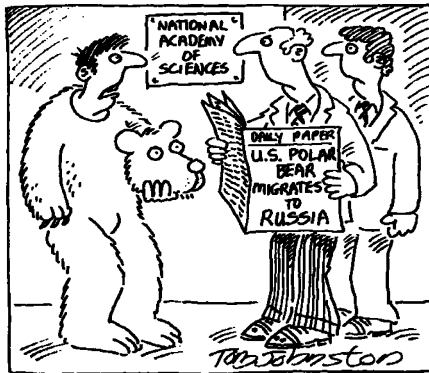


from this point of view, the Shcharanskii case may be envisaged as the next move in a grim kind of human chess. Incidentally, the charge of disclosing state secrets is particularly ironic, since on graduation Shcharanskii carefully avoided taking a post where he might be exposed to classified information, which could hinder his chances of emigrating to Israel. Similarly, the Kiev physicist Vladimir Kislik, against whom, it is feared, similar charges may be in preparation is specifically accused of illegally sending abroad a scientific paper for publication. Not only is the information contained in it not secret; according to a western referee, the subject matter is so well known that he would not himself recommend publication.

Shcharanskii is somewhat of an exception among the refusniks, who, while awaiting their visas for Israel generally try to avoid dissident politics. The usual refusnik policy, as explained to *Nature* by Mark Azbel, former leader of the seminar is to avoid any confusion of the two issues, lest the



"Gee prof, there must be easier ways of getting in to observe the Shcharanskii trial!"

would-be emigres be accused of subversion and the dissidents of Zionism. Whether such a distinction is possible is a moot point, since the Soviet authorities themselves seem bent on confusing it, by claiming, for example, that Sakharov is "really a Jew called Zuckermann". Shcharanskii, however, during his time in 'limbo' took an active interest in the Helsinki monitor-

ing group. Thus his arrest can be seen either as part of the renewed pressure on the Seminar, the 70 hard-core members of which are now being subjected to increasing surveillance including the use of cars with special listening devices, or as part of the campaign against the Helsinki monitoring groups two of which (in Ukraine and Armenia) had several members arrested over the (Western) Christmas holidays, when, it was presumably hoped, the news might pass unnoticed abroad.

From its very beginning, the Soviet human rights movement has been predominantly a movement of scientists, and this fact has undoubtedly contributed to an increasing concern about Western scientists with such problems. To date, except in the special case of psychiatry, where misuse of professional knowledge for political ends was involved, there has so far been no threat that protest abroad would lead to the severing of scientific relations. How far such sanctions will go in defence of Shcharanskii remains to be seen.

Vera Rich

Tory attacks energy gap forecasting—and the fast breeder

A BRITISH Conservative MP has attacked the hypothesis that there will be an 'energy gap' in the UK towards the end of this century, and questioned the economic sense of a commitment to a large programme of fast breeder reactors. The MP, Mr Nigel Forman, is the author of a Conservative Political Centre (CPC) pamphlet published this week titled *Towards a more conservative energy policy*. The document, while not a formal statement of Conservative Party policy, is according to a CPC spokesman "fairly close to the mainstream of Conservative thinking".

Mr Forman calls for emphasis on improving the efficiency of the production and distribution of energy, where 30% of primary energy is wasted, and proposes a flexible energy policy which operates on the demand as well as the supply of energy.

In a refreshing document which seems to verge on the radical rather than the conservative, the MP calls for more research on renewable resources, and for an approach to energy policy which will "liberate it from the requirements of the major vested interests". The conventional wisdom on renewable energy sources "seems to assume that they will make only a limited contribution to the energy supplies of the UK by the year 2000". However the main reason that the predictions are modest "is that until very recently

the R&D effort on nuclear energy, for example, exceeded that on all the renewable resources together by a factor of about 100".

Mr Forman brings his strongest criticism to bear on conventional energy forecasting and on the economics of the fast breeder programme. "It is when the experts begin to foretell the future that the trouble really begins" writes Forman. Undaunted by their predictions of an energy gap he argues that "what we are really being offered is little more than predictions of a change from a brief period of energy self-sufficiency in the 1980s and 1990s to a renewed period of energy import dependence—mainly for liquid hydrocarbons—at a time when the real price of energy is likely to be significantly higher than it is today. The threat, if there is one, is therefore to the prospect of continued exponential growth of final energy demand . . . it is not, nor need ever be, a threat to a society with improving rates of efficiency in fuel conversion and energy use".

An energy forecast is impossible, says Forman, without making prior political assumptions; and one of those assumptions ought to be that demand can be modified to meet supply.

On reprocessing and the proposed facility at Windscale, Mr Forman argues that "there simply will not be the necessary nuclear fuel throughput

from the Continent or elsewhere to justify such a large investment". Reprocessing, in other words, is uneconomic. The same is true of the fast breeder, says the MP, pointing out that the construction of around 20 breeder reactors of 1,300 MW each would cost a total of some £30 billion. "Simply to postulate such an enormous figure is to underline the foolishness of committing this nation to such a single-minded and excessive expenditure on a form of energy supply which we are unlikely to be able to afford and may not even need".

It may shock them, but with Prime Minister Jim Callaghan bearing down on Energy Minister Tony Benn to make him take a more pro-nuclear line it is beginning to appear that the best thing the Friends of the Earth could do would be to vote Tory.

Robert Walgate

Soviets look after their cosmonauts

THE purpose of the Soyuz-Salyut programme is not the carrying out of separate experiments, however unique. In a recent Tass statement, Flight Director Vadim Kravets announced that the ultimate aim is the establishment of a permanent scientific watch in orbit.

