NEW NATIONAL EXECUTIVE

At a meeting of the Board of Directors of Science for Peace in Trinity College, University of Toronto, on Saturday May 7, 1988, the following members, all from British Columbia, were elected as the National Executive:

President: Anthony Arrott
Executive Vice-President: George Spiegelman
Secretary: Vera Webb
Treasurer: James Foulks

The following additional officers of Science for Peace were also elected:

Honorary President: George Ignatieff
Assistant Treasurer: Henry Cooperstock
Conference Coordinator: John Dove
Publications Director: Derek Paul
U.N. Representative: Walter Dorn

LETTER FROM THE PRESIDENT
OF SCIENCE FOR PEACE

The nineteen eighties has been a decade of re dedication to the pursuit of peace. Provoked by the belligerent rhetoric of a group of “true believers”, who preached what had been the practice for most of the years since 1947, the peoples of the world have reacted against the threat of Armageddon and responded with their desire to be a bridge from past to future generations. They have said “no” to nuclear weapons.

Starting in 1981, 700 Canadian scientists have answered Eric Fawcett’s pleading question “What are we doing about it?” by joining Science for Peace. What Eric started has grown, guided and stimulated by the genius of Anatol Rapoport and the dedication of Gwen Rapoport. It has gained stature through its works. It has benefited from the wisdom and dignity of George Ignatieff.

My week in Toronto with the members of Science for Peace was exhilarating. Derek Paul, John Vallean, Jean Smith, John Dove, Lois Dove, Walter Dorn, Terry Gardner, Lynn Trainor, Don Ivey, Bill Klassen, and Metta Spencer each contributed to showing what has been accomplished and what is possible. From each of the people I met came evidence of the difference that one person can make. From Derek Paul came the evidence that it is possible to effect changes in Canadian government policies, and from Walter Dorn that basic scientific research can be aimed directly at peace. After meeting George Ignatieff, I spent the next week reading his autobiography “The Making of a Peace-monger”. What rare insights into the events of this century! As scientists, we feel compelled to explain everything so clearly that there can be no other conclusion than the one we put forth. No one lays out the truth as forthrightly as Helen Caldicott. But more than that is needed to change minds. Perhaps we need to learn diplomacy. It seems like a lost art.

Most myths have a basis in the observation of life, but there is at least one that has no basis whatsoever. A child, or even twins, raised by a wolf do not survive long enough to found Rome; our heredity requires that we be nurtured in the ways of humanity. I would like to know what does a 16 to 40 year old woman have to know today so that her sons will not grow up to destroy the world tomorrow? If I knew that, I would spend the rest of my life trying to teach it. Most of us do not teach children, other than our own. But we do have the possibility of influencing young men and women as students. How many students have we had who have gone on to work in fields directly or indirectly supporting or being supported by the arms race, perpetuating injustices, or threatening the environment? I believe that Gandhi got it right when he said “Peace is when parties care for one another’s welfare.”

As we are told in Ploughshares Working Paper 88-1, an open letter on defence policy to Prime Minister Mulroney “The challenge is to redirect ambition, intellect, and imagination to a relentless pursuit of peace that rests on justice.”

Tony Arrott

PRESIDENT IGNATIEFF’S REPORT
TO THE ANNUAL MEETING OF MAY 7

My two-year period as President of Science for Peace has been a time of transition in our internal organization, and also a period of development of new thinking about security in the nuclear age, especially as it affects East-West relations.

On the domestic scene, we have transformed from an organization primarily based in Toronto to a more truly national one with new initiatives involving active chapters in different parts of Canada. The Board of Directors, upheld by a general meeting of members last February, decided as a matter of both principle and circumstances that the time had come to rotate the Executive among major centres, the first move being to Vancouver which had an especially strong chapter. The task faced by the President and the Executive in effecting this transition was not easy. Because Science for Peace is currently incorporated in Ontario, its head office for legal purposes must remain in that province. In any case, the National Office, with its membership and financial records, its computerized equipment and Secretariat, is not easily mobile, and it was decided that it should stay in Toronto when the Executive moved to Vancouver.

The challenge of coping with this transition has meant a marked increase in the strain falling on the Executive. As President I wish to pay tribute to my colleagues on the outgoing Executive for their dedication and hard work in improvising solutions to endless technical problems, such as producing a new
computer or a new format for the Bulletin, modernizing the national office and computerizing its records. This process was greatly aided by the devoted services of Catherine Armstrong.

While the move to Vancouver has come upon us rather quickly, the transition to a national network has been a gradual process. The initiative to establish a network of Research Directors was taken by Paul LeBlond. A similar network of Education Directors to coordinate Chapter activities was formed by my predecessor Anatol Rapoport who also volunteered his services to establish the first Chair of Peace Studies at University College, University of Toronto, as well as lecturing in many places. I have endeavoured to follow in his footsteps, speaking at conferences of Science for Peace, Operation Dismantle, the Group of 78, Physicians Against Nuclear War, as well as serving on the Advisory Council of Rotary International for their peace program.

