Soviet space research

Salyut era ends

Despite news of last Friday's docking of the unmanned Kosmos-1267 probe with the now-empty Salyut-6 space station, the Soviet media are now celebrating the end of the Salyut-6/Soyuz programme and Mr Brezhnev has outlined the next stage of the Soviet space effort, permanent orbital stations served by relays of crews.

Mr Brezhnev was speaking at an Order of Lenin investiture ceremony for cosmonauts Kovalenok and Savinykh, just returned from Salyut-6. The projected permanent space station, which, following Tsiolkovskii, Soviet space planners see as a necessary precursor to manned flights to the Moon and planets, will, said Mr Brezhnev, involve "more complicated tasks" — an indication that that will

probably be a considerable delay before such a station is fully operational. However, the docking of the two unmanned vehicles Kosmos-1267 and Salyut-6 is clearly a step towards working out efficient ways of constructing large orbiting complexes.

The achievements with Salyut-6 have been considerable: 28 cosmonauts visited the station including participants from the Comecon partners, there were 34 manned and unmanned dockings, and about 900 separate biological and medical experiments. Some cosmonauts have remained in zero gravity conditions for as long as six months, and the responses of man to prolonged weightlessness will have been well studied.

Before pressing on with new orbital stations though, there is some unfinished business for Salyut planners. Both France and India have been promised berths for their own cosmonauts on Salyut-type craft, and the Soviet news agency Tass has already reported details of the proposed Franco-Soviet medical programme which is to include a new French *krvotok* (Russian for "blood-flow") device which only needs to be pressed against a cosmonaut's neck to allow the associated computer to record all the necessary details about cerebral blood flow.

Vera Rich

Telescope gets director

Professor Riccardo Giacconi, associate director of the Harvard-Smithsonian Center for Astrophysics, has been appointed the first director of the Space Telescope Institute to be established at Johns Hopkins University in Baltimore, Maryland. The appointment, which takes effect on 1 September, was announced last week by the Association of Universities for Research in Astronomy (AURA), which earlier this year won from the National Aeronautics and Space Administration the contract to manage the new institute.

Professor Giacconi has been an X-ray astronomer since he joined American Science and Engineering in 1958. Over the past few years, at the Harvard-Smithsonian Center for Astrophysics, he has been the scientific and administrative leader for the highly successful Einstein X-ray astronomy satellite. The new institute should be built and staffed by 1982; the launch of the space telescope is scheduled for 1985.

European participation in the project will ensure at least 15 per cent of observing time for European astronomers who may also be represented at the same sort of level among the institute's staff. The European counterpart of the Johns Hopkins institute, the proposed European Co-ordination Facility, is now likely to be sited at Garching, near Munich. That at least is the recommendation put forward by a European Space Agency panel set up to investigate the proposed sites. Alternatives under consideration are the Institute of Space Astrophysics at Frascati, the Royal Observatory at Edinburgh and a joint proposal from the Observatoire de Paris and the Institut d'Astrophysique in Paris. The final decision is expected this week.

Philip Campbell

Endangered species

Belgium joins up

Brussels

The Belgian parliament has now voted to bring Belgium into line with nearly all the other members of the European Community by ratifying the Washington Convention concerning trade in endangered species.

Effectively, this means that at every entry point into the Community, customs officials are now required to ensure that any imports of flora or fauna, or their products, are not listed in the Washington Convention.

The only two EEC countries still to ratify the convention are Luxembourg and the Netherlands. The Netherlands has its own strict legislation and like Luxembourg was only waiting for the other members of the Benelux Union to ratify. The European Commission is trying to have a decision adopted that will allow the Community to speak with one voice.

Legislation is all very well, but there are fears that even now that the last gap has been plugged the demand in Europe for fur skins, alligator handbags, leopard tooth jewellery and the like will ensure a continuation of the trade, for Europe is the biggest market for these products.

Belgium is well known as the European centre of the trade in endangered species. And although imports of animal and reptile skins in 1980 showed a decline for the first time in eight years, they were still worth 234 million Belgian francs (£4

million) according to official figures. Experts at the Belgian section of the World Wildlife Fund think that this is a gross underestimate and that the market value of these skins is likely to be more than ten times as high.

