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What price depleted uranium?

A few weeks before the third review conference of the Non-Proliferation Treaty (NPT), it is disturbing that large quantities of depleted uranium have been sold without safeguards.

A MONTH from now, the signatories of the Non-Poliferation Treaty (NPT) will be gathering at Geneva for a conference to review the terms of the treaty. If this conference follows the two earlier meetings of its kind (1975 and 1980), there will be diplomatic ructions. Even though, by all accounts, preparations have been carried out more smoothly than those for previous conferences, it is probably asking too much of the non-nuclear powers that they do not question the precious little progress that the nuclear powers have made towards their promise under the treaty to negotiate measures of strategic arms control "in good faith". On past form, but also with some reason, non-nuclear powers will argue that more should have been done to spread the civil benefits of nuclear technology. But what will they, and even the nuclear powers which have signed the treaty, make of the puzzling news last week that companies in Luxembourg and Belgium have supplied to Israel several tonnes of depleted uranium in the fissile isotope uranium-235, and that Euratom, Europe's own safeguards authority, was not informed?

It is tempting to think that uranium metal consisting primarily of uranium-238, a waste material in isotope separation plants, has no military significance. Since the first huge hydrogen bomb explosions on the Marshall Islands in the Pacific during the 1950s, it has been clear that ordinary uranium of any isotopic composition may be useful to those who would increase the yield of their explosions. To make a uranium fission-bomb, or a uranium trigger for a hydrogen bomb, it is of course necessary to rely on uranium-235, whence all the fuss about diffusion plants, centrifuges and, now, lasers as a means of separating this isotope from the two others that naturally occur. But in a hydrogen bomb, in which a thermonuclear explosion is ignited by a fission trigger, a surrounding shell of material consisting of heavy atomic nuclei will enhance efficiency by reflecting back into the explosion neutrons that would otherwise escape. Using uranium-238 as the external blanket has the further virtue, if that is the word, that a proportion of the material will undergo fission under the influence of fast neutrons from the explosion. All this was inferred, as long ago as 1955, by Dr Joseph Rotblat using data about the composition of fall-out from the Eniwetok explosion of 1952.

The fact that somebody in Israel has been buying depleted uranium does not, of course, imply that somebody in Israel is interested in making dirty hydrogen bombs. There are many other obvious uses for uranium-238, most of them deriving from its high density and its relative cheapness. But given the trouble that Israel has taken over the years to create the impression that it has gone a long way down the road to the manufacture of nuclear weapons, it is inevitable that suspicions will be aroused. Israel after all, is not a signatory of NPT. Whatever may be the use to which the uranium will be put, however, the fact remains that the sale from the Low Countries to Israel has been made without the knowledge of Euratom, which has a special status in relation to the international safeguards system in that it has delegated authority from the International Atomic Energy Agency, NPT's inspector, to vouch for what happens within the European Communities to special nuclear materials. The issue has in the past been contentious: why, other members of NPT have asked, should European countries be able to make cosy relationships among themselves without direct invigilation from Vienna? Although it is not quite like that, in that Euratom safeguards are probably at least as demanding as those administered from Vienna, the members of NPT are likely to ask awkward questions about the lapse that came to light last week.

Confidentiality

What should be done? The members of Euratom have a vested interest in demonstrating that their hands are clean, and should do what they can in the next few weeks to show that that is the case. No harm would be done, even after the event, if the companies now found to have been selling depleted uranium on a commercial basis were to be asked, even compelled, by their governments to ask their customers what had become of it. Even if it should be discovered that the customers do not know, or will not say, what is being done with the depleted uranium, that will be useful information, which should of course be made available to the members of NPT. If it should turn out that the users can point to good reasons why they were buyers in the first place, and to the ways in which they are putting the material to good use, that too would be valuable information. The selling companies will no doubt say that such information, being commercial, is also confidential, but that is hardly an argument that should carry much weight; the sellers are, after all, those who have broken the law.

In the past few days, Euratom has clearly been hoping that the sale of the depleted uranium would be quietly forgotten; the names of the selling companies, for example, have not been disclosed. Similarly, no convincing explanation has been given of the source of the material sold, although there are only a few places from which it could have come (the diffusion plants in Britain and France, and the tripartite centrifuge enrichment operation involving Britain, the Netherlands and West Germany in Eurenco). It would be interesting, even significant, to know what Euratom has to say on this question, at the very least because a willingness to abide by the rules on the part of the legitimized uranium enrichment operations involving nuclear powers is an essential precondition of Euratom's chance of continuing to hold delegated authority for safeguarding what happens in Europe.

On the face of things, all this may seem irrelevant to what the NPT review conference will be considering at Geneva — a little local difficulty, so to speak. But that is far from the truth. NPT is already a sufficiently uneasy balance between powerful countries with nuclear weapons and often equally powerful countries that have agreed, for everybody's sake, that they will not go into the business. Transgressions, however small and accidental by the nuclear powers or their agents (those who sell their depleted uranium) could ironically be more unsettling than the errors (mostly of omission) at which the non-nuclear signatories now rail — in particular, the poverty of progress in arms control. □

Biological manuscripts

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