvement in space activities. I intend raising this matter with relevant ministers with a view to examining how we might organise better our involvement with that Committee. Improved co-ordination will, among other things, allow us to move quickly to take advantage of opportunities to further our interests internationally.

Finally, before concluding, I should like to pay tribute to the manifest commitment to excellence apparent in so much of the work of those associated with space activities. Your endeavours in quite unprecedented fashion probe the frontiers of human knowledge and experience.

That you have been able to do so with such conspicuous success, reflects well on some of the strengths which have in the past been evident in our education system.

We are, however, now at a critical juncture in the development of that system.

The Government is currently considering both the Schools Commission Report on Funding Policies for Australian Schools, and the Commonwealth Tertiary Education Commission Report on Funding Arrangements for the Universities next triennium. With Susan Ryan, the Minister for Education, I have been closely involved in an intensive round of consultations on the issues and options involved.

The problems posed in defining our educational priorities for the years ahead and in funding these are considerable. Nevertheless, as I know you would all agree, the decisions taken will significantly effect our capacity to improve the technological skills of our work force, and ultimately improve our living standards.

Professor Karmel, Vice-Chancellor of the Australian National University, recently addressed this matter of priorities in a thought-provoking, and realistic fashion when he said:

> "My priorities are for more resources to raise educational participation in post-compulsory schooling and tertiary education, to establish a rational training system, and for such re-allocation of existing resources as is necessary to raise the minimum competencies to be achieved during compulsory schooling; until these have been achieved, demands for richer provisions per teacher or per pupil will have to be postponed".

This I think gets us back to the basics. Our education system must be geared, again as Professor Karmel has said, to provide for the contemporary demands for a more highly qualified workforce, for workers with communications skills and ability to deal with people, and for men and women who, with necessary scientific and technical training, will contribute to the successful management of technological change.

Certainly this Government is at one with Professor Karmel in acknowledging the essential need for an educational system which will at once provide for excellence and, at the same time, equip all Australians for the tasks of contemporary life.

Our judgements on education funding will reflect this approach.

Obviously this implies continued support for a national research effort. That support will, however, necessarily have to be selective.

If we are to maintain our lead, or indeed survive in a wide range of national endeavours, whether they be pure science or new technology for industry, it is necessary for us to identify the best and most forward-looking research workers, and ensure that their excellence and enterprise are properly supported.

If we make quality and opportunity our key criteria for support, then the results will flow back to the nation as a whole, whether by way of advancement of scientific knowledge, or national prestige, or a vigorous economy based on technologically aware and up-to-date industries.

Australia can lead the world in those areas where we focus our attention and exert our will and enterprise

- This telescope provides no better proof.

****