Belgium became the centre for the international trade because, over the past eight years, it has provided the easiest means by which goods could be brought into and distributed around Europe free of further customs controls. The new ruling will, however, require that documentation be presented proving that the animal or animal product in question is required for scientific purposes or for a zoo.

This in itself would be difficult to implement, but the real problem is that most customs officials will not have the knowledge or the motivation to tell, say, an endangered species of canary from an unprotected species and 30,000 vegetable species which it divides into three groups — species in danger of immediate extinction, those threatened with extinction and species in danger in a certain country. Specimens in the first list must be accompanied by both an import and an export permit while those in the second list merely require an export permit.

The first list has become considerably longer since the convention was signed in 1973, and at the Delhi meeting of the 68 member states this year a new proposal was made. Instead of listing those species in danger, the reverse should be done. "Reverse listing" would mean that animal and plant traders would have to prove that their goods are a species listed as safe.

Jasper Becker

UK nuclear power

Marshalling forces

Britain's floundering plans to build a series of pressurized water nuclear reactors are to get a thorough shake-up — with the appointment of Dr Walter Marshall, currently chairman of the United Kingdom Atomic Energy Authority, as coordinator of the programme. The appointment will be formalized this week.

Key technical decisions are falling behind schedule, and although there is no present pressure on electricity supplies the government is said to be worried that the forthcoming pressurized water reactor (PWR) inquiry will fall too close to the next general election, complicating the central economic and social issues with the vexed politics of nuclear power.

Dr Marshall's role will be to ensure that the necessary decisions are taken when they need to be taken, drawing together the confusing interests and bureaucracy of the National Nuclear Corporation (NNC, which will construct the plants), the Nuclear Installations Inspectorate (NII, concerned with safety), and the customers, the Central Electricity Generating Board (CEGB).

The situation has been greatly confused

lately by a number of factors: demands by the Installations Inspectorate that British PWRs be better contained, and more free of radiation on the reactor floor, than their American counterparts; worries in the CEEB that the National Nuclear Corporation might be undercapitalized at its present £10 million; the resignation of the director of the corporation (the post remains vacant); and the publication of parliamentary reports on the government's nuclear programme and the CEEB, both of which were critical of the way in which the need for the programme had been assessed.

Marshall has apparently begun by asking the several interested parties to set down on paper a list of the decisions they consider need still to be made, noting those on which everybody has already agreed. He plans then to draw up a timetable for decision on the outstanding questions, confining his own role to making sure that the timetable will be met. Although the Atomic Energy Authority has a substantial programme of research on the safety of the PWR, Marshall plans to be a judicial chairman, not allowing his own organization as such to have the last word.

Dr Marshall, it is hoped, will fill the managerial vacuum without direct responsibility for the technical decisions themselves, which will remain in the hands of NNC, NNI and CEEB. However it seems inevitable that Marshall, with his forceful and argumentative personality, will stamp his mark on the project.

Robert Walgate

Basel Immunology Institute

Dancing on

Basel

The Basel Institute of Immunology, internationally distinguished for its contributions to fundamental research, last week celebrated its tenth birthday with a series of general scientific talks intended to be intelligible to a wide audience, and a ballet intelligible only to immunologists.

The celebration came at a critical point in the life of the institute, whose directorship passed last summer from its founder, Niels Kaj Jerne, to Fritz Melchers, one of its earliest members (see *Nature* 286, 3; 1980). This has inevitably raised the question of how far the success of the past ten years has been due to the personality of the founding director, expressed both in the organization of the institute and in its intellectual tone. Apart from about ten permanent members, most of whom have been there from its inception, the institute has no tenured personnel: the remaining 50 or so scientists hold two- or three-year contracts and usually leave at the end of them. During their term at the institute, all scientists have strictly equal status.

The other conspicuous feature of the institute under Jerne was the distance kept between the research staff and that of

Hoffman La Roche, the Basel-based pharmaceutical company that supports it. Melchers promised when he took over that the distance would decrease, and indeed Roche laboratory personnel do now visit the institute for discussions with its members. So far, however, much the most effective link between the institute and the company has been Theo Stachelin, now working for Roche, but still temperamentally part of the institute.

