

26th Pugwash Conference

"Disarmament, Security and Development"

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DEVELOPMENT THROUGH A UNITED NATIONS CONFERENCE

The issue of Development has recently attained importance in the socio-economic and political arena and has attracted considerable global attention. The role of Science and Technology in bringing about development has also been considered in number of forums. Pugwash has also given attention to this subject time and again but in the last few years it has shown increased concern regarding the development issue and particularly its relation to Security and Resources. To many, the problem of development, on its face value, does not appear to be of the nature of 'life and death' like the subject of disarmament and as a result it has always taken a back seat in science and world affairs. It is perhaps felt that it is an issue in which scientists cannot contribute much and politicians, sociologists and economists have a major role to play. However, if Pugwash is looking for the 'way that lies open to new paradise', as stated in the Russell-Einstein manifesto, it will have to give much more attention to the problems associated with the use of Science and Technology for Development. Once Pugwash scientists express their whole-hearted 'will' to discuss and analyse this problem they are sure to find a 'way' to the promised paradise.

The United Nations Organization has also tried to highlight the use of Science and Technology for Development through its various programmes and through special committees that it has set up for this purpose. One of its first major effort in this direction (and now evaluated as dismal) was when it organized, in February 1963, the first conference on the Application of Science and Technology for the benefit of the less developed areas. This Conference is now categorized as a type of 'Science Fair' and according to many observers, including some Pugwash scientists, it resulted in nothing more than a large mass of papers and reports which never touched the heart of the issues connected with development. This view seems to be an universally accepted one. The UN system has itself recognized this fact and has, since then, tried to analyse the reasons

for the failure of the 1963 conference and it is now going about cautiously planning the second United Nations conference on Science and Technology which is to be held in 1979. In discussing the question of convening the conference, the UN system depended very heavily on the recommendation of its Advisory Committee on the Application of Science & Technology to Development (ACAST) which includes, amongst others, some Pugwash scientists of long standing acting in their individual capacity. It is therefore necessary that Pugwash also give some detail consideration to the forthcoming conference and provide the necessary inputs which could ultimately help in the conference being a significant landmark in the process of development.

ACAST has stressed that the purpose of the conference should be to produce decisions and action by governments, individually and in cooperation. It is felt, that to achieve this, it is essential that at the final and highest level, the participants should be ministers who carry the responsibility for planning and development in their governments and who have authority to influence decisions on the basic policy issues. If so, do the Pugwash Scientists have any role to play? This question is appropriately answered by the fact that in the context of the conference, the instruments of action are science and technology and it is therefore clear that the scientific community of all the participating countries should be intimately and actively involved in all the phases of the preparations and in the conference itself. Scientists from various countries attending the International Pugwash Conferences may have to play, in many cases, an important role in the national context by providing science and technology inputs to individual governments. Free discussions which can be held at Pugwash level on the broad question of the role of science and technology in development could very well help them in influencing the decision makers at the national level. The Pugwash conferences could play a major role by providing the forums for the analysis and discussion of the various issues to be dealt with at the second UN conference. The esteemed position which Pugwash holds among the world scientific and political community could continue to be justified only if it provides the UN conference secretariat with timely advice and suggestions in the matter of preparation and organization of the Conference. It will be perhaps unfair to the UN system if we sit back now and rejoin the postmortem if and when the time comes! If Pugwash feels that the second UN conference will not sufficiently enhance the process of development and that the entire exercise is a waste of resources, it is high time we stand up and say so; on the other hand if Pugwash has

to offer alternate approaches to this problem, it has a moral obligation to do so now.

In order to assess the role that Pugwash can play in the forthcoming UN Conference it may be useful to examine the objectives and the proposed agenda of the conference. The objectives, as recommended by the Intergovernmental Working Group set up specially by UN for this purpose, are as follows:

- (a) To adopt concrete decisions on ways and means of applying science and technology in establishing a new international economic order, as a strategy aimed at economic and social development within a time frame;
- (b) To strengthen the technological capacity of developing countries so as to enable them to apply science and technology to their own development;
- (c) To adopt effective means for the utilization of scientific and technological potentials in the solution of problems of development of national, regional and global significance, especially for the benefit of developing countries;
- (d) To provide instruments of cooperation to developing countries in the utilization of science and technology for solving socio-economic problems that cannot be solved by individual action, in accordance with national priorities.

The Intergovernmental Working Group has further recommended that the Conference should be within a specified framework of Agenda and a preplanned preparatory period:

The proposed Agenda for the conference is as follows:

- 1) Science and technology for development:
 - (a) The choice and transfer of technology for development;
 - (b) Elimination of obstacles to the better utilization of knowledge and capabilities in science and technology for the development of all countries, particularly for their use in developing countries;
 - (c) Methods of integrating science and technology in economic and social development;
 - (d) New science and technology for overcoming obstacles to development;
- 2) Institutional arrangements and new forms of international cooperation in the application of science and technology:
 - (a) Building up and expanding institutional systems in developing countries for science and technology;

- (b) Research and development in the industrialized countries in problems of importance to developing countries;
 - (c) Mechanisms for exchange of scientific and technological information and experiences significant to development;
 - (d) Strengthening of international cooperation among all countries and the design of concrete new forms of international cooperation in the fields of science and technology for development;
 - (e) Promotions of cooperation among developing countries and role of developed countries in such cooperation;
- 3) Utilization of the existing United Nations system and other international organizations:

Utilization of the existing United Nations system and other international organizations to implement the above goals in a coordinated and integrated manner;

4) Science and technology and the future:

Debate on the basis of the report of a panel of experts to be convened on this subject.

The Preparatory period for the Conference has the following features:

- 1) The preparatory period for the Conference should be an integrated and fundamental component of the Conference itself, through preliminary national and regional analyses of relevant socio-economic problems which may be solved with the help of science and technology;
- 2) The detailed content of the agenda will be determined by the Preparatory Committee, taking into account the deliberations at the national, regional and interregional levels;
- 3) A limited number of subject areas would be selected with a view to providing important matters for analysis and discussion of the issues listed in the agenda, on the basis of national priorities, throughout the preparatory process in accordance with the criteria set forth below. The subject areas should:
 - (a) Be few, with a maximum of five;
 - (b) Be defined as problem areas with economic and social implications that may be solved by utilizing science and technology;
 - (c) Require an integrated and interdisciplinary approach and an interagency approach;
 - (d) Have clear relevance to problems of development in all countries, especially developing countries, and emerge from national priorities through regional consensus;

(e) Be clearly delineated and limited in scope.

It seems clear from the objectives and the agenda of the conference that Pugwash has a definite role to play, specifically during the preparatory period of the UN Conference, which will pave the way for the success or the failure of the conference.

The issue of transfer of technology has been analysed by Pugwash in great details and, in fact, it has provided the UN system with a code of conduct on transfer of technology - now well known as the Pugwash Code. The experience of Pugwash, which no other single body can claim to have in this area, has now to be formulated in such a way that it can provide a suitable structure for the discussions and conclusions on this topic. Pugwash has extensively discussed the Alternative Development Strategies during the 25th Conference in Madras, and through its Dar-es-Salam Symposium held in 1975 it has elaborated the concept of Self-Reliance in development. The Indian Pugwash Group is proposing to initiate action on evolving a code of behaviour for scientist in international collaboration and Pugwash can look forward to contributing significant inputs in these areas also. Pugwash group of scientists, with their wide contacts and participation in various international meetings, are certainly aware of the science and technology in relation to the future of mankind and can assist in the preparation of the UN Conference. In assessing the role of science and technology in development, Pugwash may like to examine, for example, a specific area relating to the use of satellite for communication and mass education. In this context one could take the Indian case of the Satellite Instructional Television Experiment (SITE) which was carried out during the period 1975-76. It is claimed that this was one of the 'greatest communication experiment in history' and if indeed proved to be so, this technology can be considered as a most appropriate for developing countries attempting to solve their problems in the area of mass-communication.

Another area relating to new technologies for development concerns the subject of Enzyme Engineering. A major technological development has been the discovery of methods for immobilizing enzymes. This development has opened up the possibility of using this technology in areas of industrial application for the production of glucose from starch and cellulose etc. Medical application of immobilized systems include the possibility of treatment of metabolic disorders, by micro-encapsulated enzyme and in medical diagnosis also there is great potential for immobilized systems which can be provided in the form of semiquantitative health kits for diagnostic purposes. The advantage of these kits in the rural areas of developing countries seems very promising. This area of Enzyme Engineering has already received considerable attention from the International Federation of Institutes for Advanced Studies (IFIAS) and a study undertaken by them considers the Social and Ethical Implications of Enzyme Engineering in diverse areas of Energy, Industry, Food, Medicine and also takes into account socio-political problems which will have impact on the developing countries. It will be necessary that a Pugwash group of scientists follow these developments carefully particularly since some developing countries are very anxious to benefit from this technology and they will be only too happy to be involved in the development of this technology.

Will Pugwash be considered as taking the big brother attitude of 'know all' and hoping to dole out advice? The enthusiasm and optimism may be mistaken wrongly for the overconfidence in the role that Pugwash can play in the preparation of the second UN Conference. But the fact remains that the Conference is being held at a time when the charisma of science and technology, as presented to the developing world so far, is beginning to wear off. It is a challenge to Pugwash scientists

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to redeem man's faith in science and to seek 'continual progress in happiness' that the Pugwash founders saw ahead of them when they wrote the Russell-Einstein Manifesto. Many scientists (leave alone the political decision makers) from the developing countries are not aware of the role of modern science and technology in the development process. To many scientists in the developing world, science has given a sense of personal pride and a sense of achievement in their pursuit of attaining excellence in the international arena, but perhaps, in the process it may have made them alien to their own problems which need to be solved using science and technology. The scientists from the developed world are too engrossed in the search of more and more knowledge which is useful in solving the problems that have come up as a result of its own misuse of science (e.g. industrialization and the spate of research in pollution). They do not seem to have much time or aptitude for looking at the problems which need to be solved in the developing country using the existing knowledge - problems in the area of food and nutrition, energy, medicine, land-use etc. One is aware of the social and political pitfalls that exist in the process when scientists from developed world make attempts to solve some of these problems in the developing country and it becomes a much more delicate and a tricky issue for individual scientists to do so and hence it is all the more important for Pugwash to play a meaningful role in the total process of using science and technology for development.

As a part of the preparatory action for the UN Conference, individual countries are likely to be asked to prepare country reviews and give information about their national policies on science and technology. It is not clear how many developing countries will have the necessary expertise to prepare such country review studies and perhaps the Pugwash pool of scientists, with its International background, can offer assistance to countries who need such help. The existing UNESCO science policy studies may have to be complemented, wherever necessary, on the basis of guidelines which could be drawn out by a Pugwash Group.

It would be perhaps too naive to expect Pugwash to be able to provide all answers relating to the preparation of the second UN Conference on science and technology but there is no doubt that if it takes a more positive and participative attitude towards the conference, the global resources that will be utilized for organizing the conference would result in greater mileage. Pugwash has a role to play in the second UN Conference because Pugwash has a major role to play in the process of Development.

Concerning the Question of Atomic Power Energetics
and Proliferation of Nuclear Weapons

The latter half of the 1950s and the first half of the 1960s were keynoted by a substantial headway made in the sphere of nuclear engineering.

The successful construction and exploitation of the very first atomic power stations importantly contributed to converting our time into an age of atomic energy.

In July 1954 the world's first atomic power station was put into operation in Obninsk, 107 kilometres from Moscow. This station has been operating successfully for over two decades now. Ten years after its launching, at the Third World Conference on the Peaceful Uses of Atomic Energy convened by the U.N. at Geneva in 1964, the most prominent specialists of all countries unanimously confirmed that the world had entered a new epoch, when atomic energy would be called upon to replace coal, oil and natural gases.

The conference heard a stern warning from men of science about the urgent need to stop the consumption of coal, oil and natural gases which are indispensable raw materials for rapidly developing chemistry. The conference participants were acquainted with plans for the construction of a considerable number of atomic power stations. It was predicted that by the close of this century, up to 30, 40 and even 50 per cent of the energy consumed by the industrially developed countries would be sup-

plied by atomic power stations. Everything went well and nobody voiced any alarm or concern. All were unanimous in giving a favourable appraisal of the new source of energy.

But during the last five years, there began to appear more and more pronouncements at international scientific forums and in the press about the dangers presented by atomic power stations. One of the greatest hazards is seen by the authors of these statements in the fact that the plutonium which accumulates in the fuel elements of the reactors during the operation of atomic power stations can be extracted from them and used for the production of nuclear weapons. And this, it is alleged, can undermine the treaty on the non-proliferation of nuclear weapons insofar as it will enable practically all the countries possessing atomic power stations to obtain plutonium suitable for the production of nuclear weapons.

Some of the scientists have also issued a warning about the possibility of stealing plutonium from atomic power stations, manufacturing nuclear bombs from it and using the latter for criminal purposes.

Those who are sounding the alarm in connection with the imaginary danger presented by atomic power stations apparently forget that the plutonium used by the latter exists not in a free state but in the fuel elements--a medium of exceptionally high radioactivity, and that in order to extract it, these elements must necessarily be processed at special factories, which is far from simple and entails great expenses.

Consequently, plutonium can be stolen not from atomic

power stations but from the factories to which the fuel elements are delivered for processing and extracting plutonium. There are not more than ten such factories in the world today. Just as uranium-235, plutonium can be used both as^a nuclear explosive and as nuclear fuel. Thus, any nuclear reactor, while consuming nuclear fuel and releasing energy, at the same time transforms part of nuclear-inactive uranium-238 into nuclear-active plutonium.

Every nuclear reactor performs two functions: it releases energy and produces new nuclear fuel--plutonium. The choice of the nuclear reactor depends on the aims it is designed to achieve: to produce energy or plutonium. In other words, what serves as a by-product: energy or plutonium? When the primary product is plutonium, the efforts of the designers and operating personnel are directed towards ensuring the production of plutonium corresponding to the requirements of the manufacture of nuclear weapons and facilitating the technology of its extraction.

On the other hand, if the basic designation of the reactor is generation and utilization of energy, the designers will make every effort to ensure that the heat-producing elements operate reliably and as long as possible without replacement. In conformity with these aims, the required construction is chosen along with the materials needed for its manufacture.

These aims sharply differ in nuclear reactors intended for generating energy and for obtaining plutonium.

The same also applies to the reactor operation system.

A power station reactor must operate as long as possible without the replacement of fuel elements. This is nec-

essary to make its exploitation economically profitable, for frequent replacements tend to increase the cost of generated energy.

The reactor intended for the production of plutonium, on the contrary, requires that these elements be frequently replaced so as to prevent the accumulation in plutonium used for the production of nuclear weapons of dangerous isotopes which tend to slow down the nuclear processes. To clean plutonium-239 of these isotopes is a very complicated and costly process.

It is thus obvious that it is simpler and more reliable to produce plutonium for nuclear weapons in reactors specially intended for this purpose than to use atomic power station reactors.

But even in this case it is practically impossible to steal plutonium from the reactor. The enormous radioactivity of the fuel elements is a reliable safeguard against this. On the other hand, plutonium can be stolen from the plutonium factories processing heat-producing elements.

This circumstance has prompted new ideas to people who fear the possibility of plutonium being stolen and used for terroristic and other criminal aims.

At one of the conferences I happened to hear such arguments:

"It will probably prove impossible to stop the construction of atomic power stations but it is quite feasible to stop the construction of new plutonium factories."

This was followed by putting forward the idea of establishing "plutonium-free zones."

"But in this case the nuclear fuel resources will be re-

duced considerably," I remarked. "It is commonly known that natural uranium contains only 0.7 per cent of the nuclear-active isotope--uranium-235. But even so only a fraction of this meagre quantity can be practically used. And what is to be done with plutonium if it proves impossible to extract it?" I asked.

"Let it remain in fuel elements to be stored in special depots," was the answer given by one of the authors of the new conception.

Apart from this, it should be borne in mind too that the presence of plutonium alone is not sufficient by far for the production of nuclear weapons. It is fitting and proper to recall in this connection that even in a country like Britain, which is famed for its high level of scientific and technological development, it took prominent scientists and engineers several years to develop only a neutron detonating fuse for the first British bomb, to say nothing of many other extremely complex tasks that had to be solved.

Hence, the warnings issued by a number of authors about the possible stealing of plutonium by criminal elements and making nuclear bombs with it seem quite strange, to say the least. One of the participants in the international scientific symposium which took place in Sweden in 1973, comparing atomic power stations with a Trojan horse, arrived at the paradoxical conclusion that nuclear engineering, as it were, undermines not only the national security of developed countries but also the security of the whole of mankind.¹ And a year later, in 1974, a bulky volume

¹ D. Krieger, "Nuclear Power: A Trojan Horse for Terrorists. Nuclear Proliferation Problems." SIPRI. Stockholm. Almqvist and Wiksel, 1974, pp. 187-88.

devoted to the same subject appeared in the U.S.A. under the title "Nuclear Theft: Risks and Safeguards."¹ One is prompted to ask in this connection: Is it not simpler for representatives of the criminal world to steal ready-made nuclear bombs from the nuclear-weapon depots scattered all over the world? This danger is far more real, though not a word is said about it. It looks as if someone needs to divert the attention of public opinion from the danger presented by nuclear armaments and to rivet it instead on the fictitious danger ascribed to atomic power stations.

At a symposium held in Canada in 1966, I drew attention to the possibility of stealing nuclear weapons from NATO depots. One of the participants promptly declared that this was completely precluded because nuclear weapons were fitted with electronic locks which the thieves could not open.

Efforts are being made to persuade the public that it is much easier for the criminals to produce atomic bombs than to open the locks at nuclear-weapon depots.

Some logic indeed! Atomic power stations are dangerous while the nuclear-weapon depots scattered all over the planet present no danger whatever because they are locked by an electronic device. Quite noteworthy is the fact that the exceptionally vigorous campaign against the construction of atomic power stations coincides in time with the incipient relaxation of international tension. The opponents of detente and disarmament

¹ Mason Willrich, Theodor B. Taylor, "Nuclear Theft: Risks and Safeguards." Billinger Publishing Company, 1974.

exert their efforts precisely in order to divert the resentment of public opinion from nuclear weapons and to shift it to atomic power stations.

The real means to prevent the spread of nuclear weapons is the complete cessation of all nuclear tests in all environments by all countries without exception, ^{and} the termination of the nuclear arms race, including means of delivery.

It is necessary that all states undertake not to employ or to threaten the use of nuclear weapons, and, in general, that they commit themselves to refrain from the use or threat of force in relations with other states under any circumstances.

As to nuclear energy, it is important to ensure that it be used exclusively for peaceful purposes and that all obstacles to the use of this greatest achievement of our epoch are removed.

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W. Epstein (Canada)

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A SPECIAL SESSION OF THE GENERAL ASSEMBLY TO PREPARE
THE WAY FOR A WORLD DISARMAMENT CONFERENCE

The Failure of Disarmament Efforts

Most observers and students of disarmament are becoming increasingly disturbed by the failure of the powers concerned to halt or even slow down the arms race, in particular the nuclear arms race. Despite the conclusion of seven multilateral treaties and eight bilateral American-Soviet agreements on arms control and limitation, and despite the beginning of detente, world military expenditures continue to escalate (they are now in the neighbourhood of \$300 billion a year) and the arms race continues to accelerate.

Another reason for concern is that while scientists and informed persons are becoming increasingly pessimistic about the prospects for reversing the arms race, or even halting it, members of the public are becoming increasingly apathetic and are acquiring a feeling of hopelessness. The goal of general and complete disarmament is a rapidly receding dream and even the negotiations for partial measures of arms control are stalemated.

What is most startling and depressing is that, if all the negotiations now proceeding at SALT, at the Committee on Disarmament in Geneva, and at the Force Reduction Talks in Vienna were to succeed in their stated objectives (^{an}eventuality much to be desired though hardly to be expected), the arms race would not even be significantly slowed. The technological arms race, the massive military expenditures and the fantastic increase in killing capability would continue to grow at an appalling pace.

Vertical nuclear proliferation facilitates and helps to promote horizontal proliferation. Both forms of nuclear proliferation will lead to an increasing likelihood of non-governmental or sub-national proliferation -- i.e. the acquisition of nuclear weapons by terrorists and other politically or criminally motivated groups. All three forms of proliferation will increase the likelihood of a nuclear war as a

result of accident, miscalculation, ineffective command and control procedures, nuclear terrorism and blackmail and sheer madness.

Clearly, some radical new approaches to arms control and disarmament are necessary if the world is to avoid a nuclear catastrophe. But what kind of new approach?

A World Disarmament Conference

Apart from urgently needed new substantive approaches, one rather obvious procedural approach would be the holding of a World Disarmament Conference (WDC). Except for agreement on measures of actual measures of nuclear disarmament, nothing could be more calculated to give renewed life and momentum to progress in disarmament than a WDC.

The Soviet Union was responsible for reviving this idea in 1971, and it was taken up by the non-aligned countries and has received the official blessing of the United Nations annually since that time. The United Kingdom and also France favour the idea. The United States and China are the only nuclear powers that are opposed, although the United States has twice agreed with the Soviet Union on the idea of holding a WDC at an "appropriate time", a time which never seems to arrive. If the US were to announce its support for holding the conference, it could be convened within one or two years and might well achieve universal participation, including that of China. A WDC would deal with all aspects of disarmament, including nuclear, conventional, chemical, environmental, and all other forms of warfare.

In fact, the holding of a WDC may be the best, if not the only way to awaken the serious interest of the public and of top political leaders, high government officials and leading scholars in a new approach to nuclear disarmament.

In the last few years, the United Nations has convened World Conferences on the Environment (Stockholm 1972), Population (Bucharest 1974), Food (Rome 1974), the Law of the Sea (still going on), Women's Rights (Mexico City 1975) and Habitat (Vancouver 1976). While none of these conferences has produced solutions to the problems dealt with, they did focus attention on and served to awaken interest in those problems and to make the governments of the world face up to the dire need to begin to cope effectively with them. A WDC, which may be more immediately and directly concerned with the problem of human survival, could at the very least serve a similar purpose. If properly prepared, a WDC might be able to agree on a disarmament agenda that would include a program for nuclear and general disarmament

and on new institutional and procedural arrangements to promote agreement.

A Special Session of the General Assembly on Disarmament

The opposition of the US and China means that the prospects for holding a WDC in the foreseeable future are not very good. Because of the failure of all the efforts during the past five years to reach agreement on convening a WDC, many of the smaller countries have turned to the idea of first holding a Special Session of the UN General Assembly on Disarmament. They point to the progress made at the two Special Sessions (1974 and 1975) on Resources and Raw Materials in moving towards a new international economic order. In addition, since China and the US are members of the UN, it would be more difficult for them to avoid participation in a Special Session than in a WDC. Finally, a Special Session held in 1977 or 1978 could prepare the way for holding a WDC perhaps as early as 1978 or 1979 or at least during the Disarmament Decade, which was proclaimed by the General Assembly with such high hopes in 1970.

The Fifth Non-Aligned Summit Conference at Colombo called on August 19 for the adoption of effective measures for holding a WDC and recommended that its members request a Special Session on Disarmament as early as possible. The Nordic countries have also announced their support for a Special Session.

The adoption of this course of action will not provide any guarantees or assurances that the superpowers or the nations will finally find the right path towards controlling and reversing the nuclear arms race. The author knows of no better way, however, that might lead the world out of its alarming predicament. He hopes that Pugwash, too, will throw its full weight and exert whatever influence it can in support of a Special Session of the General Assembly on Disarmament at the earliest possible time, preferably in 1977.

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Some aspects of the arms race
developing in Africa South of the Sahara*

On average and at constant (1973) prices, the African states south of the Sahara imported about 75 million US Dollars worth of arms in the period 1965-1973. In 1974 the arms purchases of these countries jumped to 299 million US Dollars¹⁾. Even if the figures available for 1975 are not as high, (177 million US Dollars); the most recent information tends to confirm that an arms race of significant importance is developing in Sub-Saharan Africa. Eg : the Popular Republic of Angola is believed to have received during the last 12 months an estimated amount of 200-300 million US Dollars in Soviet arms. Three separate arms deals with Ethiopia, Kenya and Zaïre are also presently being worked out in Washington. They could amount to a total of 325 million US Dollars.

The facts behind the figures are more complex, however. The number of African states building up their military potential may gradually increase but yet not all African states are involved.

* By Africa South of the Sahara, we mean all African States but the States bordering the Mediterranean-Sea, Sudan and the Southern African States of South Africa and Rhodesia. The significant military build up of those latter states is not described in this paper, but has to be taken into account in any analysis of the situation.

1) World Armaments and Disarmament : SIPRI Yearbook 1976. Stockholm, Almqvist & Wiksell, 1976, pp.250-251. See also the SIPRI Yearbooks published the preceding years, the annual publication of the International Institute for Strategic Studies, The Military Balance, and Publications of the US Arms Control and Disarmament Agency such as, World Military Expenditure and Arms Trade 1963-73, Washington, US ACDA, 1975.

At the present not many more than a dozen states have an army of significant potential²⁾. Those states are among the most important in Africa, with the largest populations and the richest and most extensive national territories, factors which alone tend to make these states imposing in relation to their neighbours. Recently these states have also made considerable efforts to strengthen and then modernize their armies, but their strength is in most cases not new. They have simply contributed toward the development of armies, whose roots - particularly in most former British colonies - were fostered during the colonial period.

When one tries to analyze closely what is happening in Africa, it is possible to conclude that not one global arms race is developing but a few parallel arms races, two or three at least and all of which may be interrelated. Any of them may be considered as an aspect of the struggle between the great powers, the United States, the Soviet Union and China. Their effects accumulate and tend to generate tensions which spread through the entire continent and, to some extent, to the rest of the world. However, despite these common elements, these parallel arms races have different origins and characteristics.

The Situation in the Horn of Africa

The most significant arms race has until now taken place in the Horn of Africa where Ethiopia and Somalia have been in conflict for many years, a conflict which may well increase, when the French territory of the Afars and the Issas becomes independent. This confrontation has, however, assumed

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- 2) One has to make a distinction between the potential represented by the weapons possessed by a state and state's actual capacity to use these weapons. In many cases in Africa, the lack of facilities to maintain the weapons as well as the lack of trained personnel prevent the use of arms. In other cases, maintenance and/or service is assured by foreigners, advisers or mercenaries.

regional importance because of its religious and ethnic base. Muslim States, in particular, have shown a great deal of concern for what is happening in this part of the world. The strategic importance of this area, at the border of two continents and on the route between the Mediterranean and the Indian Ocean has also given rise to the indirect confrontation of the great powers. Finally, the fact that Ethiopia is fighting rebels in Eritrea partially explains the importance of the Ethiopian army.

During the last five years, the Somalian army has been doubled from a total of 12,000 to 23,000 men. In 1973 and 1974, Somalia is believed to have been the beneficiary of 120 Soviet planes and helicopters, a hundred tanks and a ground-to-air missile defense system. Today, the equipment of the Somalian army is one of the most impressive of all African countries south of the Sahara. This country of only three million inhabitants not only has more planes than any other country in the area, but it also has more tanks than the forces of all the other countries put together.

Ethiopia, on the other hand, is assisted, although with increasing reticence, by the United States. For several years its standing army has numbered some 45,000 and, in parallel with Somalia, Ethiopia ordered considerable quantities of fighter aircraft, tanks and other military equipment in 1973-1974. During the last few months, it would appear that Ethiopia has once more purchased arms from the United States totalling more than 100 million US \$.

The quantitative and qualitative importance of the arms acquisitions of Somalia and Ethiopia in such a short period is striking. If one can speak of an arms race developing in Africa, it is, in the first instance due to this military build up in the Horn of Africa.

Tanzania, Zambia and the Southern Africa Situation

The case of Tanzania and Zambia is different. Geographically and politically these countries are in the front line of black Africa in the confrontation with the white regimes in Southern Africa. For a long time, the training camps and bases of African liberation movements were located in these two countries, and although some of these bases have now moved to Mozambique, Tanzania and Zambia continue to host quite a few of them. Both countries run the risk of a military confrontation, and their potential opponents, Rhodesia (Zimbabwe) and the Union of South Africa, are powerful, particularly the latter. The Union of South Africa also increased its military purchases very significantly in 1974 and again in 1975, when they amounted to some 210 million and 137 million US Dollars compared with an average of 55 million US Dollars over the preceding nine years (1965-1973). To be capable to face this threat, Tanzania, and in particular Zambia, appear to have decided to make a special effort in their air defences. This should help them, among other things, to prevent strikes against national liberation movement bases. Tanzania acquired 20 (according to some sources, as many as 45) fighters between 1973 and 1974. Zambia began its build up in 1969 and now has some 24 fighters, she appears to have ordered 24 more fighters and is taking delivery of some 25 combat helicopters. She can also count on a limited ground-to-air missile capacity. As small as it may still be, compared to the power of the Union of South Africa and Rhodesia, the power of Tanzania and Zambia to oppose an air incursion is such that the latter would not be easy to execute.

And the Others ?

Besides these countries, a few others have also significantly increased their military potential in the last few years. Among them, are Nigeria, Zaïre and Uganda. The reasons for this development are complex and, initially at least, related to domestic situations. Two out of the three countries

have suffered from serious civil conflicts, and in all three the army is an important factor in the maintenance of order, cohesion and stability. To a certain extent, the position of the national authorities in these countries depends on the army, and they therefore tend to strengthen their armies.

Potential conflicts with some of their neighbours also explain the development of the armies of Uganda and Zaïre. The tensions existing between Kampala on one side and Nairobi and Dar es Salaam on the other are a well-known fact. One also is aware of the attitude of Zaïre in the battle for the control of Angola and especially of the effective support which Kinshasa has given to the FNIA. Now that the war in Angola is over, Zaïre is facing a regime whose military potential is considerable with the result that Zaïre is presently discussing with the United States the possibility of acquiring modern arms. US arms transfer to Zaïre could amount to as much as 50 million US Dollars in 1977.

In addition, the heads of state or government in these three countries aspire to a role in African politics, and one which may be strengthened through a strong military potential, although the field of activity for such a potential may not immediately be clear. One should note in this respect that the final spasms of Angolan decolonisation took place without significant direct armed intervention on the part of African countries (with the obvious exception of South African forces). It is known, however, that in Nigeria as well as in some other countries, there were discussions about the possibility of sending troops to assist the MPIA in its struggle.

But what is going to happen in the battle for Rhodesia and Namibia? The opinion has already been expressed in Africa that one should try to avoid seeking the assistance of non African states, an assistance which has been decisive in Angola. Such decisive assistance could, therefore, come from countries

such as Nigeria or Uganda, perhaps even others. For the time being, the possibilities of a meaningful conventional intervention in these areas appear limited. The lack of the necessary infrastructure for rapid and massive troop movement outside their national territories, as well as to assure the necessary logistic supplies, with respect to the Nigerian, Ugandan and Zaïre armies would tend to strengthen this view. Non African assistance at least at the logistic level would, therefore, be a necessity. Nevertheless, and with Ghana as a fourth member of the club, the armies of these countries cannot be ignored in the evaluation of foreign policy perspectives.

The Newcomers

Until recently, as was previously stated, only a limited number of states had developed a meaningful army and it is these states whose arms acquisitions have contributed most during the past few years toward the increase in arms transfer which has taken place.

However, the situation is changing. Two powerful military states have emerged as successors to the largest part of the former portuguese colonial empire. At the same time, increasing tensions have pushed already existing states to build up their military potential. Next to the old military established African States, "Newcomers" are now emerging.

Kenya is, perhaps, one of the best examples. Although the neighbour of some of the most powerful states in Africa, Kenya had maintained the size of its army at a rather low level and had not taken any meaningful step toward modernising it. This time is now over. Fearing the power of Somalia and Uganda, Kenya is about to acquire from the United States some 12 sophisticated combat planes for a total of 75 million US Dollars. US arms sales to Kenya would therefore jump from

a zero figure in 1975 to 7 million US \$ in 1975 and 75 million US \$ in 1977. At the same time, it is said that Kenya may conclude a major arms deal with Great Britain.

Among the newcomers, what place should be given to Mozambique and Angola ? The battle that the FRELIMO has won was mainly fought with light weapons and the bulk of the armaments of the army of the Mozambique Republic must still be composed of such weapons. To the best of our knowledge, Mozambique has not yet acquired a more heavy type of weaponry. This, however, could change rather rapidly. The important involvement of Mozambique in the southern Africa struggle has already provoked intervention in Mozambique by Rhodesian forces. It would, therefore, not be surprising if in the near future the government in Maputo would follow the path already taken by Lusaka and Dar es-Salam and build up at least an air defence system.

The case of Angola is different. The war which has opposed the FNLA, the UNITA and the MPLA has been fought, especially on the side of the victors, with a rather heavy armament. Some hundred tanks, armoured cars, artillery and multi-barrelled launchers, have been poured into the battle³⁾. Important equipment is, therefore, based in Angola. Is this equipment at the disposal of the government of Luanda ? Is the Angolan army, which some sources said has around 14000 men, already using it ? Or is it still in possession of the Cuban troops who mainly used it during the war ? Those are questions to which no answers can yet be given. The fact remains that an important transfer of arms has taken place in this part of the world. A new balance of military power has been created which, as we have seen, is inciting Zaïre to increase its own potential.

3) It is believed that some 15 planes which were not engaged in the war are based in Angola.

Is it necessary to stress the meaning of any arms race? Increased arms acquisitions on one side result almost inevitably in escalation on the other. Increases in military potential tend to generate new tensions, to aggravate old sores. But, above all, they imply the massive expenditure of vital resources particularly in terms of finances and manpower which could constructively be used elsewhere. Can this be avoided? Are there ways which could enable African States to devote their entire resources, or at least most of them, to the task of development?

Opinions differ on what should be done to confront the development of arms races. Some people believe that all further military build up not only in Africa, but in all developing countries should be halted, with a ban on the transfer of arms and military technology. However, the problems involved are more complex than such people would admit. In the first instance, in a world still dominated by violence and the use of military forces, is it possible to deny to some states the possession and the right to increase their armaments, armaments to which other states have a rather free access? A decision not to acquire any new armaments cannot be imposed on any state or group of states but has to be freely decided by such states. If their situation appears rather stable and secure, some countries may be ready to do so. But for some other countries, the development of a strong military defence capability is seen as the only way of ensuring national survival. And what about situations which are such that, in order to change them, one must use the armed force in an aggressive way? What about the liberation problem? In other words is there such a concept as the one of "just war" which would justify the build up of a military force, and which would, therefore, give to those states which have no weapons research, development and fabrication capability, a "right" to acquire arms?

However, even if there are situations in which the acquisition of arms may be justified, this does not mean that one should not try in all cases where it is possible to take measures which attempt to control arms trade and arms transfer. The objectives of such measures should be to avoid the "unnecessary" build up of armies as well as to limit in one way or another especially geographically the build up which could be considered as justified. Such measures should be taken at many levels, as it is largely their cumulative effect which may produce some results. Some of these measures should be taken in Africa by the Africans themselves ; others by the suppliers of arms and the international community.

Is there a possible role for the OAU ?

The conflicts, tensions and divisions within the OAU and the possibility that they may continue to grow, do not generate optimism among Africans on the capacity of the Addis Abeba organisation to have in the coming years a serious influence on arms trade and transfer to Africa as well as within Africa. Nevertheless, as long as there is a small chance of seeing an African organisation with the responsibility of solving an African problem on its own without outside interference, one should encourage it as much as possible.

Among the initiatives that the OAU could take is for example that of opening a register of arms trade and transfer to Africa and within Africa. As it is not only a question of trying to control the trade but the flow of arms and the level of armaments in any given state, the register should record not only sales, but transfers of any kind. This register should be confidential and open to inspection only to other African States. At the beginning at least, it could be based on voluntary disclosures by African governments as well, perhaps, as by suppliers. One can question the validity of an arms transfers' register. However, it should be seen as only one of the means of controlling the arms trade.

and transfer. By enabling African States to have a better view on what is going on, it could i.e. seek the purpose of diminishing the uncertainty about the level of armaments both in terms of quantity and quality and contribute to reduce the importance of an eventual perceived threat.

The OAU could also exert a certain pressure on states to restrain them from acquiring arms. To be efficient, this pressure should not be indiscriminate, for one has to accept the fact that certain states are facing a threat and that it would not be realistic to press them not to prepare themselves to repel it. This is, however, not the case of all states. In most of West Africa, for example, the integrity and sovereignty of the state are not under real attack from the outside. To those states the OAU should propose the negotiation of regional forces limitation treaties as well as regional level of armaments treaties which could forbid the acquisition of certain types of weapons and could limit the allowed amount of certain other types of arms. Those regional treaties could be simultaneously signed with a regional conflict resolution treaty, even with a regional peace zone treaty.

The OAU may not always be in a position to initiate the negotiation of such treaties. Therefore the initiative could be taken at the local level, by the concerned states themselves.

The creation of an African peace force may also help to avoid the build up of the armies of individual states. Local military cooperation could in the same way serve the same purpose. This cooperation could take, among other forms, the form of the set up of a joint police force. It could be based on a mutual assistance treaty.

Measures to be taken to control the arms suppliers

Hopes have been expressed in Africa that in the long run arms trade and transfer to Africa and within Africa will be controlled and restricted by the Africans themselves. In other words that Africa will be able to solve its internal conflicts without outside interferences. For the present one has to ask if some measures could not simultaneously be taken on the supply side and/or by the suppliers.

When one looks at the question of control on the supply side one should make a distinction between control of the individual supplies at the country level and at the international level.

In the first instance, suppliers states should be able to control and to exert an influence on the sales or transfers of arms. Many suppliers states are already in a position to have total control. This is the case of countries such as the USSR, China, or Romania, where the entire production and trade are under state control. Other countries, where a more or less large part of the arms production and trade are in private hands, have devised some means of control. An arms export authorization is in some cases needed and this authorization is likely to be refused if, for example, arms are exported to an area of potential conflict.

The United States Senate has recently passed a new law along those lines which provides that private arms export deals have to be announced to the US Congress. Congress has the right to forbid the execution of the deal providing it accounts to more than 25 million US Dollars or if it has as its object, the sale of a key weapon system even at an inferior price to that figure. The law also cites some of the criteria which could incite the US Congress to forbid arms exports to certain countries. Among them, the most important seem to be the violation of human rights, discrimination toward American citizens or assistance given

to terrorists. Such laws do not provide a base for a total control of arms trade. There will always be loopholes. For example, it is rather difficult to control the reexport of weapons. However, this new law is a welcome instrument for the purpose of helping to partially regulate the private arms trade.

But private arms trade is only one aspect of arms trade and transfer. The arms producer states are also very much interested in selling or transferring arms. It may be for simple commercial reasons. It may also be for political reasons.

States' arms trade and transfer is very difficult to deal with at the national level. States may well exert a certain self restraint. Public opinion may have some influence. In a few cases, the parliament may even participate in the decision making process. But this is far from being the case everywhere. Means have to be devised, therefore, so that the control of arms trade and transfer can be exercised at the international level.

Among those means, one might suggest, once more, the setting up of a register of arms transfer. Would it be of some use? If yes, who should maintain it? The UN or a specific body? Should it be confidential or open to the public? Should the transfer of any kind of arms and any quantity of arms be disclosed or would one be satisfied with the registration of the transfer of certain types of arms only or of a certain quantity? Such questions are difficult to answer.

A register should be looked at as only one of the means of controlling the transfers. It would prove useful by providing, at the least, a better picture of what is happening. The mere fact that states would be asked to disclose their activities as suppliers of arms may also restrain them from transferring weapons. Not all states may be

sensitive to such pressures. But at least some would be and, therefore, the number of suppliers may well diminish. One should try to obtain the registration of the largest possible number of transfers. If this proves to be impossible, at least the disclosure of the transfers of major weapons should be obtained. The fact that most of those transfers are known in any case - even if precise data are often missing - should be enough to convince the suppliers to give some information.

At the beginning, the register could be based on voluntary disclosures. Countries such as Canada, the Netherlands, Sweden, or Switzerland would certainly subscribe to such a procedure. The USA, France and the United Kingdom could also be persuaded to do so, at least to the extent that their largest deals are known in any case.

But it is questionable whether all the arms suppliers would agreed in the long run to register their transfers and if all arms transfers would be registered, especially those which are politically motivated.

What other means of controlling arms transfers might be suggested? Could one suggest an agreement between suppliers to limit arms transfers? An agreement on this exclusive point is difficult to imagine. But a treaty on the limitation of arms supplies may well be an aspect of a more general agreement on regional forces limitation and regional level of armaments. Such a treaty on the limitation of arms supplies cannot be of a general nature. It should be devised for a well geographically defined region. Based on a kind of step by step approach, this method could prove to be of some use.

negative to such processes, but at least some would be and therefore, the number of suppliers may well diminish. The control of arms races in Sub-Saharan Africa is an urgent task. Many different measures should be taken simultaneously by all the States concerned in the hope that they may avoid the development of new arms races and, perhaps, influence the present ones. So that resources so strongly needed in the process of development can be used for that purpose.

As the Commission, the register could be based on voluntary declarations. Countries such as Canada, the Netherlands, Switzerland would certainly subscribe to such a register. The United Kingdom could also be expected to do so. It is to be hoped that their leaders will be in the case.

