Technology poaching

US haunts for Soviet spies

Washington

THE Soviet Union has judged data obtained at Western scientific conferences to be "among the most significant" sources of information for its military development, according to a detailed assessment of West–East technology transfer published last week by the US government. The US report lists specific scientific societies and US universities that have been targeted by the Soviet Union for efforts to acquire research results with military applications.

Announcing publication of the report, Richard Perle, Assistant Secretary of Defense for International Security Policy and a known hardliner on technology transfer, said he hoped to "sensitize the scientific and technical community to the fact that there is a very large and well-organized Soviet apparatus that has targeted scientists and engineers and universities and the like for military purposes".

The report identifies two main components of the Soviet technology acquisition effort: one, managed by the Military Industrial Commission (VPK), seeks blueprints and one-off military and dual-use hardware samples for reverse engineering; the other, managed by the Ministry of Foreign Trade, seeks high-technology manufacturing and test equipment in bulk for direct use. An appendix to the report lists several hundred weapons that are claimed to have benefited directly. About 90 per cent of the documents acquired by VPK in the United States are not subject to security classification, however, and Perle made plain his wish to see more militarily sensitive documents classified.

At least 35 scientific conferences worldwide were identified by VPK as sources of specific information during the late 1970s, according to the report. The more important include an international radar conference, a conference on integrated optics and a conference on aerospace and electronics systems held by the Institute of Electrical and Electronic Engineers. Universities selected for special attention from VPK's operatives include Carnegie-Mellon, Cincinnatti, Harvard, Massachusetts Institute of Technology and California Institute of Technology. Liberal publication policies of the National Aeronautics and Space Administration are blamed for having led directly to identifiable Soviet gains in aircraft design.

According to some speculations, publication of the US report, prepared by the inter-agency Technology Transfer Intelligence Committee to update a 1982 assessment, was a result of the recent spate of spies defecting or being arrested. Perle seemed to hint as much when he said that circumstances that previously precluded publication of this amount of detail no longer applied. Some critics contend, however, that the timing of publication represents an attempt to catch up in the propaganda battle with the Soviet Union leading up to the Geneva summit in November. **Tim Beardsley**

"Soviet Acquisition of Militarily Significant Western Technology: An Update" is available from the US Department of Defense.

Rebellion among the ranks

Washington

THE presidents of twelve major scientific and engineering societies last week informed Secretary of Defense Caspar Weinberger that their organizations would have nothing to do with the Pentagon's new policy of imposing restrictions on access at certain unclassified conferences. The societies pledged that they "will not be responsible for, nor will they sponsor, closed or restricted access technical sessions at meetings or conferences conducted under their auspices".

The strongly worded letter is a major setback for the Pentagon's efforts to stem the flow of technical information to Eastern-bloc countries. Earlier this year the Pentagon let it be known it intended to make routine use of export control laws to restrict foreigners' access to scientific and technical data which, although not subject to national security classification, might be of mililtary significance. Such "export controlled sessions" are restricted to US nationals and to foreigners who are validated by their embassies; participants must undertake to keep the restricted information confidential. Export controls are applied only to research that is not considered "fundamental".

In their letter to Weinberger, the twelve society presidents say that the new controls have the effect of placing the controlled information *de facto* into a new category of classification. By limiting opportunities for peer review and open discussion of research, the presidents say, the restrictions are counterproductive and detrimental to national security.

Earlier this year the Department of Defense (DoD) caused a furore at a conference of the Society of Photo-Optical Instrumentation Engineers by imposing export controls at short notice, causing the conference to be entirely re-scheduled. Later, DoD declared itself happy with the idea of export-controlled sessions for "non-fundamental" data, which it saw as a more flexible alternative to security classification. Others, apparently, were not so happy; among the signatories of last week's letter is Lewis Larmore, president of the Society of Photo-Optical Instrumentation Engineers. Tim Beardsley

Nuclear war

More gloomy forecasts

Washington

IMMEDIATE casualties resulting from a nuclear war, the subsequent short- and long-term physiological effects, and the long-term consequences to ecosystems have probably all been underestimated by the predictions in current use. But estimates are subject to gross uncertainties that can only be reduced by more research on the "biological effects" of a nuclear war. Much should be done by the US and Soviet governments to fund such research and to inform the public of the effects. These are the main conclusions at this week's meeting of the Institute of Medicine (IoM) at the National Academy of Sciences.

According to Dr Theodore Postel of Stanford University, a hypothetical attack of 100 one-megaton bombs on 100 US urban centres would cause 36–56 million immediate deaths, two to four times the number predicted by government studies based on blast effects alone. A one-megaton nuclear weapon can produce a fireball with a temperature of about 100 million °C at the centre, causing many simultaneous fires over hundreds of kilometres and hurricane-force winds. This fiery environment, together with the toxic smoke and combustion of gases, renders obsolete the "blast scaling" method of estimating the effects of a nuclear explosion used by government agencies.

One startling prediction of Postel's new "conflagration" model is that a major attack on US strategic nuclear targets would result in 16–35 million deaths and 9–41 million casualties even before the effects of fallout and damage to environmental and social systems are considered. These figures, from Dr Frank von Hippel and colleagues of Princeton University, are the outcome of the first calculations to have used computerized wind, target and population data bases apart from government studies, which are mainly classified.

The effects of toxic chemicals caused, for example, by burning of industrial plastics, is likely to have severe local consequences. Lofting of nitrogen oxides into the stratosphere would deplete the ozone layer, leading to increased ultraviolet radiation. Gases such as ammonia and methane could accumulate in the heavily polluted troposphere during periods of darkness.

Dr Frank Press, president of the National Academy of Science, summed up the general mood when he said that the "profundity of the consequences of nuclear war are such that symposia such as this . . . (provide a) most valuable public service". Dr Herbert Abrams of Stanford University called for more information to be provided by the US government for