Technology helped in the development of a national network. BITNET lets us transmit and receive messages between Chapters more promptly than by the use of mail or telephone services. Electronic mail will make it possible to maintain efficient communication between the new Executive in Vancouver and the National Office in Toronto. Indeed the use of computer technology makes it possible to contemplate the creation of an effective network for Science for Peace operating from coast to coast.

On the national scene, an important factor was the public cause created by the Canadian Government's White Paper on Defence. Public opinion was provoked by the assumption that "the principal threat to Canada continues to be a nuclear attack on North America by the Soviet Union and the consequent expensive counter-measures, including nuclear-powered submarines, advocated by the White Paper. Surveys showed that most Canadians felt that current tensions were due to a lack of trust between East and West, rather than to a Soviet threat of nuclear attack, and that American policies as well as those of the USSR were to blame for those tensions. This perception was reflected, for example, in the public enquiry into Canadian Defence Policy and Nuclear Arms held on November 8 and 9, 1986 in Edmonton, which attracted over 5,000 participants. Your President was invited to present alternative policies to those advocated by the White Paper.

In the discussion of Canada's security, attention was increasingly directed to the Arctic. In addition to the impact of such weapons as cruise missiles on Canada's security, the fact that we share with the Soviet Union 80% of the Arctic region, makes the growing threat of militarization of the area a matter of special concern to Canadians. Your President participated in a conference in October 1987 on "Peace and Security in the Arctic", held by the Consultative Group on Disarmament organized by Ambassador Doug Roche. In addition Science for Peace co-sponsored with the "Group of 78", Operation Dismantle, Project Ploughshares, Veterans Against Nuclear Arms and the World Federalists, the call for the demilitarization of the Arctic which was issued on April 12th, 1988.

The proposal of General-Secretary Gorbachev that the Arctic should become a "zone of peace" where the level of military confrontation is radically lowered, put forward on October 1st, 1987, has not yet received any specific response from the Canadian Government. The convening by Science for Peace, jointly with CIIPS, of a conference of experts to explore possibilities of peaceful cooperation in the region is therefore most timely. The Conference will take place 26-28 October 1988 in Toronto.

The period of my Presidency also coincided with the challenges posed by the "new thinking" about security, emanating in particular from General-Secretary Gorbachev's new leadership in the USSR. In order to maintain our commitment "to encourage scientific activities directed towards peace", we should develop regular communication with scientists with similar objectives abroad, such as the Union of Concerned Scientists in the USA and the many organizations in Europe engaged in peace research.

The Pugwash Conferences on Science and World Affairs have served for the past thirty years as points of contact for scientists at the world over, in pursuit of the "new way of thinking" advocated by Russell and Einstein in their manifesto of 1954 as a necessity for survival in the nuclear age. Ever more leaders are recognizing what the late Olof Palme stressed in his report "Common Security", that no country can be secure if its potential adversaries are insecure; security must therefore be common, shared, indivisible or it is no security at all. As Canada's representative on the Pugwash Council, my retirement from the Presidency of Science for Peace will not remove me from the broader network of those working towards a situation where international cooperation and the strengthening of international institutions, rather than US-Soviet competition or the threat of nuclear war, dominate the shape of international affairs. For the first time the Soviet Union shows signs of being willing to recognize laws and international institutions that will restrict its freedom of action, a challenging concept for a totalitarian state. Perhaps Science for Peace is truly at the threshold of the day when the "new way of thinking" begins to take hold.

George Ignatieff

Report from the Publications Director

The first in the series of small books "Occasional Papers of Science for Peace" will soon be available from the Science for Peace office in University College and from some Chapters: Anatol Rapoport, The Study of Conflict, 1 July 1988, $2; John McMurtry, Understanding War, 15 August 1988, estimated $5; Franklyn Griffiths, The Arctic as an International Political Region, tentative 1 September 1988, $2; Alex Michalos, Militarism and the Quality of Life, 1 October 1988, $2.

The following publications are already available from the Science for Peace office, University College:
Derek Paul, To Stop or not to Stop the Nuclear arms Race: Comments on a Comprehensive Nuclear Test Ban (historical) (1986).