It is to be hoped that other States will also apply to the register. It is to be hoped that their leaders will be in the case.

Geneva, August 20, 1978
JFF/nl

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DEVELOPMENT OF THE ARMED FORCES OF AFRICAN COUNTRIES OF SIGNIFICANT MILITARY POTENTIAL (1970-1975)

	<u>1970</u>	<u>1971</u>	<u>1972</u>	<u>1973</u>	<u>1974</u>	<u>1975</u>
Nigeria	185.000	252.000	274.000	157.000	210.000	208.000
Ethiopia	45.400	42.750	44.570	44.570	44.570	44.800
Zaïre	38.250	46.000	50.000	50.000	50.000	43.400
Somalia	12.000	15.000	13.500	17.300	23.050	23.000
Uganda	6.700	9.000	12.600	12.600	21.000	21.000
Ghana	15.900	18.600	18.600	18.900	17.700	15.450
Tanzania	10.350	11.100	11.100	11.600	14.600	14.600
Kenya	5.400	7.170	6.730	6.730	7.430	7.550
Zambia	4.400	5.500	5.700	6.000	5.800	5.800

Source : The Military Balance, London, I.I.S.S., 1971-1975.

MILITARY POTENTIAL OF NINE AFRICA STATES LISTED ACCORDING TO TOTAL MILITARY PERSONNEL

	Population	Strength of armed forces	Strength of para-military forces	Defence budget (millions US \$)	Combat planes	Tanks	Ground-air missile systems
Nigeria	62.480.000	208.000	—	1.786 ¹ (75-76)	29	—	—
Ethiopia	27.430.000	44.800	19.200	80 (74-75)	37 (24) ²	62 (36)	—
Zaïre	25.640.000	43.400	20.000	104 (74)	34 (17)	—	—
Somalia	3.150.000	23.000	3.000	15 (74)	52	250	Yes
Uganda	11.360.000	21.000	—	49 (74-75)	48	27	Yes
Ghana	9.840.000	15.450	2.250	83 (74-75)	6	—	—
Tanzania	15.110.000	14.600	35.000	42 (74-75)	20	20	—
Kenya	13.370.000	7.550	1.800	2,5 (74)	14	—	—
Zambia	4.770.000	5.800	2.500	78 (74)	24	—	Yes

Sources : The Military Balance 1975-1976, London, I.I.S.S., 1975 and SIPRI Yearbook 1975.

Remarks : ¹ 90 % of the Nigerian defence budget is devoted to salaries.

² in brackets: material on order.

THE PATTERN OF ARMS TRANSFERS (1967-1976)

RECIPIENTS																				FORMER COLONIAL POWERS			
Mozambique																					Portugal		
Malawi																		X	X		UK		
Malagasy																		X			France		
Mauritius																			X		UK		
Mauritania							X														France		
Mali																				X	France		
Liberia																				X	—		
Kenya			X																X		UK		
Ivory Coast							X												X		France		
Guinea Bissau																				X	Portugal		
Guinea				X			X													X	France		
Ghana					X		X												X	X	UK		
Gabon							X													X	France		
Ethiopia	X	X		X					X									X	X	X	—		
Equatorial Guinea				X																	Spain		
Congo							X													X	France		
Chad							X														France		
Central African Republic							X													X	France		
Cameroon			X	X			X	X												X	France		
Burundi							X														Belgium		
Angola 2)																				X	Portugal		
	SUPPLIERS	Belgium	Canada	China	FR Germany	France	Gabon	Iran	Israel	Italy	Ivory Coast	Japan	Libya	Mexico	Netherlands	Romania	Singapore	South Africa	Sweden	UK	USA	USSR	Yugoslavia

The Vienna Talks on Mutual Force Reduction
in Central Europe: Some Problems and Possible
Ways of Solving Them

M.A. Milstein (USSR)

XXVI-23

The Vienna Talks are justly regarded as a most important link in the chain of those measures which are aimed at sealing political detente with military detente.

Indeed, should both sides, without unnecessary procrastination and without prejudicing each other's security, succeed in coming to terms on mutual armed forces and armaments reduction in Central Europe, where the main armed groupings of NATO and Warsaw Pact are concentrated, what a great positive influence this agreement would exert on the cause of strengthening peace and security of the European peoples!

Mutual force reduction in the center of the European continent would be a significant contribution to consolidating detente and developing comprehensive cooperation between states with different social systems.

Speaking at the XXV Congress of the Communist Party of the Soviet Union, L.I. Brezhnev, General Secretary of the Central Committee of the CPSU emphasized that "political detente needs to be backed up by military detente". and for this purpose it is necessary to "launch new efforts to activate negotiations on the reduction of armed forces and armaments in Central Europe!"

Nearly three years have passed since these negotiations began. Nine rounds of negotiations, more than a hundred plenary sessions, many unofficial meetings were conducted.

No doubt it would be wrong to regard these three years of negotiations as fruitless. Vice versa, one should admit that in the course of three years the participants of the Vienna negotiations have done rather a useful job. For all this, one should take into consideration that the problem of mutual armed forces and armament reduction in Central Europe is extremely complicated in its political, military and technical aspects. It should be admitted that during the Vienna talks the problems of armed forces and armaments reduction in Central Europe have been comprehensively discussed in a businesslike and, to a certain extent, constructive atmosphere, the sides have come to understand each other's positions clearly and profoundly, certain experience in conducting the negotiations has been accumulated, ^{and} the mechanism of the negotiations has been working faultlessly. All these things have been the positive results of the negotiations.

However it is necessary, unfortunately, to admit, and I express my personal opinion, that the main thing, that is the actual agreement which would lead from words to deeds, to mutual armed forces and armaments reduction in Central Europe, has not been achieved and the sides still have a long way to go before drawing their positions nearer.

What is the matter? Why was it not possible to reach a concrete agreement on practical reduction of armed forces and armaments in Central Europe? What is the main obstacle on the way to reaching such an agreement?

In order to supply correct answers to these questions, it is not possible or even necessary in this paper to dwell

upon the analysis of the proposals of the West and the socialist countries. It is important only to remind you of the basic principles which were agreed upon three years ago and were laid as ^{the} basis of the Vienna Talks.

There are three main principles to be mentioned. First - the principle of not prejudicing the security of either side; second - preclusion of unilateral ^{military} advantages. Third - reciprocity in armed forces and armaments cuts.

In the course of further discussions of the problem of reducing armaments and armed forces in Central Europe, the Socialist countries, in the interests of securing true military detente in Central Europe, put forward additional principles. Among them ^{are} the following:

- Reduction should embrace both land forces and air forces, their personnel, armaments, military equipment, including nuclear weapons;
- Second, reduction should be carried out by whole military detachments, units and other formations together with corresponding armaments and military equipment and not by single servicemen or separate groups from different units;
- Third, the foreign troops withdrawn to their national territory as a result of these reductions should be disbanded.

As a result of implementing these principles, which do not prejudice the security of either side, it would be possible to succeed in mutual reduction of land forces, air forces and armaments by equal percentages in Central Europe, thus

safeguarding the security of both sides at lower levels of armed forces and armaments.

What do the above-mentioned principles proceed from? The starting point is the recognition of the approximately equal level of the armed forces of the Warsaw Treaty and NATO in Central Europe with certain differences in their composition. Proceeding from this fact, the socialist countries proposed to come to terms about equal reductions of the armed forces and armaments of both sides (at least of the USSR and the USA to begin with) in order to preserve the existing correlation of forces, decrease the risk of an armed conflict and maintain security at a lower level of the armed forces' numerical strength and armaments.

Any other solution, which would bring about changes in the existing correlation of forces in favor of this or that side, would violate the main principle laid at the basis of the agreement - the principle of not prejudicing the security of either side.

As is known, the Western participants in the negotiations from the very beginning, that is since October, 1973, have insisted on "asymmetrical", that is unequal reductions of land forces /which means three times as many troops, that the socialist countries should reduce two or / troops, armaments and military equipment as the NATO countries.

With a view to justify^{-ing}/their proposals on such a disproportionate reduction of the Soviet troops, the Western negotiators, as is known, assert that the Warsaw Treaty countries allegedly possess a significant superiority in the correlation of forces in Central Europe. Therefore the socialist countries supposedly must carry out greater reductions of armed forces than the West.

However, such allegations do not hold water. It is common knowledge that many political and military leaders of Western countries, the NATO members included, have repeatedly noted, and keep on noting, that in the region of Central Europe there exists a parity of NATO and Warsaw Treaty forces. Such a conclusion is based not on the estimate of some single component but on the estimate of the whole complex of arms and services which the NATO countries and the Warsaw Treaty members maintain in the area.

Thus, insisting on "asymmetrical" reductions, the Western powers are striving to change in their favor the existing correlation of forces which has been maintained in Central Europe for many years. Whereas the existing correlation of the NATO and the Warsaw Treaty forces in Central Europe was regarded by experts, Western experts included, as a factor contributing to the necessary stability and equilibrium, the change in the correlation of forces in favor of the West will destabilize the situation in the World and deteriorate the state of affairs in Central Europe.

Thus, the stumbling -block on the way to reaching an agreement on armed forces and armaments reduction in Central Europe continues to be the position of the Western powers with respect to the allegedly existing "disproportion" in the correlation of forces in Central Europe in favor of the Warsaw Treaty countries and ^{the} importunate demands of these powers that an "asymmetrical", that is unequal, reduction of the armed forces ^{be carried out} /in order to change the correlation of forces in favor of the West, to the detriment of the socialist countries.

In his report to the XXV-th Congress of the CPSU, L.I. Brezhnev gave an explanation of such an unyielding position on the part /of the Western powers. He said: "For only one reason: the NATO countries refuse to give up trying to use the negotiations to secure unilateral military advantages. For some reason, the West wants, even demands, concessions prejudicial to the security of the socialist countries. Yet we have not noticed any inclination on the part of the NATO bloc to make similar concessions to the other side".

Another serious obstacle on the way to reaching an agreement on armed forces and armaments reduction in Central Europe is an obstinate reluctance of the West-European NATO members and Canada to agree upon reducing their armed forces at least within the next few years.

It is well-known that in February, 1976 in Vienna the socialist countries submitted new proposals with a view to getting matters off the ground and attain some progress in the talks by dividing the process of force reduction into two stages. They proposed to work out an agreement on reducing for a start (as the Western countries insisted) /the armed forces of the USSR and USA, while the level of the

armed forces of other full participants in the talks should be "frozen" for the period of the negotiations. At the same time these countries are to assume obligations to cut their armed forces and armaments during the second stage.

It would seem that such a proposal is strictly in line with the principle of undiminished security for all the states and, if adopted, would supplement political detente with concrete measures of military detente. However, the Western side actually declines to supply answers to the questions as to the scope and timing of the armed forces cuts acceptable to the West-European countries and Canada. Thus, the West-European countries and Canada so far would not assume obligations even of a general character which would determine only the final scope and timing of the reductions. Instead the West proposes setting "collective ceilings" on the numerical strength of the armed forces. Within the limits of these "ceilings" some states would reduce their troops, whereas others would increase them. Actually, the West proposes to legalise loopholes for some countries, allowing them to build up their armed forces and armaments.

These are the main difficulties on the way to reaching an agreement. We intentionally have not dwelt upon the analysis of concrete proposals of this or that side. This is a job to be done by experts. As a matter of fact, this is the main issue of the negotiations. The purpose of this report is only to underline the main obstacles that have so far blocked

the way to reaching an agreement which would be a significant contribution to the cause of strengthening peace and security throughout the world.

Now the Vienna talks are going on in a qualitatively changed atmosphere conditioned by the successful completion of the Conference on security and cooperation in Europe. Naturally this has already exerted and will continue to exert^a positive influence on the course of the negotiations in Vienna which are assuming a more businesslike and concrete character.

At the same time, in order to come to terms on armed forces and armaments reductions in Central Europe, which would constitute a most important landmark on the way to strengthening peace in Europe, and not in Europe alone, it is indispensable that all the participants in the negotiations^a manifest good will and true desire to reach an agreement.

To accomplish this task it is necessary, first, that the Western countries give up their biased and partially concocted conclusion about the existence of a significant "disproportion" in the strength and capabilities of the Warsaw Treaty and NATO armed forces in Central Europe.

Second, it is necessary to recognize the real state of affairs in Central Europe, to recognize that there is a parity between the NATO and the Warsaw Treaty forces and that any shift in this correlation could entail strongly negative consequences for security and stability in the European continent.

Third, taking all this into consideration, it is necessary for all sides not to strive to obtain any unilateral advantages in the course of the talks, to the detriment of other participants in the negotiations and^{to} strictly abide by the prin-

ciple of not prejudicing the security of either side. This principle has already been agreed upon and proved effective.

Fourth, guided by the principles already agreed upon, the sides should undertake new efforts to activate and speed-up the negotiations on mutual force reductions in Central Europe and come to terms on such mutual cuts that would be carried out on an equal percentage basis and would apply to both land forces and air forces, as well as to all types of armaments, including nuclear weapons.

Those are some remarks on the course of the Vienna talks. On the whole one might conclude that any further progress of the negotiations on mutual force reductions and their success will, to a significant degree, hinge on what corrections to their positions the Western participants in the talks are ready to make.

INFORMATION FOR PARTICIPANTS

1. Mühlhausen (Thuringia) is situated in the valley of the river Umstrut, and can be called the gate to Eichsfeld, a beautiful richly-wooded landscape. The historic town centre of Mühlhausen gives evidence of the architecture of the Middle Ages. It was in Mühlhausen that Thomas Münzer heralded his ideas in 1525, and the town keeps alive the musical heritage of Johann Sebastian Bach who worked and composed in the Divi Blasii Church from 1707 to 1708.
2. The town of Mühlhausen is fairly small, with only 46,000 inhabitants. Participants will understand that, for this reason, they will not all be accommodated in one hotel. The hotel rooms will be at their disposal from 25th August to the morning of 1st September.
3. The address for all participants during the Conference will be:
Hotel Stadt Mühlhausen
57 Mühlhausen
Wilhelm-Pieck-Platz
Telephone: Mühlhausen 512
Telegrams: Pugwash, 57 Mühlhausen, GDR
4. The Conference will be held in the historical Town Hall (plenary sessions), in the Council Hall and in the conference rooms in 'Pushkin House'.
5. The weather in August/September corresponds to the central European late summer. The maximum temperature is, as a rule, between 20 and 25 degrees centigrade. It is mainly sunny, with occasional rain showers. ^{68 - 73 °C}
6. Travel arrangements. The following routes are suggested:

AIR International flights to Zentralflughafen Berlin-Schönefeld, and from there by domestic airline to Erfurt (Thuringia). Connecting flights are as follows:

		Monday- Saturday	Monday, Friday and Saturday	Monday- Friday	Monday- Friday
Berlin-Schönefeld	dep.	06.25	08.05	16.10	20.15
Erfurt	arr.	07.05	08.45	16.50	20.55

In case of arrival at Berlin (West), take transit bus to Berlin-Schönefeld.

On 25th August, an official of the Conference Bureau will meet participants at Erfurt airport.

TRAIN Alight at Gotha, which is situated on the express train line Frankfurt - Berlin, via Gerstungen (check-point from FRG) -- Eisenach -- Gotha -- Erfurt --
From Gotha, buses will take participants to Mühlhausen. On 25th August, an official of the Conference Bureau will meet participants at Gotha station.

CAR Travel along the Frankfurt - Dresden autobahn, via Wartha (check-point from FRG) -- Eisenach -- Gotha -- Weimar -- Hermsdorfer Kreuz -- Karl-Marx-Stadt.
(This autobahn connects with the Berlin - Munich autobahn at Hermsdorfer-Kreuz)
Leave the autobahn at Gotha, drive along road No. 247, via Bad Langensalza, to Mühlhausen (39 kms).

7. Participants who need entry visas should apply for them at the foreign representations of the GDR some eight weeks before the Conference.

26th Pugwash Conference

"Disarmament, Security and Development"

Mühlhausen, German Democratic Republic, August, 26 - 31, 1976

J. Kuczynski
(G.D.R.)

XXVI-13

Armament - Social Security and Inflation

No one will deny that both military expenditure and social security spending have risen very substantially all over the world in the past two decades - immaterial whether in developed capitalist countries, socialist countries or in developing countries.

Over the past few years, the relative rise in military expenditure has been most pronounced in the developing countries. Weapons exports, above all from the United States, France and the Federal Republic of Germany, reached new record heights with every passing year. The United States alone exported approximately 10,000 million dollars worth of arms to the developing countries in 1974 - the latest year for which data are available.

Social security spending has risen sharply particularly in the developed capitalist countries in the past few years: not in order to enhance social security, but to slow down the pace at which social insecurity is growing; one needs but think of the growth in unemployment.

Considering that both military expenditure and social security spending are public expenditures, and that state revenues and the revenues of the state's incorporated public associations - right down to the local level - suffice less and less to finance military expenditure and social security spending at one and the same time, public debts increased in 1974 and 1975 in particular, and will no doubt reach new record heights in 1976.

Related percentagewise to the gross national product, the 1975 national deficit alone amounted to:

Japan	7
FRG	6
Great Britain	5
USA	4
France	3

The US national debt has zoomed by about the five-hundred-fold in the course of this century. As from 1945 alone, when it was approximately 260,000 million dollars, it rose to the 1975 total of roughly 540,000 million. In the FRG the overall debt of the Federation, the Laender and the local communities jumped from circa 40,000 million marks in 1955 to approximately 255,000 million in 1975, and the rate at which the national debt grew there amounted to:

1955-1960	30 per cent
1960-1965	60 per cent
1965-1970	50 per cent
1970-1975	more than 100 per cent

The rate at which public indebtedness increased doubled during the first half of the Sixties and dropped slightly during the second half, only to double again during the first five years of the Seventies.

Finally, when we compare the sum total of public indebtedness and the military expenditure of 1975 with the 1975 gross national product, we get the following result:

<u>Countries</u>	<u>Total Indebtedness</u>	<u>Military Expenditure</u>
	<u>in Per Cent of the Gross National Product</u>	
USA	51	6.7
Great Britain	80	5.7
FRG	25	5.0
France	12	4.6
Japan	14	1.8

The two countries with the relatively highest military expenditure - the United States and Great Britain - are also first and second on the public indebtedness scale whereas public indebtedness is relatively the lowest in the two countries with the relatively lowest military expenditure - France and Japan.

- - -

All developed capitalist countries face the following problem today:

To go on stepping up military and social spending as before and to further increase the national debt - with the inevitable result of intensified inflation - or:

to go on stepping up military expenditure as before, but to cut back social spending in order to prevent the national debt from growing more and more quickly and, in corollary, to prevent the rate of inflation from accelerating - or:

to cut military expenditure and keep up social spending with the result of avoiding national debts as a source of inflation.

The leading capitalist countries clearly still chose the road of increasing borrowings for 1976. But there are already signs here and there of axed social spending, primarily in the shape of economy measures in the sickness benefits and prophylactic health care sectors.

In June 1976, NATO unequivocally and unanimously decided to boost armament expenditures over the next five years.

Military strategists in the Pentagon quite openly pursued the following line during the cold war: We shall go on and on arming partly for purely military reasons, of course, but partly in order to force the socialist countries, above all the Soviet Union, to go on arming too and so to get them into economic difficulties. Self-evident as it is that economic progress in

the socialist countries would have been more rapid without their increased material military expenditure and without their increased use of scientific and technological potentials for military purposes, there can be no talk of their having had serious economic difficulties.

Rather, one has to say today that NATO's plans to boost armament are not only a threat to peace, a serious set-back in the fight all progressive people are waging for disarmament and peace; they are just as serious a threat to the economy of the developed capitalist countries.

This is what must be realized quite clearly:

Stepping up military expenditure confronts the capitalist countries with this alternative: growing inflation or axing social spending.

In the socialist countries, where the rate of growth of the gross national product was about twice as high on the last five-year average as in the developed capitalist countries, increased armament is, of course, also having an effect which is reflected by the relatively slower rise in living standards in general and by the relatively less rapid growth of public social benefits in particular - but there can be no talk there of inflation or of reduced social security.

- - -

In the past few years, growing unemployment entailed a not inconsiderable proportion of the ever-increasing amount of money the developed capitalist countries spent on social security. All forecasts by the leading capitalist countries, and by the EEC and OECD too, are now agreed that unemployment is going to be much worse in the coming five years than it was in the Sixties and even at the beginning of the Seventies.

It was under the impact of this fact that interesting investigations were carried out in the United States to find out how many places of work 1,000 million dollars secure in various sectors today. The findings are extraordinarily informative:

An expenditure of 1,000 million dollars
on military purposes secures 30, - 35,000 places of work
on civilian industrial purposes 50, - 80,000 places of work
for the non-military civil service 130,000 places of work.

It has been estimated that about 5 per cent of the world gross national product is being spent on armament at present, but that only 0.5 per cent of the working population is employed through military expenditure.

It follows that military expenditure secures fewer places of work than the same amount of money spent on civilian purposes.

This means that armament only provides places of work if the moneys spent on armaments are not used in another quarter. That used to be different when armaments were still relatively labour-intensive. In present-day weapons technology conditions armament expenditure virtually spells fewer places of work and helps to keep unemployment at crisis level.

- - -

Ever since World War I, one has rightly spoken of mankind being permanently threatened by a new war.

Ever since World War II, one rightly speaks of one third of mankind being permanently threatened by a food shortage.

Now, if armaments are not limited, one fifth of mankind, the fifth living in the developed capitalist countries, is threatened with high unemployment, the axing of social security measures - particularly health insurance and prophylactic health care measures, and likewise with cuts in the education system.

Nuclear fear is on target

Editor:

Congratulations to the *Guardian* and to Dorothy Houston for the excellent article, "A Nuclear Run-away" (*Guardian*, March 2).

In the first years of the nuclear age statesmen used to couple pronouncements about "mutual deterrence" and "balance of terror" with assurances that nuclear war was "unthinkable." In recent years it has become quite thinkable for the United States, the Soviet Union, China and various Third World governments which see the possession of nuclear "capacity" as a quick way to increase their influence in world affairs.

All other serious issues, whether they be taxes, budget slashes, border wars, environmental pollution or depletion of natural resources absolutely pale before the overwhelmingly crucial issue of nuclear disarmament.

Ms. Houston need not have been the least apologetic about being "emotional and scared." If world public

opinion cannot reverse the present course of armaments it is virtually inevitable that by some miscalculation or accident or sadistic insanity some "statesman" and his colleagues will in the

proximate future incinerate hundreds of millions of persons and poison large portions of the globe in the first few hours of a "first strike."

Gabriel Jackson

March 9, 1981

Meet the chancellor

Editor:

I was able to attend an event last Friday that I have never seen occur before in all my years at UCSD: In the North Conference Room, Chancellor Atkinson met with students and staff to respond to a variety of questions.

Questions were raised concerning co-op housing, the campus bookstore, minority faculty and staff positions and intercollegiate athletics, to mention a few.

I was pleased with the frankness of Chancellor Atkinson's answers and the good rapport and relaxed atmosphere he seemed to establish with the people attending.

I commend Dr. Atkinson

and the ASUCSD for joining together on this cause. In addition, I am pleased to hear that these meetings will be every Friday at 11 am.

I recommend these Friday meetings to all students. If you have concerns you want to voice, attend; there may be no better person that can respond to your concerns.

Jeff Tesluk

Recycle
this
newspaper

Sunday Final

Circulation: 1,043,028 Daily

Ever on Alert

President's Physicians Stick Close

By DON IRWIN,

Times Staff Writer

WASHINGTON—In the winter of 1909, President Theodore Roosevelt observed the collective paunch of the Army's desk-bound officer corps and decreed that all officers had to demonstrate an ability to hike 50 miles in three days or ride a horse 100 miles in the same time.

A congressional move to nullify the order goaded the former Rough Rider into a counterdemonstration: Roosevelt, then a vigorous 50 years old, set out from the White House with three friends on the morning of Jan. 13, 1909, and rode horses to Warrenton, Va., and back, completing the 100-mile round trip in one day.

Roads Frozen and Ruttled

"The Virginia roads were frozen and in ruts, and in the afternoon and evening there was a storm of snow and sleet," Roosevelt wrote in his autobiography as he reported that the stunt ended "all open objections" to his order.

It was more than coincidence that two of Roosevelt's companions in the chilly endurance contest were Navy Surgeon General Presley M. Rixey, who was, successively, White House physician to President William McKinley and then to Roosevelt, and Rixey's associate, future Rear Adm. Cary T. Grayson, who was to be physician to Presidents William Howard Taft and Woodrow Wilson.

Learning from the bitter experience of half a century that saw three presidential assassinations with no doctor in immediate attendance, White House physicians from Rixey's day onward have tried to stick close to their Presidents during forays away from the White House. In the process, several have become friends and confidants of the men they served.

Since 1813, when an Army surgeon's mate named Arnold Elzey treated President James Madison for malaria, a majority of the presidential doctors have been military medics. This tradition went unbroken through the 20th Century until President John F. Kennedy shattered it by naming a civilian woman, Dr. Janet G. Travell, as his physician.

Reagan's Choice

After an 18-year lapse, President Reagan chose another civilian White House physician, Dr. Daniel Ruge, a 63-year-old neurosurgeon. Ruge was recommended by Dr. Loyal Davis, Nancy Reagan's stepfather, who was Ruge's professor at Northwestern University's medical school and his associate during 20 years of practice in Chicago.

"I wouldn't have selected me, but they did, so what else could I do?" Ruge said in an interview recently. He had recently moved to the White House, at no change in pay, from a \$56,000-a-year post as director of the Veterans Administration's spinal cord injury service.

"I told Mrs. Reagan's father that this job calls for a young internist who has a broad knowledge of medicine," the rawboned, white-haired physician said. "He assured me that wasn't the primary consideration."

Even so, Ruge has arranged to add a young doctor trained in internal medicine to his dispensary's staff. That staff consists of an associate physician, a Navy medical corpsman and three nurses. The dispensary treats on-the-job ail-

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DOCTORS: Physicians Close to President

Continued from First Page
ments of nearly 3,000 workers in the White House and the Executive Office Building complex while Ruge watches out for the President.

Ruge's prospective recruit is Dr. Eric Louie, an honors graduate of Harvard Medical School who is completing a fellowship in cardiology at Billings Hospital in Chicago.

"The most likely things that can happen to anybody are cardiovascular or neurological," Ruge said. "I'm a neurosurgeon and he's a cardiologist, and that doesn't mean he's ignorant of other internal medicine problems."

Ruge said he hopes to retire "somewhere in the middle" of California when his White House stint ends. If so, he will find his predecessor, Rear Adm. William Lukash, already in place at La Jolla on the staff of the Scripps Clinic and Research Foundation. Lukash accepted an appointment to the clinic before he left the White House.

Unlike Ruge, who was tapped to serve a specific President, Lukash worked his way up to service as the White House physician under four Presidents of both political parties.

Lukash came to the White House in 1965 as an assistant to Rear Adm. George G. Burkley, President Lyndon B. Johnson's physician. Trained as an internal medicine specialist, Lukash was chosen from a Navy panel after Burkley requested relief from some of the heavy travel Johnson imposed on his White House staff.

Lukash remained the No. 2 White House medic under President Richard M. Nixon, whose personal physician was Army surgeon Walter R. Tkach, but took charge with the coming of President Gerald R. Ford in 1974 and remained as President Jimmy Carter's physician.

Even Johnson Listened

Lukash told a reporter shortly before he left the White House that he considered intensive knowledge of the President the essential qualification for White House physicians.

"You have to make decisions not only on the basis of what their illness is, but on the basis of their backgrounds and how they've responded to illness in the past," he said.

Presidents generally abide by the doctors' orders, Lukash said. Even the highly independent Johnson needed advice on his personal health, probably because he had barely survived a major coronary attack in 1955.

"Like most Presidents, his health really improved when he assumed office," Lukash said. "They're in a very controlled atmosphere and a lot of their personal needs are cared for, so they have an opportunity to unwind."

As President, Johnson controlled his weight by swimming in the old White House pool. Ford swam in a new outdoors pool, played tennis and golfed and skied when he could. Lukash described Nixon as a determined beach-walker during his stays at Key Biscayne, Fla., and at his home in San Clemente, Calif.

Lukash, still lean at 49, ran regularly with Carter and concedes that he encouraged the President to enter the six-mile cross-country in September, 1979, during which Carter collapsed while Lukash was running a few yards ahead.

Recalling that Carter had run

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DOCTORS: Medics Handy

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cross-country while attending the U.S. Naval Academy, Lukash said that, as President, Carter ran up to 10 miles at a clip and "enjoyed it." He said he believed Carter sustained a disabling "adrenalin surge" during the 1979 race because of the stimulation of competition.

There were worse scares for Lukash in 1975, when alert Secret Service work foiled two unrelated attacks on President Ford by gun-wielding women who materialized from crowds in Sacramento and San Francisco. Lukash was within a few feet of Ford on both occasions.

Lukash, who worked with Navy corpsmen inherited from the Kennedy era, said they told him they had all been trained to administer physiotherapy to the President, leaving Lukash with an "impression that there wasn't a day Kennedy was in office that he didn't suffer severe pain."

Ruge said California physicians who have attended the 70-year-old Reagan report that "the President's cardiac state is excellent." On the basis of this advice and his own judgment, the current White House doctor said he has decided to post-

pone any full-scale medical examination of Reagan, probably until summer.

"I consider the first 100 days of a presidency to be very important," the new White House physician said. "He didn't come to Washington to be my patient, and I have not been crowding him and don't intend to."

Mindful that Presidents are vulnerable to assassination when they leave the tightly guarded White House compound, Ruge rides in all Reagan motorcades, close to the President's armored limousine. He supervises medical preparations for out-of-town trips and travels with Reagan.

Ruge is a Reagan fan with all the conviction of a Nebraska-ired Republican. His enthusiasm was reinforced by his long association with Nancy Reagan's stepfather and by a friendship with the First Lady that dates from her college days. He said he had only a superficial acquaintance with the President before he signed on for the White House post.

The White House physician's No. 1 patient has had no serious medical problems, doesn't smoke, drinks

sparingly and dissipates on jelly beans.

"He played football in college and he likes hard manual labor," Ruge said. "He can't do that around here, but that's one of the things we're working on. There will be some exercise opportunities made available to him, but I can't go into them now."

Unlike Lukash, who was near the President during the two attempts on Ford's life, White House physician Burkley was riding a bus far in the rear of the motorcade when President Kennedy was assassinated in Dallas in 1963. He had been shunted there during the confusion that surrounded the organization of the motorcade.

Burkley had taken on the travel detail for Travell, whose primary function at the White House was to treat the continuing pain Kennedy suffered from war wounds in his back, as well as the symptoms of a condition variously described as an "adrenal insufficiency" and as Addison's disease, a rare and enervating affliction.

Although bad logistics kept Burkley from Kennedy's side at the Dallas assassination scene, it is unlikely he or anyone else could have done anything to help Kennedy,

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DOCTORS: Earlier Medical Lapses Cited

Continued from 19th Page
given the severity of the President's wounds, failure to learn from the experience of President Abraham Lincoln's assassination contributed to medical lapses when a frustrated office seeker shot President James A. Garfield in a Washington railroad station July 2, 1881, and again when a madman fatally wounded President McKinley at the Pan-American Exposition in Buffalo on Sept. 6, 1901.

14 Attended Lincoln

There was no physician present when John Wilkes Booth fired a .50-caliber bullet into the back of Lincoln's head as the President relaxed at Ford's Theater in Washington the night of April 14, 1865. But before Lincoln was moved from the theater to a bed in a house across the street, four doctors were in attendance, and 10 more, including Lincoln's family physician, Dr. Robert King Stone, were on hand when Lincoln died nine hours after the shooting.

The first doctor to reach Garfield's side—at least five minutes after the shooting—was Smith Townsend, health officer of the District of Columbia, who wrote later, "I introduced my finger into the bullet wound" near Garfield's spine and told the patient "I did not consider it serious."

"I thank you, doctor, but I am a dead man," the wounded President groaned. His grisly decline lasted 80 wretched days, during which Garfield suffered through midsummer heat and unsuccessful probings for the bullet as he languished at the White House. He seemed improved enough to move to his shore cottage at Elberon, N.J., but died of multiple infections after 12 days there.

So many Washington physicians—19 in all—appeared at the White House that Garfield felt obliged to name a chief surgeon, Dr. Willard Bliss, who sent all but three of the others away. He refused even to admit Dr. Jedediah H. Baxter, the Garfield family physician.

Moved by Ambulance

Twenty years later in Buffalo, McKinley lingered for a week. The first doctor at the scene was a staff physician for the exposition, who had the President moved in a primitive electric ambulance to the exposition's inadequately equipped emergency hospital, where an exploratory operation failed to locate a bullet that had passed through McKinley's stomach.

The procedure may well have cost McKinley's life, for there were far better facilities available at Buf-

falo General Hospital, including a fully equipped modern operating room and one of the nation's first X-ray machines. Its use would have located the bullet without an exploratory operation.

It is to prevent such miscalculations in emergencies that today's White House physician surveys every locality a President visits to make sure that adequate medical facilities are available to determine how they can best be reached, and how quickly.

President Andrew Jackson weathered the first recorded assassination attempt on an American President in 1835 because both his attacker's pistols misfired. But "Old Hickory" had two pistol balls in him when he entered the White House, the result of duels in his salad days. One was removed from his chest in

1832—26 years after it lodged there—by Dr. Thomas Harris, chief of the Navy's Bureau of Medicine. Another was removed from his left shoulder while he was in the White House, but the surgeon's name is not recorded.

Jackson suffered all his life from the aftereffects of smallpox and dysentery that he contracted as a 14-year-old British prisoner during the Revolutionary War, and the old dueling wounds continually vexed him. He consulted at least seven physicians and paid them liberally to bleed him. He also treated himself, internally, with an alcohol-laced tonic called Matchless Sanitive, and with lead acetate, a mildly poisonous powder that he called "sugar of lead." He used it to treat both skin ailments and stomach disorders. And he lived to be 78.

REAGAN: Conservatives Happy

Continued from First Page

ready under way to revamp the economy and strengthen the nation's military muscle, but also to deal with the so-called social issues, such as abortion and school prayer, dear to the hearts of many conservatives.

It didn't escape the attention of the jam-packed banquet audience that seated at the tulip-bedecked dais besides President and Nancy Reagan were no less than three Cabinet secretaries, Samuel R. Pierce Jr. of housing and urban development, Raymond J. Donovan of labor and Terrel H. Bell of education, along with the White House chief of staff, James A. Baker.

'It's Not Heaven'

Moreover, the Administration has been well represented in conference panel discussions. Its emissaries have included Vice President George Bush, David A. Stockman, director of the Office of Management and Budget, and Richard V. Allen, national security adviser.

This demonstration of solidarity has served to reinforce the favorable impression of Reagan's rhetoric and actions on policy.

"It's not heaven," said Tom Winter, editor of the conservative weekly Human Events. "But it's as close to it as we've ever been.

Of course, all is not sweetness and light on the right. Conservatives have complained that Reagan's Cabinet and sub-Cabinet appointments have included too many retreads from the Ford and Nixon Administrations and not enough right-wing purists.

A recent issue of the Conservative Digest, published by right-wing direct-mail specialist Richard Viguerie, features an open letter to Reagan from Editor John Lofton, warning: "Your mandate for change is in danger of being subverted" as a result of appointees "whose backgrounds reveal a hostility to most everything for which you have so strongly stood over the years."

But at a conference panel discussion, Viguerie himself, while he gave Reagan only a C-minus grade on appointments, awarded him an A-plus "on just about everything else he's done."

And Reagan Administration officials say they have taken steps to give the conservatives less ground for complaint about appointments. "I think they (the conservatives) were apprehensive about this issue," said one White House staffer, "and they are now in the process of being satisfied."

Of course the conservative movement is not a monolith. It includes dozens of groups new and old whose priorities vary from battling gun control to stopping court-ordered school busing. And it would be just about impossible for Reagan to keep all these groups satisfied all the time.

Moreover, conservatives are so used to being out of power that objecting to the status quo has gotten to be a habit. "Some people just can't stand success," contended William Rusher, publisher of the conservative monthly National Review, in applauding Reagan's record to date.

York says USSR, US too far apart in arms talks

But says Soviets are honest

BY JONATHON KROLL

Staff Writer

It has been the stated objective of the United States and the Soviet Union to ban all nuclear weapons tests everywhere and for all time since 1958, "but I'm sorry and embarrassed to say that it still has not been achieved," said Herbert York, a physicist and former UCSD chancellor.

In his lecture "Negotiating with the Russians: A Personal Experience," York discussed his experiences as a US negotiator at the Comprehensive Nuclear Test Ban Treaty discussions, before an audience of over one hundred students, faculty and staff persons squeezed into the Chancellor's Conference Room yesterday.

York, who worked on the Manhattan Project to build the first atomic bomb during World War II, is an internationally recognized authority on the problems of nuclear disarmament.

Three years ago, York was appointed by President Carter as the chief negotiator for the United States in the trilateral meetings between Great Britain, America, and the Soviet Union held in Geneva.

York did not reveal the substance of the negotiations (they are "classified") but did describe the form of the proceedings as well as his personal experiences.

"The negotiations consisted of an attempt to draw up the elements of a treaty that would make a nuclear test ban possible. And within that, about 90 percent of the time is involved on the matter of verification, a matter central to our negotiations with the Soviets for the last 25 years," said York.

"A badly matched set of paranoias"

has prevented a US-USSR agreement on nuclear test ban treaty, he argued.

"On the US side is the widespread concern that the Soviets cannot be trusted to uphold the treaty — that the Soviet Union must be hostile at all times and in all ways. The United States wants to be able to confirm independently their compliance," said York.

"On their side the concern has to do with intrusions which they always think of as spying; with intrusions into their sovereignty. The kind of intrusions we believe are necessary in order to provide us with satisfactory verification."

Answering a question on Soviet compliance to treaties, York responded, "In my view, speaking strictly in the area of arms control and disarmament treaties with the Russians, they have not violated any of them in anything other than a trivial or accidental way. There have been no violations of substance or importance in the 25 year history of agreements between us and the Soviet Union.

"However, there are ambiguous events and people who are particularly suspicious put the worst light on these events," he added.

The problems of Afghanistan and Poland have affected the negotiations to a degree. It is a case where short range problems are absorbing the attention necessary for the solution of long range problems.

The first stage of the negotiation process, "and the one most frustrating" begins in Washington. Agencies within the government such as the Defense Department, the Joint Chiefs of Staff, the CIA, the State Department, the Arms Control and

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'Paranoias' prevent test ban treaty — York

continued from page 7

Disarmament agency and the Department of Energy meet to formulate a basic plan.

"There is fundamental disagreement within the government and debate is more heated with them than with the Russians," said York.

There is flexibility, and options are discussed frankly in the Washington planning process. However, the President has the final say. "Up until Senate approval the President has absolute authority with respect to establishing the American position," added York.

Once the policy was formulated the negotiating team flew to England to "make sure that Great Britain and the United States were on the same wavelength, and to make sure each understood the other's position." Then on to Geneva to negotiate with the Soviets.

York, who represented the President, traveled with a team that varied from 15 to 20 fellow negotiators. These people were representatives of the same agencies that had advised the President in Washington.

One of the functions of these people, which included lawyers and seismologists (for verification purposes), was to monitor the proceedings and provide technical expertise.

The other reason being to monitor York, "to make sure I obeyed instructions and did not step outside my instructions. Once overseas,

ambassadors have no authority over substance. Flexibility and options are spelled out by the government," he said.

"Generally our relations with the Russians were cordial, but not friendly. The political gap is simply too great to bridge," commented York.

The fate of the negotiations are uncertain. "Whether the negotiations will resume is a question that I can't answer.

Physicians Warn Against Nuclear War

By Leona Bayer, M.D.,
San Francisco WILPF

The Medical Consequences of Nuclear Weapons and Nuclear War was the subject of a conference in San Francisco in November 1980. The conference, organized by Physicians for Social Responsibility and the Council for a Livable World Education Fund, was attended by over 900 people, about half of whom were physicians and the others interested lay people, including many from local WILPF branches.

Every aspect of the inevitable disaster inherent in a nuclear war was presented, and the absurdity of political discussions of "limited" nuclear warfare was emphasized. In light of the confirmation of a Secretary of State who implicitly accepts nuclear weapons and first-strike policy as viable, it is more urgent than ever to increase public awareness of the dangers of such policies.

Former CIA Deputy Director Herbert Scoville, Dr. Helen Caldicott, Columbia University professor Seymour Melman, and director of the Center for Defense Information Gene LaRoque were among the 18 speakers who shared their expertise in the fields of medicine, physics, law, economics and public health; academia, organized medicine and branches of the military were all represented.

A statement issued at the end of the conference summarized the information that had been presented; it included the following points:

1. Nuclear war, even a "limited" one, would result in death, injury and disease on a scale that has no precedent in the history of human existence.
2. Medical disaster planning for a nuclear war is meaningless. There is no possible effective medical response. Most hospitals would be destroyed, most medical personnel would be dead or injured, and most supplies would be unavailable. Most "survivors" would die within a period of weeks.
3. There is no effective civil defense. The blast and its thermal and radiation effects would kill

even those in shelters, and the fallout would reach those who had been evacuated.

