

"Australia Telescope", the other the optical astronomers' "Starlab" project.

With the news that the Australian Telescope has been funded to the tune of A\$25 million, CSIRO can now proceed to develop a continental-scale, radio-linked interferometer network. When completed in 6 years' time, this should provide a Southern Hemisphere radio facility comparable to the most sophisticated interferometers in the north, complementing the activities in the optical and infrared bands of the Anglo-Australian Telescope.

The Australian Telescope will consist of a linear array of five 22-metre dishes at Culgoora in New South Wales, a 22-metre dish at Siding Spring (the site of the Anglo-Australian Telescope) and a 64-metre dish at Parkes. The total array will be equivalent to a dish 300 km across with a resolution of 0.1 seconds of arc — comparable to the US/European space telescope. It is also proposed that five other sites, covering much of the continent, can be radio-linked to the network, improving the resolution to one-thousandth of a second of arc.

The Starlab project has not been so fortunate. This joint Canadian, US, Australian scheme aims to place a 1-metre telescope in Earth-orbit by 1989. Australia's contribution was to have been the instrument package for the telescope. At this stage the government is not prepared to commit the full A\$28 million that would be necessary if Australia is to participate. But it is keeping the project alive by providing A\$3.3 million to local industry for some preliminary work.

Australian postgraduate research scholars were another notable group to gain in the budget. About one third of all full-time research students enrolled for higher degrees are supported on these scholarships. They have just been awarded a 50 per cent salary increase, presumably in recognition of the importance of their work as integral members of university research teams, and as Australia's future research scientists. Although this increase sounds impressive, the salary of a scholar has now only climbed from below the official poverty line to a generous A\$40 a week above (A\$6,850 a year). This is still less than half the average wage and no doubt a measure of the high esteem in which many Australian politicians hold Australian science.

Peter Hunt

US plant patent disputed

A fierce protest against the validity of a US patent dealing with plant breeding has been made public by Professor N.L. Innes, chairman of the British Association of Plant Breeders and a member of the staff of the British National Vegetable Research Station. The patent complained of was awarded in April this year to the Colorado based corporation Agrigenetics Research Associates, a seed firm with annual revenues of \$100 million.

The invention for which the patent has been awarded is described in the published version (US patent number 4,326,358) as a technique for accelerated production of new hybrid strains of plants and rapid commercial production of seeds from such hybrids. The patent claims that seeds of desirable new hybrids can be readied for marketing in as little as three years rather than the present eight to twelve years.

In conventional hybrid production, the plant breeder first has to breed two different homozygous plant lines from which a hybrid is produced and tested. Not only can it take many years to breed the homozygous lines but homozygous plants often produce low numbers of seeds.

In its essentials the invention covered by the patent starts with the crossing of any heterozygous plant — of which there is a great variety of good seed producers — with a heterozygous or homozygous partner. The hybrid offspring of such a cross will not be genetically identical but, on occasion, the plants will still be sufficiently similar to be worth testing as a potential crop.

If they have desirable crop qualities, the breeder then returns to the parent plants and propagates them, asexually, as clones. The large numbers of each parent so generated are then crossed to produce large numbers of hybrids, equivalent to those of the original cross of the individual parents.

The protest from the British Association of Plant Breeders (published in full on page 786) boils down to the assertion that the use and advantages of heterozygous parental plants as breeding stock are well known and that clonal propagation of individual plants is now a standard technique in plant breeding, so that the particular combination of the two principles for which a US

patent has been awarded must be obvious and thus not qualified for protection.

Even the combination of techniques described in the patent is very similar to that used in practice by, for example, British sugar beet breeders, says Dr Richard Macer, secretary of the British Association of Plant Breeders.

According to Rene Tegtmeier, of the US Patent Office, to which Professor Innes has sent a copy of the letter, a formal request for reexamination can be filed after a patent is issued, but only on the grounds of a prior patent or publication that was overlooked by the patent office in its original examination. Prior public use or sale is not sufficient grounds for reopening an already-issued patent. Even in the original examination of an application, Tegtmeier says, a foreign use would not bar patenting in the United States, although a foreign publication could.

"Any given detail or sequence may seem obvious, but the way they're put together may be original", so far as the patent law is concerned, says Dr David Padwa, chairman of Agrigenetics, who will shortly announce licensing terms that will be "fair and reasonable".

A second Agrigenetics patent, applying the techniques to a specific species, was recently allowed by the patent office and should soon be issued. Meanwhile Agrigenetics awaits the outcome of its application last January to the European Patent Office for a patent similar to the one issued in the United States.

