

to seven years in a labour camp, plus five years Siberian exile, for his part in the group's activities. Since Dr Orlov's conviction the active membership of the group has been whittled down by successive arrests to, effectively, two persons, Elena Bonner, the wife of Academician Andrei Sakharov, and Sofia Kallistratova, an elderly lawyer. It was apparently an official warning to Mrs Kallistratova last week that she might soon be arrested and charged with anti-Soviet activities that led to the disbanding.

The Moscow Helsinki group has not been the only victim of repression. Other Helsinki groups throughout the Soviet Union, and in particular the Ukrainian group founded by Mykola Rudenko the science fiction writer, have been similarly obliterated by the imprisonment of their members. So has the Moscow "Working Group for the Investigation of the Misuse of Psychiatry for Political Purposes". The founder members of SMOT, the "Inter-professional Free Trade Union", have all been either taken into custody or expelled from the Soviet Union. Since the arrest of Dr Viktor Brailovskii on the opening day of the Madrid "Helsinki Review" conference in November 1980, the Moscow Sunday Seminar for refusenik scientists has been able to meet only on very rare occasions, and regular participants have been subjected to harassment. Brailovskii himself is now eligible for early release from his exile in Beineu (Kazakhstan), but has so far been unable to obtain the necessary character reference from the local authorities, which, it is understood, want specific authorization from Moscow.

Some forms of grass-roots dissent do seem to have survived, however. Mrs Albina Yakoreva, a computer specialist and founder member of SMOT, who was put on a plane to Vienna last month, reported that the free trade union movement has decentralized, but that at least twenty-one grass-roots branches are active, their main object now being the building up of a climate of opinion that will accept such fundamental democratic concepts as worker self-management. In Byelorussia, which was relatively passive during the upsurge of dissent of the early 1970s, underground initiatives protesting against the russification of Byelorussian culture have been reported. The three Baltic republics, Lithuania, Latvia and Estonia, which have developed their own traditions of dissent (the *Chronicle of the Lithuanian Catholic Church* has long been one of the most prestigious underground Soviet journals, while Estonia has staged protest marches and token strikes) have, in the past year, begun to coordinate their efforts on fundamental issues. Their most significant effort so far is a letter to the governments of the Nordic and Baltic countries expressing their support for the proposed Nordic nuclear-free zone, but urging that the ban be extended to the relevant areas of the Soviet Union.

Vera Rich

## Nuclear waste reprocessing

# Germans divide

Heidelberg

The reprocessing of nuclear waste has predictably become an issue in the Hesse and Bavaria elections, now in full swing. The Social Democrats, the major partners in the Bonn coalition with the Free Democrats but fighting separately in the elections for the *Länder* governments, shoulder the chief responsibility for having declared that each *Land* includes a candidate site. The Free Democrats, party to these decisions but united electorally with the more powerful Christian Democrats, are more or less immune from the attacks with which the "Greens" (the environmentalist party) threaten to enliven the elections.

The 14 nuclear power plants in West Germany now produce some 350 tonnes of spent fuel-rods a year. By 1990, 25 power plants will be producing 750 tonnes a year. Under contracts with the French state-controlled Cogema, the rods will be reprocessed at the Cap de la Hague plant in Normandy until 1985, after which the outlook is unclear. Pending the completion of a second 800 tonne per year unit at Cap de la Hague, West Germany will in any case have to take back the highly reactive waste

and put it somewhere.

At present, Cap de la Hague and Sellafield (as Windscale is now called) are the only two commercial reprocessing plants functioning, but there is a chance that the smaller plant at Mol in Belgium may reopen soon (see *Nature* 26 August, p.783). Worldwide, however, there is a desperate shortage of reprocessing facilities, with 200 nuclear power reactors operating and 150 under construction. Only the US interdiction of the reprocessing of spent fuel bridges the gap.

In West Germany, after the abandonment last year of the plan for a 1,400-tonne reprocessing plant at Gorleben in Lower Saxony for political reasons and after massive environmentalist protest, the industry-run organization responsible for reprocessing is considering three 350-tonne per year sites at Frankenberg (Hesse), Schwandorf (Bavaria) and Kaisersesch (Rheinland-Pfalz).

The final storage of wastes, however, remains the responsibility of the federal government. Geologists estimate that salt deposits underlie about a quarter of Northern Europe and in spite of protests and a recent controversial study which revealed unexpected depths of erosion of the salt dome during the last ice age, investigations continue.

Sarah Tooze

## Biotechnology briefs

The Cetus Corporation announced last week the first lay-offs in its history and a substantial refocusing of its research and development on projects that would be likely to pay off in the short term. Forty employees have been laid off, and projects dealing with the production of high-purity fructose and energy and chemical processing have been stopped. Cetus raised a record \$107 million with its public offering of shares in March 1981, but Standard Oil of California, a major shareholder, has declined to continue supporting fructose work at the company.

Another biotechnology company with ambitions in the artificial sweetener field is about to make a public stock offering. The Genex Corporation of Rockville, Maryland, is expected to offer 2.5 million shares in late September or early October, which could raise as much as \$33 million according to documents that Genex has filed with the US Securities and Exchange Commission (SEC). Genex already has a production plant for L-aspartic acid, which is used in the production of aspartame, a sweetener marketed by the Searle Corporation that was recently approved by the US Food and Drug Administration. Genex is also interested in genetically-engineered production of calf renin, bovine, porcine and ovine animal growth hormones and various industrial chemicals. The company is 45 per cent owned by the Kopper Co. Inc. of

Pittsburgh, a major chemical concern. The company, which is one of the largest genetic engineering companies in the United States, has grown steadily through contract research, the income from which rose from zero in 1977 to \$3.9 million in 1981.

Eli Lilly and Co. of Indianapolis is expected to announce later in the month the availability of the first genetically-engineered product for human use, human insulin. The work has been carried out by Genentech Corporation of South San Francisco.

Meanwhile, Armos Corporation, also of South San Francisco, a company founded in June 1980 by Brian T. Sheehan, formerly of Genentech, has filed for bankruptcy in the San Francisco courts. Sheehan says that this will enable the company to reorganize and that several investors are interested in its potential.

Another Canadian entry into the biotechnology field is Alleelix of Mississauga, Ontario, whose scientific director, Derek C. Burke, is leaving the University of Warwick in the United Kingdom to work full-time for the company. Alleelix is a joint venture between the Canada Development Corporation, John Labatt Limited and the province of Ontario. Burke says that the assurance of Can\$100 million over the next ten years will prevent the company from having to "panic" in the quest for short-term genetically-engineered products.

Deborah Shapley