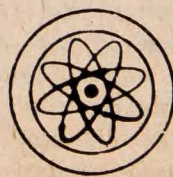
4. Recovery from nuclear war would be impossible. The economic, ecologic and social fabric on which human life depends would be destroyed in the United States, the Soviet Union and much of the rest of the world.
5. In summary, there can be no winners in a nuclear war. Worldwide fallout would contaminate much of the globe for generations, and atmospheric effects would severely damage all living things.

Dr. Howard Hiatt, Dean of the Howard School of Public Health, emphasized the medical viewpoint when he likened the dangers of nuclear war to the severest epidemics and concluded that "prevention is essential for effective control."

In an appeal to the general public as well as to physicians, the following were suggested as appropriate measures to urge upon our government:

- take steps to reduce the tensions between the United States and the Soviet Union;
- temporarily suspend production of nuclear weapons and call upon the Soviet Union to do likewise;
- seek agreement with the Soviet Union for permanent cessation of production of nuclear weapons materials;
- refrain from further nuclear weapons testing while seeking agreement on a comprehensive nuclear test ban;
- resume negotiations for reduction and eventual universal elimination of nuclear stockpiles.

Physicians for Social Responsibility will hold similar conferences around the country during the year: in Seattle in April, in Chicago in June, in Albuquerque in September, in Los Angeles in early November, and in Houston in early January 1982.



ington, DC, 20500) demanding that he issue an immediate moratorium on executions. As we go to press, death penalty legislation is due to be introduced soon. Write your Senators and Representative urging them to vote against any such bills.



Tax Day

April 15 is only a month away. The combination of people's anger at skyrocketing taxes and the fact that over 53¢ of each tax dollar goes to the military makes Tax Day a perfect opportunity to raise people's awareness about the drain of the military budget on our lives.

Action: Plan now for activities on or near Tax Day. 1) Use the leaflet in the January 20 program mailing (available from your branch chair or the U.S. Section office) and distribute them outside post offices or hold a vigil there. 2) Try some street theater. Hand out slices of real pie in sizes representing the percentage of the Federal budget that is spent on the priorities chosen by passers-by. Anyone but a four-star general will get only a sliver. 3) Set up a felt board with a pie chart or a series of labeled jars with beans, and ask people to divide the pie chart or fill the jars according to their prior-

ities. Then compare their choices to the way the real Federal budget is divided. 4) Set up a human billboard, Burma Shave style, along a busy street. Your jingle might be something like "Look closely...and you'll find...the military's... robbing us blind."

Mothers' Day at the Pentagon

During Mothers' Day weekend (May 17), there will be a gathering of women from all over the country to express our outrage at the Pentagon's plans and preparation for nuclear war. The details of the protest are not complete as we go to press, but mark the date on your calendar and plan to be in Washington to stop this nuclear madness. Watch this column for further details.

Human Life Amendment

As we go to press, Congress has begun an all-out attack on women's right to reproductive freedom, led by Senator Helms and Representative Dornan--who otherwise believe the government should not "interfere" with people's lives when it comes to providing human services or regulating businesses' environmental or health practices.

At least one and possibly several Constitutional amendments, termed "human life" amendments, will be considered by Congress. Most of these amendments define life as beginning from the moment of conception. Consequently, not

only would abortion be classified as illegal, but so would birth control pills, IUDs and low estrogen pills.

In the most widely accepted version of the amendment, no exceptions are made for cases involving rape, incest or even when the life of the mother is in danger. Violations of the law are defined as murder, and everyone involved in breaking this law would be criminally liable, including medical personnel and the mother.

If such a Constitutional amendment is adopted by a two-thirds vote of both Houses, it would be sent to the states for approval. The proponents of the "human life" amendments believe that they have the support of 51 Senators and 240 to 265 Representatives. We must stop this threat to women's reproductive rights in Congress before it is sent to the states for ratification.

Action: 1) Write to your Senators (Senate Office Bldg., Washington, DC, 20510) and your Representative (House Office Bldg., Washington, DC, 20515) demanding that they vote against any "human life" amendments.

2) Join with other groups in your area working to protect women's reproductive rights. Such groups include NOW, National Women's Political Caucus, Planned Parenthood and National Abortion Rights Action League, among others.

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CLWEF BOARD MEETING 26 February 1981

Present: Grossman, Kistiakowsky, Sharp, Avery

The MX book written by Pete Scoville is finished.
A first call for funds to publicize it has yielded \$5,500 so far.

Nearly 700 copies of the Eisenhower farewell address have
been requested since the ad appeared in the NY Times on
18 January. Contributions of \$2,646 have been received.

The Seattle symposium on the medical effects of nuclear war
will be held on 18 April and a similar event in Chicago is
scheduled for 19-20 June.

Fund raising activities under consideration for the next
several months are social gatherings in the New England
area during the spring and summer, and the production of
Christmas cards in the fall.

The next board meeting is set for 19 March at 12:30 in the
Harvard Faculty Club.

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CLWEF AGENDA 2/26/81

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1. Future education fund activities

2. Spring dinner

3. MX book

4. Financial statement

Cash on hand: \$69,613

Received-1981: 19,129

Spent-1981: 14,444

Eisenhower \$9,981

Office help 1,506

SF symposium 883

Telephone soliciting 837

Travel 224

Printing, legal fees, etc. 1,013



To combat the menace
of nuclear war

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CLW BOARD MEETING

26 February 1981

Present: Allen, Fisher, Grossman, Kistiakowsky, Meselson,
Rathjens, Sharp, Tsipis, Avery

The senate seminar given by Professor Franklyn Holzman on the inaccuracy of CIA estimates of military spending in the USSR stimulated a vigorous discussion by the eleven senators present. Other Holzman appearances in Washington on 19 February included a well-attended press conference sponsored by the Arms Control Association and a less successful presentation to the senate staff. Lack of repast may have been the cause of the poor turnout; this will be remedied hereafter.

Future seminars may feature professors Roger Fisher on conflict resolution (sponsored by Senator Mathias), Jack Ruina on the ABM, and William Kaufman on the defense budget. CLW will also try to instigate further testimony by Robert White, perhaps before the Senate Foreign Relations Committee through Senator Tsongas. The former Ambassador to El Salvador speaks eloquently on the consequences of US intervention.

CLW will try to bring over from England Field Marshall Lord Michael Carver, former Chief of the Imperial General Staff, to address the Senate and other large groups.

A reception at the Capitol, in honor of the seven senators who won with CLW's help in November, drew about 125 legislators and CLW supporters on 18 February.

In addition to the recently printed fact sheets on the MX and chemical weapons, CLW will shortly publish an analysis of the comparative military budgets of the NATO alliance and the Warsaw Pact countries. This analysis demolishes the \$300 billion advantage the Reagan administration attributes to the USSR over the US.

CLW will not join the MX coalition now forming in Washington, but John Isaacs will participate in it.

Editorial meetings with local press will be set up with CLW board members to increase the use of expert information in relevant news coverage.

The chairman strongly requests other board members to send to him a few names suitable for CLW board membership, which would be gratefully received by the chairman before the next board meeting in March. Please submit the names of nationally known scientists without discussing the matter with those on your list since the likelihood is small that any given person will be chosen.

The board will next meet on Thursday, 19 March, at 12:30 at the Harvard Faculty Club.





To combat the menace
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CLW AGENDA 2/26/81

1. Additional scientists for Board membership
2. Report on Washington events
3. Visits to newspapers
4. Future Washington seminars
 - A. Ruina on ABM
 - B. Fisher on conflict resolution
 - C. Garwin on SUM
5. MX coalition
6. Financial statement

Cash on Hand \$37,100

Major receipts	<u>Returns</u>	<u>Total</u>
General mailing 12/80	1196	\$26,029
General mailing 2/81	157	5,411
Rathjens to FAS 1/81	126	3,690

Expenses - 1981 year to date

Salary	\$15,390
Mailings	26,216
Utilities, telephone	1,042
Rent	992
Insurance, supplies, etc.	2,855



PHYSICIANS FOR SOCIAL RESPONSIBILITY BIBLIOGRAPHY

P.O. Box 144, 56 North Beacon St., Watertown, MA 02172

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- F-02 **Paul Jacobs and the Nuclear Gang**
A 60 minute documentary about the effect of radiation exposure on soldiers, civilians and workers and the government's attempts to cover up the story.
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- V-03 **Clouds of Doubt**
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Slide Shows

- S-01 **From Trident to Life**
30 minutes. The facts about America's new Trident nuclear submarine program by the Trident Conversion Campaign of the American Friends Service Committee (Script on paper, no tape).
- S-02 **John, Mary, MIRV and MARV: The Arms Race and the Human Race**
20 minutes. Slide-Tape about trying to be "number one" in weapons by Operation Turning Point.

Audiocassettes

- A-01 **Highlights of a Symposium on the Medical Consequences of Nuclear Weapons and Nuclear War**
2 Hours. Summary of PSR organized symposium held at Harvard Science Center on February 9-10, 1980 with Drs. Abrams, Feld, Geiger, Hiatt, Kendal, Kistiakowsky, Lifton, Luria, and Mark.
*Please contact the PSR office about fees and availability of audio-visual materials. The number is: 617-924-3468.

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Poster reprint of full-page New York Times Ad of 3/2/80.
- P-09 **The Health Effects of Nuclear Power and Nuclear Weapons by Dr. Katherine Kahn**
A summary for medical professionals of the effects of ionizing radiation and the hazards of the nuclear fuel chain.

Books

- B-01 **Nuclear Madness: What You Can Do!**
by Dr. Helen Caldicott
An account for the public of the threats of nuclear power and weapons. Bantam Press, 1980.
- B-02 **The Counterforce Syndrome: A Guide to U.S. Nuclear Weapons and Strategic Doctrine** by Robert Aldridge.
A review of present nuclear weapons systems showing how the U.S. is developing a pre-emptive first-strike capability. Institute for Policy Studies, 1979.

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International Group of Physicians Gathers in Virginia to Warn of Nuclear War's Effects

By ROBERT REINHOLD

Special to The New York Times

WARRENTON, Va., March 20 — More than 100 physicians from the United States, the Soviet Union and other nations gathered today at a conference center in the placid Virginia countryside to pursue what most of them feel is their ultimate healing duty — the prevention of nuclear war, the ultimate medical emergency.

Although they are from Communist, socialist and capitalist backgrounds, they brought with them a remarkably similar message: that society cannot survive nuclear war and that no strategic policy should be based on the idea that physicians will somehow save enough people to continue civilized life.

"We doctors want to say to the political leaders that if there is nuclear war, do not expect us to be able to patch up your wounds, physical or psychological," said Dr. Robert Lifton, a psychiatrist from Yale University.

The doctors were attending the first Congress of International Physicians for the Prevention of Nuclear War, held at the Airlie Conference Center here, about an hour's drive from Washington. They came from France, Japan, the Netherlands, Britain and many other nations. They said they were part of a growing worldwide movement among doctors who

believe that it is their responsibility to alert political leaders and the public to the medical consequences of nuclear war.

11 Soviet Doctors Attend

Eleven high-ranking physicians came from the Soviet Union, including Dr. Yi Chazov, a cardiologist who has attended to Premier Leonid Brezhnev. In comments to reporters this afternoon and in remarks prepared for a plenary session scheduled tomorrow, Dr. Chazov issued a warning that struck many observers here as remarkably blunt and frank.

"Some of the military, public functionaries and even scientists are trying to diminish the danger of the nuclear arms race," he said, "to minimize the possible consequences of a nuclear war."

"Statements appear that a nuclear war can be won, that a limited nuclear war can be waged, that humanity and the biosphere will still persist even in conditions of total nuclear catastrophe," he continued. "This is an illusion which many of them do not believe themselves and which must be dispersed."

Dr. Chazov, director-general of the National Cardiology Research Center in Moscow, said Soviet studies have shown that a one-megaton nuclear explosion in a Soviet city would kill about 300,000 people immediately and wound or burn another 300,000. He said 80 percent of the doctors would die in such a nuclear attack and most of the hospitals, drugs and food supplies would be destroyed. "We would not help the people," he said and called

for a ban on nuclear weapons.

'Mythology' About War Is Assailed

His remarks closely paralleled those of Dr. Bernard Lown, a Harvard University cardiologist who is the president of International Physicians for the Prevention of Nuclear War. A "mythology" is being created, he said, that a nuclear war will not occur, or that if one does occur it will not be extensive.

A nuclear attack on just one American city the size of Boston would more than exhaust the entire medical resources of the nation just in treating burn victims, he said.

The doctors came together amid what many of them see as a strong drift of governments of the East and West toward a

nuclear calamity. The purpose of the conference was more to generate public awareness of their message than to review the medical implications of a nuclear war, on which they largely agree.

The physicians for the most part avoided discussing the international political maladies behind the buildup of nuclear weapons, saying they preferred to concentrate on what they agreed on.

'Thin Ice of Politics' Avoided

The Soviet delegation was accompanied by Georgy Arbatov, a leading Soviet expert on American affairs. Pressed by reporters to explain why his government continues to build nuclear weapons, he said he preferred to avoid the "thin ice of politics and policy."

But he applauded the efforts of the doc-

tors. "Doctors of the world unite," he said with a chuckle.

Over the next five days the doctors will discuss such matters as the delayed medical effects of nuclear war as well as the expected psychological, environmental, radiation and other effects. There will also be considerable attention paid to the unpredictable effects of nuclear war and how to counter the notion that "limited" nuclear war is a possibility.

"People are getting toughened about death," said Dr. Thomas C. Chalmers, Dean of the Mount Sinai Medical School. "They do not realize the prolonged suffering of nuclear attacks, with hundreds of people taking weeks to die, screaming to be shot, with no medical help available. Our whole concept of a civilized response to a tragedy is totally inapplicable."

PHYSICIANS JOIN HANDS AGAINST DISASTER

World's Doctors Fear Nuclear War

From The San Diego Union's News Services

WARRENTON, Va. — More than 100 physicians from the United States, the Soviet Union and other nations gathered this weekend at a conference center in the placid Virginia countryside to pursue what most of them feel is their ultimate healing duty — the prevention of nuclear war, the ultimate medical emergency.

Although they are from Communist, Socialist and capitalist backgrounds, they brought with them a remarkably similar message: That society cannot survive nuclear war and that no strategic policy should be based on the idea that physicians will somehow save enough people to continue civilized life.

"We doctors want to say to the political leaders that if there is nuclear war, do not expect us to be able to patch up your wounds, physical or psychological," said Dr. Robert Lifton, a psychiatrist from Yale University.

The doctors were attending the first Congress of International Physicians for the Prevention of Nuclear War, held at the Airlie Conference Center here, about an hour's drive from Washington. They came from France, Japan, the Netherlands, Britain and many other nations. They said they were part of a growing worldwide movement among doctors who believe that it is their responsibility to alert political leaders and the public to the medical consequences of nuclear war.

Eleven high-ranking physicians came from the Soviet Union, including Dr. Yi Chazov, a cardiologist who has attended to Leonid I. Brezhnev, the Soviet leader. In comments to reporters Friday afternoon and in remarks at a plenary session yesterday, Chazov issued a warning that struck many observers here as remarkably blunt and frank.

"Some of the military, public functionaries and even scientists are trying to diminish the danger of the nuclear arms race," he said, "to minimize the possible consequences of a nuclear war."

"Statements appear that a nuclear war can be won, that a limited nuclear war can be waged, that humanity and the biosphere will still persist even in conditions of total nuclear catastrophe," he continued. "This is an illusion which many of them do not believe themselves and which must be dispersed."

Chazov, director-general of the National Cardiology Research Center in Moscow, said Soviet studies have shown that a one-megaton nuclear explosion in a Soviet city would kill about 300,000 people immediately and wound or burn another 300,000. He said 80 percent of the doctors would die in such a nuclear attack and most of the hospitals, drugs and blood supplies would be destroyed. "We could not help the people," he said and called for a ban on nuclear weapons.

His remarks closely paralleled those of Dr. Bernard Lown, a Harvard University cardiologist who is the president of International Physicians for the Prevention of Nuclear War. A "mythology" is being created, he said, that a nuclear war will not occur, or that if one does occur it will not be extensive.

A nuclear attack on just one American city the size of Boston would more than exhaust the entire medical resources of the nation just in treating burn victims, he said.

The doctors came together amid what many of them see as a strong drift of governments of the East and West toward a nuclear calamity. The purpose of the conference was more to generate public awareness of their message than to review the medical implications of a nuclear war, on which they largely agree.

Chazov says the 74-year-old Brezhnev is "healthy and energetic and agile."

Chazov was reluctant to discuss his top patient.

He told UPI through an interpreter that "The health of President Brezhnev is his personal matter.

"So it is to him (Brezhnev) what to divulge about his own health," Chazov said. "But judging from his appearance, from his activities, I see he is healthy and energetic and agile.

"I'm not sure who prays for the state of his (Brezhnev's) health," Chazov added. "It is very interesting. Perhaps it is due to the prayers of Secretary of State Haig. I see, reading Time magazine, that every day he prays for his health."

A recent Time article quoted Haig as telling friends:

"Every night I pray that Brezhnev stays healthy and alive for a good while to come. At least until we have caught up with the Soviet Union. Because if he goes suddenly, I believe that the young ones waiting in the wings will take over ... They are in a very expansive mood."

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PSR PHYSICIANS FOR SOCIAL RESPONSIBILITY, INC. NEWSLETTER

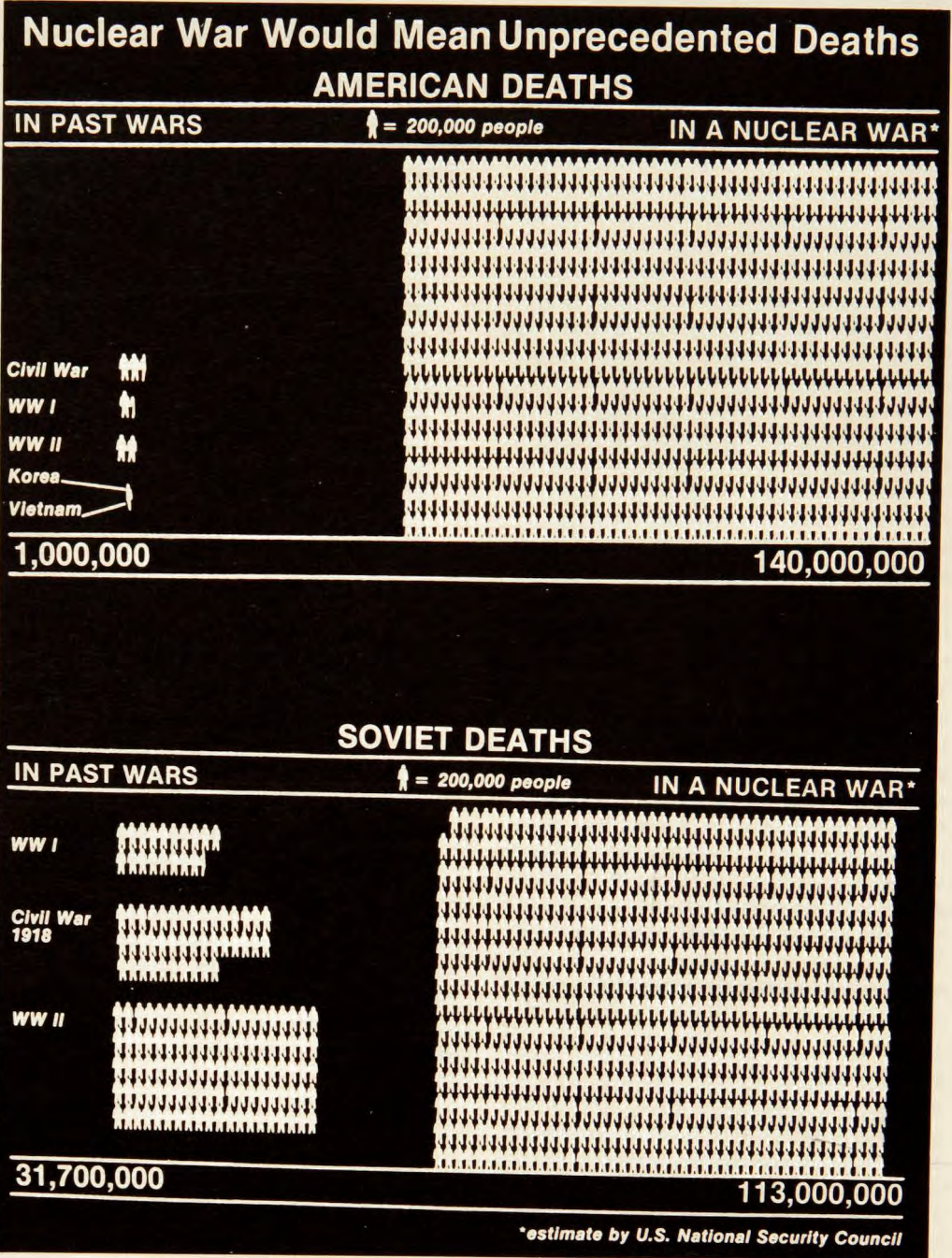
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MEDICAL SYMPOSIUM REVIEWS ARMS RACE

"The world now stands on the brink of the final abyss. Let us all resolve to take all possible practical steps to ensure that we do not, through our own folly, go over the edge." The warning came from the British Admiral Mountbatten, and the abyss he referred to was nuclear war. Mountbatten's words sum up the theme of a series of PSR symposia on the Medical Consequences of Nuclear Weapons and War. The symposium, on September 27 and 28 in New York City, was co-sponsored by the Albert Einstein College of Medicine and the Columbia University College of Physicians and Surgeons. The conference, attended by an audience of 500 persons and over 50 representatives of the media, was organized by Physicians for Social Responsibility and the Council for a Livable World, and presented the views of eighteen world renowned physicians, physicists, and statesmen. The format followed that of PSR's Boston symposium in February, with the program divided into four parts: *Nuclear Weapons Production, the Short and Intermediate Medical Effects of a Nuclear War, the Long-term Effects, and a Consideration of the Political Issues of War and Peace.*

(Continued on Page 2)



EDITORIAL

THE EGGS IN MR. REAGAN'S REFRIGERATOR

There is a well-known phenomenon among persons suffering psychosis in which ordinary events become endowed with special, delusional meanings. Such was the case of a woman in Seattle who recently reported that "the Russians are coming." When asked how she knew, she said she had been told by the eggs in her refrigerator.

While the woman was surely confused about the source of the message, she was accurately reflecting the national mood.

Fear and frustration were the hallmarks of the recent presidential election, which one observer called "a referendum on unhappiness." The Democrats and the doves were swept from the White House and the Senate, and with them went any hope for the Strategic Arms Limitation Treaty. While few observers take seriously the rhetoric spoken at the peak of campaign heat, fewer still doubt Mr. Reagan's resolve to increase our level of military spending to what may become the highest peacetime level in history. Indeed, William Van Cleave, a member of the President-elect's Defense Department transition team, and a man in a hurry, has already begun exploring whether Minuteman missiles can be placed on trucks and moved about the middle west to elude the Soviets, creating a kind of makeshift MX missile for those folks who can't wait for the real thing.

Mr. Carter leaves his successor with more problems than the national defense — energy, inflation, jobs, and a tightening noose on global resources.

With such complex knots for the new team to untangle, it is little consolation to recall our Vice President-elect's public statement that nuclear war is "winnable." One would be pleased to chalk such a statement up to the hyperbole of the hard run for office, except that other voices, too, are arguing for the legitimacy of a "rational nuclear war," as if one could somehow justify mass murder in the name of anything.

The Newsletter of Physicians for Social Responsibility, Inc. is issued quarterly to its members and the media for public educational purposes. It is edited by Henry David Abraham, M.D., who was assisted on this issue by E.J. Graff. Inquiries should be addressed to the PSR Office, 56 North Beacon Street, Watertown, Mass., 02172, 617/924-3468.

Such talk is either bluff or blunder. In either case it is dangerous. What is imperative in this debate is recourse to the facts of the matter — facts that are medical, as well as political, economic, and historical. The recent symposium in New York on the medical effects of nuclear war was one step in this direction.

The thesis of the conference was straightforward — that there can be no way of treating the medical effects of a nuclear attack, that prevention must be the issue, not preparation.

But what are we to make of the nation's mood? While we have every confidence that the eggs in Mr. Reagan's refrigerator are as quiet as the ones in our own, we wonder nonetheless who, if anyone, our country's nuclear strategists are listening to. The elder statesman, George Kennan, now at the Institute for Advanced Study at Princeton, put it this way recently:

"What is most disturbing about this recent vogue of uncritical American anti-Sovietism is the subjective nature of the motivation. It is obviously not based on any careful scrutiny of external reality; nor do its devotees seem to be particularly concerned for the external effects of their positions. It appears to be designed primarily to serve internal objectives: political exploitation of the chauvinistic posture; a catering to the aspirations of ethnic minorities; the thirst of bureaucratic entities for greater government appropriations."

While the President's job is hard enough, nothing will make it harder than for the new administration to ignore the "external effects of their positions," especially regarding the medical effects of the nation's nuclear choices. Too much potential disaster is concentrated in too few hands for it to be otherwise.

Outgoing White House Chief of Staff Watson quipped recently during the transition of government that they were there for an exchange of prisoners. Shot back Mr. Reagan's transition director, Mr. Meese, "I have a feeling that we're the prisoners." We hope that Mr. Meese on some psychological level was using the "we" in a collective sense. It would be reassuring to know that the newcomers comprehend our common danger, that they realize the threat of nuclear war makes prisoners of us all, and that Mr. Reagan knows his primary task as President is to work to set us free.

Henry David Abraham, M.D.

MEDICAL SYMPOSIUM

(Continued from Page One)

The program was introduced by Howard Hiatt, Dean of the Harvard School of Public Health, who made vividly clear the magnitude of the problem in planning a medical response to a nuclear exchange, when he recounted the recent case of a twenty-year old man brought to a large, urban hospital for treatment of a third-degree burn that covered 85% of the patient's surface area. In the course of the hospitalization the patient was admitted to a special burn unit. There he required 281 units of fresh frozen plasma, 147 units of packed red blood cells, 37 units of platelets, and 36 units of serum albumin. He underwent six separate surgical procedures that included allografts, homografts, and the grafting of artificial skin. His course called for continuous attention by highly trained specialists who in turn required the assistance of an array of drugs, fluids, and life-supporting technologies. Yet on the thirty-third hospital day the patient expired. In all of New York City, Hiatt pointed out, there are beds for perhaps 50 such patients. A nuclear attack on an urban center, with a burn toll that might well be counted in the millions, would reduce any plan of acute medical care to a pretense. The medical task, he argued, was not preparation, but prevention.

Victor Sidel, Professor of Social Medicine at Albert Einstein, took the discussion a step beyond the theoretical. Arguing that the cost of an international arms race had real consequences now in the battles against illness around the globe, he cited a recent report by Frank Barnaby outlining the negative effect of a 3% rise in world military expenditures on the funding of programs eradicating infectious diseases and reducing infant mortality.

Nuclear weapons production has health effects that are directly lethal, warned physicians Carl Johnson and John Gofman. Both have published studies relating cancer to environmental radiation in humans. But Gofman went on to present a compelling thesis: the attitude of physicians themselves may swing the balance towards nuclear war, if physicians fail to take seriously the dangers of ionizing radiation. A cavalier attitude could be used to paint the damage of nuclear war as "acceptable . . . (but) the very same rulers who might consider starting a nuclear war if 'only' 10% of their own subjects would die, might reject the same scenario if the average dose to their subjects were of the order of 85 rads and would condemn everyone under ten years of age to die prematurely, and of cancer."

Kosta Tsipis, Professor of Physics at M.I.T., followed. A lecturer at the U.S. War College, an

expert on strategic weapons systems, and a critic of the MX missile, he described eight physical effects expectable from a nuclear explosion: heat, radiation, blast, ground shock, cratering, the induction of electromagnetic currents, fallout, and depletion of the ozone layer of the Earth. He reminded the audience of the power of a single one-megaton bomb, which he equated to the blast of enough TNT to fill a train 200 miles long. Foreshadowing the lecture of M.I.T. colleague Henry Kendall, Tsipis calculated that such a bomb produces 10^{32} molecules of nitrogen oxides, capable of wide destruction of ozone. If ten to twenty percent of the Earth's ozone layer were depleted, all visual organisms — insects, birds, and mammals — would soon be blinded. Human survivors might escape blindness with sunglasses, but other living things could not. Since blinded organisms would soon die, one could expect, among other disasters, a collapse of the ecosystem predicated on vision. To believe nuclear weapons have a legitimate place in modern armamentaria, Tsipis charged, is a "criminal fallacy."

But what of human beings? This was the focus in the section *Short and Intermediate Term Effects of a Nuclear War*, which John Marshall Lee moderated. A retired U.S. Admiral, he spoke critically of President Carter's Directive 59, which declares it is an American right to wage "limited nuclear attacks" as an instrument of foreign policy. If the U.S. pre-planned a variety of nuclear attacks, Lee suggested, in the heat of battle the temptation to mount them might well become irresistible. He cited the observation of Jerome Frank, psychiatrist and PSR sponsor, that when thinking was strongly influenced by emotion, it becomes primitive, simplistic, and has little regard for long-term consequences. "There is nothing harder to do under stress than to do nothing," Lee said.

"The thing to avoid is war," said physicist J. Carson Mark with characteristic understatement, "and nuclear war, incidentally." In his lecture on the effect of nuclear weapons on civilian targets, he pointed out that the Black Death of the fourteenth century took an estimated twenty million lives, which now could be taken by a mere ten nuclear bombs. (The U.S. and the U.S.S.R. will have a combined total of 21,000 such bombs by 1985, assuming that Salt II is ratified and keeps the arms race in abeyance.) Of particular concern to Mark was that waging a missile attack against missile silos required surface bursts, rather than aerial ones. Such an attack would reduce blast and heat effects by 25%, but the bomb would mix fission fragments with surface materials with a significant increase in fallout, which in turn would create a band of lethality downwind for several hundred miles.



Kosta Tsipis explains the physics involved in the contemporary design of American nuclear warheads.

An attack on a civilian center like New York City was, in the words of Jack Geiger, Professor of Community Medicine at the City College of New York, "unimaginable but not incalculable." He was referring to recent estimates published by the U.S. Arms Control and Disarmament Agency on expectable fatalities following nuclear attacks on U.S. population centers, which predicted a 71% death and injury rate for the city following a single 20 megaton attack. Geiger criticized the Agency's estimate, which assumed the attack occurred when everyone was home, as "too low." Were the attack to come during the day, when the city's population increases, and were it to comprise two, not one, 20 megaton bombs, the morbidity and mortality figure could be expected to rise to 90% of all people in the area. In another way of viewing the problem, he explained that in the first eleven seconds of an air burst, a million people would have died, or be in the process of dying. Injuries would include crushes, fractures, lacerations, blindness, deafness, psychoses, and massive burns of the skin and lungs.

The threat of such annihilation has powerful psychological effects, observed Robert Lifton. Professor of Psychiatry at Yale and student of the psychological effects on the victims of the immolation of Hiroshima, he identified several themes commonly found in contemporary attitudes about nuclear war, which appeared to follow a typical sequence. Characteristically, an individual was at first overwhelmed by visions of annihilation, which give rise to doubts about authority, then to a period of "numbing" to the issue, and then to fantasies of personal survival

of a holocaust. Some persons even had covert wishes to see "the bomb go off," echoing an earlier point by Admiral Lee that under stress the drive to action may be irresistible.

"War contains the germs of double suicide," warned pediatrician Helen Caldicott, quoting General Douglas MacArthur. American perceptions of Russian intentions, she noted, affected by the disintegration of relations between East and West, have deteriorated into imprecise stereotypes, what Jerome Frank has called, "the image of the enemy, always identical regardless of who the enemy is."

Herbert Abrams, Professor of Radiology at the Harvard Medical School, introduced the session on *the Long-term Effects of Nuclear War*. He raised a central issue of the nuclear problem when he charged, "We have failed to control technology and we have failed to control ourselves."

Stuart Finch, former Director of Research at the Hiroshima Radiation Effects Research Foundation, followed. Finch, who has spent much of his medical career studying the long-term effects of radiation on the victims of Hiroshima and Nagasaki, presented some of the data gathered over the past thirty-five years, which have embraced questions on life span, pathology, adult and intra-uterine health, genetics, biochemistry, and growth and development. Findings among survivors which can be indisputably linked to the bomb include cataracts, leukemias, mental retardation and microcephaly, cancers — especially in children — and chromosomal abnormalities.

(Continued on Next Page)

MEDICAL SYMPOSIUM

(Continued from Page 3)

Current military planners ignore the medical effects of such radiation, arguing that damage from radiation takes too long to have strategic significance, and that blast and heat effects outweigh them in the short run. But fallout is certain to have critical consequences in a nuclear war. This was the point made by Bernard Feld, Editor of the *Bulletin of the Atomic Scientists*, and M.I.T. physicist. The spectre of a so-called counterforce war has arisen, in which missiles are being designed to destroy other missiles. While the consequence of shifting the war from cities to battlefields, according to Presidential Directive 59, is to decrease the number of civilian blast and burn injuries, it is also likely to increase the injuries from fallout.

Feld outlined one scenario possible in this decade involving a 10,000 megaton exchange between the U.S. and Soviet Union. Such an event would release a band of lethal fallout measuring 5 million square miles. (The area of the U.S. is 3.7 million square miles.) If the U.S. built the MX missile, fully armed each silo, and the Soviets followed suit, as a number of critics of the MX system predict, a counterforce exchange would immerse each person on the globe with ten to forty *rem* of fallout. And assuming the past growth in nuclear proliferation continued into the next century, a million megaton exchange would yield 500 to 1,000 *rem* per survivor, enough for human extinction.

Henry Kendall, the articulate physicist and Chairman of the Board of the Union of Concerned Scientists, pointed out the lethality of even modest nuclear explosions. A one-megaton bomb, for example, would flatten an area 50 square miles large, cause second-degree burns 250 miles away, and create fallout lethal to unprotected persons 600 miles away. Evacuation would be required for one to three years for two to three hundred miles downwind, and even persons 3,000 miles downwind would have a substantial risk of death.

New York, he pointed out, is targeted to receive 65 such warheads, and Los Angeles, 36. Even cities such as Providence, Rhode Island, and Fresno, California, are targeted with three and two such bombs, respectively. The weapons are so powerful that, were the Soviets to use only ten percent of their arsenal in a "limited" nuclear war, 60 to 90 million Americans might well die. Survivors, trapped in a race against time to produce such essentials as food and energy, but with most managerial and technical expertise annihilated, would likely fall back to

the political level of scattered bands, analogous to the Middle Ages, but without the social fabric that made the Middle Ages work.

"Will the President survive?" George Kistiakowsky was asked by a reporter attending a press conference between sessions. "Air Force One will survive," the former advisor to presidents said, "but then there will be a problem of where to land." Paul Warnke, a former U.S. SALT negotiator, admitted that when he was the Assistant Secretary of Defense, his name was placed on a survivors' list of key government leaders, but when he became Director of the Arms Control and Disarmament Agency, his name was removed.

In his talk at the symposium, Kistiakowsky was not optimistic, predicting dishearteningly that most of the audience was likely to become involved in a nuclear war. Between 1945 and 1975 the Pentagon reported 215 military conflicts in the world. In that time there were 33 alerts of the Strategic Air Command. At present, 6 nations have tested nuclear weapons, and 5 have stockpiled them. Two others have untested bombs, and Pakistan's bomb is in progress. The Earth will have 6 billion people by the year 2000. How will they be fed? How will the gap between the rich and poor be negotiated? History has shown a pattern of a rise in militarism following a war in the unfavored countries: in France after the Franco-Prussian War, in czarist Russia after 1905, in Germany after 1918, and now, he feared, in the United States after Vietnam.

What hope he had in halting the rush to build bombs Kistiakowsky placed in a widely based public movement to petition and shape the policies of governments about the world.

Critical to an effort to reduce deepening international tensions is an arms accord between the U.S. and the Soviet Union. Paul Warnke defended the current Strategic Arms Limitations Treaty, which he observed had won the support of the U.S. Joint Chiefs of Staff, but not the Senate Armed Services Committee; which had been negotiated by the Nixon Administration, yet was being rejected by the Republican Party. The height of folly, Warnke felt, was to link SALT II to any other current political issue. One ought not try to punish the Soviet Union by putting us all at greater risk. Without arms control, the negotiator believed, we were headed towards mutually assured destruction.

Perhaps the central question for physicians at the conference was asked by Jack Geiger, when he rhetorically asked why physicians should speak to the issue of nuclear war. Physicians as a group are not politically wiser or morally

superior to other citizens. Most have no more experience with an atomic bomb than anyone else, and to envision the unspeakable requires a leap of imagination regardless of one's degree of medical sophistication.

But physicians are committed to the fight against the twin indignities of suffering and death. These two foes are also our daily companions. The imaginative leap from this to disaster is not difficult. But physicians, by virtue of our enmity with death, create the most profound alliance with life, and nothing expresses that alliance so eloquently as the life of a child. We study and promote the growth and development of children. We recognize the humanity of every child, and each child's inalienable innocence. We know, too, the painfully slow progress of science over the centuries, the tremendous effort it has taken to conquer plague, small pox, cholera, polio. Who is the physician who would not protect those precious gains, those future lives, from a mindless Armageddon?

Henry David Abraham, M.D.

WITHOUT COMMENT

"It would be compounded folly to assume that better control of nuclear arms can result from a race to nuclear superiority. My reading of the Soviet experience — and I have met with every Soviet leader from Lenin to Brezhnev — indicates that Moscow will sacrifice what it takes to remain equal — as we will, too. The conclusion will not be superiority; the end will be an arms race without end."

*W. Averell Harriman
Former Governor of New York
Former Ambassador to the Soviet Union*

"Governor Reagan, your running mate, George Bush, has said that we can win a nuclear war. In the light of recent reports by leading medical authorities concerning the staggering public health consequences of even a limited nuclear war, and the study of the federal Office of Technology Assessment and others on the dimensions of the ecological, social, and economic catastrophe that would be involved, why have you not publicly dissociated yourself from such views?"

*Richard J. Barnet
Institute for Policy Studies*

SYMPOSIUM PRESS COVERAGE GROWING

The second PSR symposium on the Medical Consequences of Nuclear Weapons and Nuclear War, held in New York City, attracted somewhat more publicity than its predecessor in Boston, but television news reporters have yet to be convinced that the prospects and consequences of nuclear war are newsworthy.

Among the national media that covered the entire symposium were *Newsweek*, which is reported to be preparing a cover story on the topic of nuclear war, and CBS News/Reports, which is producing a series of five documentaries on the subject for airing late this winter. National Public Radio taped extensively for future broadcast and for its weekly program *All Things Considered*.

Numerous events were held specifically for the press before and during the symposium. On Friday, September 26, a press conference featured a number of the speakers, and received the attention of New York's major newspapers, the *NY Times* and the *Daily News*, as well as of

a number of local radio and television stations. A short segment featuring Dr. Jack Geiger appeared during the eleven o'clock news programs of WPIX-TV (Channel 11) and WNEW-TV (Channel 5). Also attending the press conference were representatives of the Associated Press radio network, *The New Yorker*, *The Nation*, *Life* and *Technology Review*, as well as a host of newsletters and trade journals such as the *Medical Tribune*. Overseas media coverage was provided by the *London Observer*, Australian Broadcasting, and the Soviet news agency, Tass.

In a second press conference held on Sunday between the morning and afternoon sessions, Paul Warnke, chief negotiator in the SALT II talks, called for a special session of the Senate to ratify SALT II. This second conference was attended by many of the above-mentioned media, as well as reporters from *Time*, the *National Catholic Register*, United Press International, and the NBC-FM radio network. NBC radio is gathering interviews on nuclear weapons and war for its syndicated program *Source*, which goes out to 140 member stations.