Authors who wish to reinstate papers that were previously available through the Bulletin or the Science for Peace Office, or having new papers which they would like to make available, please send one or more copies to Derek Paul (Publications Director), Physics Department, University of Toronto, MSS 1A7.
A NUCLEAR WATERGATE: WEST GERMANY'S "TRANSNUKLEAR AFFAIR"

Philip Ehrensaft
Université du Québec à Montréal

The nuclear industry in West Germany is being shaken by a massive scandal that 1) presents a level of embezzlement and intrigue quite beyond that of a good spy novel and 2) raises the most fundamental questions concerning the institutional will and capability of the nuclear sector to administer radiation waste and safeguards programs. The scandal involves Transnuklear GmbH, a private company which had been responsible for the transportation of nuclear fuel in West Germany until its operating licenses were suspended by Bonn. Transnuklear (TN) is a subsidiary of Nukem, a German firm which is a major force in international uranium brokering.

What has become known as the "Transnuklear affair" revolves around the discovery of high level nuclear wastes, including plutonium, in several thousand drums designed to hold low level radioactive waste (LLW) that had been illegally shipped to German sites from the Belgian treatment plant at Mol. Investigations have uncovered a systematic embezzlement and bribery ring among high-level employees of companies in Germany and Belgium that generate, transport, condition, and store nuclear waste. Some US$11.6 million in illicit payments, subsequently laundered in Swiss banks, has been documented. Two of the organizers of the ring have (apparently) committed suicide.

Investigative journalists have also charged that the Transnuklear affair involved diversion, from the Nuclear Research Centre at Mol, of weapons-grade nuclear material which was shipped to Pakistan through the German port of Lübeck. These charges are still under investigation and the government in Bonn denies that the TN affair involves violation of the Nuclear Non-Proliferation Treaty (NPT). At the very least, the TN affair demonstrates that the current institutional arrangements in the German nuclear industry are permeable and vulnerable to determined violators of either safety or NPT norms.

The TN scandal comes on top of the 1985 conviction of German businessman Albrecht Migule for smuggling from Germany to Pakistan an entire plant for converting uranium to uranium hexafluoride. The German firm Leybold-Heraeus is suspected of exporting plans that may have helped Pakistan to build a uranium enrichment plant. Two executives of Leybold-Heraeus are suspected of delivering blueprints to a Swiss company, Metallwerke, for autoclaves used to heat uranium hexafluoride. In early 1986, Swiss authorities seized blueprints and three autoclaves from Metallwerke. Some components had already been smuggled to Pakistan (Markham, 1987). Neither Pakistan’s uranium hexafluoride conversion plant nor its Kahuta enrichment plant are under International Atomic Energy Agency (IAEA) safeguards (Hibbs, 1988N).

Revelations of the depth of the corruption in Germany’s nuclear waste handling system, and charges of NPT violations, led the Bundestag to create an investigative committee, complete with prosecuting powers, to examine the national nuclear waste and spent fuel program. Committee hearings have become an arena for experts from throughout the world to present and exchange analyses on the efficacy of the safeguards system. For many experts, European bulk handling facilities are a weak and relatively unknown area of the non-proliferation regime. The German commission of enquiry should shed light on this matter as its investigations proceed; the investigation could take another year to complete. An energy expert from the dominant partner in the ruling centre-right coalition, the Christian Democratic Union, stated that: "Because nuclear industry violations very likely go far beyond what has been revealed so far, there is a strong possibility that an American-style nuclear Watergate will be the result" (Hibbs, 1988D).

My examination of the TN affair and its implications proceeds in three stages: first, we see how the TN affair began as a relatively minor scandal and was subsequently discovered to involve embezzlement on a grand scale; second, we examine the plutonium factor in the TN affair and how this transformed the situation into a nuclear Watergate; and third, we look at the NPT implications.

Stage 1: From Minor Scandal to Grand Embezzlement

The TN affair began when Nukem GmbH, which is headquartered in Hanau (Hesse), informed the Hesse state prosecutor’s office on April 8, 1987, that it had discovered evidence of systematic bribery, deception, and embezzlement by employees of Nukem, its subsidiary Transnuklear GmbH, and also employees of the Biblis nuclear power plant (which is owned by Rheinisch-Westfälisches Elektrizitätswerk AG). The scandal involved improper transportation of fuel elements to and from Biblis and improper on-site waste conditioning services. The sums involved were thought to be between 3 and 5 million German marks ($US1.7 to 2.8 million) between 1982 and 1987. At the time, employees were suspected of padding service contracts and laundering the money in Switzerland. The two Biblis officials involved were from top management (MacLachlan and Hibbs, 1987).