Australian patents bill

Seeds of doubt

Canberra

The Australian government's first attempt to legislate for the protection of new plant varieties has blown up in its face. The Plant Variety Rights Bill, introduced a year ago and passed by the House of Representatives in April, is now the focus of a political storm. And the Senate has referred the bill to its Standing Commission on Natural Resources, a procedural device for postponing a decision.

The objective of the bill, of crucial importance in a country with a large agriculture industry, is to enable plant breeders to acquire the same kind of proprietary rights in new plant varieties as have long been available in some European countries. The present Patents Act, dependent as it is on the criterion of reproducibility, does not protect most plant varieties.

Five years ago, the Australian Agricultural Council (a political body representing federal and state ministers) recommended legislation on plant varieties protection with the objectives of stimulating the commercial plant breeding

List gończy



Komenda Wojewódzka Miłkłej Obywatelskiej we Wrocławiu poszukuje na podstawie listu gończego wydanego przez prokuratora rejonowego dla Dzielnicy Wrocław-Sródmieście: Bolesława GLEICHGIEWICHA s. Adama i Marii z d. Majerane, ur. 30 IV 1919 r. w Warszawie, ostatnio zamieszkałego we Wrocławiu, ul. Norblina nr 21, zatrudnionego w Uniwersytecie Wrocławskim wydział matematyki, fizyki i chemii.

Wymieniony podesłany jest o to, że jako członek Komisji Zakładowej NSZZ „Solidarność” w Uniwersytecie Wrocławskim nie odstąpił od kontynuowania działalności związkowej, mimo jej zawieszenia, lecz wziął udział w organizowaniu strajku w gmachu głównym tej uczelni oraz kierował jej przebiegiem.

Jednocześnie ostrzega się, że za ukrywanie, poszukiwanie lub dopomaganie mu w ucieczce grozi kara pozbawienia wolności od 3 do 15 lat.

"WANTED for continuing trade union activities under martial law, and for organizing a strike in Wrocław University" says this notice from a recent issue of the Wrocław daily *Gazeta Robotnicza*. Professor Bolesław Gleichgewicht, the subject of this notice, is a leading Polish mathematician, a former organizer of the clandestine "Flying University" and one of the founder-members of the Wrocław University chapter of Solidarity. He is now in hiding.

The notice includes a warning that the penalty for hiding or assisting the "fugitive" is from three to fifteen years loss of liberty.

industry, giving Australian farmers access to varieties developed overseas under the proposed bill's protection and enabling Australia to join L'Union Internationale pour la Protection des Obtentions Vegetales (UPOV).

As amended during the past year, the bill offers protection to Australian plant breeders producing plant varieties, including hybrids, that are novel, distinctive, stable and uniform. Existing varieties will not be entitled to protection.

Both government and opposition have been surprised at the controversy the bill has aroused. Its opponents include farmers, scientists, church groups, environmentalists, alternative life-stylers and consumer organizations. Many people employed by the federal and state governments on plant breeding fear that the bill, by making commercial plant-breeding more profitable, will give the governments an excuse to reduce support for plant breeding and also increase competition from the private sector, perhaps by the production of "cosmetic" varieties.

Even the claim that protecting plant varieties will stimulate the Australian private sector is disputed on the grounds that Australian farmers are at present only buying in one per cent of the seeds they sow each year — too little to generate much revenue. Some critics say that the most probable result will be to flood the market with seeds imported from overseas.

The fate of the bill is at this stage unclear. Hitherto, it had been thought that the fate of the bill would depend on the votes of the Australian Democrats, the minority party that holds the balance of power in the Senate and which sees its role as a watchdog over the machinations of the major parties. ("Keep the bastards honest" is its motto.) But several government senators now have cold feet about the bill.

One possibility is that nothing is decided until after the next election, particularly if that is called as early as the beginning of 1983. If there is an early election, everything will depend on which party is returned to Canberra. The present government might simply reintroduce the bill. The Labour Party, if elected, would probably let it die a natural death — and then find that it had to devise an alternative of its own.

Vimala Sarma

German nuclear power

Modest advance

Heidelberg

Four new nuclear power plants at a go may seem like a boom but appearances are deceptive. The Federal German atomic power industry has problems. Although work began recently on the sites at Isar II (Bavaria) and Emsland, Lingen (Lower Saxony) and approval for Biblis C (Hesse) and Neckar-Westheim (Baden-Württemberg) seems little more than a for-

mality, all four reactors are of the same conventional high pressure light water, type — defensive planning that aims to expedite technical approval and confine local enquiries to siting and radioecology.