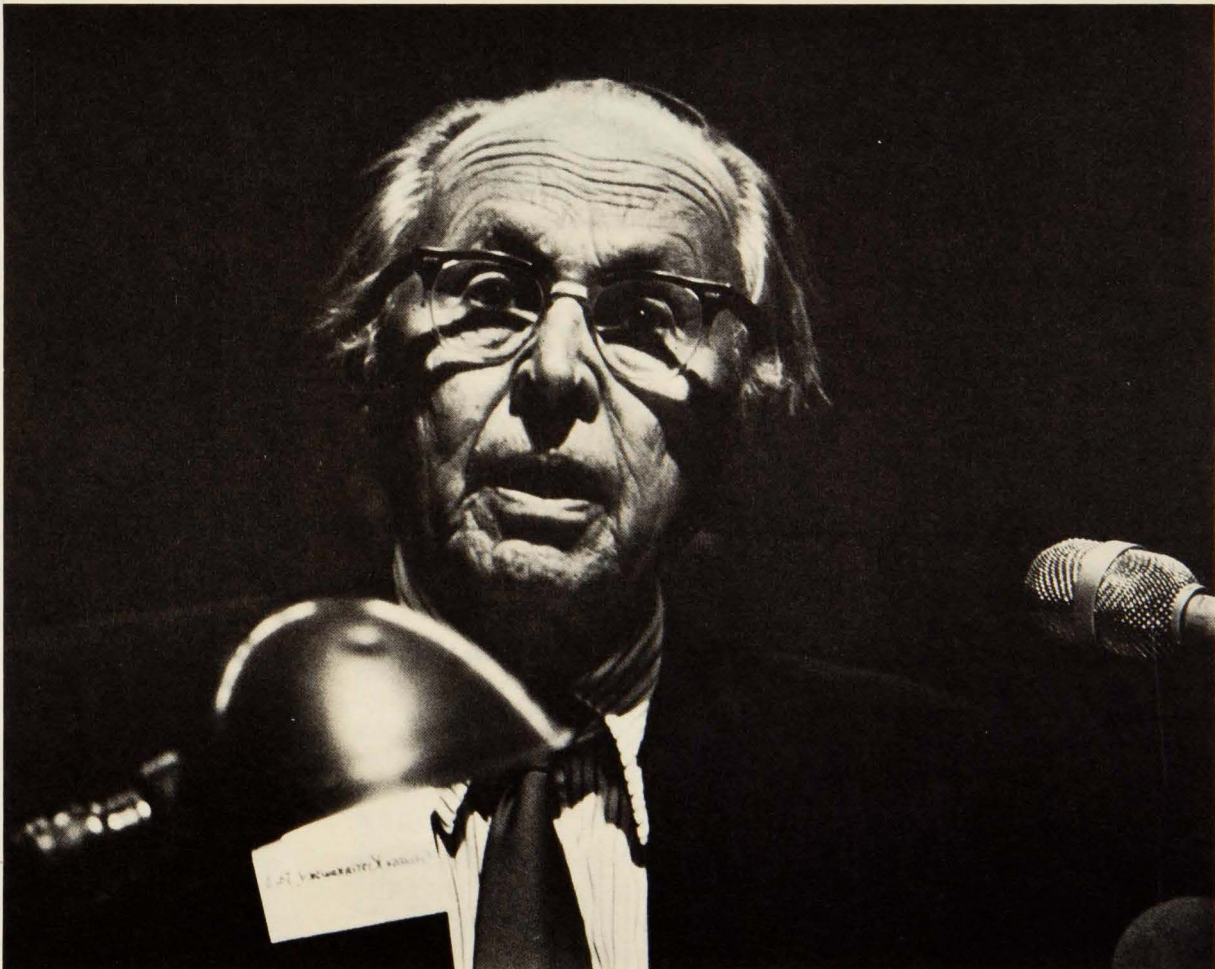
In addition to being present at both press conferences, PSR president Dr. Helen Caldicott conducted telephone interviews with reporters from the *Village Voice*, the *Daily News*, Cable News, WPLJ radio, and the CBS, NBC and RKO radio networks. Geiger was interviewed by WBAI, New York's listener-supported radio station.

Among the members of the university press attending the conference were representatives from Fordham University and the Columbia University School of Journalism.

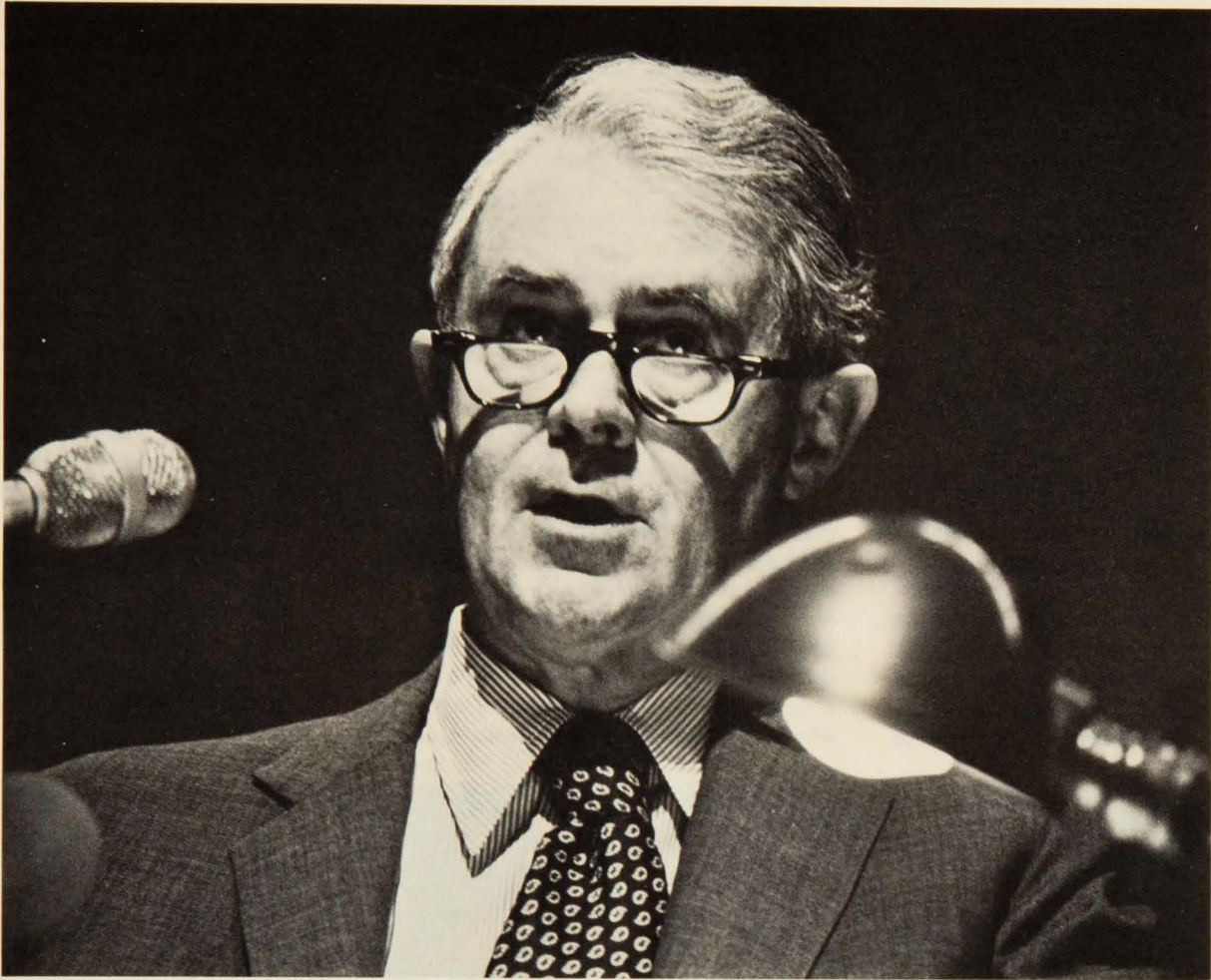
Most of the press work prior to and during the symposium was coordinated by Brad Rodney of Public Interest Public Relations, a public relations firm specializing in non-profit organizations. Rodney has submitted a report on the nature and extent of post-symposium coverage to the PSR Executive Committee.

Since the symposium there has been a steady flow of requests from the media for interviews and follow-up information. We hope that this continued interest will result in the production of documentaries and feature articles.

Mitchel Kling



"Most of you will probably be involved in a nuclear war," George Kistiakowsky told the symposium audience.



According to Cyrus Vance, SALT II stands at the heart of any sensible foreign policy.

VANCE AND WARNKE STRESS THE NEED FOR SALT II RATIFICATION

In the final panel of "The Medical Consequences of Nuclear Weapons and Nuclear War" symposium held in New York on September 27 and 28, former Secretary of State Cyrus R. Vance and former Director of the U.S. Arms Control and Disarmament Agency Paul C. Warnke both stressed the need for ratification of the Strategic Arms Limitation Treaty II (SALT II) by the end of 1980 or in early 1981. Vance stated that SALT II "stands at the very heart of a sensible and far-reaching American foreign policy." Paul Warnke called SALT II a necessary next step in the strategic arms control process. Both men have played prominent roles in the SALT negotiations.

Vance, who moderated the "Political Considerations" panel, opened his remarks by saying that while it is important to know the consequences of a nuclear exchange, it is equally important to know how one can be avoided. Vance emphasized that to increase our national security, the U.S. must have an arms control policy "as an

integral part of military policy." Vance went on to warn that without the ratification of SALT II: 1) the spread of nuclear weapons will be inevitable throughout the world, as non-nuclear countries will see little reason to restrain themselves if the U.S. and U.S.S.R. are unable to; 2) the U.S. and U.S.S.R. will have more nuclear weapons than if it is ratified; 3) political elements in both countries that wish to emphasize conflict over cooperation will be strengthened; 4) the process of arms control might be dealt a fatal blow.

Following a talk by Professor George Kistiakowsky on "How a Nuclear War Might Start," Paul Warnke spoke on "Efforts to Stop the Arms Race." His presentation focused on why we need arms control and how the ratification of SALT II is a vital step in the process of arms control.

New Technologies Threaten Strategic Stability
Warnke warned that the U.S. and the U.S.S.R. are creating new strategic weapons which are more accurate, more deadly, and as a consequence, more destabilizing. We have a situation in which the survivability of the

nuclear deterrent on both sides is increasingly threatened. He pointed out that the notion of waging and winning a "controlled, limited nuclear war" through selected strikes on Soviet military and political targets has become U.S. policy through Presidential Directive 59.

Both sides claim that the other side hopes to fight, win, and survive a nuclear war, and that therefore, they must pursue the same "doctrinal folly," Warnke stated. In the process, both sides are moving away from recognition of the fact that strategic nuclear war will equal mutually assured destruction. He stressed that these recent technological and doctrinal developments act to diminish, rather than enhance, our national security.

"Logic ought to teach us that strategic stability requires that each side know its own retaliatory deterrent is secure, that it doesn't have to launch (nuclear missiles) first because as the slogan goes: If you don't use them, you lose them."

Some conservative critics of SALT II have proposed escalating spending on nuclear and conventional forces in order to give America a

level of military superiority that would force the Soviets to negotiate on our terms. Warnke challenged this approach as dangerous, misguided, and as logical as "trying to cure an alcoholic by outdrinking him." History has shown that the Soviets will do what is necessary to match a U.S. arms buildup.

Warnke emphasized, rather, our need to control some of the pending technological developments in nuclear weaponry before it is too late. If both sides continue to develop first strike weapons, then we are apt to institute "Launch on Warning," whereby at the first sign of attack, computers will automatically launch a counter-attack. This could lead to nuclear war not by design, but by accident. (The Senate Armed Services Committee released a report in October 1980 that the U.S. North American Defense Command — NORAD — had experienced 151 nuclear false alarms deemed "serious," and 3703 lesser alarms, in the 18 months preceding June 30. — Editor's note.)

Even without "Launch on Warning," the deployment of counterforce weapons and the preparation of nuclear war fighting strategies, such as those called for in Presidential Directive 59, are making nuclear war increasingly likely. In a crisis situation, "panic, desperation, fear of getting the other side before they got us," could well lead to the launching of the pre-planned first strike, Warnke asserted.

Cautiously Optimistic

Despite the alarming aspects of the previous scenarios, Warnke expressed a "cautious optimism." He believes if we move quickly it will be possible to catch some of the pending developments, but he argued repeatedly that ratification of SALT II is a vital first step.

SALT II is a modest step when compared with the size of the problem, but Warnke argued that we must realize that "serious arms control" will be a step-by-step process in light of the tensions and suspicions between the U.S. and U.S.S.R. He pointed out some of the current and possible successes of the SALT process. Under SALT I there has been a freeze on missile launchers and a ban on anti-ballistic missiles. If SALT II is ratified it would set numerical limits on strategic delivery vehicles, would set the verification provisions for both sides, and would "begin the process of qualitative controls that would enable us to deal with the qualitative advancements that are giving both sides counterforce capabilities."

Warnke went on to criticize two ideas that he believes threaten SALT II and the arms control process: "linkage" and bypassing SALT II to get to SALT III. He called the notion of "linkage," or using strategic arms negotiations as a lever to

extract good behavior from the Soviets, a grave mistake. He stressed that arms control should be a goal in and of itself, and "should not be linked to the *predictable* uncertainties of detente."

Rather than letting Afghanistan stop SALT, we should realize that confrontations such as Afghanistan could become nuclear confrontations if we lack sound arms control. Both sides have a national interest in arms control, according to Warnke, and as evidence he called attention to the fact that SALT I was signed even as the Vietnam war was being fought.

Warnke questioned the rationale and wisdom of negotiation for SALT III without ratifying SALT II. According to Warnke, with SALT II in place, there would be no further need to agree on everything before there was agreement on anything, as had been the case up to now. Once we have SALT II, it would be possible (as has not yet been the case) to negotiate separate amendments such as qualitative controls and limits on missile flight tests. If we try to leap over SALT II to get to SALT III, we will lose valuable time, he argued, by having to renegotiate every definition and verification provision again, a process that has already taken seven years.

Time Is Not On Our Side

In closing, Warnke gave an example of the penalty we will pay by delaying on arms control negotiations. In 1968, on the day the U.S. was to announce the beginning of the SALT negotiations, the Soviets invaded Czechoslovakia. This event held up the talks for one year, and during that year Multiple Independently Targeted Re-entry Vehicles (MIRVs) were deployed. It is precisely this technological development which some believe already does or soon will threaten the survivability of our intercontinental ballistic missiles. If we had stopped MIRVs then, Warnke stated, we would be better off today.

Whether one agrees fully with Warnke's thesis or not, he has pointed to certain undeniable facts. Each technological advancement has made nuclear weapons more deadly and at the same time more vulnerable. It is precisely the vulnerability of the nuclear arsenals that will make the use of nuclear weapons likely in a crisis situation, due to each side's fear of a debilitating first-strike attack from the other side. Trying to undo this problem with more technological advancements serves only to exacerbate and accelerate the problem.

If it is in our national interest to lessen the possibility of mutual annihilation between the U.S. and the U.S.S.R., then arms control must become a goal in and of itself on our national agenda. And it must happen soon.

Abram Claude

LABOR COMMITTEE FOR SAFE ENERGY AND FULL EMPLOYMENT

Over five million accidents and over 100,000 deaths related to workplace hazards occur every year in the U.S.; under federal regulations, nuclear-industry workers are allowed to receive ten times more radiation per year than members of the general public; and because of the long latency period before the appearance of radiation-related disease, its frequency among workers in the recently expanded industry cannot be assessed.

Concerned with the implications of these and other facts, trade unionists have recently formed the Labor Committee for Safe Energy and Full Employment. Two members of PSR's Labor Outreach Committee were involved at the founding meeting on June 29 in Toledo, Ohio, and were again present at the National Labor Conference on Safe Energy and Full Employment in Pittsburgh on October 10-12. The conference was attended by 900 people, over 800 of whom were union members from 55 different unions representing 32 states. Several unions, including the United Mine Workers (UMW), the United Auto Workers, the Machinists, and the International Chemical Workers, co-sponsored the conference.

Organized labor has been committed to workers' safety in the industry for decades. It took a big step in 1976 when the UMW supported a nuclear safeguards initiative that Ohioans for Utility Reform (OUR) had placed on that state's ballot. OUR reciprocated by sponsoring a union fundraising benefit for striking miners and their families.

This mutual support continued in 1978, when OUR in Ohio and the Clamshell Alliance in New England, among other anti-nuclear organizations, again supported labor, this time in their attempt to pass the Labor Law Reform Act, which would have liberalized procedures for organizing workers. In 1980 busloads of steel workers and mine workers were among the thousands of demonstrators at the April 26 anti-nuclear demonstration in Washington, D.C. Problems have arisen in these collaborative efforts when anti-nuclear activists have assumed that nuclear workers, concerned with adequate health and safety regulations, were also opposed to nuclear power, an assumption which is not necessarily the case.

Despite such controversy, the Labor Committee has passed a number of resolutions concerning their commitment to educate union members about the hazards of nuclear power and the benefits of safe energy alternatives. Because of the health-related nature of workers' concerns, physician involvement in the Committee is particularly welcomed.

Mike Ferner

CHAPTER NOTES

PSR/Albuquerque, N.M.

Dr. Ted Davis reports that the chapter has formed a working group to study the health effects of uranium mining. The group will make presentations to PSR's annual meeting in Boston and to concerned New Mexico citizens. Other PSR members are interested in the impact of radioactive wastes on the New Mexico area. A mailing has been done to local physicians and outreach meetings are planned for northern, southern and western New Mexico.

PSR/Boston

This chapter's lecture series on nuclear weapons included such speakers as Bernard Feld, Helen Caldicott, Randall Forsberg and Everett Mendellsohn, and was regularly attended by between 60 and 100 people. The next lecture will be given by Dr. John Mack on the Psychiatric Aspects of the Nuclear Arms Race, on January 5th at 7:30 p.m. at the Harvard School of Public Health in Lecture Hall G1.

The chapter is currently developing a slide presentation on the medical consequences of nuclear war, and writing articles on the medical consequences of the neutron bomb which they hope to place in the Op-Ed pages of Boston newspapers.

PSR/Canada

Dr. Frank Sommers reports that PSR/Canada has incorporated itself in that country. In the wake of an article in the Canadian Medical Association Journal (Vol. 123, page 418, Sept. 6, 1980), they have attracted new members from Newfoundland to British Columbia. On September 30, PSR/Canada and the University of Toronto Faculty of Medicine co-sponsored a special lecture by Dr. Helen Caldicott. PSR/Canada meets the first Wednesday of each month at 8:00 p.m. in Suite 406, 360 Bloor Street West, Toronto.

PSR/Central Mass.

The chapter is continuing its monthly film series, and has launched a lecture series on November 24th when Helen Caldicott spoke on "The Health Effects of Nuclear War." In Worcester, local papers have run articles on civil defense, and the testing of air raid sirens on a weekly basis has been revived. Several PSR members have responded by participating in local radio programs discussing the ineffectiveness of civil defense in relation to a nuclear attack.

PSR/Chicago

On October 30, approximately forty PSR members attended a meeting at the Rush Medical Center Faculty Lounge organized by Drs. Richard Gardiner, Charlotte Levine, and Quentin Young, and Wayne Jaquith. They included a broad cross-section of the Illinois medical community and several original PSR members. After seeing the slide show *John, Mary, MIRV and MARV: The Arms Race and the Human Race*, the group organized an official PSR chapter and designated Richard Gardiner to be acting coordinator.

PSR/Cincinnati

A new PSR chapter has formed in Cincinnati, and two of the members recently visited the national office and reported on their activities. The chapter plans to educate the public on the medical implications of the Zimmer nuclear power plant. To prepare them to deal with this and other issues, a weekly study group has formed, which was attended by two dozen people at its first session. Two AMSA grants have been applied for, one of which will be used for an eight week film series. The chapter also plans to air tapes that are relevant to PSR's issues on the University of Cincinnati radio station, and has begun by broadcasting a portion of the tapes of the symposium held at Harvard in February.

PSR/Maine

Maine physicians organized a PSR chapter after a September 6th seminar on the "Medical Consequences of Nuclear Power" presented by PSR Drs. Katherine Kahn, Henry Abraham, and Jennifer Link; Vince Taylor of the Union of Concerned Scientists; and PSR Executive Director Wayne Jaquith. The seminar was organized by Dr. Mary Skorapa. Contact Dr. Neil Korsen, PSR/Maine, 30 Johnson Road, Falmouth, Maine 04105.

PSR/New Haven, CT

This small but active chapter organized a one-day conference on "Human Health and Nuclear War" on October 18. Co-sponsored by Yale University School of Medicine, the program included Drs. Robert Berliner, Katherine Kahn, Jack Hughes, Robert Jay Lifton and Helen Caldicott, and nuclear weapons experts Kosta Tsipis and Herbert Scoville. The conference was attended by over three hundred health professionals and was certified for 6 hours of Category I CME credit. The afternoon session included a number of workshops that allowed registrants the opportunity to exchange ideas with the speakers.

PSR/NYC LOOKS AT PROBLEMS AT INDIAN POINT POWER PLANT

A major water leak and other problems at Indian Point nuclear power plant, 36 miles north of Manhattan, occurred on October 17, just one month before a conference on the health hazards of the plant that was organized by PSR/NYC and PSR/Old Westbury.

100,000 gallons of cooling water, in a spill attributed to corroded cooling system plumbing, were found inside the containment structure by plant operators on October 17, but not reported to the Nuclear Regulatory Commission (NRC) until October 20. The NRC criticized the operators' decision to restart the chain reaction after the leak was discovered, because the containment vessel which houses the nuclear reaction could have been dangerously weakened when the cool water hit its hot surface.

EXECUTIVE DIRECTOR'S REPORT

PSR's rapid growth continues. With 3,000 members, 25 formal chapters, and 18 groups organizing as chapters, we have become a truly national organization. A committee is drafting new by-laws that reflect the increased vitality of PSR chapters. Many of the national committees established by the Board of Directors in July have been actively working to build PSR. I'd like to report on a couple of these efforts.

Technical Committee: The assumption behind PSR is that physicians have knowledge that is crucial in the public discussion of nuclear technology. Temporarily chaired by Dr. Katherine Kahn, the Technical Committee has asked that chapters let it know what specific expertise they have and what they intend to develop, so that we can put our knowledge to work fulfilling the many requests we get for experts for such things as grand rounds, conferences, government hearings, court cases, press interviews, and magazine articles. The committee is also recruiting experts outside PSR to work with us.

In addition, the committee is taking on a project that PSR is particularly suited for: researching the existing data on the medical effects of nuclear technology. They will be collecting medical data for PSR's library, studying it with a critical eye, drawing what conclusions they

The individual who made the decision to restart "should have his license lifted," said Robert Pollard, former NRC safety engineer at Indian Point, who resigned in 1976 as a protest against unsafe practices at the plant.

Pollard, who now heads the Washington, D.C. office of the Union of Concerned Scientists, was the first speaker in the PSR conference entitled *Indian Point: Public Health and Public Policy* on November 22 at Columbia University.

Among the other speakers were Gordon McLeod, M.D., who was the Director of the State Department of Public Health in Pennsylvania at the time of the Three Mile Island accident; Leonard Solon, Director of the Bureau of Radiation Control of the New York City Department of Health; Rosalie Bertell of the Ministry of Concern for Public Health; and Charles Komanoff, an economist who specializes in energy, of the Environmental Defense Fund.

can, and deciding what studies of irradiated populations still need to be done.

Finally, the committee plans to expand our educational materials list by reviewing books and audio/visuals that we might be interested in distributing, and by developing more of our own. They also hope to develop a protocol for physicians who treat radiation-exposed patients.

Medical Outreach Committee: Established medical groups would have a powerful impact if they would actively educate their members and the public about nuclear technology. PSR members of these organizations have this as a goal as they attempt to make presentations and pass resolutions at the annual and regional meetings of the American Public Health Association, the American Medical Association, the American Psychiatric Association, the American Medical Students Association, and the American College of Emergency Physicians. The Medical Outreach Committee, which coordinates these efforts, is temporarily chaired by Dr. Tom Winters.

The Chapter Outreach, Fundraising, International Outreach, Labor Outreach, Press, and Public Policy Committees are also hard at work. If you would like to join any of these committees, please write to them c/o PSR, P.O. Box 144, Watertown, MA 02172.

Wayne T. Jaquith, Esq.

PSR/New York City

The New York chapter has kept up the momentum generated by the successful symposium on the "Medical Consequences of Nuclear Weapons and Nuclear War" (see cover story) by holding a conference on "Indian Point: Public Health and Public Policy" (see related story). PSR/New York City is also sponsoring a film and lecture series that includes *War Without Winners* on November 5; *Paul Jacobs and the Nuclear Gang* on December 17; and Amory and L. Hunter Lovins on January 10. Call Jon Rothblatt at 212/430-2046 for times and locations.

PSR/North Mississippi

A group of physicians and dentists active in the Concerned Citizens' Alliance of Corinth-Alcorn County have teamed up with a group from Tupelo to form the North Mississippi chapter.

Since a 1375 megawatt reactor is being built in the area by T.V.A. at Yellow Creek to provide power locally and sell the excess to surrounding states, considerable interest was evoked by two showings of the NBC documentary film "Danger: Radioactive Waste."

The first organizational meeting was held at the North Mississippi Medical Center in Tupelo in October. Ways to help the Concerned Citizens' Alliance in their fight for the conversion of Yellow Creek power plant from nuclear to coal were discussed.

PSR/Old Westbury, N.Y.

The chapter showed the film *Danger: Radioactive Waste* on September 24th, and about 50 medical students and faculty attended. On September 30th, their first organizational meeting of the school year attracted ten new people. Old Westbury worked with PSR/NYC on the Indian Point Symposium, and their future plans include a mail campaign to Long Island physicians.

PSR/Pittsburgh

On Sunday, October 26th, four PSR members appeared on the Pittsburgh talk show "Controversy," along with representatives from industry, the military, and other citizens' groups, to debate the pros and cons of increased military spending.

PSR/Rochester-Finger Lakes, N.Y.

Robert McLellan, M.D., reports that plans are advancing for a regional symposium on radioactive wastes to be co-sponsored with the Sierra Club. Members of the chapter are working with PSR's Technical Committee to produce written materials on the health hazards of radioactive waste transportation and disposal.

PSR/San Francisco

The chapter worked hard with national PSR in preparing for the "Medical Consequences of

Nuclear Weapons and Nuclear War" symposium that was held on November 17th and 18th, and the work paid off well. The symposium was co-sponsored by the University of California, San Francisco; Stanford University School of Medicine; University of California, Berkeley, School of Public Health; and the California Medical Association. Held in the Herbst Theater which seats over 900 people, the symposium sold out on the first day and has received a great deal of press coverage, both local and national.

PSR/Syracuse, N.Y.

This chapter is in its formative stages after visits by PSR President Helen Caldicott and Executive Director Wayne Jaquith. Interested physicians, dentists, and students should contact Gary Robbins, PSR/Syracuse, 1000 E. Division Street, Syracuse, N.Y. 13210.

PSR/Twin Cities, MN

Julie Keller and Jill Stebbins report that PSR has organized lectures by Dean Abrahamson, M.D., on the "Biomedical, Social and Political Effects of Nuclear Technology" and by Arnie London, M.D., on the "Health Hazards of Radiation Exposure and Nuclear Power." The chapter has twenty active members and is primarily concerned with the medical consequences of uranium mining and radioactive waste.

PSR/Washington, D.C.

The chapter organized an Educational Forum on "The Health Effects of Radiation" for Congress on Thursday, November 13 at the Dirksen Senate and Rayburn House Office Buildings. There were presentations on "The Health Hazards of Radiation" by Dr. William Caldicott; on "The Genetic Implications of Radiation" by Dr. Mary Coleman; on "Cancer and Radiation" by Dr. Steve Goodman; on "The Medical Consequences of Nuclear War" by Drs. Henry Abraham and Eric Chivian; and on "The Psychological Effects of Nuclear War" by Dr. Robert Jay Lifton.

PSR/Washington placed over thirty speakers this summer and fall, with each active chapter member speaking at least once. PSR member Dr. Irving Stillman recently testified on the inadequacy of the Draft Environmental Impact Statement for the Three Mile Island clean-up.

PSR/Washington State

Ken Lans reports that initiative 383, which requires that Washington no longer store out of state radioactive waste (except medical waste), was approved by 75% of Washington's voters. The chapter has finished its film series, which consistently drew 100 to 150 people. Helen Caldicott had a successful visit in September, giving two grand rounds, appearing on local TV and radio programs, and generating a number of news articles.

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COUNTY OF SAN DIEGO

INTER-DEPARTMENTAL CORRESPONDENCE

DATE November 20, 1980

To: Director, Department of Health Services

From: Medical Advisor to the Director, Department of Health Services

Re: Report on Symposium - THE MEDICAL CONSEQUENCES OF NUCLEAR WEAPONS AND
NUCLEAR WAR

On November 17-18, 1980, I attended the subject meeting sponsored by UCSF and Stanford University Schools of Medicine along with Physicians for Professional Responsibility, Inc. and the Council for a Livable World Education Fund. *Small*

The overall thrust of the meeting, attended by about ¹⁰⁰⁰ 500 persons, half of them physicians, was that the danger of nuclear war is great and growing, that such a war would destroy civilization if not all animal life on this planet, that the only way to prevent it is to reverse the arms race, and that all persons blessed with higher education have the opportunity and the obligation to work toward this goal.

This was not presented by the standard group of youthful, idealistic, unbarbered and unkempt anti-war activists. On the contrary, the panels included such august personages as the deans of the United States' two leading Schools of Public Health (Berkeley and Harvard), the president of the California Institute of Technology, the retired chief of research for the C.I.A., several full professors of physics from Stanford, M.I.T. and UC, including a Nobel laureate, the director of the Center for Defense Information, a law professor consultant to the Defense Department, and several renowned physicians and surgeons, one of whom directed the Hiroshima research project after World War II.

Among the major points made by various presenters, the following gist statements illustrate what I perceived to be their principal ones. For detailed identification of the speakers, please see the attached list of their names and positions.

Hiatt. There is no effective medical response possible after nuclear attack.

Goldberger. The threat of nuclear war increases with the number of countries having bombs (6 admitted; 11 possible). Two Poseidon submarines have the combined ability to deliver a one-megaton weapon on every major population center in USSR; we have twenty-one such subs on station.

Scoville. The MX system will increase the likelihood of Soviet attack. Pakistan's expected nuclear weapon capability, financed by Libya's dictator, is greatest danger to world at present. A nuclear war cannot be won by anyone, and probably cannot be survived.

Johnson. Workers in U.S. nuclear plants are showing up with chromosomal damage and tumors of lung, bone, testes and lymphatics. Current studies of plant workers' mortality are inadequate.

* Per. *Street Journal*

Director, Department of Health Services

November 20, 1980

Tsipis. Standard weapon is one-megaton, equivalent to one million tons of TNT, which would fill a freight train 200 miles long. Produces heat up to 100 million degrees, pressure up to 10 million atmospheres. Air burst can create a crater over 1,000 feet across, up to 200 feet deep; produces second and third degree burns up to 10 km. distance; contaminates an area of 23,100 square miles with fallout rendering it unsafe for at least one month. If 10% of the nuclear arsenals of the U.S. and U.S.S.R. were expended, it would destroy 80% of the earth's protective ozone layer, resulting in blindness of all animals, including man.

Drell. Current arsenal includes at least 15 thousand one-megaton weapons between U.S. and U.S.S.R. Radiation produces special problems of reduced resistance to infection and communicable disease even in small doses. A single one megaton bomb on Detroit would reduce the 18,000 existing hospital beds to a maximum of 5,000; more than 500,000 casualties would need these beds.

usable
Geiger. Computer models of effects of a one-megaton bomb on San Francisco show every-one and everything absolutely destroyed for 1-1/2 miles; at 2 miles 50% dead initially; secondary fires from 8 to 16 miles out. Estimate is 780,000 dead and 380,000 seriously injured. Less than one sixth of the 12,000 hospital beds would be left. There would be a maximum of 2,000 surviving physicians, who would each have to work with total efficiency 24 hours a day for eight to fourteen days just to see each seriously wounded survivor once, for 15 minutes or less. The major post-attack problems include inadequate and contaminated food and water, hordes of insects, rampant communicable disease and infections, corpse disposal, competition for food and shelter. There is no socially valuable survival possible after nuclear attack and it is actually unethical for any physician to participate in planning for nuclear disaster due to war because it misleads the public into thinking something is possible, when actually nothing at all is possible.

Winkelstein. This kind of information is being introduced into the curriculum of the UC Berkeley School of Public Health.

Constable. Principal medical problem after nuclear explosion is burns. If only a single one-megaton weapon were exploded in the U.S., the burn casualties alone would overwhelm the burn treatment capability of the entire U.S. medical system, even if that system were wholly intact and functioning.

Finch. Radiation effects are worst in children. Increased incidence of leukemia, solid tumors especially in the thyroid, retardation, diminished cranial size, multiple myeloma.

Feld. A one-megaton ground burst would create fallout releasing a radiation level of 500 to 1,000 Rems over an area of 1,000 square miles. This is a lethal dose. A pure "counter-force" exchange targeted only on weapons sites but not on population centers would involve the detonation of about 5,000 one-megaton weapons; the fallout would cover the entire continental U.S. with the 500-1,000 Rem level, which is fatal, and deliver 5 to 10 Rems (equal to a lifetime of cosmic radiation) to every person on earth. By 1990, increased weapon and site production will double these effects, and at the present rate of proliferation of weapons, such an exchange by the year 2000 would leave no survivors worldwide.

Chamberlain. The U.S. and the U.S.S.R. know the exact location of each others' major weapons.

Director, Department of Health Services

November 20, 1980

Melman. The current Defense budget exceeds all corporate U.S. profits. Nothing of productive use is purchased with this money, and since military industry is heavily subsidized and not cost-saving, productivity falls steadily and all prices rise, resulting in both inflation and unemployment. Much of the cost results directly from nuclear arms production, which continues in spite of the fact that there is no such thing as military superiority or winning in a nuclear war, and no sense in escalating overkill capability.

LaRoque. An outbreak of nuclear war could occur in any of four ways: (1) Accident. We have weapons all over the world, using 18 different delivery systems aboard trucks, planes ships. (2) Failure of Command and Control, i.e., computer error, which has already occurred. Our computers found their error; Russian computers might not. (3) Conventional war, with employment of small tactical nuclear weapons leading to escalation. Our conventional forces are all nuclearized. Two-thirds of all Navy vessels have nuclear weapons aboard. The Army has nuclear artillery and mines, in place on front line areas in Europe. Nuclear armed aircraft are widespread. Our leaders may find the need to use any of these weapons early in a conventional attack by the Soviets. This country and the U.S.S. R. both have policies and plans calling for preemptive nuclear strikes. France, England, Israel, the U.S. and the U.S.S.R. could all start their forces using nuclear devices, at any time they felt threatened enough. (4) Direct nuclear attack by either side. The Soviets are known to have at least 200 nuclear weapons off our coasts at all times, mostly in submarines. We have 3,000 weapons near them. In all, we could cause 10 thousand nuclear explosions throughout Soviet territory; they could cause 6 thousand in the U.S. If they were to launch, we would have a maximum of 30 minutes warning, during which to launch a counterstrike. There is no way to abort a missile once fired.

Fisher. The problem is in our heads, not in the hardware. We must abandon certain false assumptions:

- (1) That we can win a nuclear war. No one can win.
- (2) That our national security must come first. The Soviets are equally concerned with their own, and they can only be achieved in concert.
- (3) That threats will solve the problem. This is exactly like the guy in the lifeboat who threatens to sink it if he doesn't get a larger share of the food.
- (4) That there is a "military solution" in a nuclear war.
- (5) That it is someone else's to solve.

The overall conclusion of the conferees was that it is the opportunity and the responsibility of all physicians, scientists, businessmen, government workers and all other beneficiaries of our social and economic system to learn the realities of nuclear war and the arms race and force our national leaders to seek accommodations and dialogue with Soviet and other leaders in pursuit of a halt to the arms race and ultimately a reversal of it and elimination of nuclear weapons altogether.

I was persuaded. It is clear, however, that we must continue to plan for a rational response to a reactor accident, or one involving nuclear devices aboard naval vessels and aircraft, any one of which could require prompt measures, probably including evaluation, and massive outside support. It is clear that San Diego County has special, major problems in this connection.

Bud Mayer

William E. Mayer, M.D.

The Medical Consequences of Nuclear Weapons and Nuclear War

Sponsored by:

The University of California, San Francisco

Stanford University School of Medicine

University of California, Berkeley,

School of Public Health

November 17 and 18, 1980

San Francisco, California

Organized by:

Physicians for Social Responsibility

Council for a Livable World Education Fund

The Medical Consequences of Nuclear Weapons and Nuclear War

November 17 and 18, 1980

"The splitting of the atom has changed everything save our mode of thinking, and thus we drift towards unparalleled catastrophe. . ."

ALBERT EINSTEIN

This symposium, organized by *Physicians for Social Responsibility (PSR), Inc.*, and the *Council for a Livable World Education Fund*, is designed to educate the physician about the medical consequences of nuclear weapons and of nuclear war. A broad-based and renowned faculty will contribute expertise in academic and clinical medicine to the discussions.

Physicians for Social Responsibility (PSR), Inc., is a nonprofit organization committed to public and professional education on the medical implications of nuclear technology.

The Council for a Livable World Education Fund is a nonprofit corporation organized to educate the public about nuclear weapons, the dangers of the arms race, and the desperate need for serious arms control.

The program will be held in historic Herbst Theatre of the War Memorial Veterans Building, the site of the original signing of the United Nations Charter in 1945. Herbst Theatre is located in San Francisco's Civic Center, Van Ness Avenue and McAllister Street.

REGISTRATION

Date: Monday, November 17, 1980

Time: 8:00 a.m.

Place: The Lobby
Herbst Theatre
War Memorial Veterans Building
Civic Center, Van Ness Avenue and
McAllister Street
San Francisco, California

Fee: \$75.00 to physicians receiving CME Credit
\$15.00 non-physicians

PROGRAM

Day I, Monday, November 17, 1980

- 8:00 Registration
a.m.
- 8:50 Welcome
Peter G. Joseph, M.D.
President, San Francisco Bay Area Chapter, Physicians
for Social Responsibility
- 9:00 Introduction
Howard H. Hiatt, M.D., D.Sc.
Dean, Harvard School of Public Health
Professor of Medicine, Harvard Medical School

THE THREAT OF NUCLEAR WEAPONS

- 9:45 Moderator
Marvin Goldberger, Ph.D.
President, California Institute of Technology
- 10:00 The Present Nuclear Danger
Herbert Scoville, Jr.
Former Deputy Director for Research
United States Central Intelligence Agency
President, Arms Control Association
- 11:00 Medical Effects of Nuclear Weapons Production
Carl Johnson, M.D., M.P.H.
Director of Health, Jefferson County, Colorado
Associate Clinical Professor of Medicine,
University of Colorado Medical School
- 11:45 Physical Characteristics of a Nuclear Explosion
Kosta Tsipis, Ph.D.
Associate Director, Program in Science and Technology
for International Security, Massachusetts Institute of
Technology

- 12:30- Lunch
2:00

NUCLEAR WAR: ACUTE EFFECTS

- 2:00 Moderator
Joseph F. Boyle, M.D.
President, California Medical Association,
Vice Chairman, Board of Trustees, American Medical
Association
- 2:15 Effects of Nuclear Weapons and Nuclear War
on Civilians
Sydney Drell
Professor of Theoretical Physics and Deputy Director,
Stanford Linear Accelerator Center
- 3:00 Acute Medical Problems Among Survivors
H. Jack Geiger, M.D.
Arthur C. Logan Professor of Community Medicine
City College of New York

- 4:00 Psychological Effects of the Nuclear Arms Race
John E. Mack, M.D.
Professor of Psychiatry, Harvard Medical School
Winner, Pulitzer Prize
- 4:45 Summary
Helen Caldicott, M.B., B.S.
Associate in Medicine, Children's Hospital Medical
Center, Boston
President, Physicians for Social Responsibility

Reception to Follow Program

Day II, Tuesday, November 18, 1980

NUCLEAR WAR: INTERMEDIATE AND LONG TERM EFFECTS

- 9:00 Moderator
a.m. Warren Winkelstein, Jr., M.D., M.P.H.
Dean, University of California, Berkeley,
School of Public Health
- 9:15 Surgical Problems Among Survivors
John Constable, M.D.
Assistant Clinical Professor of Surgery,
Harvard Medical School
Visiting Surgeon, Massachusetts General Hospital
- 10:00 Cancer Incidence and Genetic Effects in
Atom Bomb Survivors of Hiroshima and Nagasaki
Stuart Finch, M.D.
Professor of Medicine, Rutgers Medical School
Former Director of Research, Radiation Effects
Research Foundation, Hiroshima
- 11:00 Long Term Effects of Nuclear Explosions
Bernard Feld, Ph.D.
Professor of Physics, Massachusetts Institute of
Technology
Editor-in-Chief, *Bulletin of the Atomic Scientists*

- 12:00- Lunch
2:00

POLITICAL AND ECONOMIC ASPECTS OF THE NUCLEAR ARMS RACE

- 2:00 Moderator
Owen Chamberlain, Ph.D.
Professor of Physics, University of California, Berkeley
Nobel Prize in Physics
- 2:15 The Economic Impact of Preparing for Nuclear War
Seymour Melman, Ph.D.
Professor of Industrial Engineering
Columbia University School of Engineering
- 3:00 How a Nuclear War Might Start
Gene R. LaRoque
Rear Admiral, United States Navy (Retired)
Director, Center for Defense Information

- 4:00 Preventing Nuclear War
Roger Fisher
Williston Professor of Law, Harvard Law School
Consultant to the Assistant Secretary of Defense for
International Security
- 4:45 Closing
H. Jack Geiger, M.D.
Arthur C. Logan Professor of Community Medicine
City College of New York

ACCREDITATION



As an organization accredited for continuing medical education, Extended Programs in Medical Education of the University of California School of Medicine at San Francisco (a division of Continuing Education in Health Sciences) designates this continuing medical education offering as meeting the criteria for **12 credit hours in Category I** of the Physician's Recognition Award of the American Medical Association and the Certification Program of the California Medical Association.

This program is also approved for **6 hours in Category I** by the American College of Emergency Physicians, and it is acceptable for **12 elective hours** by the American Academy of Family Physicians.

Registration

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We Should Work With the Soviets to Avoid Nuclear War . . .