TN Hanau is owned two-thirds by Nukem and one-third by Transnucleära SA, a sister firm based in Paris and controlled by Pechiny and the Paribas holding company. TN is the only company licensed to transport fresh fuel, plutonium, and high-enriched fuel within Germany. It also does about 30 per cent of its German business in on-site waste services. The TN Radioactive Waste Division provides mobile waste compacting systems and has a stationary compacting plant operated jointly with Kraftlagen Heidelberg AG at the Karlsruhe nuclear research centre, which is used to compact scrap metal parts from retrofitting work at reactors (MacLachlan and Hibbs, 1987). Things began to turn spectacular when investigations led to the arrest of three former Transnuklear employees on December 10, 1987. The three included Hans Holz, former chief of TN’s radioactive waste department, Wilhelm Bretage, a nuclear engineer who had 15 years’ experience with TN, and Hans-Guenter Knackstedt, a project director. Holz committed suicide in his prison cell on December 15. Between April and December, about 40 employees of West German utilities had been fired and another 40 to 50 were being investigated. In addition, the top waste official at Belgium’s Nuclear Research Centre (CEN/SCK) in Mol was also fired.

The scope of the scandal was far greater than originally thought: some DM 21 million (US$11.6 million) had changed hands. Holz and Knackstedt were suspected of having embezzled DM 5 to 6 million (US$2.8 to 3.3 million) each and laundering the money in numbered Swiss accounts (Hibbs, 1987A:3-4).
Stage 2: The Plutonium Factor in Germany's Nuclear Watergate

The scenario changed from spectacular embezzlement to graver material concerns on December 17: West German federal prosecutors announced that 321 drums of radioactive waste from Belgium were discovered to have been illegally transported to West German interim waste storage sites. By December 20, prosecutors raised their estimates to 750 drums (Hibbs, 1987B).

Even more seriously, Plutonium-239 and Cobalt-60 were discovered in some of the steel 200-liter drums, which were designed only for low-level waste (LLW). Some of the waste was still in a liquid state despite concrete solidification treatment. The drums coming from Belgium should have contained LLW transported by TN from German utilities to CEN/SCK for conditioning and shipping back to Germany for storage at reactor sites or at the interim waste storage facility at Gorleben. Belgian officials alleged that TB employees had bribed Belgian waste officials to accept 1,100 cubic meters of various types of waste from West Germany which "did not meet specifications" (Hibbs, 1987B).

The radiation emitted by individual drums corresponded closely to expected activity from German LLW. This pointed to careful organization by the parties who falsely labeled and shipped the drums from Mol (Hibbs, 1987B). Audits eventually revealed that between 1982 and 1985, Nukem was storing drums supposedly containing LLW which actually had enough U-235 to qualify as nuclear fuel. Nukem then cut this material with depleted uranium in order to meet Mol requirements for processing the waste. Regulatory officials were not informed either of the presence of U-235 in the waste or the subsequent dilution with tails material (Hibbs, 1988E).

Investigators traced one group of 50 drums of supposed LLW incinerated and compacted at Mol, and then returned to Germany. They found that 26 drums contained cesium-137 and cobalt-60 which could not have come from the material Nukem originally sent to Mol. The presence of cesium should have been a red flag for plutonium. Nukem checks also revealed high levels of U-235.

Subsequent investigations revealed that Nukem had in fact refused shipments of some drums from Mol because samples revealed Pu-239. Nukem shipped some of the contaminated material to a private German contractor for removal of fissile material. It is not clear whether the contractor was aware of the presence of Co-60, Cs-137, and Pu-239 in the mixture. Two of the 50 drums containing U-235 are still missing (Hibbs, Tigner, and Seneviratne, 1988). Federal prosecutors speculated that the LLW may have been contaminated from an unreported reactor incident either at Philippsburg or Grundemingen in 1984 (Hibbs, 1988A). TN's licenses to transport nuclear fuel were suspended by Federal Minister for Environment and Nuclear Safety Klaus Toepfer. The suspended operations amounted to about 22 percent of Nukem's business (Hibbs, 1988G:11).

By the end of 1987, some 1,942 illegally shipped drums had been discovered, and this total climbed to 2,438 by January 15, 1988 (Hibbs, 1988D). Charges were made that top management at TN as well as its parent firm, Nukem, had been aware of the contaminated waste problem since 1984; it was later found that Nukem had been aware of the problem since 1982.

On January 3, 1988, Toepfer announced a complete investigation of West Germany's entire nuclear industry. On January 14, an indefinite suspension of operating licenses was extended from TN to its parent company Nukem. The government of Hesse, where Nukem is headquartered, ordered the removal of Nukem's top officials. At the same time, investigators going over TN's books discovered an additional scandal: an official from the firm Belgonucléaire, which was responsible for engineering subcontracting at the German SNR-300 breeder reactor at Kalkar, had apparently forced subcontractors to pad contracts (Hibbs, 1988B). The official was alleged to have laundered kickbacks through a Geneva mailbox firm. Opposition leader Hans-Jochen Vogel of the SPD maintained that the TN affair reached beyond the criminal activities of a few individuals: it demonstrated that regulation of West Germany's nuclear industry "is evidently only possible on paper." For their part, German nuclear industry officials viewed the TN affair as worse than Chernobyl: the industry had now lost public confidence (Hibbs, 1988A).

