cut back in staff was evidence of ICL's determination to live within its resources.

International Business Machines Limited has been maintaining a dignified silence about the events of the past few days, but the Honeywell company has spoken out against the government's action. Mr Donald Brosnan, chairman and managing director of Honeywell, said this week that "the policy works against the British computer industry as a whole and in particular against the development of computing in the public sector. Not only does it stifle competition but it also limits access to international technology".

The question that remains unanswered is whether the confidence placed in ICL is well founded. Are the performance and cost of ICL computers comparable to or better than their competitors? Such a comparison is not possible without a detailed analysis of the needs of a particular user; in particular it depends on the scientific/commercial balance that the computer user needs to achieve.

The computer companies stress that they will only quote performance figures for a particular job assignment. Despite this, however, it is apparent that the Honeywell 6000 series, the IBM 370 series and the ICL 1900 series are comparable and competitive.

With ICL receiving such support from the government and also in view of the pressure that is being exerted on industry and public sector bodies in Britain to buy ICL computers, it is not difficult to understand why the other companies are annoyed. Mr Brosnan expressed the feelings of these companies when he stated that Mr Corfield's statement "ignores the interest of foreign owned companies which manufacture and employ significant numbers of people in the United Kingdom (Honeywell employs 8,000). In so doing it conflicts with other stated government policies of attracting overseas investment to the nation's development areas".

EARTHQUAKE RESEARCH

What Future for Tokyo?

from a Correspondent

THERE is great anxiety among seismologists about the future of the International Institute of Seismology and Earthquake Engineering, set up in Tokyo in 1962 and supported jointly by the Japanese Government and the United Nations Development Programme. The immediate problem is to know how the institute can continue after August 1972, when the present agreement runs out. At what seems to have been a sombre meeting of the senior consultants of the institute in Tokyo in March this year, it was accepted that continuing support for the institute would have to come from the government of Japan and from UNESCO.

The institute has a permanent staff of about twenty provided by the government of Japan. UNESCO also provides two or three "experts" each year, usually seismologists and earthquake engineers from outside Japan. The institute conducts regular lecture and laboratory courses, as do the visiting lecturers.

An average of some twenty students a year have been trained at the institute. Over the years, they have come from more than forty countries, including developing countries in Asia, Africa, South America and the Pacific region. Stipends have been provided by the government of Japan and through the UNDP Special Fund.

During 1963–68, the institute concentrated on routine training. The programme has now been extended to include an advanced course in which the emphasis is on research training. The students, some five a year, have previously been PhD graduates or hold equivalent qualifications. The advanced students assist in the lecturing programme.

The institute has a special role in fostering seismology and earthquake engineering in developing countries, where there is an urgent need both to mitigate the effects of earthquake disasters and to fill conspicuous gaps in the global recording of earthquakes.