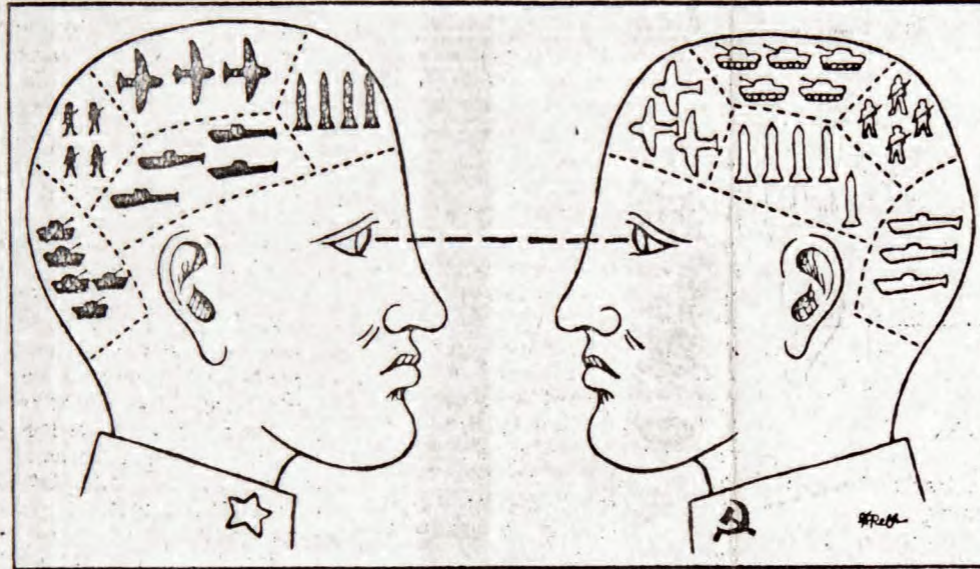
By ROGER FISHER

The incoming administration is rightly concerned about national security or, more accurately, national insecurity.

The consequences of a strategic nuclear war with the Soviet Union would be so disastrous that, however small the chance of such a conflict might seem, it is of utmost importance to reduce that possibility. Republicans have been among the first to recognize and insist that difficult national problems such as energy, urban blight, inflation and productivity cannot be solved simply by throwing money at them.

The same is true of national security. Throwing money at the Pentagon could well worsen our security problem. Certainly senators, who recognize the difference between costs and benefits, will want to ask our designated new secretary of defense, Caspar W. Weinberger, some basic questions before they assume that more military spending equals greater security. Here are a few questions, with suggested answers:

—Can the Soviets make the world more dangerous for us without also making it more dangerous for themselves? The answer is almost certainly "No." It is highly unlikely that if nuclear missiles were to be fired they would all fly in one direction. We should make the Kremlin realize that building more and more missiles aimed at the United States also endangers the Soviet Union. The Soviets need to understand that it is not in their interest to have a United



GEORGE REBH

States that feels insecure and that is armed to the teeth, ready to kill millions at a moment's notice. For the truth is that the more secure the United States feels—that is, the less threatened—the less risk there is of the Soviets being destroyed by U.S. weapons. Soviet security depends on Moscow's being a low risk to the United States.

—Can we increase the risk of nuclear war to the Soviet Union without also increasing the risk to the United States? The answer, again, is certainly "No." There is no plausi-

ble way in which nuclear war can become more likely for the Soviet Union but less so for the United States. The risk of nuclear war is a shared risk; we are on this fragile planet together. The more weapons we build, the more grounds we provide for the Soviets to be paranoid and trigger-happy. And the less secure they feel, the less secure we are. The greater the risk that we will fire nuclear weapons at them, the greater the risk that we, too, will be incinerated.

—Is there a hardware solution? Poli-

cians and military planners often talk as though we could be "secure" if only the United States had enough military equipment. The suggestion is that, with more technology—lasers, antiballistic-missile devices, better radar and an MX missile system—plus bomb shelters and civil defense, we will be safer. The truth is quite the contrary. As warheads get larger and missile flight-times shorter, both sides become less and less able to provide any physical defense. A multibillion-dollar MX system may provide limited safety for a few nuclear warheads, but not for people. As missiles become more accurate, each side is under increasing pressure in any crisis not to be the second to fire its missiles. And no amount of military equipment can protect us against the risk that some Soviet officers, fearing that we may be about to strike, will decide to fire their missiles first.

—How can we best reduce the national insecurity of the United States? The risk of massive destruction of the United States is due partly to military hardware, partly to the way we think. Since there is no feasible way of getting rid of nuclear weapons, the greatest opportunity for reducing the risk lies in changing the working assumptions of both sides. U.S. national security lies not in scaring the Soviet Union into adopting a hair-triggered and deadly posture. Rather, our security will be increased to the extent that the Soviet Union can be persuaded to sit side-by-side with us to jointly tackle the problem of improving our mutual security.

—Is there any international problem for which nuclear war is better than coping with that problem? No. Creating a risk of nuclear war may be one means of deterring naked aggression and other outrageous conduct, but no one should conclude that nuclear war is preferable to any alternative. It might be smart to say "Better dead than Red," but no U.S. administration should conclude that mutual military suicide is in fact better than forging on with confidence that the ideas of Jefferson and Lincoln will prevail over those of Marx and Stalin.

Those who question nuclear weapons as a solution to the problem of making the world work are sometimes called naive. In truth, those who are really naive are people who still believe in military solutions to political problems. Like Linus, they cling to a security blanket—made of plutonium. There is no way that exploding a stick of dynamite will make a marriage work, that exploding a ton of TNT will make a village work or that firing nuclear weapons will make the world work. Rather than spend money on explosives designed to scare the Soviets, we should work with them to develop alternative approaches. The more hostile their intentions may be, the more imperative it is that we convince them to carry on our differences in political, not nuclear, ways.

Roger Fisher is Williston professor of law at Harvard, where he is director of the Harvard Negotiation Project and teaches a course called "Coping with International Conflict."

PHYSICIANS JOIN HANDS AGAINST DISASTER

World's Doctors Fear Nuclear War

From The San Diego Union's News Services

WARRENTON, Va. — More than 100 physicians from the United States, the Soviet Union and other nations gathered this weekend at a conference center in the placid Virginia countryside to pursue what most of them feel is their ultimate healing duty — the prevention of nuclear war, the ultimate medical emergency.

Although they are from Communist, Socialist and capitalist backgrounds, they brought with them a remarkably similar message: That society cannot survive nuclear war and that no strategic policy should be based on the idea that physicians will somehow save enough people to continue civilized life.

"We doctors want to say to the political leaders that if there is nuclear war, do not expect us to be able to patch up your wounds, physical or psychological," said Dr. Robert Lifton, a psychiatrist from Yale University.

The doctors were attending the first Congress of International Physicians for the Prevention of Nuclear War, held at the Airlie Conference Center here, about an hour's drive from Washington. They came from France, Japan, the Netherlands, Britain and many other nations. They said they were part of a growing worldwide movement among doctors who believe that it is their responsibility to alert political leaders and the public to the medical consequences of nuclear war.

Eleven high-ranking physicians came from the Soviet Union, including Dr. Yi Chazov, a cardiologist who has attended to Leonid I. Brezhnev, the Soviet leader. In comments to reporters Friday afternoon and in remarks at a plenary session yesterday, Chazov issued a warning that struck many observers here as remarkably blunt and frank.

"Some of the military, public functionaries and even scientists are trying to diminish the danger of the nuclear arms race," he said, "to minimize the possible consequences of a nuclear war."

"Statements appear that a nuclear war can be won, that a limited nuclear war can be waged, that humanity and the biosphere will still persist even in conditions of total nuclear catastrophe," he continued. "This is an illusion which many of them do not believe themselves and which must be dispersed."

Chazov, director-general of the National Cardiology Research Center in Moscow, said Soviet studies have shown that a one-megaton nuclear explosion in a Soviet city would kill about 300,000 people immediately and wound or burn another 300,000. He said 80 percent of the doctors would die in such a nuclear attack and most of the hospitals, drugs and blood supplies would be destroyed. "We could not help the people," he said and called for a ban on nuclear weapons.

His remarks closely paralleled those of Dr. Bernard Lown, a Harvard University cardiologist who is the president of International Physicians for the Prevention of Nuclear War. A "mythology" is being created, he said, that a nuclear war will not occur, or that if one does occur it will not be extensive.

A nuclear attack on just one American city the size of Boston would more than exhaust the entire medical resources of the nation just in treating burn victims, he said.

The doctors came together amid what many of them see as a strong drift of governments of the East and West toward a nuclear calamity. The purpose of the conference was more to generate public awareness of their message than to review the medical implications of a nuclear war, on which they largely agree.

Chazov says the 74-year-old Brezhnev is "healthy and energetic and agile."

Chazov was reluctant to discuss his top patient.

He told UPI through an interpreter that "The health of President Brezhnev is his personal matter.

"So it is to him (Brezhnev) what to divulge about his own health," Chazov said. "But judging from his appearance, from his activities, I see he is healthy and energetic and agile.

"I'm not sure who prays for the state of his (Brezhnev's)

health," Chazov added. "It is very interesting. Perhaps it is due to the prayers of Secretary of State Haig. I see, reading Time magazine, that every day he prays for his health."

A recent Time article quoted Haig as telling friends:

"Every night I pray that Brezhnev stays healthy and alive for a good while to come. At least until we have caught up with the Soviet Union. Because if he goes suddenly, I believe that the young ones waiting in the wings will take over . . . They are in a very expansive mood."

in Virginia to Warn of Nuclear War's Effects

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'Mythology' About War Is Assailed

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nuclear calamity. The purpose of the conference was more to generate public awareness of their message than to review the medical implications of a nuclear war, on which they largely agree.

The physicians for the most part avoided discussing the international political maladies behind the buildup of nuclear weapons, saying they preferred to concentrate on what they agreed on.

'Thin Ice of Politics' Avoided

The Soviet delegation was accompanied by Georgy Arbatov, a leading Soviet expert on American affairs. Pressed by reporters to explain why his government continues to build nuclear weapons, he said he preferred to avoid the "thin ice of politics and policy."

But he applauded the efforts of the doc-

tors. "Doctors of the world unite," he said with a chuckle.

Over the next five days the doctors will discuss such matters as the delayed medical effects of nuclear war as well as the expected psychological, environmental, radiation and other effects. There will also be considerable attention paid to the unpredictable effects of nuclear war and how to counter the notion that "limited" nuclear war is a possibility.

"People are getting toughened about death," said Dr. Thomas C. Chalmers, Dean of the Mount Sinai Medical School. "They do not realize the prolonged suffering of nuclear attacks, with hundreds of people taking weeks to die, screaming to be shot, with no medical help available. Our whole concept of a civilized response to a tragedy is totally inapplicable."



International Group of Physicians Gathers in

By ROBERT REINHOLD

Special to The New York Times

WARRENTON, Va., March 20 — More than 100 physicians from the United States, the Soviet Union and other nations gathered today at a conference center in the placid Virginia countryside to pursue what most of them feel is their ultimate healing duty — the prevention of nuclear war, the ultimate medical emergency.

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believe that it is their responsibility to alert political leaders and the public to the medical consequences of nuclear war.

11 Soviet Doctors Attend

Eleven high-ranking physicians came from the Soviet Union, including Dr. Yi Chazov, a cardiologist who has attended to Premier Léonid Brezhnev. In comments to reporters this afternoon and in remarks prepared for a plenary session scheduled tomorrow, Dr. Chazov issued a warning that struck many observers here as remarkably blunt and frank.

"Some of the military, public functionaries and even scientists are trying to diminish the danger of the nuclear arms race," he said, "to minimize the possible consequences of a nuclear war."

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January 29, 1981

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8038 El Paseo Grande
La Jolla CA 92037

Dear Dr. Szilard:

It is my honor and privilege to advise you that you were elected to the board of directors of the Council for a Livable World Education Fund at a meeting of the board held on January 22, 1981 at the Harvard Faculty Club, Cambridge, Massachusetts.

You will be kept informed of all activities by the Fund. We would welcome your participation and suggestions on any and all of our projects.

Among our current activities are:

- 1) A symposium on "The Medical Effects of Nuclear Weapons and Nuclear War" to be held in Seattle on April 18 in Meany Hall on the campus of the University of Washington, sponsored by the University of Washington Medical School.
- 2) A similar symposium on June 19 and 20 at the Pick Congress Hotel in Chicago.
- 3) A similar symposium in October in Los Angeles.
- 4) Distribution of 25,000 pamphlets reproducing President Eisenhower's Farewell address.
- 5) Partial subsidization of the promotion of a new book on the MX written by Herbert Scoville, Jr. to be published this fall by MIT Press.
- 6) Establishment of a Speakers' Bureau.

We will look forward to working with you.

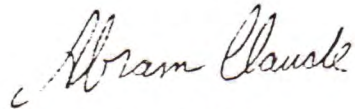
Sincerely,

George Kistiakowsky
George Kistiakowsky
Chairman

GK/cc

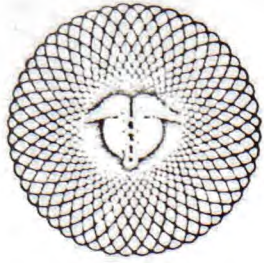
I am enclosing a copy of our current newsletter for your interest. Let me know if I can be of any help.

Sincerely,

A handwritten signature in cursive script that reads "Abram Claude". The signature is written in dark ink and is positioned above the typed name and title.

Abram Claude
Acting Executive Director

Encl.



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Medical School

February 4, 1981

Gertrude Weiss Szilard, M.D.
8038 El Paso Grande
La Jolla, CA 92037

Dear Dr. Szilard:

I'm sorry about the fact that our materials were sent third class. Your envelope was most likely mixed in with literature orders, which do go third class. Nonetheless, I'm glad you finally received the material and plan to be active.

We do plan another symposium in Los Angeles on October 31st and November 1st, 1981. The symposium will be part of the activities of the American Public Health Association annual meeting, but will be open to anyone interested in attending. Our only other symposium planned for the West Coast is a one day affair in Seattle, WA on April 18th.

We are connected to the International Physicians for the Prevention of Nuclear War by virtue of the fact that a good many of their members are also members of PSR. IPPNW is not a membership organization, however. There are approximately 40 American physician members, with an equivalent number in the USSR. Their purpose is to begin a physicians' "pugwash movement," with the hope that M.D.'s will fare better in calling the world population's attention to this problem. Their first meeting will be in Washington, D.C. from March 19th to March 25th. For more details I recommend you contact Eric Chivian, M.D.

60-A Lewis Wharf
Boston, MA 02110

Eric is serving as the treasurer and part-time staff for IPPNW.

I am enclosing the names of three members in the San Diego area. At this point, the bulk of our West Coast membership is in San Francisco, with a growing group in Los Angeles. We do not yet have a large number in other parts of the state.

A. ERCK/
K. SCHEFFEL

Naturwissenschaftler und Weltfrieden

Zur Geschichte und Bedeutung der internationalen Pugwash-Konferenzen über Wissenschaft und Weltangelegenheiten

Als Manuskript gedruckt! DK 161.521:172.4

Zum 20. Jahrestag der Befreiung Deutschlands vom Faschismus

Seit dem Gelingen der künstlichen Uranspaltung Ende 1938 und vor allem seit den Tagen von Hiroshima und Nagasaki haben sich die Naturwissenschaftler, speziell die Atomphysiker in den imperialistischen Staaten, in hohem Maße mit den ökonomischen, politischen und militärischen, kurz mit sämtlichen sozialen Auswirkungen ihrer wissenschaftlichen Tätigkeit befassen müssen.

Mit der sich in allen Ländern durchsetzenden wissenschaftlich-technischen Revolution ist sowohl ein rasches Anwachsen der wissenschaftlichen Erkenntnisse verbunden als auch die Konsequenz, das erworbene Wissen rasch in der Produktionspraxis zu nutzen. Die Wissenschaft wird zu einer direkten Produktivkraft der Gesellschaft. Vom Wesen der jeweilig herrschenden sozialen Verhältnisse aber ist es abhängig, zu welchen Zwecken wissenschaftliche Erkenntnisse technisch, wirtschaftlich und politisch verwertet werden. Der Mißbrauch wissenschaftlicher Großtaten zugunsten kleiner Gruppen, ihre Verwendung zu Kriegszwecken durch Regierungen, die offen oder insgeheim einen Präventivkrieg beabsichtigen, erschreckte und mobilisierte Volksmassen und Wissenschaftler gleichermaßen. Immer mehr namhafte Gelehrte in der kapitalistischen Welt erkannten, daß unter den gegebenen wirtschaftlichen, politischen und nicht zuletzt militärtechnischen Gegebenheiten der Krieg kein Mittel zur Regelung internationaler Angelegenheiten mehr sein kann, daß er aus dem Leben der Menschheit verbannt werden muß. Bekannte Persönlichkeiten, einzelne Organisationen der Wissenschaftler, internationale Vereinigungen erhoben mahnend ihre Stimme, warnten vor den Gefahren eines mit nuklearen Waffen geführten Krieges und boten allen Friedensbestrebungen ihre aktive Unterstützung an.

Bekannt geworden sind insbesondere der Göttinger Appell der 18 Atomforscher, die von über 10000 Wissenschaftlern unterzeichnete Petition *Linus Paulings* an den UN-Generalsekretär und die von 52 Nobelpreisträgern aus vielen Staaten unterschriebene Mainauer Erklärung. Letztere endet, wie manche andere Deklaration der Naturforscher, mit der Mahnung: „Alle Nationen müssen zu der Entscheidung kommen, freiwillig auf die Gewalt als letztes Mittel der Politik zu verzichten. Sind sie dazu nicht bereit, so werden sie aufhören zu existieren“ ([1], S. 218).

Es zeigt sich also, daß auf Grund der Entwicklung von Wissenschaft und gesellschaftlichen Beziehungen die meisten Naturwissenschaftler aus ihrem — wenn auch oftmals nur scheinbaren — Elfenbeinturm der reinen Wissenschaft herausgetreten sind, den Standpunkt eines Nur-Wissenschaftlers überwunden ha-

ben und auf nationaler und internationaler Ebene eingriffen in das Ringen der Menschheit um den Frieden.

Deshalb ist es auch kein Zufall, daß sich an der Spitze jener Organisationen, aus denen sich die Weltfriedensbewegung rekrutiert, vielfach Naturwissenschaftler befinden. So präsidierte bis zu seinem Tode der französische Atomphysiker *Frédéric Joliot-Curie* dem Weltfriedensrat. Er wurde abgelöst durch den englischen Naturforscher *J. D. Bernal*, der dieses Amt auch heute noch in selbstloser Weise ausübt. *Joliot-Curie* war darüber hinaus seit 1946 Präsident der „Weltföderation der Wissenschaftler“, einer aus über 150000 Wissenschaftler vieler Länder der Welt bestehenden Vereinigung, deren Charta an die erste Stelle die Verpflichtung stellt, daß der Wissenschaftler dem Frieden zu dienen habe [2]. Gegenwärtig ist der englische Physiker *C. F. Powell* Vorsitzender der WFW. Auch die Weltkonferenz für das Verbot der A- und H-Waffen, die 1964 ihre 10. Tagung abgehalten hat, zählt namhafte Naturforscher zu ihren aktivsten Mitstreitern.

Während die genannten Organisationen eine breite Vereinigung friedliebender Kräfte aus allen sozialen Schichten und Nationen darstellen oder doch die Verbindung mit ihnen (so die WFW) anstreben, gibt es auch eine Anzahl von Vereinigungen, die primär von Naturwissenschaftlern, unter Umständen sogar nur von Atomphysikern getragen werden. Die bekannteste dieser Art ist wohl die Pugwash-Bewegung, die 1964 in Karlovy Vary ihre 13. Konferenz abgehalten hat. Ihre Geschichte, die zugleich ein wichtiges Stück Zeitgeschichte ist, erscheint deshalb bedeutsam, weil in den acht Jahren seit ihrer Gründung die Pugwash-Bewegung als ein Bestandteil der Friedensbemühungen der Wissenschaftler aus den sozialistischen, kapitalistischen und paktfreien Staaten in hohem Maße zur Verständigung zwischen prominenten Naturwissenschaftlern beigetragen hat. Durch die Teilnahme solcher Wissenschaftler, die unmittelbare Berater der Regierungschefs der Großmächte waren, wie beispielsweise *Jerome Wiesner* als Special Assistant des amerikanischen Präsidenten Kennedy und der sowjetische Chemiker *A. V. Topolschiew* als fachtechnischer Berater der Regierung der UdSSR, konnten die Pugwash-Konferenzen einen nicht geringen Anteil zum Abschluß des Moskauer Teststopabkommens beitragen. Ähnliches läßt sich auch von den französischen und britischen Teilnehmern dieser Konferenzen sagen.

Alle diese genannten Umstände lassen es als berechtigt erscheinen, eine Untersuchung über die Geschichte, das Wesen und die Bedeutung dieser wich-

tigen internationalen Bewegung der Wissenschaftler anzustellen, deren wesentlichste Aufgabe die Verfasser in folgendem sehen:

- Darstellung der Ursachen für das Entstehen der Pugwash-Bewegung;
- Analyse des Inhalts und der Aufgabenstellung der Konferenzen;
- Untersuchung des Verhältnisses der Pugwash-Bewegung zu anderen Organisationen, deren erklärtes Ziel es ist, den Frieden zu sichern;
- organisatorischer Aufbau der Bewegung (Rolle der Konferenzen, des ständigen Komitees, der Zonenkonferenzen und der nationalen Gruppen);
- Bedeutung der Vorschläge und Aktionen der Pugwash-Bewegung für die Sicherung des Weltfriedens und die internationale Abrüstung.

In diesem Zusammenhang erscheint es erforderlich einiges zur Bedeutung der nationalen Pugwash-Gruppe der DDR und zur Teilnahme von Wissenschaftlern unserer Republik an den Tagungen zu sagen.

In erster Linie soll jedoch die Untersuchung der Information der Öffentlichkeit über die Pugwash-Bewegung dienen, da bislang über sie, abgesehen von einigen kleineren Publikationen und sporadischen Pressemitteilungen sowie den Meldungen der WFW, nichts in der DDR publiziert worden ist. Eine zusammenfassende Darstellung der Entwicklung der Pugwash-Konferenzen hinsichtlich ihrer Zielstellung und Bedeutung, ihres Teilnehmerkreises (speziell aus den beiden deutschen Staaten) und Hinweise auf eine mögliche Bewertung der Leistungen dieser Bewegung erscheint deshalb wichtigste Aufgabe dieser zeitgeschichtlichen Untersuchung, die selbstverständlich keinerlei Anspruch auf eine allseitige Analyse der vielfältigen Diskussionen der Konferenzen erheben kann. Das ist schon deshalb nicht möglich, weil die Konferenzen unter Ausschluß der Öffentlichkeit stattfinden und es nur den jeweiligen Referenten erlaubt ist, ihre Gedanken und Referate auch einem breiteren Kreise zur Kenntnis zu geben.

Es sind hier also nur erste zusammenfassende Gedanken möglich, weil einmal der Problemkreis sehr weit gespannt ist und zum anderen nur ein verschwindend geringer Teil der Ausführungen der Wissenschaftler zugänglich ist und auch die offiziellen Erklärungen der Bewegung über viele Zeitschriften verstreut sind, was die Materialsammlung außerordentlich erschwert.

Die Verfasser haben sich bemüht, nach Möglichkeit jene Literaturangaben zu benutzen, die dem deutschen Leser am leichtesten erreichbar sind. Die einzige uns bekannte zusammenfassende Abhandlung über die Pugwash-Bewegung stammt aus der Feder ihres Generalsekretärs, des Engländers *Joseph Rotblat* [3] und umfaßt auch nur die ersten acht Tagungen. Daneben gibt es noch eine ganze Reihe von Grußadressen führender Staatsmänner sozialistischer und kapitalistischer Staaten an die Konferenzen und einige Überblicksdarstellungen zu einzelnen Abschnitten der kurzen, aber wohl doch wirkungsvollen Geschichte dieser Bewegung. Eine umfassende Wertung aus der Sicht der marxistischen Geschichtsschreibung ist nicht bekannt.

1. Die Ursachen für die Herausbildung der Pugwash-Bewegung

Der wichtigste Grund dafür, daß sich Naturwissenschaftler aus Staaten mit unterschiedlicher, ja entgegengesetzter Gesellschaftsordnung und mit verschiedenartigen weltanschaulichen Vorstellungen mit Nachdruck und Ausdauer darum bemüht haben, internationale Zusammenkünfte zu organisieren, ist in der geschichtlichen Situation zu Beginn der fünfziger Jahre unseres Jahrhunderts zu suchen. Die Aufspaltung der Welt in zwei Weltsysteme, das atomare Wettrüsten, der vor allem von den USA inszenierte kalte Krieg und die sich ständig erhöhende Gefahr, daß dieser kalte Krieg in einen heißen umschlagen könnte, verlangte von allen friedliebenden und verantwortungsbewußten Kräften der Menschheit, ihre Anstrengungen zu verstärken und sich auch auf internationaler Ebene zu vereinigen.

Neben diesen Ursachen gab es für die Physiker und Chemiker aus der Sowjetunion, den Vereinigten Staaten und Großbritannien noch eine Reihe spezieller Gründe, die eine internationale Zusammenarbeit im Kampf um den Frieden erforderlich machten. Nachdem die Bemühungen der UdSSR um die Kontrolle der Kernenergie in den entsprechenden Ausschüssen der Vereinten Nationen an der starren Haltung der Regierung der USA gescheitert waren, nachdem auch die Versuche amerikanischer Wissenschaftler, ihre Staatsmänner zu einer weitsichtigen Entscheidung zu bewegen, erfolglos geblieben waren, kam es zu einer Verhärtung der internationalen Situation, zum Wettrüsten [4]. Insbesondere wurde die Produktion von Kernwaffen und ihrer Träger vorrangiges Objekt militärtechnischer Anstrengungen und wurden damit die Atomphysiker und Raketenspezialisten zu „Geheimnisträgern“.

Amerikanische Forscher auf diesen Gebieten erhielten keinerlei Möglichkeiten, ins Ausland zu reisen, internationale Kontakte zu pflegen. Die Wasserstoffbombe, die sogenannten „Superwaffen“ wurden entwickelt und erprobt. Die amerikanischen und britischen Versuche in der Südsee forderten das Leben japanischer Fischer; der radioaktive Niederschlag gefährdete ganze Länder; die Weltöffentlichkeit war alarmiert; sozialistische Staaten und paktfreie Nationen protestierten in scharfer Form.

In diesen Zeitraum fallen dann auch die ersten Versuche der Atomphysiker vieler Länder, zu einer internationalen Zusammenarbeit zwecks Verminderung der Kriegsgefahr zu gelangen.

Die Triebkraft für diese Entscheidung bestand bei den Forschern der kapitalistischen Staaten insbesondere in dem Versuch, aus der moralisch-politischen Konfliktsituation herauszukommen, in die ihre Wissenschaft und sie selbst durch die sozialen Verhältnisse und die offizielle Politik ihres Landes geraten waren. Die Wissenschaftler aus den sozialistischen Staaten ließen sich ihrerseits leiten von dem Bestreben, in Übereinstimmung mit der Politik ihrer Regierung, die Spannungen zu vermindern, die akute Kriegsgefahr durch die Durchsetzung der Politik der friedlichen Koexistenz zu bannen.

Diese allgemeinen Notwendigkeiten gaben im wesentlichen den Ausschlag dafür, daß sich Naturwissen-

schaftler der entgegengesetzten Gesellschaftsordnungen um eine internationale Zusammenarbeit auch auf dem so „heißen Pflaster“ der die Kernenergie betreffenden Fragen bemühten. Die Organisation der Zusammenkünfte barg jedoch eine ganze Reihe von Problemen in sich und offenbarte zugleich, wie weit die Ansichten der Naturwissenschaftler sozialistischer und imperialistischer Staaten in diesen Problemen auseinandergingen und auch heute noch gehen.

Weil dieser Sachverhalt sich schon bei der Gründung der Pugwash-Bewegung deutlich abzeichnete und sich in der nachträglichen Kommentierung durch die am Zustandekommen der ersten Tagung maßgeblich beteiligten Wissenschaftler deutlich sichtbar niederschlägt, erscheint es erforderlich, den nur scheinbar äußerlichen Erscheinungen entsprechende Aufmerksamkeit zu schenken. Schon die ersten Schritte zwecks Konstituierung einer Tagung zeigen deutlich, mit welchen Erwartungen und welcher weltanschaulichen Position die einzelnen Wissenschaftler an die Gründung der Bewegung hergegangen sind, wobei — das soll hier nachdrücklich hervorgehoben werden — an der Lauterkeit und Integrität der Persönlichkeiten nicht der geringste Zweifel herrschen kann.

Zu Beginn der fünfziger Jahre gab es die ersten Versuche amerikanischer und britischer Atomphysiker, repräsentiert durch die „Federation of American Scientists“ (offizielles Publikationsorgan: „Bulletin of the Atomic Scientists“, Herausgeber *Eugene Rabinowitch*) und die „Atomic Scientists' Association“ („Atomic Scientists News“ und „Atomic Scientists Journal“; beide haben keine lange Lebensdauer gehabt), die durch Verschulden der amerikanischen Regierung abgebrochene Zusammenarbeit wieder aufzunehmen.

Anfang des Jahres 1954, nach den Tests bei Bikini, forderte der indische Ministerpräsident *Nehru* und die „Vereinigung der Wissenschaftler Indiens“ die Wissenschaftler der Welt und speziell die WFW auf, „eine internationale Zusammenkunft der Wissenschaftler zu organisieren, die wirksame Maßnahmen für ein Verbot aller Massenvernichtungsmittel vorschlagen könnte“ ([5], S. 15). Auf einer Sitzung des Exekutivrates der Weltföderation im September 1954 wurde deshalb der Beschluß gefaßt, eine internationale Wissenschaftlerkonferenz zu organisieren, die so repräsentativ als nur irgend möglich sein sollte. Ein Ersuchen des damaligen Präsidenten der WFW, *Joliot-Curie*, an den Präsidenten der UN-Vollversammlung, einen Kongreß über die Kernwaffengefahren einzuberufen, wurde ob des heiklen Themas nicht aufgegriffen, weshalb auch auf der ersten Genfer Konferenz „Atome für den Frieden“ dieses Thema nicht behandelt werden durfte (und beispielsweise der große amerikanische Gelehrte *H. J. Muller*, der zu diesem Problem sprechen wollte, keine Ausreisegenehmigung erhielt). Dennoch muß diese Genfer Konferenz als ein wichtiger Schritt zur Verbindung der Wissenschaftler gewertet werden, da auf ihr erstmalig nach dem Krieg Atomwissenschaftler über einen wesentlichen Aspekt ihrer Arbeit sprechen konnten.

Im November 1954 wurde *Burhop* von WFW der Wissenschaftler beauftragt, die Vorbereitungen für

eine Konferenz über Kernwaffengefahren zu übernehmen, deren Teilnehmer nicht nur die WFW vertreten sollten, sondern auch hervorragende Gelehrte umfassen mußte, die den Regierungen ihrer Staaten nahestanden. Im Januar 1955 wurde deshalb ein von *Joliot-Curie* unterzeichnetes Memorandum an bekannte Wissenschaftler verschickt mit der Bitte um Unterstützung der Konferenz und Unterzeichnung einer entsprechenden Erklärung sowie der Aufforderung, dem Initiativkomitee beizutreten. Neben bejahenden Antworten gab es aber auch eine ganze Reihe skeptischer Äußerungen.

Etwa in diesen Zeitraum fallen auch die Bemühungen anderer Gruppen von Wissenschaftlern, den Friedenskampf der Gelehrten zu aktivieren. Neben den Kontakten zwischen den englischen und amerikanischen Atomphysikern, vertreten durch *Joseph Rotblat* und *Eugene Rabinowitch*, war es vor allem *Bertrand Russell*, der sich für einen internationalen Kampf der Wissenschaftler gegen die Atomgefahren einsetzte. An letzteren wandte sich *Joliot-Curie* am 31. Januar 1955 mit der Bitte um Unterstützung der Bemühungen der WFW. In seinem Antwortschreiben vom 5. Februar erklärte sich *Russell* mit einem gemeinsamen Vorgehen einverstanden, meinte aber, daß nicht eine Konferenz am Anfang der Zusammenarbeit stehen sollte, sondern ein Manifest berühmter Wissenschaftler über die Gefahren der Kernwaffen, das auch den Vorschlag zu einer Konferenz zu diesen Problemen beinhalten sollte ([5], S. 17).

Das Ergebnis der nun einsetzenden Bemühungen *Russells* ist jener berühmte *Einstein-Russell-Appell*, der am 9. Juli 1955 in London der Öffentlichkeit übergeben wurde. Seine von *M. Born*, *P. W. Bridgman*, *A. Einstein*, *L. Infeld*, *F. Joliot-Curie*, *H. J. Muller*, *L. Pauling*, *C. F. Powell*, *J. Rotblat*, *B. Russell* und *H. Yukawa* unterzeichnete Resolution hat folgenden Wortlaut: „Angesichts der Tatsache, daß in einem künftigen Weltkrieg Kernwaffen bestimmt benutzt werden würden und daß derartige Waffen das Fortbestehen der Menschheit bedrohen, fordern wir die Regierungen der ganzen Welt auf, einzusehen und öffentlich einzugestehen, daß ein Weltkrieg ihren Zielen nicht förderlich sein kann. Weiterhin fordern wir sie auf, friedliche Mittel aufzufinden, um alle Streitsachen zwischen sich zu schlichten“ ([6], S. 394). Dieser Appell fand — ähnlich wie die Göttinger Erklärung — ein großes Echo ([3], S. 6).

Kurz danach (3. bis 5. August 1955) wurde in London eine Tagung der „Association of Parliamentarians for World Government“ abgehalten, an der auch *Russell* teilnahm (ebenso *Rabinowitch* und *Rotblat*) sowie eine Gruppe sowjetischer Naturwissenschaftler, unter ihnen *Toptschiew* und *Kusin*. Auf der Grundlage des *Einstein-Russell-Appells* setzte sie drei Kommissionen ein (sie entsprechen jenen der ersten Pugwash-Konferenz), die sich mit Fragen der Konsequenzen der Kernwaffen, mit Problemen der Abrüstung und der sozialen Verantwortung der Wissenschaftler befaßten ([3], S. 6).

Alle diese Bemühungen führten im Herbst 1955 zur Bildung eines Initiativkomitees, um das sich vor allem *Russell*, *Powell* (inzwischen Präsident der WFW), *Rotblat*, *Rabinowitch* und *Burhop* Verdienste erworben haben. Man beschloß im Mai 1956, für Ende 1956

oder Anfang 1957 nach Indien eine Tagung von 20 bis 25 bekannten Wissenschaftlern einzuladen. Daß diese Konferenz nicht zustande kam, hatte zweierlei Gründe. In erster Linie war nach dem Suezkonflikt unklar, ob viele Wissenschaftler in der Lage waren, an dieser Tagung teilzunehmen, und zum anderen war auch ihre finanzielle Grundlage nicht gesichert, da die hohen Reisekosten den Forschern nicht zugemutet werden konnten und man auf Unterstützung von Organisationen verzichten wollte. Außer einigen kleinen Spendern boten 1956 der griechische Multimilliardär *Aristotle Onassis* unter der Bedingung, daß die Konferenz in Monte Carlo stattfände, und der später mit dem Lenin-Friedenspreis ausgezeichnete *Cyrus Eaton*, Chairman of the Board of the Chesapeake and Ohio Railway, Lord *Russell* ihre Hilfe an. Es spricht für die Klugheit des Initiativkomitees, daß es sich für das Angebot von *Eaton* entschied und den Geburtsort dieses für Frieden und Verständigung eintretenden Industriellen, den kleinen Ort Pugwash, Nova Scotia/Kanada für die erste Tagung auswählte. Gleichzeitig sicherte dieser Entschluß, wie *Rotblat* und *Rabinowitch* [7] hervorheben, den Wissenschaftlern ihre Unabhängigkeit.

Neben dem Einfluß von *A. Toptschiew* ist es im wesentlichen der Initiative von *A. I. Oparin* zu danken, daß an dieser ersten Konferenz auch namhafte sowjetische Gelehrte teilnahmen. An letzteren hatte sich das Organisationskomitee und die Weltföderation der Wissenschaftler im Mai 1957 mit der Bitte gewendet, für die Teilnahme sowjetischer Wissenschaftler zu werben. Die Akademie der Wissenschaften der UdSSR unterstützte auf seinen Vorschlag die neue Bewegung und sicherte die Teilnahme von *Kusin*, *Skobeltzyn* und *Toptschiew*, die zu den prominentesten Wissenschaftlern der UdSSR zu rechnen sind. Damit war der Weg frei für die erste Pugwash-Konferenz, der ersten Konferenz von Wissenschaftlern aus sozialistischen und kapitalistischen Staaten, deren Thematik den politischen und militärtechnischen Konsequenzen der Kernenergie gewidmet war. Sie fand vom 7. bis 10. Juli 1957 in Pugwash statt und hatte 22 Teilnehmer.

Interessant und aufschlußreich ist es nun, welche Wertigkeit der Initiative der einzelnen Organisationen und Persönlichkeiten für das Zustandekommen der Konferenz durch verdienstvolle Teilnehmer der Pugwash-Bewegung nachträglich beigegeben wurde. So schreibt z. B. *Rotblat*: „In Vorbereitung dieser Konferenz bat Lord *Russell Powell*, *Rotblat* und *Burhop* um Hilfe. *Powell* war Vizepräsident der ASA („Atomic Scientist' Association“, d. V.), und sowohl er als auch *Eric Burhop* waren aktiv in der Weltföderation der Wissenschaftler tätig. *Burhop* hatte vorher im Namen jener Organisation Berührung mit *Russell*, aber Lord *Russell* bestand von Anfang an darauf, daß die beabsichtigte Konferenz in keiner Weise mit irgendeiner bestehenden organisierten Körperschaft verbunden werden solle und daß sie aus wahrhaft neutralen und unabhängigen Bemühungen bestehen müsse. Abgesehen von einigen sekretariellen Gefälligkeiten (secretarial facilities), die anfangs von der WFW erlangt wurden, haben sich die Pugwash-Konferenzen strikt an diese Prinzipien gehalten und sind in den folgenden Jahren

ganz und gar in einer echten Unabhängigkeit geblieben“ ([3], S. 7).

Diese Darstellung ist in mehrfacher Hinsicht bemerkenswert. Einmal bringt sie zum Ausdruck, daß die Forscher, zumindest ein beträchtlicher Teil von ihnen, betonen, daß sie völlig unabhängig — quasi privat — an dieser Bewegung teilnehmen und die von ihnen vertretenen Ansichten ihre persönlichen sind.

Interessant ist weiterhin, daß die von der WFW der Pugwash-Bewegung zuteil gewordene Unterstützung im Grunde genommen ignoriert wird, was den oben zitierten Tatsachen widerspricht.

Während von *Rabinowitch* neben *Russell* und *Rotblat* wenigstens noch *Powell* als maßgeblicher Initiator genannt wird, schreibt *Rotblat* selbst *Powell* und der WFW keinen wesentlichen Einfluß zu. *Joliot-Curie* wird von beiden nicht einmal erwähnt. Das mag sicherlich auch damit zusammenhängen, daß *Rotblat* selbst erst im Herbst 1955 in die Vorbereitung einbezogen wurde, aber spielen nicht auch Aversionen gegenüber dem Kommunisten *Joliot-Curie* hier eine Rolle? *Burhop*, der von allem Anfang an die Diskussion um diese Bewegung verfolgt und unterstützt hat, sieht das Ziel seiner Untersuchung gerade darin, zu zeigen, „welche Schlüsselrolle *Joliot-Curie* und die Weltföderation der Wissenschaftler beim Zustandekommen dieser Konferenz spielten“. Und er schlußfolgert: „Es steht außer Zweifel, daß es ohne die Weltföderation niemals möglich gewesen wäre, diese Tagungen auch nur annähernd so durchzuführen, wie sie stattgefunden haben“ ([5], S. 22).

Weltanschaulich gesehen, spielt hier auch die Frage eine Rolle, welche Stellung die Pugwash-Bewegung zur Weltfriedensbewegung überhaupt und zum Kampf der Volksmassen einnehmen und in welchem Maße sie sich mit ihnen verbinden soll. Der größte Teil der amerikanischen und westdeutschen, ein Teil der englischen Gelehrten sprechen sich immer wieder nachdrücklich für den privaten Charakter der Konferenzen und einen kleinen Teilnehmerkreis sowie den Verzicht auf eine regelrechte Organisation aus. Am deutlichsten kommt dieses individualistische Denken des Spezialisten in den Ansichten von *Leo Szilard* zum Ausdruck, eines Wissenschaftlers, der sich schon 1939 Gedanken über die sozialen Konsequenzen der Entdeckung von *Otto Hahn* gemacht hatte und der als einer der aktivsten Friedenskämpfer unter den amerikanischen Naturwissenschaftlern angesehen werden muß. Er glaubte, daß nur die Naturwissenschaftler in der Lage seien, die Regierungen zu leiten und das Volk vor dem Atomkrieg bewahren. Die Pugwash-Bewegung sah er als wesentlichen Hebel zur Verwirklichung dieser Vorstellungen an [8]. Gleich ihm vertritt der österreichische Physiker *Hans Thirring* in den „Physikalischen Blättern“ diesen Gedanken [9].