One concrete result of federal investigation has been a total restructuring of Germany's nuclear fuel cycle industry. The previous structure involved a complex and interlocking web of private companies and utilities responsible for the entire nuclear fuel cycle: supplying and transporting fuel, generating waste, and conditioning, transporting, and storing waste. This structure was ripe with potential conflicts of interest. Now, different parts of the fuel cycle will be separated and operated by distinct sets of companies. Nukem has been forced out of the nuclear transportation business. Its activities now focus on uranium brokering, planning and designing nuclear plants and equipment such as storage casks, and waste management. Its subsidiary, Transnuklear, was ordered to sell its transportation and waste treatment branches to other firms, both internationally and within Germany. TN's transportation business was about one-third of the company's total revenues of DM 60 million (US$36 million) (Hibbs, 1988K, L, M).

As of April, Federal Minister Klaus Toepfer was claiming that the TN affair had not resulted in nuclear risk to the public (Nucleonics Week, 1988). It remains to be seen whether this is borne out by the Bundestag committee of enquiry and whether the German public has confidence in Toepfer's claim.

Stage 3: An Arms Connection?

The TN affair took a more serious turn yet on January 14, 1988: the government of the state of Hesse, where Nukem is headquartered, announced that they had received leads that Nukem had been involved in shipping weapons-grade uranium from the Belgian Nuclear Research Centre in Mol to the north German port of Lübeck and then on to Pakistan or Libya. If this was the case, this would explain the size of the bribes and kickbacks which had been revealed. Speculation was further fueled by the fact that Nukem had a license to transport nuclear medical equipment to Lahore, Pakistan (Hibbs, 1988C).

The primary source of the NPT violation story was Dieter Kassing, editor of the monthly Bonn Energy Report. The lead was not substantiated by documentary proof and Kassing himself did not consider the leads he provided to Hessian government
officials sufficient to launch the official investigation of NPT violations which resulted. Kassing added, however, that proof would be difficult to obtain since weapons-grade uranium shipments “would have the dimensions of organized crime” (Hibbs, Rignier, and Seneviratne, 1988). Additional and troubling information has been delivered to Hanau prosecutors. This includes specific documentary evidence on the trade activities of numerous companies with Pakistan through the port of Lübeck. Although Bonn now claims that NPT violation charges are unsubstantiated, this will have to remain an open question until the Bundestag committee has delved further into the matter.

Let us turn our attention to what has come out of the Bundestag hearings to date. At the very least, these hearings have demonstrated how permeable nuclear industry institutions are to determined efforts to violate safety or NPT regulations.

The Permeability of Nuclear Institutions.

The Bundestag hearings are being held against the backdrop of West German nuclear export policies that have frequently violated the spirit of the NPT while managing to stay within the letter of the law. German exports that were legal under NPT’s Article 3.2 have contributed to the danger of the spread of nuclear weapons. These exports include German enrichment technology sent to South Africa, and the transfer of German reactor and fuel cycle technology to Brazil and Argentina.

In the case of Argentina, for example, Germany insisted on full scope safeguards for the Atucha-2 heavy water reactor only if they got orders for both the reactor and the heavy water production plant. This contrasted with Canada’s competing bid, which insisted on full scope safeguards for all equipment. Germany circumvented the full safeguards condition by having Switzerland’s Sulzer Brothers receive the heavy water plant order. Germany’s Kraftwerk Union (KWU) thus could legally export heavy water reactor technology without full-scope safeguards. Argentina admitted that this was a factor in their choice of KWU over AECL. Germany has replaced the USA as the leading exporter of nuclear technology to Latin America (Hibbs, 1988J).

We have already mentioned the illegal diversion of enrichment technology to Pakistan by Albrecht Migule and the Leybold-Heraeus company. The Migule trial revealed that Abdel Qadeer Khan, the scientist widely described as head of Pakistan’s nuclear weapons program, once worked for a Dutch firm involved with Urenco’s centrifuge enrichment facility at Amerlo in the Netherlands. Urenco is a German-British-Dutch joint venture. Khan returned to Pakistan in 1974 and helped develop the non-safeguarded enrichment plant at Kahuta. Western diplomats say that Pakistan has an active network of scientists in Western Europe seeking components and special metals associated with Islamabad’s nuclear program (Markham, 1987). Germany signed a formal bilateral nuclear cooperation treaty with Pakistan in 1972. Despite warnings from the USA in 1974 concerning Pakistan’s nuclear weapons intentions, Germany permitted some of the estimated 50-80 scientists trained in Germany since 1972 to have access to technologies with weapons implications. At least one Pakistani scientist, for example, had access to a plutonium reprocessing hot cell at the Karlsruhe Nuclear Research Centre (Hibbs, 1988N).

