Soviet academics

Three deprived

Three Soviet Jewish refusenik scientists have recently been deprived of their higher degrees, apparently as a result of their wish to emigrate to Israel. They are Aleksandr Paritskii, a Candidate of Technical Sciences, formerly employed at the Khar'kov Institute of Metrology on the design of high-precision ultrasonic ranging devices; Valerii Soifer, from Moscow, a Candidate of Biology, specializing in plant mutagenesis; and Mikhail Fuks-Rabinovich of Moscow, a meteorologist.

Paritskii and Soifer, who applied to go to Israel in 1976 and 1977 respectively, were refused permission on the grounds of the "secrecy" of their former employment. The reason that Fuks-Rabinovich did not receive his visa is unknown.

Higher degrees — those of "Candidate" (roughly equivalent to a PhD) and "Doctor" (which normally requires a minimum of ten years further research) — are not, in the Soviet Union, conferred by individual universities, but are instead awarded by a special all-union body, the Higher Attestation Commission (*Vysshaya Attestatsionnaya Komissiya*; VAK).

Originally VAK came under the Ministry of Higher and Specialized Secondary Education, but was transferred in 1974 to the control of the Council of Ministers by a resolution of the Central Committee of the Communist Party and the Council of Ministers of the Soviet Union. This involved what the chairman of VAK, Professor V.G. Kirillov-Ugryumov, described as "qualitative changes". In particular, he said, the new regulations required postulants for a higher degree to "combine a profound professional knowledge with a mastery of Marxist-Leninist theory and with the convictions of an active builder of communist society".

Jews who wish to emigrate to Israel clearly do not show such "convictions", but so far the Soviet establishment has been content to expel them from professional employment. The new regulations came into force on 1 January 1976, by which time Paritskii, Soifer and Fuks-Rabinovich had presumably all obtained their Candidates' degrees. Until now there had been no suggestion that the regulation should be made retroactive.

From a practical point of view, the loss of their Candidates' degrees should make no difference to the three scientists. Indeed, the change could even benefit them, since several refusenik scientists have been unable to keep menial jobs which they took to try and support themselves, finding themselves sacked because they were "over-qualified", some facing charges of "parasitism" (being without visible means of support). However, from the point of view of Soviet academic life at large, their deprivation sets what could be a dangerous precedent.

Vera Rich

Space economics

Ariane gets an edge

Washington

The fledgling European space industry has scored its first success in the American market. Southern Pacific Communications (SPC), a San Francisco company, has selected the European Space Agency's Ariane rocket for launching its first telecommunications satellites in preference to the Delta launcher of the National Aeronautics and Space Administration (NASA).

Two satellites will be launched for SPC in 1984, which will rent out transponders on the satellites to cable television companies. The deal is a boost for Arianespace, the French-based company which will take over responsibility for the commercial operations of Ariane when the test flights have been completed.

SPC is the first US company to make a firm agreement to use Ariane, although according to Arianespace officials reservations have been made by Western Union, RCA and Satellite Television Corporation and preliminary negotiations have started with GTE. Intelsat, the international telecommunications organization, has signed up for Ariane launches for three of its next series of satellites, due to be placed in orbit next year.

The major attraction seems to be the price. Arianespace is offering extremely favourable terms for a launch, including a requirement that only 20 per cent of the launch price — thought to be about \$40 million for the SPC satellites — need be paid before the launch, with the remainder spread over the following five years.

Officials with the Grumman Corporation, which is acting as the marketing agent for Arianespace, are also making the most of continuing delays that are expected in the initial schedule for launches by NASA's space shuttle. An advertisement placed in the US press shortly after the successful third launch of Ariane from French Guiana in late June lists among the advantages of conventional launchers "well known technology and firm dates for operational customers".

The deal with SPC reflects the growing problems that NASA faces in putting the space shuttle into operational service. Already budget restrictions and various technical difficulties have forced the agency to cut the number of flights planned in the first five years of operation from 48 to 34. Priority in scheduling these early flights is being given to the Department of Defense, requiring several commercial companies either to delay their launches or seek more conventional launches.

Intelsat, which had initially planned to launch its next series of satellites from the shuttle, chose Ariane rather than the Atlas Centaur launcher primarily because of cost. Now SPC, which is eager to tap the rapidly burgeoning field of cable television — and has already sold all the transponders on its first satellite — has selected Ariane also on

cost grounds.

NASA, not surprisingly, is not too happy with these developments. Although accepting what it sees as fair competition from the European space industry, some officials in the agency feel that the generous financing terms being offered represent a government-backed subsidy which they are unable to provide.

But the agency has enough problems of its own to worry about in getting the shuttle into full operation. There is now talk of projected cost over-runs in the shuttle programme next year of up to \$500 million, which could have a significant impact on several of NASA's activities.

One way of absorbing some of these costs, if the Administration does not come up with additional funds, would be to make still further reductions in the initial launch schedule, cuts which would again fall most heavily on commercial customers. Another would be to make deeper cuts in the space science programme, perhaps delaying or even cancelling the Galileo mission to Jupiter, scheduled for 1986.

With the White House talking of further substantial reductions in public expenditure next year, NASA's prospects look bleak. None of this augurs well for the International Solar Polar Mission (ISPM), planned jointly with the European Space Agency. Congress is still debating whether to replace funds for the spacecraft which the United States is contributing to the two-vehicle mission, which was axed by the Reagan Administration in March.

Publicly NASA officials are continuing to express enthusiasm about maintaining the US involvement in the mission. But internal budget proposals sent up to NASA administrator James Beggs for the next year are said not to include any funds for the ISPM spacecraft (nor for a mission to Halley's comet, now being pushed as a sample-return mission to distinguish it from the European Space Agency's Giotto programme). This could change before the final budget proposals are agreed to either by the NASA hierarchy or with the Office of Management and Budget; but nobody is being too optimistic.

David Dickson

●Judy Redfearn adds:

Arianespace says that potential customers have been heartened by the success of the test flight from Kourou, French Guiana, in June. Those already holding launch reservations are apparently beginning to negotiate term contracts. One official guesses that three of the 14 reservations now on the books will be made firm by the end of December. The Ariane rocket will put a satellite into geostationary orbit for between \$27 and \$28 million. Thor Delta launches now cost up to \$7 million more. The attractions of the shuttle, originally estimated to cost between \$15 and \$16 million per launch, have diminished with the uncertainty about the project and the threat that the cost will increase by more than half in 1985 and perhaps by three times that.