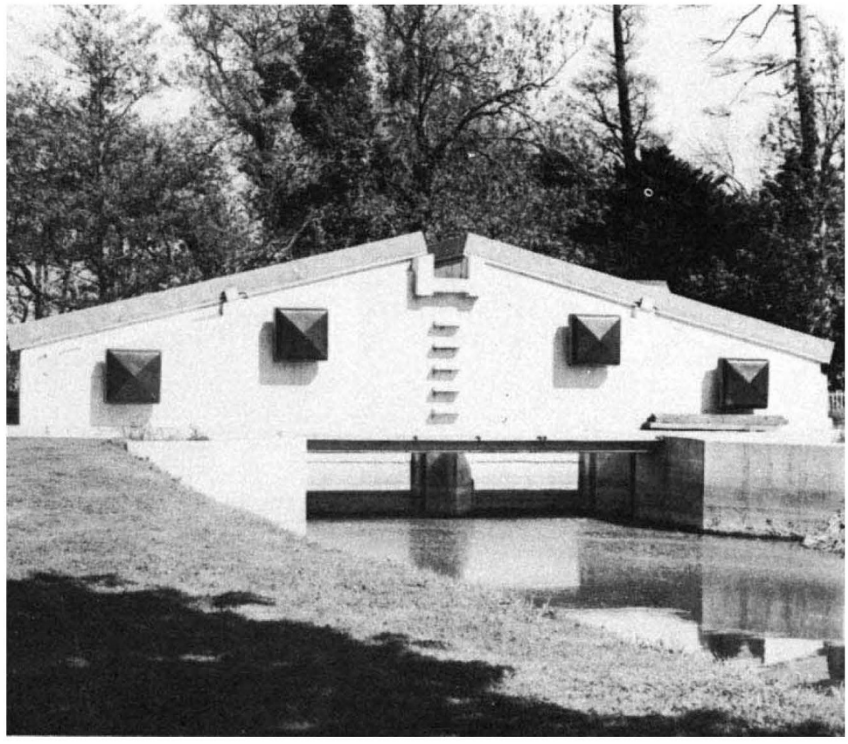
ASTRONOMY

South African Debate

EMOTIONS are still running high at the closing of the only strictly South African observatory, the Republic Observatory at Johannesburg. There have been bitter exchanges in the correspondence columns of *Monthly Notes of the Astronomical Society of South Africa*. The British Science Research Council is involved to the extent that the rationalization of South African astronomy was stimulated by the review of astronomy in the southern hemisphere completed late in 1968 by

Freshwater Biology

THIS is a fluvarium which was opened on July 23, together with other extensions, at the site of the River Laboratory of the Freshwater Biological Association in East Stoke, Dorset. The fluvarium, which was opened by Mr Peter Walker, Secretary of State for the Environment, has been so called because it is an aquarium in which the tanks contain flowing water. Built where once a corn mill stood, the building is a water-tight concrete box, 30 feet by 12 feet, sunk 9 feet into the ground. The roof is made of glass, and the flow of water through the fluvarium is maintained by gravity, without recourse to pumps.



© 1971 Nature Publishing Group

a committee of four set up by the council.

Like the more recent review of astronomy in the northern hemisphere (see *Nature*, **232**, 289; 1971) the report of the southern hemisphere review committee was never published. But it is understood that the committee was particularly concerned with the reduction of British commitments in South Africa with the building of the Anglo-Australia 150-inch telescope.

As a part of this plan, the Royal Observatory at the Cape of Good Hope, which has been in the hands of the Science Research Council since 1965, is to be run as a joint venture with the South African Council for Scientific and Industrial Research. At the end of this year, the Royal Observatory at the Cape will become the headquarters of what is to be known as the South African Astronomical Observatory, having as its first director Sir Richard Woolley who retires as Astronomer Royal at the end of the year. The chief facilities of the observatory, however, will not be at Cape Town, where of course city lights have long been a problem, but at a new site which is being established 235 miles to the north-east at Sutherland.

It is understood that the British contribution will be of the order of R1 million over ten years, compared with R2 million from the CSIR over the same period, and that the CSIR will have the controlling interest.

What some astronomers in South Africa and elsewhere are objecting to is that the rationalization of South African astronomy also involves the closing by the CSIR of the observatory at Johannesburg. The most vociferous support for keeping the Republic Observatory comes from Dr W. S. Finsen, who was director from 1956 (when the observatory was known as the Union Observatory) to 1965, and Dr W. H. van den Bos, director from 1941 to 1956. But Drs Finsen and van den Bos are being encouraged in their campaign by astronomers outside South Africa. Among others, Drs A. F. Cook and B. G. Marsden of the Smithsonian Astrophysical Observatory have expressed their concern about the future of long-term programmes on the positions of asteroids and on double stars at present being carried out by the Republic Observatory.

The reaction of the CSIR is that omelettes cannot be made without breaking eggs. Unfortunately, however, the continuing debate between the opposing factions is being conducted at an acrimonious and personal level, in *Monthly Notes* as well as in the Johannesburg newspapers.