The Bundestag inquiry could provide a major forum to compare what US non-proliferation experts know about developing countries with nuclear weapons ambitions with knowledge of other experts about European proliferation issues. Comparatively little is known in the USA about allegedly “notorious problems” presented by bulk handling of high-grade nuclear materials in European facilities such as those of Nukem and its subsidiary Alkem. The US Department of Defense is very interested in the German investigation: the Pentagon has been studying physical security of US-flagged nuclear material in Europe for the last 4 years (Hibbs, 1988F). SPD committee members have proposed that invitations be issued to US non-proliferation experts such as Leonard Spector, Victor Gilinsky, Joseph Nye, Paul Leventhal, Lawrence Scheinman.

In the course of the Bundestag hearings, officials from both the European Economic Commission and IAEA have denied charges published in Der Spiegel that weapons-grade nuclear materials were diverted to Pakistan and Libya. IAEA safeguards chief Jon Jennekens indicated, however, that TN’s illegal shipments of LLW from Mol were not a safeguards problem since LLW is not under agency safeguards (Hibbs, Rignier, and Seneviratne, 1988). This raised the question as to whether supposedly LLW drums could be used as a vehicle for diverting sensitive materials.

Euratom safeguards director Wilhelm Gmelin argued that there had been no diversion of significant quantities of weapons-grade material but in any case: 1) the mandate of Euratom was safeguards, i.e., timely detection of diversion, not physical protection, which is the responsibility of national authorities; (this is not actually the whole story: some Euratom facility attachments contain provision for physical protection); 2) the same holds for violations of transport or storage standards; e.g., Euratom is not concerned that 600 kg of German plutonium were sent from Cogema’s La Hague reprocessing plant to Belgo-nucléaire, because Alkem’s Pu storage capacity was insufficient; Euratom knew where the plutonium was and this is its only mandate; 3) LLW is also not a Euratom responsibility. In any event, Gmelin maintained that the 200 mg of plutonium added in Belgium to German LLW was so diluted that it was could not have been separated and diverted for military use. The same would go for the 24 kg of plutonium which Germany’s Green Party claims was deposited in 125,000 LLW drums over 10 years ago in the Asse final LLW storage facilities.

In fact, as demonstrated by testimony from David Fisher, head of external relations at the IAEA from 1957 to 1981, current safeguards techniques might fail to detect significant diversion of fissionable materials in 5 to 10 per cent of cases. Putting together the testimony of Gmelin and Fisher, we see that the European nuclear industry cannot verify the location of all its weapons-grade nuclear materials not does it have adequate physical protection and storage standards for the materials that it can verify. The real problems of safeguards, according to Fisher, are: 1) the biggest proliferation dangers arise from legal nuclear exports, not illegal diversion; 2) the next major problem in the European case is that enforcement of safeguard agreements is poor. There is footdragging on enforcement by the EEC nuclear bureaucracy. The IAEA convention on physical protection has not been ratified by the EEC largely due to resistance by France and Germany.
Conclusion

First, the TN affair has shaken the German nuclear industry more than Chernobyl. For non-proliferation issues, one consequence may well be the slowing down or cancellation of a plutonium-based nuclear fuel cycle. It is difficult enough to impose effective safeguards on the “once through” cycle of light water or Canda-type reactors. In the case of “closed” cycles based on plutonium, effective safeguards are improbable to the extreme. For political reasons, it is likely to be at least some years, if ever, before the Kalkar fast breeder reactor is licensed to operate. German participation in constructing a second cooperative European full-scale breeder (the first was the Super-Phoenix) will be problematic; without such participation, it is doubtful that a second breeder will go forward.

The German nuclear industry had pointed to the relative sophistication of their reactor designs and administration of the nuclear sector in comparison with Russian graphite reactors and bureaucratic inefficiency. Despite the importance of Germany’s Green Party and the adoption of an anti-nuclear platform by the SPD after Chernobyl, these arguments appeared to be carrying the day in Bonn. The election of a conservative coalition in 1987 was a key element in the survival strategies of the German nuclear industry. Germany’s nuclear Watergate has negated these arguments and may have reversed the pro-nuclear stance of conservative politicians.

The German nuclear industry is losing public support in the wake of the TN affair. An opinion poll taken just after the Chernobyl accident in 1986 indicated that 12 per cent of West Germans favoured immediate shutdown of the country’s 21 nuclear plants. In February, 1988, just after the full implications of the TN affair had been revealed, 21 per cent of the public favored immediate shutdowns. Phasing out the nuclear industry was favored by 76 per cent of the public in 1988, compared to just over half in early 1986. Politicians are reacting to the opinion polls. The ruling Christian Democratic Union/ Christian Social Union has even spawned a nuclear caucus which is attempting to stop the Kalkar fast breeder and the Wackersdorf spent fuel reprocessing plant and is pressing for a redirection of federal funds to alternate energy projects. The other partner in the conservative coalition, the Free Democratic Party, is openly wooing the antinuclear vote.