A more difficult question is posed by the imminent departure of Susumu Tonegawa for the Massachusetts Institute of Technology after ten years in Basel. In 1976 he was the first to announce the sequence of genomic DNA coding for an antibody molecule and has since been consistently among the leaders in the analysis of cloned immunoglobulin DNA. The question of his replacement is problematic in several ways. Research on cloned DNA is now so brutally competitive, and its practitioners so much in demand, that the loss of Tonegawa may also lose the Basel Institute its lead in the molecular biology of antibody genes. But an attempt to maintain such a lead might in any case have dangers for the institute. It would absorb a substantial proportion of the support provided by Hoffman La Roche, and would almost certainly entail the contravention of the institute's principle of equality and autonomy of all its members.

Melchers, however, recognizes that to abandon research on recombinant DNA altogether is out of the question. Although most of Tonegawa's collaborators are leaving either with him or for other academic laboratories, Hiroshi Sakano remains for about a year and will be joined by one of Tonegawa's earlier collaborators. Melchers is also seeking another molecular biologist who will combine expertise in recombinant DNA technology with a feeling for immunology. Immunoglobulin, he points out, is not the only molecule synthesized by lymphocytes — they also produce important intracellular signalling molecules about which almost nothing is known. Research on membrane proteins is another line Melchers would like to see at the institute.

This emphasis partly reflects Dr Melchers' own research interests, which have been in the clarification of the cellular interactions that trigger antibody production by specialized plasma cells, the subject of one of the three scientific sessions the institute anniversary celebration. The other two dealt with immunoglobulin and the major histocompatibility antigens. One topic conspicuous by its absence was the "idiotypic network" proposed by Jerne to explain the regulation of the immune response and which has long been among the research preoccupations of the institute. Jerne, summing up the meeting, commented only mildly on the omission.

The omission was made good in the ballet, performed with astounding verve at

the end of the celebration by respected scientific members of the institute and their technical staff, ingeniously costumed as a variety of lymphocytes and associated cells.

Particularly notable were performances from Harald von Boehmer, benignly engulfing as a macrophage; Kirsten Fischer-Lindahl, chilling as the male-specific T killer cell, Ivan Lefkovits clinically efficient as a T helper cell, and, at a more molecular level, Charles Wood as a Samurai recombinase cleaving a *corps* of nucleotides that athletically recombined to code for antibodies too numerous to mention.

Miranda Robertson

German nuclear reprocessing

Decision on site

Attempts are under way to break the stalemate in West German nuclear politics. DWK, the German association for reprocessing spent nuclear fuel, has now announced its choice of a site for a small reprocessing plant on the borders of North Hesse and North-Rhine Westphalia. And the federal ministers for research and the interior expressed the view that there are no technical obstacles to a high-level waste storage facility in the salt domes of Gorleben in Lower Saxony.

Those statements are significant because, if followed by the appropriate action, they could ease the burden on utilities applying for licences to build new nuclear plant to satisfy the government that they can safely dispose of nuclear waste. Since 1976, various methods of waste disposal have been a condition of construction and commissioning licences. Hopes that those conditions could be met through reprocessing and final waste disposal in a geological formations were dampened in 1979 when planning permission for a major facility at Gorleben was refused after a lengthy public inquiry.

Since then, storage tanks at power stations have been upgraded to store for longer and permission has been sought to build intermediate storage tanks — which the inquiry had not ruled out — at Gorleben. The search has also been on for alternative sites for reprocessing plants in states whose governments are known to be sympathetic to nuclear power.

So far, DWK has made investigations in two such states: North Hesse and Rhineland-Phalz. The Rhineland-Phalz negotiations are still at an early stage. The idea is to build two small reprocessing plants each capable of 300–350 tonnes throughput a year. A third plant, to be built later at an as yet unspecified site, would have a 700-tonne capacity bringing the total capacity up to the 1,400-tonne originally planned for Gorleben.

DWK's choice of a specific site in North Hesse means that formal application can now go ahead. But permission will not be granted easily. Although the state government under the leadership of Herr