The electricity industry in West Germany is private, with a legal monopoly position based on laws dating from the 1930s. Most new power stations are financed by consortia, usually combinations of power companies and local government. The two-stage Federal-Land vetting procedure which keeps nuclear issues in political focus, stringent safety regulations, lengthy planning processes, and battles with environmentalist groups have turned the construction of atomic power plants in the West Germany into an obstacle race. Costs are now double those in France. Electricity prices are disappointingly high and industries now renegotiating 20-year contracts signed in the optimistic 1960s may consider importing from France. It is suggested that heavy industries may eventually emigrate to sites close to the French power plants. While West Germany has only 11 functioning nuclear power plants and 14 awaiting approval or under construction, *Electricité de France* has 24 functioning units and 26 in various stages of planning and construction.

Atomic power is controversial in West Germany: The CDU/CSU accuse the government of damaging the industry by ambivalence, imposing unnecessary controls, and dragging its feet on the reprocessing facility. The SPD is divided on the issue and the Greens (*Nature* 17 June) oppose use of atomic power categorically. Not only is the Bonn SPD/FDP coalition shaky and the SPD losing votes on the right to the CDU and on the left to the Greens, but the CDU itself is on the brink of a leadership conflict. With the Greens set to gain 10 per cent in the House election on 26 September and over 5 per cent in the Bavarian elections on 10 October, the major parties want to play down the nuclear power issue. For the time being there will be no decision on Biblis C which will add 1,300 megawatts to what at 2,500 megawatts is already the biggest atomic power complex in the country.

The Federal government participates financially only in prototype reactors. The fate of the fast breeder at Kalkar on the lower Rhine and the high temperature reactor at Schmehausen in the Ruhr await a meeting of the *Nuklearkabinett* on 31 October. In June this year, escalating costs led research and technology minister Andreas von Bulow to advocate halting both these projects. They were relieved by Helmut Schmidt, chairman of the *Nuklearkabinett*, who insisted that for reasons of national prestige the projects should be retained.

Meanwhile the future of the Federal German nuclear industry looks as unclear as that of the Bonn government.

Sarah Tooze

Belgian nuclear fuel

Plant to restart

Waalre, The Netherlands

Eurochemic, a nuclear fuel reprocessing plant in Mol (Belgium) which was closed in 1974, is likely to begin work again. The international project shut down when Britain, France and Germany decided to go their own way, but on 2 July one of the two chambers of the Belgian Parliament voted to reopen the plant and it is expected that the Senate will do the same, at the earliest in October.

If the Senate agrees, a new fuel cycle company will be formed covering the whole nuclear cycle, with the Belgian government and the utilities taking equal shares. One or two subsidiary companies will take care of reprocessing and fuel fabrication. A new fuel will be produced: a mixture of uranium and plutonium.

The capacity of the reprocessing plant, which is now 60 tonnes per year, will probably be doubled. Without the plant, Belgian nuclear power stations would have had no place for spent fuel after 1985. A 120-tonne capacity at Mol also provides an opportunity to reprocess spent fuel from other countries.

The Belgian plant at Mol is now — after decontamination — cleaner than many experts thought possible, according to Dr Jacques van Gell. Radiation levels in the cells are only slightly higher than natural background levels, after 200 million curies have passed through them. "This is a world achievement", says Detilleux.

The reprocessing process will be changed at Mol, from the dissolving method to the mechanical chop and leach process. The existing fuel fabrication company Belgonucleaire, on the same site at Mol, will become part of the second subsidiary company and will produce plutonium for fast breeders but also for thermal reactors. Although Dr Detilleux considers that breeder reactors will not be needed for the next 15 years, using plutonium in conventional thermal reactors should give Belgium a more secure supply of fuel.

There has been considerable criticism of the Belgian vote in the Netherlands. The plant is only 15 km from the border, and after a number of ex-employees had told of incidents at the plant between 1966 and 1974, Dutch public interest groups protested against reopening and regional authorities asked for more information and for early warning systems in case of accidents. The Dutch under-minister for the environment, Mrs Ineke Lambers, was disappointed about the Belgian decision. Only the previous day, she had recommended in the EEC Council of Ministers that arrangements should be made for the European Parliament to settle such trans-border pollution issues. "This is a proof that such settlements are far away", she said.

Casper Schuurig