Secondly, the TN affair, coming on top of the Migule and Leybold-Heraeus case of illegal export of enrichment technology to Pakistan, demonstrates the permeability of present safeguard institutions to determined efforts of countries bent on acquiring nuclear weapons. Even if the charges of diversion of weapons-grade nuclear material to Pakistan and Libya are not confirmed in the current round of investigations, the extent of the embezzlement ring and the technical difficulties which preclude 100 per cent accounting for the inventory of sensitive nuclear materials suggest that the present nuclear institutions are all too vulnerable to clandestine activities.

Thirdly, the Bundestag investigation into the TN affair has highlighted gaping loopholes in the non-proliferation regime. Legally permitted exceptions to full safeguard requirements on nuclear exports have allowed countries such as Germany to violate the spirit of the NPT. The norms which do exist are frequently stronger on paper than in real resources and procedures for enforcement. National authorities which have the actual task of enforcement often carry it out in a quite slapshod manner. Key planks of the NPT regime have not been ratified by major players in the nuclear industry, an example being the EEC’s footdragging on signing the IAEA’s physical protection convention. A possible positive outcome of the TN affair is that it will serve as a catalyst to close loopholes and strengthen the enforcement of NPT safeguards. Otherwise, the nuclear energy sector will remain quite permeable to countries or political groups that are determined to acquire weapons-grade materials and technologies.

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Hibbs, Mark, and Brooks Tigner, Gamini Seneviratne. “Nukem Suspends Other Directors; More Violations Found in Hanau,” NW, 21 Jan 88, pp. 1, 10.
1987-88 ANNUAL GENERAL MEETING

The seventh Annual General Meeting took place in the Combination Room of Trinity College, University of Toronto, on Saturday afternoon 7 May 1988. The meeting opened with the President’s report which is reproduced above.

The Executive Vice-President, John Dove, stated his belief that the past year will prove to have been a turning point in the development of Science for Peace, with possible significant influence on the whole peace movement in Canada. He cited in particular the changes designed to make Science for Peace a more truly national organization. He also stressed the importance of expanding work on scientific issues related to peace through activities such as the nuclear winter workshop and study of plutonium overflights on satellite monitoring and verification.

Dr. Dove then reviewed several organizational changes that had taken place, in particular the increased use of electronic mail (encouraged by Phil Ehrensaft), and the computerization of the Bulletin, membership lists and financial information. He paid tribute to the many people who had contributed to the work of the organization, and expressed special appreciation of his association with his colleagues on the Executive, George Ignatieff, John Valleau and Lynn Trainor.

As Conference Co-ordinator, John Dove then spoke about the Arctic Conference to be held in Toronto on 26-28 October 1988, sponsored jointly with CIIPS. This will bring together experts from countries bordering the Arctic, with special emphasis on the participation of native peoples, to discuss ways of replacing military confrontation with international cooperation on scientific and technical projects.

The Treasurer’s report (John Valleau) was not final because not all Chapters had yet sent in their year end statements. (The final report will be available later from the National Office.) The financial margin is narrow, a balance of $2,000 on a total cash flow of $80,000. Because of increasing needs and higher costs a new fee structure has been recommended. Dr. Valleau emphasized that an increase in membership is desirable in any case. He also paid tribute to the work of his Executive colleagues and to the Assistant Treasurer, Maureen Kapral.

In his report as Research Director, Paul LeBlond reviewed the wide range of activities engaged in by members of Science for Peace. He mentioned particularly the meeting of regional Directors held jointly with the Education Directors in Toronto last September. Requests approved for sponsorship during the year included one from Walter Dorn entitled “Canada and Space-based International Verification and Monitoring” and one from Stephen Salaff entitled, “Article of Appreciation on Hans Blumenfeld.” Dr. LeBlond announced that pressures of work were forcing him to relinquish the position of Director of Research.

The essential content of the Publications Director’s report appears elsewhere in this issue.

A revised version of the by-laws (available from the National Office) was adopted. John Valleau stated that the intent was to reflect previous changes and current practice which had been approved but not formally incorporated. Six changes could be considered substantive:

(1) Maximum number of Board Members increased from 50 to 60.

(2) Executive increased from 3 to 4 by adding an Executive Vice-President

(3) Setting out explicit limits to the actions of the Executive

(4) Recognition of establishment of the Advisory Council

(5) Explicit recognition of Chapters

(6) Removal of possibility of corporate membership

A Nominating Committee consisting of Brian Turrell (Chair), John Dove and Janet Wood was elected for 1988-89 and was directed to try to redress the imbalances between male and female, and anglophone and francophone, on the Board.

