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

Holger Boerner is sympathetic, opposition within his ruling Social Democratic Party could scupper the scheme. Last weekend, however, Herr Boerner went to his local party for a vote of confidence in his leadership. His mandate as premier of North Hesse was supported, but opposition to the reprocessing plant together with a plan to extend Frankfurt airport was voiced. The likely outcome now is that the reprocessing plant will go ahead but local opinion will be firmly divided.

Meanwhile, the local inhabitants of Gorleben have reopened discussion on whether a high-level waste storage facility should be built in the area. At a public meeting in May, several objections to the technical feasibility of the facility were aired: the salt domes are not covered by a layer of clay, they are in contact with ground water in some places, the region may not be as geologically stable as originally thought and natural gas is extracted from the eastern section of the domes in East Germany. Nevertheless, the federal government seems convinced that the Gorleben salt domes offer the best site within West Germany and has said that, even if conditions are not ideal, problems can be overcome by tailoring the waste to suit the geological formation. The government is still committed to an operational storage facility by the 1990s and Gorleben still looks like the best option.

Judy Redfearn

European environment

Win some, lose some

Luxembourg

Environment ministers of the European Community are in the throes of attempting to draw up regulations on the discharge of noxious substances, outlined in the 1976 directive ENV 131. On 11 June, they again came within a hair's breadth of agreement on the seemingly intractable problem of common standards for the discharge of mercury into the aquatic environment. But one outstanding issue remains.

The United Kingdom is continuing to defend its right to apply qualitative objectives for the discharge of mercury from both old and new plants, while Italy and France insist that limiting values should be obligatory for assessing pollution from new plants. The British, it is maintained, are defending a point of principle while their continental partners are protecting their commercial interests. Nevertheless, British officials point out that the Italians, for instance, would find it hard to enforce the proposed maximum values. It is hoped that the disagreement can be resolved within the next three months.

There was further agonizing about the council's decision to postpone the adoption of the so-called Seveso directive on the prevention of major industrial accidents. The French have held up agreement, pleading that the new government

has not had time to adopt a fresh policy, but hinting that the Mitterrand regime will be more sympathetic than its predecessor to the outstanding problem of trans-frontier notification.

Another subject for debate is the threat to the ozone layer posed by chlorofluorocarbons (CFCs 11 and 12). At the end of this year, the European Community is due to review its commitment to reduce the use of these materials in aerosols to 30 per cent of 1976 levels. The commission's report is unlikely to satisfy either side in the dispute.

Although sales of CFCs 11 and 12 as aerosol propellants fell in 1980 to 28.2 per cent of 1976 levels and are expected to drop to 35 per cent this year, sales for other uses such as refrigeration and plastic foam have risen by 34.7 per cent. The commission's report implies that the situation is well in hand, but favours reducing the production of CFCs for uses other than in aerosols. Negotiations are also to be pursued within the framework of the United Nations Environmental Programme and the Overseas Environmental Council for Development. The council seemed content to assume that, even if the ozone layer is being destroyed at an annual rate of 5–7 per cent current measures are adequate. Even so, the Community appears to be taking a daring step; there is nothing like a consensus among its members that the present restrictions are necessary.

Surprisingly, the United Kingdom is pushing for stringent Community restrictions on lead pollution, on the lines recently adopted in Britain, which would mean a lowering of the lead level in petrol from 0.4 to 0.15 grammes per litre. West Germany and Denmark will be enforcing this limit, and it now seems likely that the Commission's 1976 proposed directive on the permissible level of lead in air will also be taken off the shelf. The council has agreed in principle to endorse an environmental standard of 0.2 milligrammes per cubic metre of air, and has directed that the developer should shoulder the costs of the assessment, that the information should be publicly available and that there should be consultations with neighbouring states. However, 130 reservations were tabled against the directive at the beginning of the council meeting.

With an air of embarrassed pride, the ministers also announced agreement on two measures designed to prevent further disasters similar to that of the *Amoco Cadiz* — drawing up a compendium of the properties of hydrocarbons and a list of oil-fighting equipment in the Community. The more important proposal to keep a register of oil tankers most at risk was resisted by the Greeks and passed on for consideration by the transport ministers. The two proposals agreed are the only measures produced since the European Community announced its crusade against oil tanker disasters following the 1978 *Amoco Cadiz* shipwreck.

Jasper Becker

Water works for the Cuna villagers

Panama

For the Cuna indians of Panama progress still means hard physical work. But as a result, the inhabitants of the whole Cuna village can now enjoy clean running water.

The Cunas are colourful tribes of interbred indians who live in palm and bamboo huts on the beautiful San Blas islands — a cluster of over 360 small coral islands off Panama's Caribbean coast. The location allows an almost completely autonomous existence.

The island village of Ticantiki, with its 900 inhabitants, is situated on Devil Cays, only 600 yards from the mainland. It is this proximity to the mainland that has allowed fresh water to be piped under the sea to the island.

A new dam has recently been built up in the hills of the mainland as part of a government project involving the labour of the local indians. In indian terms, the dam is three hours' walk through the jungle from the coast. From the dam, fresh water flows through plastic piping down to the island at a rate of 60 gallons per minute.

The building of a water filter has been left entirely to the indians. The filter is situated a half-hour's walk from the coast, about 2 miles. The shell of the filter

is made of reinforced concrete and comprises two bins, each about 8 ft square and 6 ft deep. Carefully graded stones are being used to fill the bins and provide the filter surface. Water is sprinkled from overhead through holes in the plastic piping. The filter, though simple in concept, is effective. When it is finished the indians hope to be able to increase the water flow to 80–90 gallons per minute.

But one may ask, where in a tropical forest do you find enough stones for a filter of this size? The answer is, at the mouth of the river. Here, children help in the work by grading stones. The men of the village carry the stones up to the filter in sacks suspended from a pole on their shoulder. This load weighs about 50 kilos, yet these tough, stocky indians stride through the jungle as though it were no more than a sack of cotton.

The congress of the village dictates that any able-bodied man who does not carry up a load should pay \$5 a day to the community. For a culture that lives by fishing, tending plantations and, increasingly tourism, this is a large sum of money.

And the next project for this ambitious little village? To pipe their fresh water to every household.

Patricia Dent