Sicherlich kann es in begrenztem Maße von Nutzen sein, wenn sich die Wissenschaftler organisatorisch nicht die Hände binden, wenn sie Vorschläge machen, die betont persönlich, wenn auch sachkundiger Natur sind, denn auf diese Weise bleiben ihre Gedanken und Diskussionen flexibler, können sich rascher einer veränderten Situation anpassen. Aber der Kampf um Frieden und allgemeine, vollständige und kontrollierte Abrüstung wird nicht nur durch die

noch so klugen und gutgemeinten Vorschläge einer Expertengruppe gewonnen, sondern vor allem durch das vereinte Ringen aller friedliebenden Kräfte der Erde. Der Wissenschaftler muß nicht nur mit seiner Tätigkeit dem Volke dienen wollen — daß das die Teilnehmer der Pugwash-Konferenzen anstreben, steht außer Frage —, sondern das Volk muß auch aktiv einbezogen werden in die Realisierung der ihm dienenden Ideen der Wissenschaft.

Die Wissenschaftler aus den sozialistischen Staaten, insbesondere die Gelehrten der Sowjetunion, die Teilnehmer der Pugwash-Konferenzen sind, haben deshalb immer wieder mit Nachdruck auf die Notwendigkeit der Volksverbundenheit der Wissenschaft im allgemeinen und auf die besondere Funktion verwiesen, die die Volksmassen im Kampf um den Frieden innehaben [10]. Eingehend auf die Ergebnisse einer Meinungsumfrage soziologischen Charakters in der UdSSR, die von der Pugwash-Bewegung angestellt wurde und neben der Popularisierung der Wiener Deklaration (der bislang programmatischsten Erklärung der Pugwash-Konferenzen [11]) der Erforschung der Ansichten von Wissenschaftlern über die weitere Arbeit der Bewegung dienen sollte, verweist *Winogradow* darauf, daß die Wissenschaftler der Sowjetunion größere und offene Treffen bevorzugen würden, um die öffentliche Meinung in höherem Maße beeinflussen zu können. Kleinere Konferenzen hingegen seien „besser geeignet, konkrete Probleme zu lösen“ ([10], S. 378). Demgegenüber war es nur eine kleine Minderheit der Wissenschaftler aus den kapitalistischen Staaten, die diesen Typ von Konferenzen befürworteten [3].

Ogleich sich in diesen und selbstverständlich in einer ganzen Reihe anderer Probleme eine unterschiedliche Auffassung der Forscher aus den verschiedenen gesellschaftlichen Systemen zeigte, die nicht nur taktische Erwägungen betraf, sondern wesentliche Seiten der Beziehung Wissenschaft—Gesellschaft beinhaltet, ist man doch zu einer fruchtbringenden Diskussion über aktuelle soziale Probleme der Wissenschaft (auch über die gesellschaftliche Verantwortung des Wissenschaftlers) gekommen und hat gemeinsame Vorschläge zur Kontrolle der Kernwaffenversuche, des Teststopps usw. gemacht. Es zeigt sich schon dabei, daß die Notwendigkeiten der Wirklichkeit und das gemeinsame Bestreben, ihnen Rechnung zu tragen, stärker gewesen sind als eine Vielzahl von verschiedenartigen Vorstellungen, die insbesondere aus weltanschaulichen, moralischen und politischen Voraussetzungen der Teilnehmer resultieren.

2. Überblick über Thematik und Teilnehmerkreis der Konferenzen

Interessant für die Geschichte und die Bewertung der internationalen Pugwash-Konferenzen ist sowohl die auf ihnen behandelte Problematik als auch ihr jeweiliger Teilnehmerkreis, denn nur von dieser Seite her ist der Zugang zu ihrer Wirksamkeit zu erfassen. Selbstverständlich kann es nicht Aufgabe einer Überblicksinformation sein, sämtliche Themen der einzelnen Tagungen und den wissenschaftlichen Rang der an ihnen teilnehmenden Gelehrten zu nennen. Dennoch aber erscheinen Hinweise auf diese Fragen durchaus am Platze.

Die 1957 tagende 1. Pugwash-Konferenz vereinigte 22 Wissenschaftler aus Australien, Österreich, Kanada, der VR China, Frankreich, Großbritannien, Japan, Polen, der UdSSR und den USA. Die auf wissenschaftlichem Gebiet bekanntesten Teilnehmer sind die Nobelpreisträger *Powell*, *Yukawa* und *Muller* sowie *Skobeltzyn*, *Thirring* und *Weißkopf*. Die Forscher behandelten in drei Kommissionen die Gefahren der Anwendung der Atomenergie im Frieden und Krieg, speziell Strahlengefahren, Probleme der Atomwaffenkontrolle und Fragen der gesellschaftlichen Verantwortung der Wissenschaftler. Diese Kommissionen gaben Tätigkeitsberichte und machten Vorschläge für die weitere Arbeit. Fast alle Teilnehmer unterzeichneten eine gemeinsame Erklärung, in der sie darauf hinweisen, daß die internationale Zusammenarbeit der Wissenschaftler sowohl technischer als auch politischer Natur sein müsse. „Die Wissenschaftler sind sich jetzt wohl bewußt, daß die Früchte ihrer Arbeit von hervorragender Bedeutung für die Zukunft der Menschheit sind, und sie sind daher gezwungen, sich mit den politischen Auswirkungen ihrer Arbeit auseinanderzusetzen“ [12]. Diese Erklärung wurde später von den Mitgliedern der Akademie der Wissenschaften der UdSSR unterzeichnet [13]. Darüber hinaus wurde in der Sowjetunion schon im August 1957 eine weitere Erklärung von 200 bekannten sowjetischen Wissenschaftlern veröffentlicht, in der sie eine positive Einschätzung der Pugwash-Konferenz gaben. Dieser Aufruf wurde seinerzeit in Moskau, Leningrad, Kiew, Swerdlowsk, Taschkent und anderen Städten diskutiert und fand eine begeisterte Aufnahme [14].

Neben den Plenartagungen und den Sitzungen der verschiedenen Kommissionen fanden viele persönliche und bis in die Nacht andauernde Gespräche statt, die dem zwanglosen Austausch von Gedanken dienten. Bemerkenswert ist, daß *Leo Szilard* bei diesen Gesprächen eine führende Rolle gespielt hat, daß er außerordentlich viel zur Vorbereitung dieser und der nachfolgenden Tagungen beigetragen hat und dennoch, bis auf eine Ausnahme, die jeweiligen offiziellen Erklärungen nicht unterzeichnete; ein Beweis dafür, wie unterschiedlich auch in der Mentalität die einzelnen Wissenschaftler sind.

Die wichtigsten Ergebnisse dieser ersten Tagung dürften einmal in dem Umstand zu suchen sein, daß diese Konferenz überhaupt zustande gekommen ist. *Rotblat* urteilt: „Dies war wohl das erste Mal, daß eine wahrhaft internationale Konferenz, die von Wissenschaftlern organisiert worden war und Teilnehmer aus Ost und West umfaßte, zusammenkam, nicht um spezifisch technische Angelegenheiten zu diskutieren, sondern die sozialen Auswirkungen der wissenschaftlichen Entdeckungen“ ([3], S. 10). Zum anderen erscheint es ebenfalls bedeutsam, daß ein gemeinsamer Nenner gefunden wurde, der in der Erklärung seinen Niederschlag fand. Darüber hinaus kam man überein, die fruchtbringenden Diskussionen fortzusetzen und ein Ständiges Komitee zu bilden, dessen Vorsitzender *Bertrand Russell* und dessen Mitglieder *C. Powell*, *E. Rabinowitch*, *D. Skobeltzyn* und *J. Rotblat* wurden. Letzterer übernahm auch die Funktion eines Generalsekretärs. Die Aufgabe dieses Ständigen Komitees bestand zunächst darin, wei-

tere Konferenzen vorzubereiten. Auf einigen Besprechungen in London, zu denen auch eine Reihe weiterer, vor allem englischer Wissenschaftler hinzugezogen wurde, gelangte man zu der Auffassung, die nächste Tagung auch in Kanada abzuhalten.

Die zweite Pugwash-Konferenz fand, ebenfalls von *Eaton* finanziert, vom 31. März bis zum 11. April 1958 in Lac Beauport statt und war der Thematik „Die Gefahren der gegenwärtigen Situation und Wege und Mittel ihrer Verminderung“ gewidmet. Wie an der ersten Zusammenkunft nahmen auch hier 22 Gelehrte teil, allerdings nur 9 Teilnehmer der Gründungsversammlung.

Im Unterschied zur ersten und den meisten nachfolgenden Zusammenkünften wurden auf dieser Konferenz keine vorher ausgearbeiteten Reden gehalten, sondern entweder am Vor- oder Nachmittag Sitzungen durchgeführt, für die jeweils Teilnehmer einen Vorschlag vorbereiteten. Das Hauptgewicht der Arbeit legte man auf einen freien Austausch der Ansichten der Wissenschaftler in zwangloser Form. Als Ergebnis der Tagung wurde auch keine offizielle Erklärung abgegeben, sondern nur mitgeteilt, mit welchen Fragen man sich beschäftigt hat. Betrachtet man das Format der teilnehmenden Persönlichkeiten und die Fülle der im Verlaufe dieser langen Konferenz behandelten strittigen Probleme (sämtliche die Wissenschaft und die Weltpolitik betreffenden Fragen wurden ausgiebig diskutiert), so kommt man zu der Feststellung, daß der Schlüssel für das Verständnis der Pugwash-Bewegung — auch ihres Austragungsmodus — in dieser Tagung zu suchen ist.

Was den Teilnehmerkreis anbelangt, so kann man sagen, daß sich auf dieser Konferenz die politischen Köpfe unter den Physikern zusammengefunden hatten. *D. V. Skobeltzyn* war der technische Hauptberater der Regierung der UdSSR bei den Abrüstungsverhandlungen gewesen, *A. V. Toptschiew* (Generalsekretär der Akademie der UdSSR) hatte sich schon lange zuvor um die internationale Zusammenarbeit der Wissenschaftler bemüht und ist bis zu seinem Tode einer der agilsten Befürworter der Pugwash-Bewegung [15], [16] und ab der 3. Konferenz Mitglied des Ständigen Komitees gewesen. Von den Amerikanern müssen vor allem *Leo Szilard*, *Eugene Rabinowitch*, dessen „Bulletin of the Atomic Scientists“ Publikationsorgan der sich um politische Probleme bemühenden Naturwissenschaftler der gesamten kapitalistischen Welt ist, und *Jerome Wiesner*, der später als persönlicher Berater Kennedys ins Weiße Haus einzog, hervorgehoben werden. Die Engländer *J. Rotblat* und der sich nebenbei zum Spezialisten für Probleme der Entwicklungsländer entwickelnde *C. F. Powell*, sowie der Erfinder des Radar, *Watson-Watt* (Kanada), verdienen Beachtung, ebenso *Carl Friedrich von Weizsäcker*, der Hamburger Physiker und Philosoph, der zum ersten Mal spezifisch deutsche Probleme zur Diskussion stellte [17]. Von seiten der VR China nahm der Vizerektor der Pekinger Universität, *Tschu Pei Yuan*, teil.

Auf dieser Konferenz wurde in langwierigen Diskussionen, deren Umfang über 1000 Seiten umfaßt, wirklich operative Arbeit geleistet und die Marsch-

route für die weitere Tätigkeit der Bewegung festgelegt ([3], S. 49ff., [18]).

Die Reden der Konferenz wurden an die Regierungschefs von 15 Ländern, den Papst und den Generalsekretär der Vereinten Nationen versandt. Aufschlußreich ist der Umstand, daß zunächst nur von *N. S. Chruschtschow*, *Tito*, *Nehru* und *Diefenbaker* umfassende Antwortschreiben verfaßt wurden, in denen diese ihre Anteilnahme an der Arbeit der Pugwash-Bewegung bekundeten, während vom State Department und aus der Umgebung des Papstes nur Empfangsbestätigungen eingingen.

Die dritte Pugwash-Konferenz diente insbesondere der Popularisierung der Ideen dieser neuen Bewegung. Sie fand vom 14. bis 20. September in Kitzbühel (mit einer abschließenden Großkundgebung in Wien) statt. Auf ihr sprachen neben dem österreichischen Bundespräsidenten *Schärj Thirring*, *Wigner*, *Toptschiew*, *Muller*, *Watson-Watt*, *Infeld* und *Russell*. 101 Personen, davon 70 Wissenschaftler, nahmen an den Beratungen in Kitzbühel teil, darunter über 10 Nobelpreisträger. Die DDR war erstmalig auf einer Pugwash-Konferenz durch den Generalsekretär der Deutschen Akademie der Wissenschaften, *Günther Rienäcker*, vertreten; aus der BRD kamen *Max Born*, einer der Initiatoren des Göttinger Appells, *G. Burkhardt* (Vorsitzender der westdeutschen Pugwash-Gruppe), *W. Kliefoth* (ihr Sekretär) sowie *H. Hönl* und *H. Lenz*.

Die wichtigsten Ergebnisse dieser Tagung dürften die Annahme der Wiener Deklaration — *Rotblat* hat sie als das Credo der Pugwash-Bewegung bezeichnet [11] — durch die versammelten Wissenschaftler sowie eine große Zahl weiterer Gelehrter aus vielen Ländern, eine Meinungsumfrage unter mehreren tausend Wissenschaftlern zu dieser Deklaration und die öffentliche Kundgebung in Wien gewesen sein, auf der sich die österreichische Regierung (der Außenminister *Bruno Kreisky* hatte an Sitzungen des Ständigen Komitees in London teilgenommen) mit den Zielen der Bewegung solidarisierte. Die Gelehrten waren aus der Isolierung herausgetreten, hatten sich an Volk und Regierungen gewendet; die Pugwash-Bewegung befand sich auch von dieser Seite her auf dem Weg, zu politischer Wirksamkeit zu gelangen.

Nachdem in Lac Beauport die Generallinie der Bewegung festgelegt worden war, die in Kitzbühel ihre Bestätigung fand, kam es nun darauf an, praktische Arbeit zu leisten und spezielle Vorschläge auszuarbeiten. Zu diesem Zweck trafen sich die Teilnehmer der Pugwash-Bewegung vom 25. Juni bis 4. Juli 1959 in Baden (Österreich) zu einer Beratung über Rüstungskontrolle und Weltsicherheit. Abgesehen von einigen Ausnahmen (erstmalig nahm *Blackett* an einer Konferenz teil) setzte sich der Kreis aus den Teilnehmern der ersten beiden Tagungen zusammen. Weniger die offizielle Erklärung [3] (vgl. Statement from Fourth Pugwash Conference, in: *Rotblat*, *Science* . . ., S. 59), als die behandelten Themen [19] verraten, welche wichtigen Fragen zur Beratung standen.

War in Wien beschlossen worden, eine Reihe von kleineren Spezialkonferenzen durchzuführen, so diente die 5. Tagung diesem Ziele, denn sie war Fra-

gen der biologischen und chemischen Kriegsführung gewidmet. Sie fand vom 24. bis 29. August 1959 in Pugwash statt [20].

Die Öffentlichkeit in den sozialistischen Ländern — abgesehen von der Sowjetunion — wurde wohl erst durch die 6. Konferenz, die vom 27. November bis zum 5. Dezember 1960 in Moskau tagte und an der von englischer Seite erstmalig *O. R. Frisch*, *A. Haddow*, *Peierls*, von amerikanischer *W. W. Rostow* teilnahmen, näher mit der Bewegung bekannt. Die Sowjetunion war durch die ganze Elite der Physikerschaft (*Kapitza*, *Semjonow*, *Tamm*, *Arzumanjan*, *Jemeljanow* und den Flugzeugkonstrukteur *Tupolew*) vertreten. Aus der DDR nahm u. a. *H. Pose* teil, aus Westdeutschland *Burkhardt* und *Heimendahl*. Die Konferenz, die sich mit Problemen der Abrüstung und Weltsicherheit befaßte, wurde eröffnet durch das Verlesen von Grußbotschaften des sowjetischen Ministerpräsidenten (ein ursprünglich vorgesehener Empfang mußte wegen Krankheit abgesagt werden), *B. Russells*, des Präsidenten der Akademie der UdSSR, *Nesmenjanow* und des Präsidenten der „United States National Academy“, *Bronh*.

In der offiziellen Erklärung [21] wird die Wiener Deklaration bekräftigt, hervorgehoben, daß es bei den Abrüstungsverhandlungen und der Durchführung der Abrüstung darauf ankomme, keiner Macht auf irgendeiner Stufe einen wesentlichen militärischen Vorteil zu sichern und die Absicht der Forscher bekundet, fachliche Vorschläge in dieser Richtung zu machen. Weiterhin wird betont, daß sich die Pugwash-Bewegung auch mit Fragen der Zusammenarbeit der Wissenschaft in fachlichen Fragen befassen will.

Im Unterschied zu den Tagungen in Wien und Moskau, die eine Vielzahl berühmter Gelehrter zusammenführte, war die folgende Tagung in Stowe (USA) (5. bis 9. September) kleiner, was die Teilnehmerzahl anbelangte, und begrenzter in der Aufgabenstellung; es war eine Arbeitstagung zu Fragen der internationalen Zusammenarbeit auf dem Gebiet der reinen und angewandten Wissenschaft ([22], [23], [24]). Aus Deutschland nahm, ebenso wie an der sich anschließenden 8. Pugwash-Konferenz (ebenfalls in Stowe, vom 11. bis 19. September tagend) nur der Westdeutsche *Burkhardt* teil. Während die 7. Konferenz eine außerordentlich lange und detaillierte Erklärung über die Möglichkeiten der internationalen Zusammenarbeit, gegliedert nach Wissenschaftsbereichen, veröffentlichte, begnügte sich die 8. Konferenz mit der Erklärung, daß das hauptsächlichste Objekt der Diskussion die Abrüstung und die Weltsicherheit gewesen ist ([3], S. 86/86).

Die zweite Stowe-Tagung, wiederum eine Tagung mit vielen Teilnehmern, fiel in eine recht komplizierte Periode der internationalen Beziehungen, da durch die Wiederaufnahme der Kernwaffenversuche durch die Sowjetunion und die USA die Situation gerade auf dem Sektor der militärischen Ausnutzung der Kernenergie außerordentlich prekär war. Dennoch verlief die Tagung in einer freundschaftlichen Atmosphäre. Die Regierungschefs der Sowjetunion und der USA schickten Botschaften, in denen sie der Hoffnung Ausdruck verliehen, daß die Konferenz Mittel und Wege zur Lösung der strittigen Probleme

geben möge ([25], S. 385). Seit dieser Zeit sind seitens der Regierungschefs der Großmächte stets Botschaften an die Teilnehmer der Pugwash-Konferenzen ergangen, ein Zeichen dafür, welche Bedeutung sie in den Augen dieser Regierungen erlangt hatten.

Auf der Konferenz selbst wurden verschiedene Arbeitsgruppen gebildet, die sich mit Grundfragen der Weltpolitik (Reduzierung der Produktion von spaltbarem Material, System der Abrüstung und ihrer Stufen und Vorbedingungen für eine erfolgreiche Verhandlung über diese Fragen durch die Großmächte) befaßten.

Von besonderer Wichtigkeit war die Übereinkunft zwischen der Akademie der Wissenschaften der UdSSR und der Amerikanischen Akademie der Wissenschaften, eine Studiengruppe, vorwiegend bestehend aus Wissenschaftlern dieser beiden Länder, einzusetzen, die ein oder zwei Jahre (je die Hälfte der Zeit in der Sowjetunion und den USA) arbeitend, Fragen der Abrüstung studieren sollte, um auf der nächsten Tagung über die Ergebnisse zu berichten.

Die 9. Pugwash-Konferenz fand vom 25. bis 30. August in Cambridge statt, hatte 65 Teilnehmer und befaßte sich mit Fragen der Abrüstung und der Weltsicherheit. Sie diente in der Hauptsache der Vorbereitung der wenige Tage danach eröffneten und in London stattfindenden 10. Pugwash-Konferenz, auf der 200 Teilnehmer aus ca. 65 Staaten anwesend waren. Sie war der Thematik „Wissenschaft und Weltpolitik“ gewidmet und veröffentlichte eine Erklärung, in der die Grundsätze der Wiener Deklaration bestätigt werden. Ausgehend von der gesellschaftlichen Funktion der sich gegenwärtig durchsetzenden wissenschaftlichen Revolution, gelangen die versammelten Forscher zu folgender Feststellung: „In dieser Situation ist die traditionelle Auffassung vom Krieg oder der Kriegsdrohung als eines Mittels der Politik überholt. Der Krieg muß aus dem Leben der Menschheit verbannt werden. Allgemeine und vollständige Abrüstung mit wirksamen Garantien für die internationale Sicherheit ist das dringendste Gebot der Zeit“ ([26], S. 24/25).

In einer Erklärung hat das Präsidium der Deutschen Akademie der Wissenschaften festgestellt, „daß diese Erklärung mit den Zielen der Deutschen Akademie der Wissenschaften zu Berlin in den Fragen der Verhinderung eines Weltkrieges übereinstimmt“ ([27], S. 310). Leider konnten die Wissenschaftler aus der DDR, unter ihnen *Günther Rienäcker* und *Max Steenbeck*, obgleich sie persönliche Einladungen erhalten hatten, an dieser Konferenz nicht teilnehmen, da ihnen die Visa verweigert wurden. *Steenbeck* konnte deshalb seine geplante Rede „Von der Verantwortung der deutschen Gelehrten“ [28] nicht halten. Das „Bulletin of the Atomic Scientists“ kommentierte: „Mahnungen an die herrschenden Weltspannungen wurden durch die Abwesenheit der Teilnehmer aus Ostdeutschland geliefert, die nicht in der Lage waren, die Visa für die Teilnahme zu erhalten“ ([29], S. 39).

Ausdruck der gewachsenen Bedeutung war die Tatsache, daß die 10. Pugwash-Konferenz Botschaften von *Chruschtschow*, *Kennedy*, *Macmillan*, *Nehru*,

Novotny, Tito, Ayub Khan, Nkrumah, Jugow und U Thant sowie von einer Vielzahl wissenschaftlicher Einrichtungen und gesellschaftlicher Organisationen erhielt ([30], S. 9 ... 10, [29], S. 39). Darüber hinaus hielt der britische Minister für Wissenschaft, Lord *Hailsham*, auf dieser Tagung eine Rede [31]. Nicht unwichtig erscheint dabei der Umstand, daß Lord *Hailsham* es auch dann gewesen ist, der für Großbritannien den Vertrag über das Verbot der Kernwaffenversuche in der Atmosphäre, im kosmischen Raum und unter Wasser hat paraphieren helfen [32]. Überhaupt dürfte gerade die 10. Pugwash-Konferenz in London einen wesentlichen Beitrag zum Zustandekommen dieses Abkommens geleistet haben, denn in London legte jene auf der Stower Konferenz eingesetzte Spezialistengruppe die Ergebnisse ihrer Arbeit vor und half den Abrüstungsverhandlungen in Genf, bei denen die Frage der Kontrolle der Testversuche nicht gelöst werden konnte, aus der Sackgasse. Ähnlich wie in der Frage der Abrüstungskontrolle überhaupt, standen sich auch hier zwei unterschiedliche Auffassungen gegenüber, die vereinfacht vorgestellt werden sollen: Die USA verlangen im Prinzip, daß am Beginn der Abrüstung die Kontrolle der vorhandenen Rüstungen stehen solle, während die Sowjetunion die Auffassung vertritt, daß eine so verstandene Kontrolle nur einer Spionage des vorhandenen Potentials gleichkommt, zumal nach der Kontrolle nicht sicher sei, ob die andere Seite — sobald sie die entsprechenden Informationen besitzt — auch wirklich abrüsten wird. Sie hegt die Befürchtung, daß der sowjetische Vorsprung auf dem Gebiet der Raketentechnik, neuer Verkleidungen für Kernwaffen und vor allem die in der Entwicklung befindlichen Abwehrraketen gegen interkontinentale Raketen, auf diese Weise zunichte gemacht würde, ohne daß eine Gewähr dafür besteht, daß die USA ihrerseits dann bereit sind, einer allgemeinen, vollständigen und kontrollierten Abrüstung zuzustimmen und diese Pläne auch zu realisieren.

Zwecks Überbrückung dieser Diskrepanz hat es auf den verschiedenen Pugwash-Konferenzen eine ganze Reihe von Vermittlungsvorschlägen gegeben, so die von *Louis Sohn* [33], die später zur Grundlage der amerikanischen Abrüstungsvorschläge vom 13. April 1962 gemacht wurden. Er schlug eine Einteilung des jeweiligen Territoriums in Zonen vor, von denen wahlweise eine inspiziert werden sollte, während seitens der betreffenden Regierung angegeben werden sollte, welche Waffen dort stationiert sind. Auf der Konferenz in Cambridge hat *Toptschiew* diese Vorschläge mit der Begründung abgelehnt, daß auch sie der Spionage Tür und Tor öffneten ([30], S. 9, [34]).

In London haben dann die Amerikaner *B. Feld* und *J. Orear* [35] neue Vorschläge unterbreitet, wobei der Plan von *Orear* darauf hinausläuft, statt der zonalen Inspektion eine zonale Abrüstung vorzunehmen. Aber auch diese Vorschläge sind unsicher, da sie von vornherein jene Seite benachteiligen, die zu Beginn der Abrüstung über weniger Kernwaffen verfügt, worauf neben *Toptschiew* auch der englische Nobelpreisträger *P. M. S. Blackett* verweist, der in diesen Fragen sicherlich eine große Erfahrung besitzt, war er doch während des zweiten Weltkrieges einer der Chefstrategen der englischen Regierung und

hatte er sich nach dem Kriege in einer ganzen Reihe bedeutender Werke mit Fragen der militärischen Anwendung der Kernwaffen befaßt. Auch lehnt der sowjetische Militärstrateg *N. Talenski* diese Vorschläge ab [36].

Bislang haben auch die in der Pugwash-Bewegung vereinten Wissenschaftler die genannten Probleme der Abrüstung nicht zu lösen vermocht, was seinen Grund darin hat, daß diese nicht in erster Linie technischer, sondern politischer und klassenmäßiger Natur sind. Dennoch ist auf der 10. Konferenz in London ein wichtiger Schritt nach vorn in der Frage der Kontrolle der Tests gemacht worden, der in seinen politischen Konsequenzen nicht unterschätzt werden darf, nämlich die Übereinkunft über die sogenannten „black boxes“. In London kamendrei sowjetische und drei amerikanische Spezialisten zu einem Kompromißvorschlag, der von der Vollversammlung der Tagung unterstützt wurde. Sie griffen den Vorschlag von *Hans Bethe* auf, automatische Stationen zur Anfertigung von Seismogrammen in allen Ländern zu errichten, die von einer internationalen Kontrollstelle plombiert und später ausgewertet werden können [37]. Einen ähnlichen Vorschlag hatten später auch die Vertreter der acht neutralen Staaten auf der Genfer Abrüstungskonferenz unterbreitet [38]. Eine ausführliche Darstellung der Problematik der „black box“, ihre Diskussion auf den Pugwash-Konferenzen und ihre Anerkennung bzw. Ablehnung hat *W. S. Jemeljanow* gegeben [39].

Auf diese Weise wurde es möglich, auf die Inspektionen durch internationale Kommissionen zu verzichten. Dieser Vorschlag hat ein breites internationales Echo gefunden; die sowjetischen Gelehrten begründeten ihren Vorschlag in der „Iswestija“, alle großen englischen und amerikanischen Zeitungen kommentierten diese Kompromißlösung ([30], S. 11, [40], S. 34/35, [34], S. 37/38). Außerordentlich bedeutsam ist der Umstand, daß dieser Vorschlag der Pugwash-Konferenz zum offiziellen Abrüstungsprogramm der Regierung der Sowjetunion geworden ist und von Botschafter *Zarapkin* auf der Genfer Konferenz der Atomkräfte vorgetragen wurde. Er sagte wörtlich: „Daß wir uns diesen Vorschlag, der von britischen, amerikanischen und sowjetischen Wissenschaftlern auf der Pugwash-Konferenz ausgearbeitet wurde, zu eigen gemacht haben, ist Beweis unseres Willens, einen Ausweg aus der Sackgasse zu finden, in die die Verhandlungen über die Einstellung der Kernwaffenversuche geraten sind“ [41].

Der sich schon auf den früheren Pugwash-Konferenzen abzeichnende Trend, ihre Thematik noch weiter zu verbreitern, hat sich auch in London bemerkbar gemacht. Es wurden zahlreiche Berichte von internationalen Kommissionen und Denkschriften ausgearbeitet und diskutiert. Hauptgegenstände der Überlegungen waren: die Rolle der Wissenschaftler in der Gesellschaft; die Wissenschaftler und die internationale Sicherheit; internationale wissenschaftliche Zusammenarbeit; Wissenschaft und Hilfe an die Entwicklungsländer sowie Wissenschaft und Bildung. Letztere Thematik wurde von einer Gruppe (*C. H. Waddington, Julian Huxley, Eric Ashby, Ritchie Calder* und *C. F. Powell*) in einer gemein-

samen Erklärung behandelt [42]. Die Ansichten der Wissenschaftler aus den sozialistischen Staaten interpretierte in London *W. A. Kargin* [43].

Die Londoner Zusammenkunft der Wissenschaftler dürfte in der Geschichte der Pugwash-Konferenzen bislang — zusammen mit der Tagung in Karlovy Vary — die ergiebigste gewesen sein und damit bewiesen haben, daß die Anstrengungen der Wissenschaftler ihre Früchte zu tragen beginnen. Dieser Gedanke findet auch seinen Niederschlag in einem Kommentar durch *A. W. Toptschiew*, in dem er darlegte, daß die Londoner Konferenz als „abschließende Etappe des Wachstums der Pugwash-Bewegung“ erschien und durch den „Umstand einer breiten Anerkennung sowohl durch den friedliebenden Teil der Gesellschaft als auch durch offizielle Kreise vieler Staaten der Welt widergespiegelt“ wird ([38], S. 101).

Die 11. Konferenz fand vom 20. bis 25. September 1963 in Dubrovnik/Jugoslawien statt. Auch sie beschäftigte sich mit Fragen der Abrüstung und der internationalen Sicherheit; allerdings erschien keine umfassende offizielle Erklärung, sondern es wurden nur die Berichte der einzelnen Arbeitsgruppen veröffentlicht [44]. Aus der DDR nahm eine dreiköpfige Delegation der mittlerweile ins Leben gerufenen nationalen Pugwash-Gruppe teil, die in den jeweiligen Arbeitsgruppen auch die Vorschläge der DDR zur internationalen Sicherheit und der Abrüstung der beiden deutschen Staaten zur Diskussion stellte [45].

Im Mittelpunkt der Diskussion standen Probleme der Abrüstung, Möglichkeiten der Verhinderung einer Verbreitung von nuklearen Waffen, Schaffung atomwaffenfreier Zonen in Mitteleuropa und auf dem Balkan sowie das Problem der Verhinderung von Tests unter der Erde.

Zu Beginn des Jahres 1964 (27. Januar bis 1. Februar) tagte die Pugwash-Bewegung zum 12. Male, diesmal in dem indischen Ort Udaipur, um sich neben Abrüstungsproblemen auch mit Fragen der Entwicklung von Wissenschaft und Technik in den Entwicklungsländern zu befassen [46]. Zu letzterem Problem machte *C. F. Powell* in seinem Referat eine große Zahl von bemerkenswerten Vorschlägen [47]. Die Regierungen der angesprochenen Staaten sowie die als Beobachter anwesenden Vertreter der UNO, der UNESCO und der Weltgesundheitsorganisation erhielten auf diese Weise eine ganze Reihe von wertvollen Hinweisen. Zugleich standen, traditionsgemäß, Probleme des Wettrüstens, der Garantien gegen einen Kernwaffenüberfall und die Rolle der UNO bei der Verhinderung von Angriffskriegen zur Diskussion [48]. Auch hier machte sich eine zunehmende Annäherung der Standpunkte der Wissenschaftler bemerkbar, was sicherlich nicht zuletzt der durch den Abschluß des Moskauer Teststoppabkommens folgenden guten Atmosphäre zu verdanken war. Auch an dieser Tagung nahm wiederum eine ganze Gruppe von Forschern aus der DDR teil [49].

Die 13. Konferenz fand vom 1. bis 19. September 1964 in Karlovy Vary statt. Wie Pressemeldungen zu entnehmen ist, nahmen an ihr aus der DDR *G. Rienäcker* und *J. Kuczynski* teil, und es wurde

eingehend geprüft, welchen Tagungsort man für die 14. Konferenz auswählen soll, damit die Teilnahme der Wissenschaftler der DDR gesichert ist [50]. Insgesamt nahmen an der 13. Tagung 86 Teilnehmer aus 19 Staaten teil. Der bemerkenswerteste Unterschied zu den vorangegangenen Zusammenkünften resultiert aus zwei Besonderheiten: Einmal waren auf dieser Konferenz mit *H. Morgenthau*, *H. Kissinger* (USA), *Talinski* (UdSSR), *Noel-Baker* (Großbritannien) und *Jules Moch* (Frankreich) hervorragende Politiker, Militärtheoretiker und Berater für strategische Fragen vertreten. Darüber hinaus war das Generalsekretariat der UNO (*U Thant*) mußte wegen der Zypernkrise auf seine Teilnahme verzichten) durch die ständigen Vertreter des Generalsekretärs, *Ralph Bunche* (USA) und *V. P. Suslow* (UdSSR), als Beobachter vertreten. Zum anderen ergab sich aus dieser personellen Zusammensetzung ein Themenkomplex für die Diskussion, der sich dadurch auszeichnete, daß brennende konkrete Probleme der Weltpolitik im Vordergrund standen.

Wie der veröffentlichten Erklärung zu entnehmen ist, konnte eine Einigung über eine Reihe von strittigen Punkten erzielt werden, die sich in folgenden Vorschlägen ausdrückt:

1. Deutschland und die vier Großmächte sollen die bestehenden Grenzen Deutschlands mit seinen Nachbarstaaten garantieren;
2. Abschluß eines Nichtangriffspaktes zwischen Mitgliedsstaaten der NATO und des Warschauer Vertrages;
3. Einfrieren der Kernwaffen in Mitteleuropa.

Es wurde mit Nachdruck hervorgehoben, daß die Schaffung der multilateralen Atomstreitmacht nicht der Sicherheit der Welt dienlich ist, sondern im Gegenteil die Gefahr des Krieges erhöht. Die beteiligten Staaten werden aufgefordert, dieses Projekt aufzugeben. Weiterhin wurden Gedanken zur Erhöhung der Wirksamkeit der UNO als eines Instruments zur Sicherung des Friedens gemacht [51]. Die genannten Gedanken zeigen, daß die Teilnehmer dieser Pugwash-Konferenz in einem hohen Maße die realistischen Vorschläge der Regierungen der UdSSR und der DDR zu ihrem Programm gemacht haben, ein Umstand, der unbedingt beachtet werden muß.

Einschließlich der direkten Vorgeschichte kann die internationale Pugwash-Bewegung bisher nur auf ein zehnjähriges Bestehen zurückblicken, also eine relativ kurze Zeitspanne. Sie umfaßt aber eine ganze Reihe wichtiger gesellschaftlicher und politischer Ereignisse, die Ausdruck des Kampfes der beiden Weltsysteme und des Ringens der Völker und aller vernünftigen Menschen um die Erhaltung des Friedens sind und spiegelt sie in den Diskussionen und Erklärungen ihrer 13 Konferenzen wider.

Der Überblick über sie hat deutlich gemacht, welche Probleme auf ihnen behandelt wurden und Andeutungen gegeben, in welcher Richtung ihre Lösung gesucht wurde.

(Fortsetzung s. Jg. 1965, Heft 3)

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Naturwissenschaftler und Weltfrieden

Zur Geschichte und Bedeutung der internationalen Pugwash-Konferenzen
über Wissenschaft und Weltangelegenheiten (II. Teil)

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3. Zum organisatorischen Status der Pugwash-Bewegung¹⁾

Die Pugwash-Bewegung wird im wesentlichen von Privatpersonen getragen; ihre Finanzierung erfolgte durch einzelne Persönlichkeiten, wie *Cyrus Eaton*, der häufiger Ehrengast der Beratungen gewesen ist, durch einzelne nationale Akademien, durch die *Ford-Stiftung* und ähnliche Einrichtungen. Sicherlich läßt sich jedoch die Version vom privaten Charakter der Tagungen und den auf ihr vertretenen Meinungen nur bedingt aufrechterhalten, da die teilnehmenden persönlichen Berater der Regierungschefs der USA, der Sowjetunion, Englands und auch anderer Staaten, wie Pakistans, selbstverständlich nicht nur ihre private Ansicht zu dieser oder jener Frage darlegen, ohne dabei Rücksicht auf die Ansichten ihrer Regierung zu nehmen. Zugleich lassen die regelmäßig eingehenden Botschaften der Regierungschefs und Staatsoberhäupter der wichtigsten Nationen erkennen, welche Aufmerksamkeit den Beratungen der Wissenschaftler geschenkt wird. Aus diesen Gründen hat man z. B. vom „offiziell-inoffiziellen“ Charakter der Londoner Tagung gesprochen [1].

Neben den eigentlichen Konferenzen besteht noch ein Ständiges Komitee, dessen Präsident *B. Russell* ist. Seine weiteren Mitglieder haben im Laufe der Zeit gewechselt. Von sowjetischer Seite waren *Toptschiew*, *Fedorow* und *Skobeltzyn* Mitglied, aus England kamen neben dem Generalsekretär *Rotblat Powell*, *Bullard* und *Mott*, aus den USA *B. Glass*, *V. Weißkopf*, *E. Rabinowitch* und *H. Brown*. Vervollkommenet wurde seine Zusammensetzung durch Vertreter einiger kleiner Staaten, so *Amaldi* (Italien), *Infeld* (Polen) und *Sarabahi* (Indien).

Die Hauptaufgabe dieser Gruppe besteht in der sich oft recht kompliziert gestaltenden Organisierung der einzelnen Tagungen und deren finanzieller Sicherstellung. Weiterhin hat dieses Komitee eine umfassende Meinungsforschung unter mehreren tausend Wissenschaftlern durchgeführt, Publikationen ver-

breitet und herausgegeben und die Arbeit der sich inzwischen herausgebildeten regionalen und nationalen Pugwash-Gruppen koordiniert. Sitz des Ständigen Komitees ist London. Auch hat es zu internationalen Ereignissen Stellung genommen, so u. a. zu den sich erfolglos hinziehenden Genfer Abrüstungsverhandlungen im Jahre 1959 [2].

Neben dem Ständigen Komitee haben sich nationale und regionale Gruppen der Pugwash-Bewegung herausgebildet, so in der UdSSR (unter der Patenschaft der Akademie, angeleitet bis zu seinem Tode von *Toptschiew*), in den USA, England, Frankreich, Holland, Norwegen, Jugoslawien, Australien, Österreich, Italien, Tschechoslowakei, Westdeutschland und seit 1963 auch in der DDR. In der DDR wurde sie entsprechend einem Beschluß der Deutschen Akademie der Wissenschaften gebildet. Ihr gehören 13 Wissenschaftler an; Vorsitzender ist (ähnlich wie in der SU) der Generalsekretär der Akademie, *Günther Rienäcker*. Die prominentesten Mitglieder sind der Nobelpreisträger *G. Hertz*, der Präsident des DDR-Friedensrates, *Walter Friedrich*; ihr Sekretär ist *Peter Heß* [3].

Die wichtigsten nationalen Gruppen haben Studien über spezielle Fragen erarbeitet, die dann auf den internationalen Tagungen zur Diskussion gestellt wurden; sie haben die in ihrem Land stattfindenden Konferenzen vorbereiten helfen und sich darum bemüht (insbesondere in der Sowjetunion), die Ziele der Bewegung zu verbreiten, neue Mitglieder zu gewinnen und die Vorstellungen über die soziale Verantwortung des Wissenschaftlers in Fachkreisen und in der Öffentlichkeit zu diskutieren, um auf diese Weise einen Beitrag zur Erziehung eines neuen, den Anforderungen der wissenschaftlich-technischen Revolution und der bestehenden Weltsituation gewachsenen Wissenschaftlertyps zu leisten.

Die einzelnen nationalen Gruppen haben auch Erklärungen unter sich ausgetauscht und ihre Tätigkeit koordiniert. So besuchte beispielsweise eine Delegation der Pugwash-Gruppe Jugoslawiens unter Leitung ihres Präsidenten, *J. Supek*, vom 6. bis 16. Mai 1963 die DDR, um Gespräche mit Vertretern der Pugwash-Gruppe der DDR zu führen. In einer Presseerklärung wurde beim Abschluß der Aussprache betont, daß beide Seiten darin übereinstimmten, daß die Pugwash-Bewegung einen wichtigen Beitrag im Kampf um den Frieden und die Durchsetzung der Politik der friedlichen Koexistenz leiste ([4], S. 311). Darüber hinaus haben auch Tagungen auf regionaler Grundlage, so in Genf, stattgefunden. Auf ihnen wurden neben Spezialstudien für die eigentlichen Tagungen auch spezifisch regionale Probleme behandelt.

