

"We try to follow the law as far as we can", said one member of the council.

Further ahead lie greater upheavals, on which the revolutionary council seeks to make a mark. Vladislav Hancil of the Institute of Chemical Engineering says, "we want to stop the terrible connection between science and production". Running through this conversation, as in talks with institute directors and their colleagues, is a distinctive Czechoslovak view that basic science is basic science, and must be kept inviolate.

Hancil complains that under the old regime, "we were forced to do some applied science, but it was not really applied science, only substitution". He means that researchers were required to make for themselves and others equipment that could have been bought in the West if only there had been hard currency. He adds that Czechoslovak industry has lost the capacity for innovation — enterprises have no incentive to do new things, which cause only trouble, while the funds they are supposed to spend on research and development "get lost somewhere".

What the council most wants is a new system for supporting basic science. Everybody in Prague is toying with one version or another of such a scheme. There will be a central government fund to which research groups in institutes and universities will apply for research grants, which will be awarded competitively and on the advice of referees, including appropriate people from overseas.

In the revolutionary council's vision,

Slovakia and the rest of the country would compete for separate pots of gold. To begin with, the council imagines that a small proportion of the funds available would be spent in this way, but that the proportion would then grow. At least to begin with, general support for the institutes (salaries and heat and light) would continue as at present.

Of its nature, the revolutionary council is rich in vision, but not yet acclimatized to reality. "We want to come back to Europe", says one, making the case for increased collaboration with institutions in the West. The council also seeks to bridge the gap between universities and institutes, and to take the power of decision on research funds away from the army of bureaucrats. Institute directors must be elected, and then re-elected. And basic science must be autonomous.

But what will happen if there is not enough money to go round, or if some future government asks awkward questions about the utility of present spending patterns? Four members of the council last week found it difficult to grasp the dilemma, saying that spending on basic science amounts to only 6 or 7 per cent of what the federal government spends on science and technology as a whole and that, by implication, there should be plenty of money to meet revolutionary expectations. Even the budget cuts now decreed seem not yet to have caused the council sleepless nights. It is as if that is one of those management matters that will be left to others, or just left. **J.M.**

proteases from retroviruses, as much from an interest in their biology as in their relevance to infection by human immunodeficiency virus.

Another group, continuing the interests of M. Hasek, the distinguished immunologist who was director of the institute in its previous incarnation as that for Experimental Biology and Genetics (before Riman's time), reckons to have shown that the state of immunological tolerance of a lymphocyte is determined by the population of interleukin-2 receptors on its surface, and of their condition.

Much of the institute's success stems from its reputation, which means, Riman says, that 20 students a year apply for three positions as PhD students. Such stringent selection means that they can hardly go wrong. The standard procedure is that a person is given a spell abroad after graduation. Riman says that, of these postdoctoral exports from his laboratory, only two failed to return. The institute as a whole publishes more than 90 full-length research papers a year, more than 40 a year in international journals.

Collaboration with laboratories elsewhere is conspicuous. Riman rattles off a list of institutes, which his colleagues extend: UCLA, Harvard, Torino (Turin), Imperial Cancer Research Fund and so on. Visitors to Prague are similarly regarded as the laboratory's lifeline.

But what has the institute done for the Czechoslovak economy? Riman says he "put together the case for biotechnology" in Czechoslovakia, arguing the need for innovations in fields such as beer production and cheese making. The arguments for immobilized enzyme systems have been heeded by industry.

Even now, and for as far as can be seen, the contribution of basic science to production will nevertheless be limited by the sheer immobility of the system: researchers remain anchored to their present jobs by their dependence on 'tied' apartments. And the notion that basic science and its application are two separate activities seems generally entrenched.

One of the questions being discussed last week was whether a person who has been offered a three-year appointment in London should have his position in Prague kept open for him during his absence. If it is not, there will be no easy way back for him, but otherwise, some other young Czechoslovak scientist will be denied an opportunity.

These are small issues for a proud and now lonely man such as Riman. Despite the humiliation of having been forced out of the presidency, he is fiercely proud of having retained his colleagues' respect. "Don't ask me, ask them", he says. This time round, he seems sure to be confirmed as director by election. What happens after that is anybody's guess.

John Maddox

A question of timing

Prague

DR JOSEF Riman, director of the Institute of Molecular Genetics at Prague, will almost certainly be confirmed as director when his election takes place later this month. For the time being, he is unopposed. But as recently as last November, he was also the president of the Czechoslovak Academy of Sciences as well as a member of the Central Committee of the Communist Party. Now, he is just an institute director.

Even Riman's opponents acknowledge that what has happened to him is a personal tragedy. His zeal for the development of his institute, and for Czech science generally, is not disputed. He is also given credit for having been one of the first to have urged the previous general-secretary of the Communist Party to resign (at a closed meeting of the Central Committee). His big mistake, even his friends allow, is that he hesitated too long after 17 November.

Now, in retrospect, Riman says the old system "was too tight". Of his work as president of the Academy, he says, "It

was horribly hard work — you put in 100 per cent energy to get only 20 per cent results". Czechoslovak science would now be in even better shape if the system had been more flexible. "Science needs a microclimate" that is favourable to innovation. Riman is pleased to think that he has been able to nurture that in his own institute — and his colleagues agree.

But for the system as a whole, "it was necessary to change it. We needed to be more tolerant, more flexible". Riman says his own views were influenced by a small symposium last year at Vancouver, which he attended as a private individual, not as president of the Academy. "Science is in crisis", he says. There is a need for "a higher level of generalization". He has in mind the bringing together of information theory and systems engineering with the reductionist pursuit of molecular mechanisms.

This foreboding seems not to affect the work of his institute, which has a finger in most pies now cooking in molecular biology. One group, for example, is working on the characterization of