Janet Wood drew attention to the May 24 evening meeting in Guelph of members from the south-central Ontario chapters. This is expected to be the first of a series which will continue next autumn. Eric Pauwett drew attention to the meetings of the World Council on Peace, 27-31 May 1988, which he will attend. Also discussed were: the relationship of Science for Peace to the various professional societies; and a new UN initiative: “Global Cooperation for a Better World”.

The AGM concluded with the suggestion by Derek Paul that if each member of Science for Peace were to agree to try to bring in one additional member, our membership would be substantially increased and our finances much improved.

Lynn Trainor

News from The Markland Group

(Editor’s Note: Science for Peace takes an interest in the activities of The Markland Group, which describes itself as “a citizen organization for the protection and strengthening of arms control treaties”. The President and founder of The Markland Group is Science for Peace member Douglas Scott who was instrumental in organizing the debate on nuclear submarines which was presented on May 18 in the lecture series of the Toronto Chapter of Science for Peace. The following article describes two academic workshops recently conducted by The Markland Group.)

The Markland Group is attempting to persuade the Canadian government to get involved in the drafting of the compliance system for the new Chemical Weapons Convention. We take the view that, under multilateral treaties (unlike bilateral treaties), an effective compliance system must consist of two components: (1) the usual type of verification clauses; and (2) an international agency to administer the verification clauses and to deal with compliance problems. The only treaty so far containing this type of compliance system is the Non-Proliferation Treaty of 1968. That treaty confers upon the International Atomic Energy Agency the responsibility for administering its inspection provisions.

For many years the superpowers were flatly opposed to extending this concept beyond the Non-Proliferation Treaty. However, news from the Conference on Disarmament (CD) now indicates that the superpowers have altered their position and are on record as accepting the necessity of an international agency to administer the Chemical Weapons Convention. (See the CD interim report of the Ad Hoc Committee on Chemical Weapons, February 2, 1988, CD/795). But although the CD negotiators appear to have accepted the fact that multilateral treaties require a compliance system involving these two components, the rest of the world seems almost oblivious to the importance of constructing such a system.
What should be the structure of this new agency? What powers should it be given? Should there be a dispute settlement mechanism? These and many similar questions are of crucial importance, yet surprisingly little discussion is taking place about them, either among the various negotiating governments at the CD or in academic circles. Apparently everyone assumes that drafting the constitution of this new arms control agency must be left to the superpowers.

To arouse interest in these questions among academics and experts in arms control, two workshops were held at the University of Toronto in 1987. Under the joint sponsorship of the Canadian Institute of International Affairs and The Markland Group, they concluded that a committee should be established immediately to formulate concrete proposals to be presented to the government of Canada. A copy of the report of the second workshop is now available. (Write: “Workshop On Treaty Compliance Systems” c/o CIIA, 15 King’s College Circle, Toronto, Ontario. M5S 2V9, and enclose a cheque for $9.00 payable to The Markland Group.)

News from The B.C. Chapter

Michael Wallace gave a paper at the Conference on Security in the North Pacific, and says that the nuclear submarines would result in Canada backing out of the Nuclear Non-Proliferation Treaty. Luis Sobrino says that a recent public opinion poll showed over 80% of Canadians against the currently projected spending on submarines. The Vancouver City Council (now mostly conservatives) has come out as opposing the purchase of nuclear-powered submarines by Canada when the money could be better spent rebuilding the sewer systems of Canada’s major cities. The slogan is “sewers not subs.”

ANNOUNCEMENTS

Photographic Exhibit

From June 9 to 30, 1988, the International Institute of Concern for Public Health will host an exhibit of photographs documenting the world of nuclear weaponry, from Robert Del Tredici’s award winning book “At Work in the Fields of the Bomb”. The exhibit will be opened at 7:30 p.m. on Thursday June 9 at 830 Bathurst Street, Toronto, by the artist who, after an introduction by Dr. Rosalie Bertell, will present an overview of his work. Contact: Carolyn Siller or Margery Reid, (416) 533-7351.

Database for UN Research Institutes

What is your idea of a better world? Science for Peace member George Barnett is helping to coordinate Canada’s contribution of ideas to a new UN-related initiative, Global Cooperation for a Better World. With the support of individuals like Jacques Cousteau, Jimmy Carter, Peter Gabriel, and, in Canada, George Ignatieff and Prof. William Pyfe (Dean of Science, University of Western Ontario), the Project aims to collect a global database to contribute to the UN’s research institutes. Submissions are being welcomed from citizens of all backgrounds at least until the end of 1988. Contact George, (416) 680-4195.

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In the past few months, with the active encouragement of our Electronic Mail Coordinator, Phil Ehrensaft, there has been rapid development of electronic mail communication among members of SFP. Please send your e-mail address to Phil, and also say whether you have any objection to its being published in the BULLETIN.