Es zeigt sich somit, daß die Pugwash-Bewegung über ein breites Netz von Gruppen verfügt, deren Arbeit

¹⁾ Inzwischen fand vom 11. 4. bis 16. 4. 1965 in Venedig die 14. Pugwash-Konferenz statt. An ihr nahmen 87 Wissenschaftler aus 20 Staaten teil. Sie verurteilte die Anwendung von Giftgasen durch die USA in Vietnam und schloß sich einstimmig dem Vorschlag des sowjetischen Wissenschaftlers *Millionschikow* an, der ein Jahr der internationalen Zusammenarbeit zwecks Vorbereitung konkreter Abrüstungsvorschläge gefordert hatte.

Weitere Diskussionsthemen waren Maßnahmen zur Entspannung, Ausdehnung des Moskauer Testverbotes auch auf die unterirdischen Versuche, Probleme der wissenschaftlichen Veröffentlichungen und Schaffung einer internationalen Wissenschaftsstiftung für die Entwicklungsländer. Die 15. Tagung soll im Frühjahr 1966 in Addis Abeba stattfinden und sich auch mit den Bevölkerungsproblemen befassen.

aber, ebenso wie die der Gesamtbewegung, in der Hauptsache von der selbstlosen Initiative der Teilnehmer getragen wird. Weder die Gesamtbewegung noch ihre nationalen und regionalen Gruppen stellen eine Organisation mit wirklichen Mitgliedern, einem Statut und Beiträgen dar, sondern sind — formal gesehen — lockere Verbindungen zwischen den einzelnen Mitgliedern. Dennoch sind nationale oder internationale Wissenschaftlerorganisationen oder die Akademien der Wissenschaft und Kunst eine echte Hilfe für die Pugwash-Bewegung gewesen.

4. Bemerkungen zur Bedeutung der Pugwash-Bewegung

Selbstverständlich ist es im gegenwärtigen Augenblick keineswegs möglich, eine Wirkungsgeschichte der internationalen Pugwash-Bewegung zu schreiben, da einmal ihre Geschichte noch lange nicht abgeschlossen sein dürfte und zum anderen weder die Summe der Materialien (Referate, Entschlüsse und Botschaften an Regierungen) der Öffentlichkeit zugänglich noch ihre gegenwärtigen und zukünftigen Auswirkungen absehbar sind. Zudem erscheinen die auf den Konferenzen und vom Ständigen Komitee behandelten Fragen viel zu diffiziler Natur, als daß sie in einem Artikel dargelegt und hinsichtlich ihrer Wirksamkeit auf die internationale Politik analysiert werden könnten.

Dennoch erscheinen allgemeine Feststellungen betreffs der Bedeutung der internationalen Pugwash-Bewegung möglich und — nicht zuletzt, um auch in der DDR einen breiten Kreis über die Rolle dieser Bewegung zu informieren — notwendig. Wie die Erfahrungen zeigen, hatte sich in allen Ländern die Kenntnis und damit das Verständnis für die Rolle der Pugwash-Bewegung nur sehr zögernd im öffentlichen Bewußtsein sowie unter den Gelehrten durchgesetzt. Den für die Popularisierung wohl günstigsten Weg hat die Akademie der Wissenschaften der UdSSR beschritten, indem ihr Präsidium die Aufgabe übernahm, die sowjetischen Wissenschaftler über die Zielstellung der Bewegung zu informieren und auf diese Weise die Forscher der UdSSR zur stärkeren Mitarbeit an der Lösung der Probleme des Friedenskampfes heranzuziehen ([5], S. 37).

Bei der Bewertung der Bedeutung der Pugwash-Bewegung muß man von den Grundanliegen ausgehen, wie sie in der Erklärung der 1. Konferenz, der Wiener Deklaration und der Londoner Erklärung zum Ausdruck gebracht worden sind. Es zeigt sich, daß folgende Gesichtspunkte die entscheidende Rolle spielen:

1. Es müssen Mittel und Wege gefunden werden, um den Krieg überhaupt aus dem Leben der Völker für immer zu verbannen, da er kein brauchbares Mittel der Politik mehr darstellt; denn es ist sicher, daß jeder lokale Konflikt die Möglichkeit der Ausweitung in sich birgt und in jedem Weltkrieg mit Notwendigkeit Kernwaffen Verwendung finden würden.
2. Die Wissenschaftler, insbesondere die Naturwissenschaftler, müssen zur Lösung dieser Frage beitragen, da sie einmal mitverantwortlich dafür sind, daß die neuen Waffen entwickelt wurden, und zum

anderen auch am besten über ihre Wirksamkeit informiert sind. Daraus ergibt sich eine besondere Verantwortung des Wissenschaftlers vor der Gesellschaft. Die in der Pugwash-Bewegung zusammengeschlossenen Wissenschaftler sehen aus diesen Gründen ihre Aufgabe darin, die Gefahren eines mit Kernwaffen geführten Krieges und seiner Vorbereitung (angefangen von den Strahlengefahren der Testexplosionen bis hin zu den wirtschaftlichen Gesichtspunkten der durch das Wettrennen bedingten Umstrukturierung der Volkswirtschaft) zu studieren, Vorschläge für die Kontrolle der Rüstung und der Kernwaffenversuche den Regierungen und dem Volke zu unterbreiten, das Bewußtsein der Verantwortung des Wissenschaftlers auch für die politischen Auswirkungen der Wissenschaft zu wecken bzw. zu fördern und Humanismus und Vernunft zu den wichtigsten Prinzipien der internationalen Zusammenarbeit auf wissenschaftlichem und politischem Gebiet zu machen.

3. Wenn auch nicht dem Worte, aber doch der Sache nach, bekennen sich fast alle der Pugwash-Bewegung zugehörig fühlenden Gelehrten zur Politik der friedlichen Koexistenz zwischen den Staaten mit unterschiedlicher gesellschaftlicher Ordnung.
4. Die Pugwash-Bewegung bemüht sich weiterhin, neben Problemen der Abrüstung und der Kernwaffen auch sämtliche Seiten der internationalen Zusammenarbeit zwischen den Wissenschaftlern mit zu behandeln, um möglichst eine Vielzahl der mit der sich gegenwärtig in allen Staaten der Welt durchsetzenden wissenschaftlich-technischen Revolution verbundenen Probleme mitzugestalten. Deshalb werden auch Vorschläge gemacht, die praktische Probleme der sozialen Verwertung der Wissenschaft betreffen und mit dem wissenschaftlichen und technischen Fortschritt in den noch unterentwickelten Ländern zusammenhängen. Damit erhebt sich — nun allerdings auf höherer Stufe — jene Frage von neuem und in motivierter Form, die schon ganz zu Beginn der Tagungen dieser Bewegung gestanden hatte, die Frage nach dem Sinn dieser Bewegung überhaupt, ihrer Existenzberechtigung z. B. neben der „Weltföderation der Wissenschaftler“, die ähnliche Problemstellungen auch zu ihren erklärten Zielen gemacht hat [6]. Die Gründe für und wider Pugwash waren seinerzeit schon Gegenstand einer Auseinandersetzung zwischen *Walter W. Marseille* und *B. Russell* gewesen ([7], S. 144 ... 146).

Gewiß gibt es auch heute noch viele Menschen, die oft die Tätigkeit der Pugwash-Bewegung nur flüchtig kennen und die behaupten, dieses internationale Treffen zwischen Wissenschaftlern sei sinnlos. Aber die meisten Eingeweihten vertreten die Ansicht, daß die Pugwash-Konferenzen einen Beitrag zur Verständigung zwischen den Wissenschaftlern geleistet haben und auch der Erhaltung des Friedens dienlich gewesen sind.

Aber in den letzten Jahren ist eine neue Frage aufgetaucht, die in Kreisen der Bewegung lebhaft diskutiert wird: Soll sich die Tätigkeit der Pugwash-Bewegung — so wie es ursprünglich geplant war — auf Fragen der Kernenergie und der Abrüstung beschrän-

ken, oder aber sollen weiterreichende Probleme zur Diskussion gestellt werden? Es handelt sich also um eine Fragestellung, die mit der zukünftigen Wirksamkeit dieser Bewegung der Wissenschaftler zusammenhängt und auf die neben dem Generalsekretär der Pugwash-Bewegung, *J. Rotblat*, auch der Amerikaner *Rabinowitch* aufmerksam macht. Letzterer diskutiert in einem Artikel: „Pugwash-Coswa: International Conversation“ an Hand von Bemerkungen von *Freeman Dyson* (theoretischer Physiker am Institute for Advanced Studies in Princeton und Vorsitzender der „Federation of American Scientists“) und *Abdus Salam* (ebenfalls theoretischer Physiker und Chefberater des Präsidenten von Pakistan) über die Bedeutung der Konferenzen in Cambridge und London diese beiden möglichen Wege der Pugwash-Bewegung. Während der Amerikaner der Ansicht ist, daß es „die reale Aufgabe der Pugwash-Treffen ist, . . . Begegnungen von kleinen Gruppen westlicher und sowjetischer Wissenschaftler zu organisieren“ ([8], S. 12), die sich mit Fragen der Abrüstung beschäftigen, hingegen die Londoner Tagung, wegen der Breite von Problemen und der Menge der Teilnehmer, „unvermeidlich ein totaler Fehlschlag gewesen ist“ (ebenda), behauptet *A. Salam*, der auch Mitglied der Royal Society ist, genau das Gegenteil (vgl. ebenda). Er meint, daß wissenschaftlich-technische Probleme der Entwicklungsländer immer mehr in den Vordergrund der Diskussion rücken sollten. Dieser Gedanke findet auch seinen Niederschlag in der von ihm in London gehaltenen Rede ([9], S. 9 . . . 12). Ausgehend von einem Referat von *Mahalanobis* [10], sagte er wörtlich: „Die größte Hoffnung für mich ist jedoch die bloße Tatsache, daß die Pugwash-Wissenschaftler überhaupt begonnen haben, sich für diese Dinge zu interessieren“ ([9], vgl. S. 12).

Rabinowitch wie auch *Rotblat* selbst vertreten die Ansicht, daß sowohl kleinere Konferenzen als auch größere Tagungen mit einem umfassenden Programm stattfinden sollten und haben sich deshalb auch für solche Tagungen wie jene in Indien eingesetzt. In Übereinstimmung mit den sowjetischen Gelehrten vertritt aber das Ständige Komitee die Auffassung, daß der Hauptgegenstand der Verhandlungen auf den Tagungen der Pugwash-Konferenzen Probleme der Abrüstung sein sollten. Zugleich scheint heute — gerade durch den Einfluß, den Teilnehmer aus den ehemals kolonialen Gebieten auf die Bewegung gewonnen haben — in einem gewissen Maße der alte Vorschlag der Wissenschaftler aus den sozialistischen Staaten, die Problematik und vor allem den Teilnehmerkreis auszuweiten, größeren Anklang zu finden.

Rabinowitch resümiert deshalb auch: „Ich glaube, daß in Zukunft das Pugwash-Coswa-Programm ein solches sein sollte, das sowohl *Dyson* als auch *Salam* interessiert und beiden erlaubt, aktiv teilzunehmen“ ([1], S. 12).

Wenn die Wirksamkeit der Bewegung selbst bewertet werden soll, sollte man zugleich beachten, daß im Kampf gegen den Atomtod an die Moral und Vernunft appellierende Aufrufe und diplomatische Interventionen allein nur wenig helfen können. Sicherlich ist eine gewisse Wirkung auf Regierungen und Volksmassen zu verzeichnen, wenn die führenden Wissen-

schaftler der Welt warnen und protestieren. Aber Mahnungen und Proteste müssen ihre Ergänzung in realistischen und konstruktiven Vorschlägen finden, damit sie praktisch genutzt werden können.

Gerade letztere Weisheit ist von den Teilnehmern der Pugwash-Konferenzen beherzigt worden. Sie haben technisch und politisch gerechtfertigte Vorschläge zwecks Kontrolle der Tests mit nuklearen Waffen vorgelegt, zu bestimmten Maßnahmen und Bestrebungen einzelner Regierungen mit konkreten Gegenvorschlägen geantwortet, die den Vorteil hatten, daß sie von fachkundigen Wissenschaftlern aus beiden Weltssystemen und den paktfreien Staaten erarbeitet worden sind. Weiterhin haben sie ihren Einfluß auf die Regierungspolitik zugunsten und auf der Grundlage der Erklärungen und Diskussionen der Pugwash-Tagungen geltend gemacht, ein Einfluß, der nicht über-, sicherlich aber auch nicht unterschätzt werden darf.

Eine derartige Zielstellung läßt es als logisch erscheinen, die Wirksamkeit der Bewegung auch auf andere Gebiete auszudehnen und sich dabei einer ähnlichen Arbeitsweise zu bedienen. Vor allem erscheinen in diesem Zusammenhang die Vorschläge für Hilfsmaßnahmen für die unterentwickelten Gebiete als bedeutsam. Die Forscher gehen dabei von der Auffassung aus, daß neben der Beseitigung der Kriegsgefahr die Überwindung von Hunger und Hungertod in der Welt zu den wichtigsten Aufgaben der Menschheit gehört, daß die ungelösten sozialen Probleme der unterentwickelten Staaten in Asien, Afrika und Südamerika zugleich eine Quelle der Kriegsgefahr sein können und daß durch die sinnvolle Hilfe auf wissenschaftlichem und technischem Gebiet Wertvolles geleistet werden kann. Diese Ansicht ist — vom Standpunkt eines marxistischen Gesellschaftswissenschaftlers — etwas einseitig, abstrahiert sie doch von grundlegenden sozialen Problemen in den Entwicklungsländern selbst und vom Einfluß des Neokolonialismus auf sie. Dennoch aber sollte das redliche Bemühen dieser Wissenschaftler aufmerksam verfolgt werden und eine entsprechende Würdigung erfahren.

Die Antwort auf die sich ergebende Frage, ob mit solchen Aufgabenstellungen die Pugwash-Bewegung eigentlich überflüssig werden würde, weil beispielsweise die WFW oder auch entsprechende Organisationen der UNO gleiche Funktionen zu erfüllen haben, ist nicht leicht zu geben. Natürlich hat die WFW eine breitere Basis, was sowohl die Zahl der Mitglieder anbelangt (zugleich ist sie eine wirkliche Organisation) als auch ihre Verbindung zum Volke betrifft. Dennoch erscheint ihre Aktivität in Fragen des Friedenskampfes geringer. Zugleich darf man aber nicht übersehen, daß der Präsident der WFW, *C. F. Powell*, Mitglied des Ständigen Komitees ist, andere Repräsentanten ebenfalls aktive Teilnehmer der Pugwash-Bewegung sind und somit eine Koordinierung der Tätigkeit schon auf diese Weise gesichert sein dürfte.

Der Vorteil der Pugwash-Bewegung scheint in diesen Fragen in folgendem zu liegen: Die meisten der Teilnehmer der Pugwash-Konferenzen haben hinreichende Beziehungen (direkter oder indirekter Natur) zu den Regierungen ihrer Staaten oder doch wenigstens auf Grund ihres wissenschaftlichen Namens, um in manchen Fragen, insbesondere solchen, die die Waffen-

technik betreffen, wirksam zu werden. Man hat aus diesem Grunde in London auch das Wortspiel von dem „offiziell-inoffiziellen“ bzw. „inoffiziell-offiziellen“ Charakter der Tagung geprägt ([1], S. 8). Die Beteiligten sind auf der anderen Seite aber auch genügend unabhängig, um mitunter radikale neue Vorschläge zu machen. Daraus ergibt sich eine größere Beweglichkeit dieser Bewegung in der Anpassung an veränderte Situationen in der Weltpolitik, der Militärtechnik, -taktik und -strategie usw. Aus diesem dialektischen Spannungsverhältnis ergeben sich manche Möglichkeiten, in denen wohl auch das Geheimnis der Erfolge der Pugwash-Bewegung zu suchen sein dürfte.

Dieser Gedanke wird durch eine entsprechende Äußerung von *Burhop* bestätigt. Er schreibt:

„Es gab zwei Hauptkonzeptionen, die sich teilweise widersprachen. Auf der einen Seite gab es die Vorstellung, daß eine Gruppe von Wissenschaftlern mit großem persönlichem Ansehen aus Ost und West zusammentreffen sollte, um die Gefahren der Kernwaffen zu diskutieren und eine Erklärung von solcher unzweifelbarer Autorität über die Gefahren für die Menschheit auszuarbeiten, daß weder Politiker noch irgendein Volk ihre Folgerungen ignorieren könnten. Auf der anderen Seite bestand die Vorstellung, daß Wissenschaftler aus Ost und West, die Einfluß als Ratgeber der Regierungen besitzen, sich privat und inoffiziell treffen sollten, um auf diesem Wege zu garantieren, daß die technischen Voraussetzungen der Regierungspolitik von beiden Seiten wenigstens verstanden wurden. Eine solche Diskussion würde unmöglich sein, wenn eine detaillierte öffentliche Erklärung zum Ende veröffentlicht würde. Die Pugwash-Bewegung hat außerordentlich geschickt Konferenzen beider Art kombiniert. Sehr bedeutsame und autoritative öffentliche Erklärungen waren das Ergebnis verschiedener Treffen“ ([1], S. 38-39).

Jedoch muß beachtet werden, daß derartige Aktionen von Wissenschaftlern nur wirksam werden können im Rahmen der sich verändernden internationalen Situation, die vor allem durch das Kräfteverhältnis zwischen friedliebend-demokratischen und am Kriege direkt oder indirekt interessierten Mächten und Gruppen bestimmt wird. In diesem Ringen kommt den sozialistischen Staaten und den Volksmassen in aller Welt die bestimmende Rolle zu. Nur innerhalb dieses Wechselverhältnisses, in dem den Volksmassen und ihren Aktionen die entscheidende Bedeutung zuzusprechen ist, sind Bemühungen und Erfolge der Wissenschaftler um Probleme, die — wie auch die meisten der Forscher begriffen haben — nicht rein fachtechnischer Art sind, zu verstehen. Zugleich darf man auch nicht davon ausgehen — auch wenn bei manchen beteiligten Gelehrten die Illusion von einem neuen Typ des Menschen, der über nationalen und sozialen Interessen stehend, als Wissenschaftler und Intelligenzler unmittelbar der Menschheit dienen würde, mitschwingt —, daß die Teilnehmer der Pugwash-Konferenzen nicht sozial und weltanschaulich engagiert seien. Gerade deshalb, weil sie verbunden sind mit den nationalen Interessen, die identisch sind mit denen der im betreffenden Lande herrschenden Klasse, und zugleich genügend Weitsicht und Vernunft aufbringen, um die gemeinsamen Bedürfnisse der ganzen Menschheit am wissenschaftlich-technischen Fortschritt im Auge zu behalten, sind ihre Tagungen erfolgreich. Ihr Verlauf und ihre offiziellen Erklärungen beweisen zugleich, daß ihre Vorschläge (Abrüstung, Testverbote, Einschätzung der MLF) sich in hohem Maße der realistischen Politik der So-

wjetunion annähern, die Auswege aus der Sackgasse weist.

Was die Bedeutung der Pugwash-Bewegung im einzelnen anbelangt, so mögen am Anfang ihrer Darstellung zwei Zitate aus Grußadressen führender Staatsmänner stehen, die auf ihre Rolle im Friedenskampf hinweisen.

In einer Botschaft an die Tagung in Stowe schrieb *Chruschtschow*:

„Es hat sich eine gute Tradition herausgebildet, daß sich außerhalb stehende Wissenschaftler aus verschiedenen Ländern der Welt, vereinigt in der Pugwash-Bewegung, in periodischen Abständen auf ihren Konferenzen treffen, um Wege zur Befreiung der Menschheit von der Bedrohung eines weltvernichtenden Krieges zu finden. In einer relativ kurzen Zeitspanne hat die Pugwash-Bewegung der Wissenschaftler einen hervorragenden Beitrag im Kampf des Volkes um die Realisierung dieses dringenden Zeitproblems geleistet“ ([12].

In seiner Grußbotschaft an die Londoner Tagung wertete *Nehru* die Pugwash-Bewegung wie folgt:

„Wir alle fühlen uns den bisherigen Pugwash-Konferenzen zu Dank dafür verpflichtet, daß sich ihre Teilnehmer über die politischen Hindernisse hinweggesetzt haben, um frei und gründlich über die günstigen Möglichkeiten, aber auch über die Gefahren zu diskutieren, die unserer Welt im jetzigen Kernzeitalter drohen. Keine andere Frage ist heute so wichtig wie die der Abrüstung und des Friedens, und es ist Ihren Konferenzen hoch anzurechnen, daß sie begründet haben, warum nicht nur die Kernwaffen, sondern überhaupt der ganze moderne Kriegsapparat vernichtet werden müßte“ ([13], vgl. S. 10).

Der amerikanische Präsident *Kennedy* erhofft sich in seiner Grußadresse an die Londoner Konferenz den „Beginn einer bedeutungsvollen Übereinkunft über die Einstellung der Kernwaffenversuche“ ([14], S. 40).

Derartige Bemerkungen dürfen wohl kaum nur als wohlwollende diplomatische Floskeln angesehen werden, sondern als Ausdruck des erlangten Einflusses auf die Politik der jeweiligen Regierungen und als Anerkennung für geleistete Arbeit im Dienste des Friedens. Zugleich heben diese Botschaften der führenden Regierungen der Welt die Pugwash-Konferenzen in den Rang weltpolitischer Ereignisse.

Die direkte Bedeutung der Konferenzen ist vor allem in folgenden Tatsachen zu suchen:

1. Bei den Pugwash-Konferenzen handelt es sich um ein Zusammentreffen von sehr namhaften Gelehrten, die vielfach die Stellung von wissenschaftlichen Beratern ihrer Regierungen innehaben [15] und Fragen der Abrüstung behandeln.
 2. In einem Vortrag hat *Klaus Fuchs* darauf hingewiesen, daß auf den Pugwash-Konferenzen an den wissenschaftlich-technischen Problemen, die mit der Erhaltung des Friedens zusammenhängen, gearbeitet wird. Und er schätzt ein, „daß diese Konferenzen ein wichtiger Bestandteil und eine wichtige Hilfe des Kampfes für den Frieden sind, aus dem einfachen Grunde nämlich, weil durch diese Konferenzen die ganzen wissenschaftlich-technischen Fragen der Erhaltung des Friedens aus der Kategorie der militärischen Geheimnisse in die Weltöffentlichkeit gezogen worden sind“ ([16], S. 3).
- Insbesondere sind auf den einzelnen Konferenzen, gerade auf den letzten, eine ganze Reihe von brauchbaren Vorschlägen, die die Abrüstung betreffen, gemacht worden. Sie stellen keine allge-

meinen Deklarationen dar, mittels derer die Öffentlichkeit aufgerüttelt werden soll, etwas gegen die drohenden Gefahren zu unternehmen, sondern sie zeugen von verantwortungsvoller, operativer Arbeit, die sich in konstruktiven Vorschlägen niederschlägt und die ihrerseits den Vorteil haben, zum Teil doch offiziellen Charakter zu tragen.

An erster Stelle ist dabei der Vorschlag zur Installation der „black box“ zu nennen, den man als direkte Vorstufe für den Abschluß des Moskauer Teststoppabkommens ansehen muß.

Die in den offiziellen Erklärungen der Konferenzen enthaltene Ablehnung der MLF und der Gegenvorschlag zur Errichtung militärisch verdünnter Zonen sowie das Dogma von der Verhinderung der weiteren Verbreitung der Kernwaffen sind zugleich wertvolle Hilfe für den Kampf der friedliebenden Kräfte der ganzen Welt gegen aggressive und militaristische Bestrebungen, z. B. in Westdeutschland. Mit ihrer Unterschrift unter entsprechende Dokumente der Bewegung haben sich die teilnehmenden Forscher zugleich verpflichtet, ihren Einfluß zur Verwirklichung dieser Grundsätze geltend zu machen.

Weiterhin leisten die Pugwash-Konferenzen und ihr Ständiges Komitee den Friedensbestrebungen dadurch Hilfe, daß sie wissenschaftlich-technische Arbeit für die Abrüstung im engeren Sinne verrichten, indem sie in speziellen Studienkommissionen wertvolle Forschungsergebnisse erreichen, die mit Fragen der Abrüstungskontrolle zusammenhängen.

3. Aufmerksamkeit verdient auch der Umstand, daß in letzter Zeit immer mehr Gesellschaftswissenschaftler und Politiker in die Bewegung, die ursprünglich nur von Naturwissenschaftlern getragen worden war, einbezogen werden. Diese Teilnehmer analysieren ökonomische Aspekte der Abrüstung und völkerrechtliche Seiten der Rüstungskontrolle. Gerade die 13. Konferenz ist ein klarer Beweis für eine derartige Tendenz.
4. Schließlich befassen sich die Wissenschaftler auch noch mit den sozialen Auswirkungen der wissenschaftlich-technischen Revolution. Hier reicht die Skala der Bemühungen vom Studium der Probleme der Entwicklungsländer, über die Kooperation der wissenschaftlichen Forschungen auf internationaler Ebene bis zu den heute so lebhaft diskutierten Problemen der Hochschulbildung.

Alle diese Aktionen beweisen — im Gegensatz zu Berichten, wie sie beispielsweise in der „Zeit“ veröffentlicht worden sind und mit denen sich der westdeutsche Pugwash-Teilnehmer *G. Burkhardt* auseinandersetzt ([17], S. 4) —, daß diese Wissenschaftler keine weltfremden Gelehrten sind, die die wirklichen Probleme noch nicht erkannt haben. Das Gegenteil ist der Fall: Die in der Pugwash-Bewegung vereinigten Wissenschaftler werden durch ihre Vorschläge und Erklärungen als sehr real denkende und handelnde Menschen ausgewiesen.

Hinsichtlich der Einschätzung der Pugwash-Bewegung kann somit jener Gedanke, den der bekannte sowjetische Gelehrte *W. S. Jemeljanow* über die 12. Konferenz äußerte, verallgemeinert werden:

„Die Pugwash-Konferenzen stellen eine wichtige Etappe auf dem Weg zur Verständigung, auf dem Weg zur Errichtung eines ewigen Friedens auf Erden dar“ ([18], S. 270).

Neben dem Einfluß, den die Pugwash-Bewegung auf die internationale Politik gewonnen hat, ergeben sich aber auch noch andere Aspekte ihrer Bedeutung. Hier wären z. B. die Beeinflussung der Volksmassen durch die Appelle, ihre indirekte Unterstützung für den Weltfriedenskongreß und die Rolle zu nennen, die das Auftreten der Forscher auf öffentlichen Großkundgebungen, wie in Wien, spielen. Da in diesen Leistungen aber nicht die Spezifik der Pugwash-Bewegung zum Ausdruck kommt, soll hier nicht weiter auf sie eingegangen werden.

Typischer erscheint vielmehr der Einfluß zu sein, den die Teilnehmer der Pugwash-Bewegung auf das Denken ihrer Fachkollegen in den verschiedenen Ländern ausgeübt haben. In erster Linie muß in diesem Zusammenhang auf die Diskussionen über die Beziehungen zwischen Wissenschaft und Gesellschaft, Naturwissenschaft und Politik und über die soziale Verantwortung des Wissenschaftlers vor der Menschheit hingewiesen werden. Gerade hier zeigen sich wesentliche weltanschauliche Unterschiede zwischen den Gelehrten aus den unterschiedlichen gesellschaftlichen Ordnungen und einzelnen Nationen. Auf der anderen Seite wird aber auch deutlich, wo es Verbindungen zwischen dem Humanismus des Bürgertums und dem sozialistischen Humanismus gibt, wie eng verbunden sich die Forscher in grundlegenden gesellschaftlichen Problemen doch fühlen.

Schon auf der ersten Tagung der Bewegung in Pugwash fungierte eine besondere Kommission, die in elf Punkten die ihrer Meinung nach wesentlichsten Gesichtspunkte der Verantwortung des Wissenschaftlers zusammengefaßt hat. In ihnen wird dem Wissenschaftler die Verpflichtung auferlegt, sich aktiver um die öffentlichen Angelegenheiten zu kümmern, gegen Krieg und Kriegsgefahr anzukämpfen, trotz unterschiedlicher ideologischer Ansichten gemeinsam an der Entwicklung der Wissenschaft zu arbeiten, nationalistische Tendenzen in der Erziehung des wissenschaftlichen Nachwuchses zu überwinden und für die Freiheit der wissenschaftlichen Forschung einzutreten ([19], S. 6...7). Zur gleichen Problematik heißt es dann in der Wiener Deklaration:

„Wir erachten es als eine Verantwortung der Wissenschaftler in allen Ländern, durch die Verbreitung eines weitgehenden Verständnisses für die durch das beispiellose Wachstum der Wissenschaft entstandenen Gefahren und Möglichkeiten zur Bildung der Völker beizutragen. Wir appellieren allerorts an unsere Kollegen, durch Aufklärung der Erwachsenen und Erziehung der kommenden Generation zu diesen Bemühungen beizutragen. Die Erziehung sollte die Verbesserung aller Formen der menschlichen Beziehungen unterstreichen und jede Verherrlichung von Krieg und Gewalt ausschließen.“

Wissenschaftler sind auf Grund ihrer Fachkenntnisse sehr dazu berufen, früh die Gefahren und die sich aus wissenschaftlichen Entdeckungen zu erwartenden Hoffnungen zu erkennen. Sie haben daher eine besondere Kompetenz und eine besondere Verantwortung in Verbindung mit den drängenden Problemen unserer Zeit“ (Erklärung der III. Pugwash-Konferenz a. a. O.).

Ähnliche Bekenntnisse zur sozialen Verantwortung des Wissenschaftlers, die auch die für die sozialen Folgen der Erkenntnisse mit einschließt, sind auch in einer Reihe anderer Dokumente der Bewegung, insbesondere der Londoner Tagung, und selbstverständlich

auch in den Beiträgen der einzelnen Gelehrten, die später veröffentlicht worden sind, zu finden.

In der Folge haben sich dann die Teilnehmer der Konferenzen darum bemüht, diese Prinzipien mit ihren Kollegen zu diskutieren, sie zu bewegen, sich zu ihnen zu bekennen. Insbesondere in der Sowjetunion haben sich die Mitglieder der Bewegung auch in dieser Hinsicht Verdienste erworben. In vielen Erklärungen des Präsidiums der Akademie der UdSSR verpflichtet sich diese, für die Propagierung der Grundsätze der Konferenz Sorge zu tragen ([20], S. 316). Auch schlossen sich führende Mitglieder des Vereinigten Internationalen Kernforschungsinstituts in Dubna in einer Erklärung den Grundsätzen der Pugwash-Bewegung an ([21], S. 341).

Auf den Tagungen der Pugwash-Bewegung und speziell in den Diskussionen um die gesellschaftliche Verantwortung des Wissenschaftlers treffen die unterschiedlichen weltanschaulichen Standpunkte aufeinander, und es gibt auch einen hartnäckigen Meinungsstreit zwischen Gelehrten sozialistischer und kapitalistischer Staaten. Zugleich macht sich aber hier auch ein — keineswegs in seiner Auswirkung zu überschätzender — Einfluß der Ansichten der Forscher aus der Sowjetunion geltend, und es erscheint der Hinweis nicht uninteressant, daß die Teilnehmer an den Konferenzen, beispielsweise aus den USA, manche kritische Bemerkungen zur Politik ihrer Regierung deutlicher aussprechen, als das andere Fachkollegen und sie selbst, als sie noch nicht an den Konferenzen teilgenommen hatten, taten. Am besten läßt sich eine solche (wenn auch nur graduelle) Veränderung im Denken an Hand ihrer Publikationen im „Bulletin of the Atomic Scientists“, jenes Gradmessers für die Einstellung sämtlicher Naturwissenschaftler der bürgerlichen Gesellschaft, ablesen. Insgesamt läßt sich sagen, daß die Teilnehmer der Konferenzen in ihrer Mehrzahl heute zu den fortschrittlichsten Teilen der Intelligenz in ihrem Lande zählen. Darüber hinaus hat die Bewegung manchen Forscher dazu angeregt, sich von neuem und im Interesse des Friedenskampfes mit militärischen Konsequenzen wissenschaftlicher Forschung zu befassen. So hat beispielsweise der amerikanische Professor für Bakteriologie, *Theodor Rosebury*, der lange Zeit an führender Stelle für die amerikanische biologische Kriegsführung tätig gewesen ist, nach 1946 aber jegliche Beziehungen zu dieser Arbeit abgebrochen hatte, sich im Interesse der Verhinderung eines bakteriologischen Krieges und im Auftrage der Pugwash-Bewegung wieder mit derartigen Problemen befaßt, jetzt allerdings mit einem umgekehrten Vorzeichen [22].

Wichtig erscheint auch der persönliche Kontakt und Austausch der Gedanken zwischen den Wissenschaftlern selbst. Dabei kommt es mitunter auch zu scharfen Auseinandersetzungen, die aber alle getragen sind von dem gemeinsamen Bestreben, den Frieden sichern zu helfen und den Fortschritt der Menschheit zu fördern.

„Auch innerhalb der Ländergruppen zeigte es sich sehr zum Vorteil des Meinungsaustausches, daß ihre Wissenschaftler vielfach ein Spektrum von Anschauungen vertraten: Neben dem Konservativen *Sir Georg Thomson* aus Großbritannien und den sehr bedachtsamen und kritischen Amerikanern *Wigner*, *Seitz* und *Weinberg* saßen die „extremen“ *K. Lonsdale* und *L. Pauling* und der temperamentvolle *L. Szilard*“.

urteilt *Klieforth* über die Kitzbüheler Tagung ([23], S. 489).

Insgesamt läßt sich über diese Seite der Bedeutung der internationalen Pugwash-Bewegung sagen, daß sie auch einen gewichtigen Beitrag zur Herausbildung und Verbreitung eines humanistischen Berufsethos der Wissenschaftler geleistet hat, das nicht in akademischer Manier ausgebrütet worden, sondern auf Grund der objektiven Notwendigkeiten und des Bemühens der Wissenschaftler um den Weltfrieden entstanden ist und sich auch bewähren muß.

Es zeigt sich also, daß die Pugwash-Konferenzen für Frieden und internationale Angelegenheiten auch über die Erfolge im Ringen um die Abrüstung hinaus eine Wirksamkeit erlangt haben, die beachtenswert ist und die schon allein groß genug sind, um dieser Bewegung eine noch größere Aufmerksamkeit zu schenken.

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REPORT OF THE MEDICAL WORKING GROUP

AS DOCTORS OF MEDICINE AND SCIENTISTS IN HEALTH-RELATED FIELDS FROM MANY COUNTRIES PRESENT AT THE 30th PUGWASH CONFERENCE INCLUDING: BRAZIL, CHILE, CZECHOSLOVAKIA, EGYPT, FINLAND, FRANCE, KENYA, THE NETHERLANDS, NIGERIA, POLAND, U.K., U.S.A., U.S.S.R., AND VENEZUELA, WE ISSUE A WARNING, BASED ON MEDICAL AND OTHER SCIENTIFIC DATA, THAT SHOULD BECOME WIDELY KNOWN:

1. THAT MEDICAL DISASTER-PLANNING FOR A NUCLEAR WAR IS FUTILE.

A nuclear war would result in human death, injury, and disease on a scale that has no precedent in history, dwarfing all previous plagues and wars. There is no possible effective medical response after a nuclear attack -- in one major city alone, in addition to the hundreds of thousands of sudden deaths, there would be hundreds of thousands of people with severe burns, trauma, and radiation sickness -- all demanding intensive care. Even if all medical resources were intact, the care of these immediate survivors would be next to impossible. In fact, most hospitals would be destroyed, medical personnel among the dead and injured, most transportation, communication and energy systems inoperable, and most medical supplies unavailable. As a result, most of those requiring medical attention would die.

Medical problems that would be minor and curable in normal times -- infections and fractures for example -- would prove fatal for many. Numerous deaths would also occur from the interaction of multiple, simultaneous injuries which would be trivial if each occurred singly. Large numbers of those who escaped an acute death would suffer mutilating injuries. Furthermore, under the conditions of rampant chaos and terror, the incidence of psychiatric disorders would sharply rise. The risk of long term effects, such as cancer, would increase during their entire lifetime for many survivors, and possibly for their offspring as well.

2. THAT EFFECTIVE CIVIL DEFENCE AGAINST A NUCLEAR ATTACK IS IMPOSSIBLE.

Bomb shelters in cities under nuclear attack would be useless owing to the blast, heat, and radiation effects. Shelters as far as ten kilometers from the centre of even a one megaton surface nuclear explosion would become ovens for their occupants -- the great surface fires would cook and asphyxiate them. At greater distances, shelters would provide only temporary protection against the high levels of radioactive fallout. In a nuclear war, one would emerge from a shelter into an environment that was a nightmare -- water would be undrinkable, food contaminated, and the economic, ecologic, and social fabric, on which human life depends, destroyed. For the survivors, the risk of epidemics would be great, as a result of: the unburied human and animal corpses everywhere; multiplication of viruses, bacteria, fungi, and insects, which are highly resistant to radiation; and the high sensitivity to radiation of the human body's ability to fight infection.

IN SUM, THERE ARE NO DEFENCES AGAINST THE LETHAL EFFECTS OF NUCLEAR WEAPONS, AND THERE IS NO EFFECTIVE TREATMENT FOR THOSE WHO INITIALLY SURVIVED A NUCLEAR ATTACK. UNDER ALL CONDITIONS, MEDICALLY, NUCLEAR WAR WOULD BE AN UNPARALLELED CATASTROPHE.

AS DOCTORS OF MEDICINE AND SCIENTISTS IN HEALTH-RELATED FIELDS, WE CONCLUDE, THEREFORE, THAT NUCLEAR WEAPONS ARE SO DESTRUCTIVE TO HUMAN HEALTH AND LIFE THAT THEY MUST NEVER BE USED. PREVENTION OF NUCLEAR WAR OFFERS THE ONLY POSSIBILITY FOR PROTECTING PEOPLE FROM ITS MEDICAL CONSEQUENCES. THERE IS NO ALTERNATIVE.

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PUGWASH NEWSLETTER

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FROM BREUKELLEN TO BANFF

The Breukelen Conference reported in our last Newsletter received wide notice in the media of many countries. This was especially true of the special statement on medical consequences of a nuclear war, and the declaration on the danger of an outbreak of nuclear war adopted by the Conference at the closing plenary session. Conveners of national Pugwash groups and individual participants were active in circulating this information to the public media and scientific journals in their respective countries.

Pugwash and the media have too often been mutually exclusive in their relationships, and good steps towards remedying this situation were taken at the workshop on "Averting Nuclear War: the Role of the Media" held in Bad Deutsch-Altenburg, Austria, where a distinguished group of scientists and media representatives met on 11 and 12 October (p.79). A report on the meeting, drawn up by two of the participants, Nigel Calder and Andrew Wilson, provides an excellent idea of the flavour and content of the discussions (p.80). The historic settlement on the Danube, a favourite spot of Marcus Aurelius, provided a perfect background, thanks to the Austrian Pugwash Group and the untiring efforts of its convener, Engelbert Broda. One of the highlights of the meeting was a moving intervention by Abdus Salam regarding the Third World which the meeting asked to be circulated (p. 82).

The Third Workshop on "The Current Crisis of Nuclear Forces Deployment in Europe", as with the first two, was held in Geneva (6 and 7 December). The transition from Carter to Reagan was in mid-stream and no one (including, no doubt, Reagan himself) could predict the negotiating posture on arms control of the new administration. Nevertheless the workshop was useful in exploring various possible solutions to the problem of "modernization" of nuclear weapons in Europe, with Francesco Calogero's thoughtful paper (p. 89) serving to launch the discussion. The free exchange of views and the agreed statement (p. 88) provided the needed momentum for a continuing dialogue between opposing sides which would permit further exploration of the possibilities. The workshop was financed by the Swiss Association of the Friends of Pugwash, recently organized through the energetic initiative of Jean-François Rochette, H. Dudley Wright and Michael Wyler. Workshop participants were dinner guests of the Association at a local golf club where some of the sponsors had their first opportunity to meet eastern Europeans, and to observe that Pugwash reflects a wide spectrum of political and socio-economic views with the common purpose of scientists seeking peaceful rather than military solutions for world problems that bedevil our epoch.

A few days later our 36th Symposium, "New Weapons Systems and Criteria for Evaluating their Dangers", was held in London in the Ciba House where fine hospitality was provided by the Ciba Foundation. The high level of the discussions is reflected in the report (p. 96) kindly prepared by Bill Gutteridge and Trevor Taylor, and the excellent working papers (p. 95) which will eventually be published in book form. The British Pugwash Group were host to the meeting, with Joe Rotblat overseeing the many details of organization including an unusual public session (a full house of some 250 seats) addressed by Field Marshall Lord Carver, Lord Zuckerman, Lord Noel-Baker, Francesco Calogero and Bernie Feld (p.100). The public session was an excellent example of an effort by a national Pugwash group to bring to a wider public expert, though not necessarily uniform, views on vital questions. (Robert Ditchburn's report of this meeting is given on p.101).