Among the concerns of Drs van den Bos and Finsen seem to be that the new arrangements will put the centre of gravity of South African astronomy in the Cape Town area. They are suspicious that the role of the Royal Observatory at the Cape as the headquarters of the new observatory was decided before the location of the new observing site was chosen, rather than the sequence of events presented by the CSIR in which the site at Sutherland was chosen first, after which the selection of the Royal Observatory as headquarters became obvious because of its proximity. But Drs van den Bos and Finsen also dispute the choice of Sutherland because its "bleak and isolated locality" (on the western edge of the Karroo) will not be attractive to observers, because of their argument that the programmes on asteroids and double planets would not benefit from being transferred to Sutherland from Johannesburg and because of their claim that South Africa contains better sites than Sutherland.

The CSIR case has been put by Dr F. J. Hewitt, chairman of the South African National Committee on Astronomy and vice-president of the CSIR. He says that the Sutherland site was selected on its merits, that the choice of the Royal Observatory as headquarters then became logical, that the Republic Observatory is in any case run down, and that "a particularly unfortunate aspect has been the attempt to involve astronomers overseas in the campaign against these new proposals".

Particularly galling to Drs van den Bos and Finsen is that the CSIR did not appoint a new director to the Republic Observatory after Dr Finsen's retirement. Since then the observatory has been making do with an acting director, Mr J. Hers.

It is regrettable that the debate is taking place only after the decision on the South African Astronomical Observatory was announced by the CSIR on September 23 last year. As things stand, the efforts of Drs van den Bos and Finsen are in danger of being regarded as a lost cause being conducted by the old guard of South African astronomers reluctant to be moved from Johannesburg. Nevertheless, since the CSIR took over the running of the Republic Observatory from the South African Government in 1964, the CSIR has had the responsibility of seeing that rearrangements are made only after proper consultation, an obligation which Drs van den Bos and Finsen would say has not been carried out.

Meanwhile, it appears that the 26½-inch refractor at the Republic Observatory—the largest instrument and about fifty years old—is likely to continue in operation at Johannesburg for two or three years more. The observatory Franklin-Adams used for work on asteroids and comets at a site 50 miles outside Johannesburg is expected to remain where it is for a year or two. Discussions are going on about what to do with the other aspects of the work of the observatory—chiefly the maintenance of the national time service—and the observatory's library is being moved to Cape Town.

The rationalization now planned takes no account of the Radcliffe Observatory at Pretoria, which has in the past been financed by the British Science Research Council. For some time, the council has been saying that its support will end in 1974, and the Radcliffe Trustees, the formal owners of the observatory, would be hard pressed to know where to look for continued support. But the Radcliffe Observatory has a splendid 74-inch reflector, and the plans for the Sutherland site so far include no large telescope. Is it too much of a coincidence that 1974 would be a good time to move the Radcliffe instrument from Pretoria? And is there now a danger that that would be a further thorn in the flesh of the Afrikaaners on the Rand, ever suspicious of the Cape? After all, a site three-quarters of the way to the Cape does not seem like a no man's land even if it is mostly desert.

The consensus among astronomers is probably favourable towards the efforts by the CSIR to provide a strong centre for South African astronomy. In spite of several successes, astronomy in South Africa has not had the reputation that should have come to one of the few countries favourably placed to observe the relatively unexplored southern skies, which include the galactic centre and the Magellanic Clouds. The South African observatories have already been eclipsed by the observatories in Chile, where the United States and others are investing in the remarkably clear skies of the Andes.

Nevertheless, most astronomers will also wish that the CSIR had gone about its plan with more tact. And it is obviously important that some way should be found of continuing the long term programmes on the asteroids and double stars that are being carried out by the Republic Observatory.

SPACE POLICY

Black Arrow Scrapped

THE British Government has decided to end the Black Arrow satellite launcher programme. This is no surprise and indeed the decision has been foreshadowed on several occasions during the past few months especially in the evidence of the Ministry of Aviation Supply and the Department of Trade and Industry before Sub-

© 1971 Nature Publishing Group