Accordingly, much is being done towards cosmonaut comfort and better working conditions, including the installation of a shower in Salyut 6 and the introduction of new semi-rigid space suits for extra-vehicular activity.

Since Salyut 4, the special computer-based Kaskad orientation system has been used to re-align the station as required by the programme of geo-physical, astro-physical, and solar observations, while the Delta autonomous navigation system has eliminated the exhausting and tedious work of orbital correction.

The possibility of natural disaster in orbit is considered minimal—pilot-cosmonaut Georgii Grechko has been quoted as saying that a direct hit by a meteor would be likely only once in two thousand years. Nevertheless, a Tass report of 24 December notes that a micrometeorite groove 1.5 mm deep has been observed on the glass surface of one of the Salyut 6 portholes. Grechko remains unruffled. □

First catch your bear . . .

AN unscheduled contribution to Soviet-US co-operation in the ecology of the Far North has been initiated by an Alaskan polar bear which, wearing a collar with a radio-transmitter attached, has set out across the Bering Strait to Siberia. When last observed, the bear appeared to be making for Wrangel Island, an area in which unfortunately, no major expedition is working at present. It has been agreed, however, that should the staff at the reserve base on Wrangel Island spot the bear, the collar and its transmitter will be returned to the Americans. □

\$17m for Salk institute

THE Salk Institute for Biological Studies is to set up a new "government services division" to carry out contract research for various government agencies.

This move has been made possible by the donation to the institute of the vaccine research and production facilities of a major pharmaceutical manufacturer, Richardson-Merrill, Inc. The value of the facilities has been assessed at \$17m.

The manufacturing portion of the facilities has already been sold. The institute will retain the research portion of the facilities, situated in Swiftwater, Pennsylvania, including 25 professional and technical personnel. □

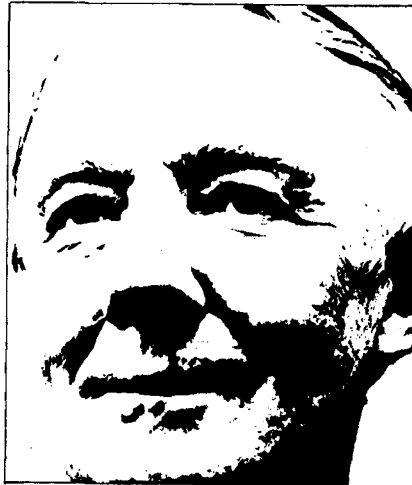
MAN, with his increasing numbers and his wasteful use of resources, may damage both his immediate environment and the globe as a whole. Most of us wish to try to make the world a better place to live in, or at least to prevent further damage to its natural amenities. However, those concerned have different approaches to environmental problems, and it is perhaps worthwhile trying to decide which is the most effective.

Most publicity is given by the media to the extreme 'doomwatchers', who think that the only way to produce results is to frighten mankind into mending his ways. This was the technique of the Victorian hell-fire preacher. Today some environmentalists seem almost to exult in the prospect of impending disaster, as did the earlier preacher at the probability that his listeners would suffer the tortures of eternal damnation.

These extremists are unwilling to agree that there has ever been any improvement—they may even believe that this is the case. They are scornful of those with a different approach, and have their own vocabulary of insults. Those who express even the most qualified optimism are "complacent", and when this optimistic picture is supported by evidence that at least one type of damage had been controlled this is described as "simplistic". Even when it is impossible to deny that there has been some improvement they think up cryptic and subtle dangers from which we are suffering without being aware of their presence.

On the other hand we have those who take a more moderate line. They know that resources are limited, and they wish to make sure that these are used effectively. They wish to identify and quantify all dangers, so as not to waste their efforts on trivial and unimportant factors. As this group tends

Postponing doomsday



KENNETH MELLANBY

to lack glamour, it is seldom seen on television.

One organisation which has a reputation for moderation is the National Society for Clean Air (NSCA). I attended their annual conference at Harrogate recently. The members of this society are mostly recruited from the local authorities which are responsible for environmental protection, together with government and other scientists expert in different fields. The atmosphere at their conference was one of hope, not of doom. Most of the papers recorded growing improvements in the air quality of urban and industrial areas in Britain, and few spectacular dangers of any magnitude were reported.

The relative unimportance of the existing levels of substances like carbon monoxide and lead, which would be disastrous at higher concentrations, was discussed. However,

the conditions in areas with laggard local authorities, where smoke control was not enforced, were fully described, and those responsible were duly castigated. The members of NSCA had no doubt that their own efforts had contributed substantially to the real improvements which they reported. Some listeners complained that the Society was unduly complacent, and that it should be more militant even when existing pollution levels were apparently harmless and were, anyhow, decreasing, but these views received little support.

It will be clear that my sympathies are with NSCA. They get things done. Extremists will say that this is, at least in part, because doomwatch publicity has affected public opinion, and made it ready to respond to moderate views which might otherwise be ignored. I am doubtful. In the late nineteen sixties we were told that growing air pollution would make the major cities of Europe and America uninhabitable before the end of the century. Most and most people can recognise that things have got better and not worse. The Victorian preacher did not stamp out sin; many of his congregation did not really believe in the hell he promised them. The doom-besotted environmentalist is in an even worse position, for there is concrete evidence that his particular hell, if it exists, is getting further away as the moderates get on with the job of environmental improvement.

However, the world is still far from perfect. The extremists are not always wrong, and though their efforts at frightening the general public may be counterproductive, the experts would be wise to pay at least some attention to their views, for the cryptic dangers they stress have, at least in some few cases, been shown to be real.