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ISR 19/1 *The Plutonium Legacy* Title 391

When America and Russia began to dismantle many of their nuclear weapons under various disarmament agreements, it became urgent to consider the future of plutonium. I was fortunate enough to find a highly qualified author, Frank Barnaby, who could write about this topic, and in my opinion a most important subject. His contribution was published in March 1994. The amount of military plutonium removed from weapons, and—almost casually—stored under civilian control in various countries, was by then rapidly increasing. The question of secure storage was pressing from a military, political, prevention of proliferation and social point of view.

The main problem with plutonium is that it is an extremely efficient explosive. Furthermore, from spent fuel elements in civilian reactors, increasing amounts of plutonium were chemically separated in commercial reprocessing plants and of course had to be stored. At present there are no economically viable and peaceful uses for plutonium, at least not until breeder reactors can be demonstrated to be commercially profitable. Because the theft of plutonium could have serious global consequences, Barnaby urged strict international management, rather than the current system of national ownership and control.

Frank Barnaby who had become a good friend, was by training a nuclear physicist who had worked for six years at the Atomic Weapons Research Establishment at Aldermaston in England and afterwards as the Executive Secretary of the Pugwash Conference on Science and World Affairs.

He became well-known as the Director (1971-1981) of the Stockholm Peace Research Institute which issued annual reports of world-wide military expenditure, of international interest, quoted in all good newspapers.

He illustrated his article, published in March 1994, with photographs of a plutonium blender and finishing line, as well as the actual storage cabinets of British Nuclear Fuels plc, all at Sellafield. Another illustration showed the equipment for plutonium isotope analysis at the German GSF Research Center at Neuherberg. I had never seen these photographs and doubted if they had been published before.

In his thorough treatment of the subject, Barnaby calculated the cost of the preferred plutonium oxide storage at $ 42 million annually, assuming a total of 300 t of plutonium by the year 2000. As plutonium is most vulnerable to theft and hijacking during transportation, he suggested actual storage sites in France, Britain, Russia, Japan and USA near commercial processing centers, but all under an International Regime. In view of the International Atomic Energy Agency's failure in Iraq, a new Agency, directly responsible to the Security Council of the United Nations, would be best, he concluded.

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ISR Volumes 19,20, and 21. ISR 19/2 *Going Metric - Slowly*. Title 392.