Thus ended a busy calendar year of Pugwash activities. The Executive Committee

which met in Geneva at the time of the December workshop mapped out a full schedule for the first half of 1981 (back cover) leading up to the Banff Conference for which preparations are well underway. Warsaw (1982) was also in view for the Executive Committee, and national groups have been asked to consider nominations for the new Council to be elected at that Conference (see below).

Our record of accomplishment has depended and will depend on the devoted efforts of individuals both as active participants in our meetings and in the many arduous auxiliary tasks connected with Pugwash activities, some of which I have mentioned above. These personal sacrifices of time and energy taken from highly taxed reserves, and often involving drab detail, should not be forgotten or taken for granted. As scientists trying to practice "the art of the possible" we should take heed of the observation of William Blake in the 18th century that:

"He who would do good to another must do it in Minute Particulars....."

For Art and Science cannot exist but in minutely organized Particulars."

M. M. Kaplan

PROCEDURE FOR THE ELECTION OF THE NEW PUGWASH COUNCIL IN WARSAW (1982)

(Agreed by Council in Breukelen, Netherlands, August 1980)

1. General principle

The national groups and the present Council will be the organs involved in the preparation of a slate for the new Council to be elected at the quinquennial Conference in Warsaw in 1982.

2. Procedure

National groups will be asked by the Director-General to submit names of individuals to serve on Council. The nominees will be only from the nominating countries. Using the present geographical distribution of Council seats as a rough guide, the Council will decide on a list of names with alternatives.

In addition, Council members can make further nominations of individuals from any country. Out of these nominations Council will select two names to fill the two co-optable places.

In preparing the slate, Council would bear in mind the need for some balance in respect of scientific disciplines, age and sex, as well as the need to rotate the membership.

3. Timetable

Nominations to be submitted before the next meeting of Council in Banff (1981). In the letter to the national groups the D.G. should intimate that, if they wish, national groups may consult with other groups within or outside the present constituencies.

Council will consider the nominations at the Banff meeting and prepare the slate.

The persons nominated should be asked whether they would be willing to stand and to serve actively on Council, if elected.

The slate should be communicated to the national groups to give them an opportunity to make reasoned objections, or to suggest last minute substitutes. Council will consider these matters at its pre-Conference meeting in Warsaw, when the final list will be agreed upon and submitted to the Conference.

Pugwash Workshop on
"AVERTING NUCLEAR WAR : THE ROLE OF THE MEDIA
Bad Deutsch-Altenburg, Austria, 11-12 October 1980

Participants

- Ruth Adams, Editor, Bulletin of Atomic Scientists, 1020 East 58th St., Chicago, Illinois 60637, USA
- Wolf Graf von Baudissin, Director, Inst. f. Friedensforschung u. Sicherheitspolitik, Universität Hamburg, Falkenstein 1, D-2000 Hamburg 55, FRG
- David Boulton, Head of Current Affairs, Granada Television (ITV), Manchester 3, UK
- E. Broda, Professor of Physical Chemistry, Vienna University, Währingerstr. 42, A-1090 Vienna, Austria
- Nigel Calder, science writer, 8 The Chase, Furnace Green, Crawley, Sussex, UK
- Marian Dobrosielski, Deputy Minister of Foreign Affairs, Ministry of Foreign Affairs, Warsaw, Poland
- André Fontaine, Chief Editor, Le Monde, 5 rue des Italiens, 75427 Paris Cedex 09, France
- Thomas A. Halsted, Public Affairs Adviser, U.S. Arms Control and Disarmament Agency, 320 21st St. N.W., Washington, D.C., USA
- Joseph Handler, science writer, 20 chemin du Boucher, CH-1202 Geneva, Switzerland
- Dorothy Hodgkin, Nobel Laureate in Chemistry, President of Pugwash, Chemical Crystallography, 9 Parks Road, Oxford, UK
- Sergei Kapitza, Professor of Physics, Academy of Science, Inst. for Physical Problems, Vorobevskoye Sh. 2, Moscow B-334, USSR
- Martin M. Kaplan, microbiologist, Director-General of Pugwash, 11a avenue de la Paix, 1202 Geneva, Switzerland
- Alfred Kastler, Nobel Laureate in Physics, 1 rue du Val de Grace, F-75005, Paris, France
- Wilhelm Kuntner, Landesverteidigungsakademie, Stiftgasse 2A, A-1070 Vienna, Austria
- Flora Lewis, Foreign Editor, New York Times, 3 rue Scribe, Paris 9e, France
- Maciej Nalecz, physicist, Chairman of the Pugwash Council, Polish Academy of Sciences, Palac Kultury i Nauki, p. 2318, Warsaw, Poland
- Roel Oostra, journalist, Dutch TV, NCRV-TV, Schuttersweg 8, Hilversum, Netherlands
- Lord Ritchie Calder, House of Lords, Philpstoun House, Linlithgow, West Lothian, Scotland
- Joseph Rotblat, Professor of Physics, 8 Asmara Road, London NW2 3ST, UK
- Abdus Salam, Nobel Laureate in Physics, Director, International Centre for Theoretical Physics, Trieste, Italy
- Roberto Savio, Director-General, Inter Press Service, Third World News Agency, Via Panisperna 207, Rome, Italy

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V. Zagladin, Deputy Director, Dept. for International Affairs, Central Committee, CPSU, Moscow, USSR

The Workshop

If experts and the mass media keep harping on the undoubted risk of nuclear war and its consequent horrors, do they induce a sense of familiarity or fatalism in the general public? If so, might that response heighten the risk of nuclear war by lessening public resistance? This aspect of social psychology was one theme in an unusual workshop that brought a typical Pugwash group of scientists and military-political analysts into free-ranging discussions with newspaper editors and television journalists.

Opinion polls had revealed a widespread and increasing expectation of nuclear war, notably among citizens of Western Europe. On the other hand, this fear often expressed itself in exaggerated attention to the 'numbers game' in the arms race and to the lesser problems associated with civilian nuclear power programmes. The consensus in the workshop was that honest fears about nuclear war should be candidly reported and that readers and viewers ought to be reminded from time to time of the horrors in store for them, and their families and neighbours, should nuclear war break out. But there was an important rider: hope must not be extinguished and the media should pay due attention to practical proposals for reducing the risk of nuclear war.

Some consequences of the deployment of missiles of high accuracy were salient among the substantive problems reviewed. In particular the workshop considered the renewed arms race in Europe, the rise of theories about fighting and 'winning' limited nuclear wars, and the advice (often tendentious) given by governments about civil defence in nuclear war. Official East-West talks about "Euromissiles" were welcomed, but there was general doubt about the ability of formal negotiations on the lines of SALT to keep pace with the technology. Alternative possibilities included (1) 'reciprocal unilateralism' (in which arms reductions were made spontaneously by either side in the expectation of similar reductions by the other); (2) a possible declaration of 'no first use' of nuclear weapons by all parties; and (3) the designation of 'intervention-free zones' in the wider world, where the superpowers would keep out of local conflicts. Several participants thought the way to substantial agreements on arms control lay through confidence-building measures in other areas; but it was also argued that, if the arms race continued, such measures were bound to lose conviction in the long run.

More generally, the media representatives contrasted their approach with that of

scientific and military analysts. While the latter had greater familiarity with weapons systems and the technicalities of arms control and verification methods, the press claimed a greater awareness of the complexities of political life and international relations, and of human factors such as hope and fear, pride and deceit, which were at least as important determinants of arms races and wars as the technical factors. "All governments lie", one participant remarked, "and the greater the country the greater the lies."

The limited scope of attention among political leaders, the media and the public was also a cause for concern. The 'serious' media had a good record of anticipating global problems and threats to peace, but such articles and television programmes were usually ignored until a problem became a crisis. The far-reaching, interconnected complexities of the globe were not matched by the very restricted agenda at the highest levels of government, nor by the necessarily simple ideas communicable to the public. The modern world was seen to be lurching from crisis to crisis, with little success in solving festering problems until events compelled attention to them. Notably there was an urgent need for East and West to increase and coordinate their help to the Third World for the development of new raw-material resources, so as to avoid competition and conflict in the quest for scarce supplies.

Frank and unrepentant discussions took place about the ownership and roles of the media in the socialist and non-socialist blocs, and about the different rules on the two sides affecting the availability of information and the scope of comments. Nevertheless, exchanges of articles and television programmes between countries of East and West, although typically on cultural and peaceful scientific matters, were welcomed as an aid to international understanding and goodwill. This was one way of correcting the journalistic clichés which gave stereotyped impressions of other countries and their political and economic systems.

The conception of this workshop dated back to the Pugwash workshop on crisis management (Geneva, December 1978), which attached great importance to the role of the news media in crises. The Altenburg workshop considered, for example, the intense and persistent interest of the US media in the fate of the American hostages seized in Teheran in 1979. In part this was engineered by the Iranian students, who stage-managed a succession of events for the television cameras. As a result the hostages loomed larger in US foreign policy throughout 1980 than they might otherwise have done, and the question arose whether the armed raid to free them would have been attempted in the absence of such media interest.

Concerning the Polish strikes of 1980, criticisms were levelled at some of the Western media for speculating too often about Soviet intervention in Poland. Against this, a strongly worded comment on Polish events in the Soviet press had been read as implying a possibility of intervention. Western journalists commented on the difficulty in obtaining explicit statements of official Eastern views on political and military developments.

The Iran-Iraq war, in progress when the workshop met, illustrated problems of a different kind. New technical possibilities of reporting from remote places using satellite-relayed images were counterbalanced by restrictions on the movements of journalists and camera crews. A criticism was voiced of 'northern' media, that they tended to discuss issues in the Third World as aspects of the East-West competition rather than attempting to understand the viewpoints of the local protagonists. But media representatives insisted that questions of 'who is backing whom?' were often essential for interpreting events. They also stressed the sheer impossibility of obtaining sufficient and timely information to arrive at a fully balanced view of fast-moving crises. The media are not omniscient; nor are they

all-powerful in influencing national leaders and public opinion.

During the closing session, participants warmly expressed their wish to continue the contacts and exchanges established at the Altenburg workshop. Practical consequences included ideas for media treatment of particular topics in averting nuclear war, and a promise by Pugwash officers to make themselves available as a channel of non-governmental expert advice for the press on technical matters. A forceful statement by one scientist about the despair felt in the Third World was to be adapted into an article for release to the press.

Three suggestions for future activities were commended to the Pugwash Council:

1. That media workshops of this type should take place about once a year with some continuity and some turnover of participation. One suggestion was that the next workshop might focus on nuclear proliferation and on crises in the Third World.
2. That national Pugwash groups might be encouraged to involve well-informed media people in their activities. Pugwash in the German Federal Republic was cited as one national group where this is normal practice.
3. That renewed consideration be given to inviting some media representatives as full participants in 'ordinary' Pugwash meetings and workshops, subject to the usual rules of confidentiality.

A fourth suggestion, greeted with more doubt, was that Pugwash should involve itself directly in promoting a better flow of information to 'northern' media about the perceptions of the Third World. A possible media workshop on Third-World and proliferation problems, as indicated in (1) above, might give further consideration to ideas of this kind.

Nigel Calder
Andrew Wilson

Speech by Professor Abdus Salam

It is an honour for me to attend the Pugwash meeting on this occasion.

I am not normally subdued, but today I am in a very subdued mood because I have just come from the UNESCO Annual Conference which is at the present moment going on in Belgrade. The reason for my being subdued is, of course, the war between Iraq and Iran and the fighting in Afghanistan, next door to my own country.

Tomorrow, at the Belgrade Conference of UNESCO, a start will be made in the discussion of the media problem. There are around 4,000 persons attending the Belgrade Conference, the majority coming from the developing countries. Our meeting here today, if it had been held in Belgrade, might have received an input from these delegates from the developing countries which, with all due respects to our Viennese hosts, it is unlikely we can get here in Vienna. Being transferred from Belgrade to Vienna in a matter of two hours, I feel as if there are two different planets and two different sets of preoccupations between one conference and the other.

As you know, the Belgrade Conference and its discussion on media will be devoted to

the feeling of misrepresentation at the hands of the media which the developing countries feel they have to try to put right. If I may summarize the feeling in Belgrade, and if I may speak very frankly among friends here, the feeling is that the superpowers have divided the developing world into two blocs - two spheres of influence. Even if there are differences between what part belongs to whom, no one among the superpowers is going to risk nuclear annihilation to stop one of the superpowers occupying any of the developing countries. This feeling of hopelessness is what I heard from the delegates of the developing countries in Belgrade.

As an example of how things can look very different when seen from one side or the other, let us take the case of the OPEC nations and particularly the Arabs among them. From their point of view, they do not have any other resource except oil. Once the oil finishes, in less than fifty years, they will have absolutely nothing, except the desert. Why should they mine their oil and finish it in fifty years? It is hard for them to invest their money. There is the fear of appropriation. If they deposit the money in the rich countries there is the fear of inflation, of a catastrophic drop in the real value. If they buy real estate, there are groups in the rich countries which try to deny them this, and on top of this the media in the West still persist in representing them as nothing but robbers. Honestly, these countries are to be pitied for their long range predicament, rather than otherwise.

And another thing: whenever the question of aid to developing countries comes up, one always hears the remark "the Arabs have all the money. Why don't they share it with the developing countries?". It is not realized that the total wealth of the Arab countries, the GNP of all of them, including Egypt, is just one third of the GNP of the USSR, or one half of Germany. This fact is seldom brought home to the readers of the Western media.

Another example of misrepresentation which is very strongly felt is this. An Iranian delegate in Belgrade said to me "Can you tell me of any countries in the developing world, or among the many developed countries, in which after a revolution there have been three free elections - one a referendum, one an election for the parliament, and one an election for a president?". The Iranian was bitter that they were hardly ever commended for their maturity as a country observing democratic processes.

I was in Venezuela in the early part of last year, and they showed me a report written on Venezuelan science by an eminent Western scientist who had been specially invited to visit and report on the science situation there. Venezuela, as you may know, is trying very hard to build up science at a high level. The man who showed me the report summarized it as saying: "How can these men, in such a developing country, aspire to work on advanced science like neurobiology or hydromechanics? These people are, after all, no better than monkeys who jump from the trees into Rolls Royces."

This should give you an example, not of misrepresentation, perhaps, but of a singular lack of sensitivity.

I was on the receiving end of the same misunderstanding. I still recall my suggestion to set up a centre for theoretical physics for the developing countries. In almost identical terms, a delegate from one of the rich countries at the General Conference of the IAEA, spoke in the following way: "Salam has asked for a centre on theoretical physics. Does he not realize that theoretical physics is the Rolls Royce of science? What these countries want more than anything else, is donkey cards."

But coming back to the media. One of the reports which the media totally neglected was the report submitted by the US President, which I believe was published in July this year, on the forecast for the year 2,000. I believe it carried one day's editorial in the Washington Post, but I do not know if any paper in Britain reported it. The report is absolutely frightening. It was apparently prepared by scientific organizations in the US so, factually, there is nothing one can find fault with. It says that in twenty years, the population of the world will have grown from 4 billion to 6.5. There will need to be an increase of 90% of the present levels of food available. However, since the world's arable area will increase by 4%, the remainder will have to be found by an increase in energy inputs to agriculture. The report went on to remark that normally the demands of arable land and the demands for fuel from developing countries will require that 40% of forest cover will disappear and with this would die half a million species of plants, animals and birds. What amazes me is that the environmentalists who are so active in Western countries, hardly took any notice of this dire warning of half a million disappearing species of plant and animal life. Or is it that since this will happen in the developing countries, they just wished to shut their eyes to this? It is not that the developing countries love the environment less, it is simply a fact of poverty and the utilization by the rich countries of the resources of the poor which drive those in developing countries to such extreme measures.

The scandal of the use of resources on armaments is, of course, well known, but one figure which was very significant for me came up recently. A month ago I was asked to speak about the accelerator which the European nations would like to build in Geneva in order to prove the theory for which I and my colleagues have recently been responsible - the unification theory of the weak and electromagnetic forces. I was speaking to the Science Research Council in the UK and I was defending the project. Someone from the audience asked me how I could defend useless expenditure on what would cost half a billion dollars spent over the next six years, particularly since I come from a developing country. My reply was that if building an accelerator was madness, at such costs, what can one call the building of nuclear submarines costing three billion dollars each, of which four have been commissioned by the UK a few months back. And there are 250 of these in the world's oceans.

I would like to end with just one remark. It is about the Vienna Conference on Science and Technology held in September 1979 in this beautiful town. The scientists from the poor countries came flocking to Vienna, hoping that the big global problems of disease and deserts and food and other developments, to which science and technology could make important contributions, were going, at last, to be solved. There was the hope of sympathy from scientifically trained delegates, pondering on solutions of scientific problems, as well as provision of scientific resources, in an atmosphere of cooperation and good will. When the delegates of the rich countries had arrived, one saw, for example, that there was not one single scientist in the UK delegation. This was protested against by "Nature". Alas, the whole atmosphere of the Conference was nothing but a political confrontation.

The developing countries started with the statement that on the basis of 2% of their GNP spent on science and technology, they should be spending 20 billion dollars a year. In actual fact they could afford only one tenth of this - about two billion. They requested that a fund should be set up which should be levied like a tax on certain types of exports - something which Pugwash has on several occasions advocated. This would collect around two billion dollars, and the idea was that one third would be paid by the US, one third by the

European nations and one third by the OPEC countries. In the lobbies, one heard the remarks that the European nations, Japan and the US had not only refused to consider this fund of two billion dollars, they had also persuaded the OPEC countries to stop making an offer. In the end, the discussion went on until early morning hours of the last day of the meeting, and the fund was whittled down from two billion dollars to around one seventh of this. The tenor of the discussion which went on during the rest of the Conference was something like this: the Chairman: "We need these sums to stimulate science and technology". Rich country delegate: "Sir, what my delegation object to is the word stimulate. This should be replaced by the word encourage." This would take five minutes of discussion.

So the fund for science and technology to be created by the UN whittled down from two billion dollars to 250 million.

This year, in May, the pledging conference was held and the pledges did not even come to 250 million dollars, producing nothing more than 45 million dollars, of which Italy promised 12 millions and USA 10 millions. Nothing from Germany or the UK. Of course, the USSR never appeared at these pledging conferences and did not contribute anything at all.

So this is the story of science and technology for the developing nations. How many tears were shed by the media on this or on similar conferences? How many people really understood how desperate this makes the poor countries, who are trying to build up new information media in Belgrade?

SCIENCE AND THE MEDIA

by S. P. Kapitza

Finally, after many years of a game in hide-and-seek, scientists engaged in issues of peace and war are meeting the media. On our agenda we have some of the most pressing issues facing the world at a time of increased international complications. Looming over all other items in the menace of nuclear war.

During the years of Pugwash activities many of the participants were engaged in discussions on the scientific and social issues emerging from the advent of arms technology, and the direct threat that they bear on humanity. The results of these studies were primarily meant for statesmen as an impartial attempt, if not to educate, to enlighten concerning basic scientific facts.

Today it is recognized that our efforts should also be directed towards the public at large, and it is here that the media step in. On the other hand the media, the fourth estate, have become an independent political factor on their own. A new dimension, the emotional one, is added to the framework of our deliberations. Here it would be proper to remind ourselves that our founding father's first major action was the now famous public statement that so powerfully expressed scientific reasoning with words of passion on the imminent danger of nuclear arms.

Of the items of immediate importance on our agenda we once again single out the fateful ideas on permissiveness in the limited use of nuclear weapons that have been recently propagated. We have to keep in mind the possibility of the escalation of wars, the ill-

defined if existent difference between tactical and strategic weapons, and the great vulnerability of modern industrialized countries demonstrated on a number of occasions by accidental breakdowns in technology. It is instructive to note the remarkable contrast with which nuclear energy has been treated in some countries as compared to lax words about bombs. In a number of cases we notice that the emotional, if not the irrational, emerges when reason sleeps and hope is seemingly lost.

Are we today in a position to enquire in an age that has been with some arrogance called the Age of Science, to what extent the all-powerful media can or even should be impartial on these matters. To what extent the scaring game of numbers, supposedly objective and scientific has become an instrument of propaganda, and what are the responsibilities of the media in this case.

It is recognized that the media have a dual function, that of informing the public and in developing attitudes of society. If we can grant a degree of independence to the first dimension of its activity, both the scope, methods and importance of the second are basically governed by the Establishment.

The discussion of this dichotomy is to a great extent covered in the prolonged debate on the MacBride Report on the mass media. Unfortunately, the problems of science and the media were not examined in any detail in this interesting study.

It should be explicitly stated that over the past few years the media have definitely come to recognize the importance of socio-scientific problems. From a service in informing the public on the progress of science and technology, from popularizing the concepts of science, the media, especially television, have now gone on to develop attitudes towards scientific matters, to enlighten and hopefully to help develop a more scientifically based Weltanschauung.

In propagating our common intellectual heritage, the concepts of world science, we have to overcome not only educational, departmental and cultural boundaries, but also national ones. Of special importance here are global problems, that by their very nature are international in scope. Moreover, it has often been mentioned that in considering these problems we are paving a way for a new mentality based on cooperation and parity, rather than sovereignty and superiority, to policies of détente and coexistence.

In presenting global problems the consensus of opinions worked out by a number of international organizations like UNESCO, IIASA, MAGATE, SIPRI, etc. could help in expressing the point of view of science. We cannot, moreover should not, expect these to be the final solutions. The message here is the method of approach, rather than the results themselves, that have by themselves often led to undue alarmism. On these matters we should be guided both by historical optimism and political realism.

Of increasing importance are problems of values, leading to a reappraisal of the existing system of ethics and consumerism. Here the concepts of scientific humanism are gaining ground.

We can express hope that by a concerted international effort we should explore ways and find means to employ science as a signal for mutual understanding and trust. Perhaps in this divided world of ours this is the one simple thing that really matters and can be done by those present. For it is in the caves of ignorance that monsters are born.

The Third Pugwash Workshop on
THE CURRENT CRISIS OF NUCLEAR FORCES IN EUROPE

Geneva, 6 and 7 December 1980

Agenda: Terms of a NATO/WTO Agreement Aimed at Stopping and Reversing
Deployment of Nuclear Forces in Europe

Participants

- Dr. Frank Barnaby, Director, Stockholm International Peace Research Institute,
Stockholm, Sweden
- Gen. (ret.) Wolf Graf von Baudissin, Director, Institute for Peace Research and Security,
Hamburg, FRG
- Gen. (ret.) H. de Bordas, Les Invalides, Paris, France
- Dr. Anders Boserup, Adviser on Disarmament, Copenhagen, Denmark
- Prof. Francesco Calogero, Professor of Theoretical Physics, University of Rome, Italy
- Prof. Christian Dominicé, Director, University Institute for Graduate International Studies,
Geneva, Switzerland
- Prof. Paul Doty, Director, Centre for Science and International Affairs, Harvard University,
Cambridge, Mass., USA
- Prof. B.T. Feld, Professor of Physics, M.I.T., Cambridge, Mass., USA
- Prof. Jacques Freymond, Chairman, Centre for Applied Studies in International Negotiations,
Geneva, Switzerland
- Prof. E.E. Galal, Adviser to Minister of Health, Cairo, Egypt
- Dr. M.M. Kaplan, Director-General of Pugwash, Geneva, Switzerland
- Dr. Jean Klein, Institute of International Relations, Paris, France
- Prof. Peter Klein, Institute for International Politics and Economics, Berlin-Adlershof,
GDR
- Ms Flora Lewis, Foreign Editor, New York Times, Paris, France
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The third in a series of Pugwash workshops on the deployment of nuclear weapons in Europe was held in Geneva on 6 and 7 December 1980. The first two meetings were held in January and April of 1980, also in Geneva, to promote the initiation of formal negotiations on the problem (see January and April 1980 issues of the Newsletter). The first round of official negotiations between the USA and USSR was started in October. The Pugwash Executive Committee met after the closure of the third workshop and issued the following report agreed to by the participants listed.

* * *

Report

The Third Pugwash Workshop on "The Current Crisis of Nuclear Forces in Europe" was held in Geneva on 6th and 7th December 1980 and was attended by 28 participants from 17 countries. Like the two earlier Workshops held in January and April of this year, the Third Workshop was convened because of the escalation of the arms race and the increased possibilities of nuclear conflict brought about by the so-called "modernization" of medium range nuclear delivery systems in Europe.

The Workshop was encouraged by the beginning of formal discussions, in October and November here in Geneva, on limiting medium-range nuclear weapons. In view of the overall deterioration in the international situation, the participants urged an early resumption of these negotiations and a commitment on both sides to secure substantial and verified reductions of nuclear weapons in Europe.

The participants reaffirmed the conclusion of earlier meetings that the negotiations would be greatly facilitated by a determination of the parties involved not to take any practical steps during the preparations for negotiations, and during the negotiations themselves, that would change the present level of nuclear forces in Europe.

The participants discussed a number of specific proposals that could further facilitate successful negotiations. Among these a proposal was made not to increase the present level of medium range missiles, and to proceed promptly with negotiations for reduction of nuclear weapons in Europe. Another proposal was to have a temporary agreement whereby development and deployment in the West of ground-launched cruise missiles with a range of over 600 kms would be withheld in exchange for limitation of numbers of SS-20 launchers. It was considered desirable that proposals along these and other lines be agreed quickly so as to stop current developments and thereby provide the appropriate

environment for negotiations, including eventually mutual limitations on the number and types of so-called tactical, theatre nuclear (TNF) weapons and conventional forces.

It was agreed that the successful limitation of long range theatre nuclear weapons in Europe requires the implementation of a SALT II treaty. Moreover, it was agreed that the maintenance of world peace, in which SALT and TNF treaties would continue in force and expand their coverage, requires that all nations respect each other's territorial integrity and independence and, in particular, abstain from deploying forces and establishing military bases in developing countries.

Deep concern was expressed with respect to the doctrines that appear to govern the actual use of nuclear weapons. It was believed that new weapons development was destabilizing, that "limited war" strategies were making nuclear war more likely with an almost certainty that such wars would escalate to world-wide destruction, and that "winability" of nuclear war is a profoundly dangerous illusion. Finally, there was a broadly based consensus that the sense of security and mutual confidence, which is the essence of a peaceful world, would require going beyond the present balancing of the numbers of warheads and other military capabilities.

CAN A NUCLEAR ARMS RACE IN EUROPE BE AVOIDED?

Background paper by F. Calogero

1. This paper is a sequel to the contribution by J. Rotblat and myself to the preceding Workshop (1). Thus we will not repeat here the points made in (1), although we suggest they are still valid.
2. The final draft of this paper is written just at the time the negotiations in Geneva between the United States and the Soviet Union on Long-Range Theatre Nuclear Forces (LRTNFs) in Europe are beginning. This is a welcome development, although it is evident that no serious business will be possible before the outcome of the US Presidential election is known. The fact that these negotiations seem to be taking place in a specific forum, rather than being imbedded in the context of negotiations (such as SALT and MBFR) having a cumbersome history of their own, supports the hope that they will yield quickly the agreement which is urgently needed to forestall the current and envisaged escalation of nuclear weapon deployments in Europe.
3. It stands to reason that while a negotiation is in progress some sort of freeze prevails. This may however be difficult to achieve in view of the asymmetry of the present situation of European LRTNFs, with the Soviet side producing and deploying SS20s (and Backfires), and the Western side still at the development stage for the Pershing II and the Ground Launched Cruise Missile (GLCM). Of course a preferred solution would be a moratorium, pending the negotiation, on deployments, production and development. But since the asymmetrical nature of the situation (and the difficulties of definition and verifiability) might make the realization of such a freeze difficult, it might be preferable not to put too much emphasis on this requirement. Indeed, since the primary goal is to reach an agreement quickly, a protracted prenegotiation on the question of a freeze should be avoided;

the more so since the very prospect of a quick agreement decreases the importance of a freeze. But we shall return to this question below; indeed the simple and quick agreement proposed below could itself be viewed as a freeze.

4. From the Soviet side it appears that the main requirements which are formulated in view of the negotiations on nuclear weapons in Europe can be summarized in three points:

- i) that the basic guiding principle be overall parity and equal security;
- ii) that SALT II be ratified;
- iii) that the negotiations include the so-called Forward Based Systems (FBSs) deployed in Europe or at sea near Europe.

The last point is consistent with the standard Soviet contention that all nuclear weapons capable of reaching the Soviet Union be counted as strategic. Indeed the exclusion of FBSs from SALT up to now has been considered by the Soviet side as a major concession on their part. But a serious disadvantage of the inclusion of FBSs in a negotiation is the major complication this entails, thereby making a quick agreement unlikely.

5. The Western point of view cannot be summarized that easily. There exists indeed a large spread of different opinions, ranging from a genuine concern over any increase of nuclear weaponry in Europe (for instance by the churches in Holland) to an obsession with NATO "ineffectiveness" vis-a-vis Soviet "superiority" (see, for instance, (2)). These different perceptions lead naturally to opposite stands over European LRTNFs, as indicated for instance on one side by the reluctance of the Dutch Government to accept the NATO "modernization" programme, and at the other extreme (2) by the support of this "modernization" programme viewed as a minimum requirement, and by a transparent desire to use it as a step towards acquisition of more direct control over nuclear weaponry in Central Europe.

6. The achievement of an effective nuclear arms control agreement in Europe, namely one that will at least prevent the escalation in deployments now in progress and in prospect, hinge on the recognition of the existence of an influential advocacy of the "modernization" programme, largely motivated by ulterior motives, and on the political will and capability to over-rule it. To complicate matters, it is likely that the advocates of "modernization" will generally disguise themselves as supporters, rather than opponents, of negotiations (aimed in principle at preventing "modernization" from taking place), since such a posture is politically more viable and it offers plenty of opportunities to torpedo any effective agreement. Causing delays and raising difficulties will be an easy task, in view of the complexity of the matter, both as regards the substance of the agreement, its format, and the procedure to negotiate it (including the mechanism of consultations, especially within NATO).

These remarks apply to the Western side, where the supporters of the "modernization" programme can be fairly easily identified and their motivations fairly easily traced. They apply to the Soviet side as well, although the situation there is less transparent. Indeed, a clear measure of the ascendancy of such views will be the insistence by the Soviet side on the immediate inclusion of FBSs in the negotiations, since it is quite evident that the hope to forestall the current and envisaged escalation of nuclear weapon developments in Europe hinges on the quick achievement of an agreement covering the new systems. This requires readiness to postpone the goal to reach a broader agreement (including FBSs and other "grey"

area systems) to a subsequent phase (SALT III?). Thus the willingness by the Soviet side to go for a quick and simple agreement focusing on the novel systems will be a test of whether the advocates of "more weapons" within the Soviet decision-making system are or are not in the ascendancy (3).

7. Above, and below, much emphasis is put on the need for a quick agreement. This was already motivated in (1). The likelihood that it be achieved is moot, yet, without it, hundreds of novel intermediate range nuclear delivery vehicles will be deployed in Europe on both sides. Who would be prepared to argue that such an outcome is desirable?

And in addition to the dangers associated with the deployments that are now in progress and in prospect (1), there is the real prospect of an open-ended nuclear arms race in Europe, since the Soviet side is likely to "respond" in kind if the NATO "modernization" programme is fully implemented (1, 4); and so on.

8. In our previous paper we put forward some general principles and guidelines, to outline an acceptable platform for an agreement to prevent these ominous developments (1). An important task for the present Workshop is to pursue the matter, to try and outline in more specific detail what the terms of such an agreement might be. To this end a specific proposal that might provide the basis of a simple agreement is now outlined as a tentative ground for discussion.

9. The Western side should suspend immediately the development of any cruise missile with a range over 600 km, and undertake not to develop (nor produce) any such cruise missile. This would of course imply that no such weapon would be deployed in Europe.

The Soviet side should undertake that the introduction of the SS20s yield no increase in the total number of warheads deployed on intermediate range missiles. This would presumably lead to the elimination of all SS4s and SS5s and to an upper limit (in the range 150-200) on the number of SS20s, thus implying a more or less immediate halt to their production.

Moreover the Soviet Union should also undertake not to develop any cruise missile with a range in excess of 600km, this being an obvious counterpart to the analogous Western commitment.

10. An important motivation for the NATO side to accept such an agreement would be to obtain a stringent limitation on the SS20s (heretofore subject to no agreed limitation), in exchange for a commitment that does not go much beyond that already spelled out in the SALT II Protocol. It should perhaps be emphasized in this connection that Western Europe has lived with Soviet intermediate range nuclear missiles (SS4, SS5) for almost two decades. It would be hard to argue that, under the terms of the proposed agreement, such a threat would increase significantly.

11. An important motivation for the Soviet side to accept such an agreement would be to forestall the NATO deployment in Europe of several hundreds GLCMs, that is going to occur if no agreement is quickly struck. Moreover the declared purpose of the SS20s, to replace the SS4s and SS5s, would be fulfilled evenly, at least in terms of the most significant strategic parameter, i.e. number of warheads. As for other parameters, there would be a trade-off between increased accuracy and effectiveness (solid fuel, mobility) and decreased number of launchers.

12. We entertain no illusion that terms such as those outlined above would be universally approved. We have already noted that no agreement can satisfy those who are driven by ulterior motives, such as, on the Western side, those who look forward to the introduction of cruise missiles as an opportunity to increase the possibilities for Central Europeans to have a more direct control over those nuclear weapons that they deem vital for their security; or, on the Soviet side, those who are directly committed to the production and deployment of SS20s. Certainly the latter might point out that the suggested agreement involves a limitation that cuts more sharply on the Soviet programmes (at the production and deployment stage) than on the American programmes (at the development stage); while on the other hand the former may view the asymmetry in intermediate range nuclear missile deployments in the European theatre as an unacceptable (albeit old) imbalance.

Although we can hardly hope to convince people holding these views by rational arguments, and we therefore pin our hopes on the possibility that these objections would be overruled by political leaders, it is nevertheless appropriate to point out that any criticism to the proposed agreement should be based on a comparison between the likely effects of such an agreement as against the likely effects - as mentioned above - of no agreement at all (or of a different agreement, provided the latter is indeed viable). It was a sage man who once remarked that growing old presents many disadvantages, but nevertheless is a preferable course, in view of the alternative.

13. It should moreover be emphasized that the most appealing aspect of the agreement we have outlined would be to impede the introduction of the cruise missile, a goal that is in the best interest of the NATO countries no less than the WTO states (1).

We are aware that many deem this goal is now unattainable: the cat is out of the bag. This scepticism is probably well taken, since the political will that would be required to implement such a decision is nowhere to be found (but this is written before the American presidential election; an optimist might hope things will be different after). On the other hand, from the point of view of technical feasibility (especially as regards verifiability), the difficulties of an agreement to exclude altogether long-range cruise missiles are clearly marginal, compared to the difficulties to constrain their number and/or characteristics after they have been produced and extensively deployed. Thus whoever argues the unfeasibility of banning the cruise now, should either explain how in the (near) future will it be possible to limit this weapon system, or face the prospect of an unlimited escalation of deployments (thereby giving up altogether the idea of strategic arms limitation).

14. The agreement we have outlined is simple, and we submit this is its main merit. It could indeed be presented as some sort of freeze. And it could possibly be achieved in the form of an interim informal agreement, perhaps only made explicit and public through the simultaneous issuance of unilateral declarations. Clearly such an agreement, whichever form it takes, should be immediately followed by more ambitious negotiations aimed at reducing nuclear weapons in Europe rather than merely preventing their increase. FBSs, and perhaps also the British and French nuclear forces, should then come into the picture; as well as conventional forces. More urgently other items, such as the Pershings and the Backfires that we have ignored in the interest of simplicity, should also be taken into account.

15. We have claimed simplicity to be the main merit of the proposal outlined in Section 9 above. This, we feel, is the main feature that may offer some hope to achieve the settlement that is so urgently needed in order to forestall the disastrous arms race in progress and in

prospect in Europe.

Yet we are aware that the proposal outlined above, simple as it may appear, involves several delicate points. One question - that of the more easily reachable and preferable format of such an agreement - has already been touched upon above. Other delicate points may arise at the fine print level, especially as regards definitions, verification, and the localization of the SS20s (whether on the Western or the Eastern side of the Urals). These details are important, yet they are clearly secondary with respect to the main issue, as spelled out in the title of this paper; and their relevance is undercut by the concept of an interim agreement, to be immediately followed by further negotiations aimed at agreed reductions of nuclear and conventional forces in Europe, and of the central strategic systems (SALT III).

We hope the Pugwash Workshop will concentrate on the main issue, but also go into details if need be. Our main purpose in formulating a specific proposal has been to provide a possible focus for the discussion, lest it becomes diffuse and unconstructive. Alternative ideas would of course be most welcome, as well as any contribution to a more stringent scrutiny of the proposal outlined above than has been attempted in this paper.

Let us end by reiterating that more ambitious schemes for nuclear arms control and disarmament in Europe, that go beyond the limited proposal outlined above, should also be explored - provided their feasibility and timeliness is realistically assessed. For we submit that the primary goal of any serious proposal must be to halt the current and envisaged escalation of nuclear weapon deployments in Europe. Any suggestion of a negotiating posture that would effectively - explicitly or implicitly - postpone the arms control attempt to a later stage, after the new weapons have been deployed, we consider merely a devious way to sanction their introduction.

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References and Footnotes

- (1) F. Calogero and J. Rotblat: Criteria for an Agreement on Nuclear Weapons in Europe. Pugwash Newsletter 17, 81-84 (April 1980).
- (2) U. Nerlich: Theatre Nuclear Forces in Europe: Is NATO running out of options? The Washington Quarterly, 3, 100-125 (Winter 1980).
- (3) The suggestion that the request to include FBS s is a deliberate ploy by the USSR to delay negotiations has been advertized in the West. See, e.g., the article by F. Bennart: Talks of Limiting Nuclear Missiles Viewed with Cold Caution in NATO, The Times, 10.10.1980.
- (4) See, for instance, the interview to the NOVOSTI journalist V. Ostrovskij given by the Soviet general N. Cernov (reported in the July-August issue of the Bulletin issued by the Soviet Embassy in Rome).

Rome. October 20, 1980

36th Pugwash Symposium

"NEW WEAPONS SYSTEMS AND CRITERIA FOR EVALUATING THEIR DANGERS"

London, 10-12 December 1980

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List of papers

1. J. Simpson (UK) Arms control, strategic concepts and distinctions between types of military activities: an analysis of linkages
2. T. Taylor & D. Dunn (UK) Arms control and conventional weapons: some conceptual and empirical issues
3. J. K. Miettinen (Finland) The effect of new military technology on future battlefield tactics and the structure of armed forces
4. F. A. Long (USA) The process of new weapons development
5. H. G. Brauch (FRG) The failure of arms control in coping with new weapons technologies and with technological change: conceptual and institutional deficits and reform options
6. E. E. Galal (Egypt) Whether? Whither? Whence?
7. R. W. Ditchburn (UK) Assessment of dangers in new weapons
8. K. Subrahmanyam (India) Some reflections on the eroding thresholds
9. K. Tsipis (USA) Directed energy weapons feasibility and effectiveness

10. J. Perry Robinson (UK) Quasinuclear weapons: a category for thinking about arms control futures
11. J. Prawitz (Sweden) Regional arms control applied to sea areas
12. A. Karkoszka (SIPRI) New weapons technology and the concept of nuclear thresholds: an appraisal of the relationship
13. R.B. Byers (Canada) Thresholds, deterrence credibility and technological change: the European perspective
14. P. Boskma (Netherlands) Theshold concepts in the security problem from the perspective of the smaller nation states
15. O. Marwah (India) New weapons systems and Third World conflicts
16. U. Albrecht (FRG) Trends in the improvement of conventional offensive weapons: the tank - are there boundaries in the technological arms race?
17. L.A. Naumov (USSR) Some criteria for assessing dangers in new weapons development.

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Requests for copies of papers should be made directly to the authors

Report

A total of 31 scientists from 16 countries participated in this meeting, which was held at the Ciba Foundation in London from 10-12 December 1980. The Ciba Foundation were generous hosts providing excellent hospitality as well as accommodation for about one third of the participants. The British Pugwash Group were able to organize this meeting as a result of a grant from the Nuffield Foundation for the purpose. In all, 17 papers were submitted and all of them were discussed specifically in the course of the proceedings of the symposium.

On one afternoon, December 11th, the British Pugwash Group also organized a public meeting (see p.100), which was attended by members of the symposium and about 220 other people.

The symposium considered many aspects of new weapon systems and their implications:-

1) Definition of new weapons

There was considerable discussion about the possibility of accurately defining new weapons. This did not necessarily depend on the development of new technology, but related to the potential use of weapons for new purposes or with radically better or more efficient performance. In certain circumstances cost effectiveness in military terms could be regarded as a criterion for judging innovations, in that 'cheap' weapons might themselves have an important effect on stability in international relations and on the possibility of effective arms control measures. It was clear that there had been developments already which in

the event of a future war would lead to fundamental alterations in battlefield tactics and entirely new problems of command and control. Though such weapons had only been partially tested, for example, in Vietnam and in the 1973 war in the Middle East, sufficient was known of their potential for it to be appreciated that they would change the face of any future war, especially between industrialized countries. So radical were the changes which had emerged that some participants thought that a war between major powers would be likely to have a very short duration. Problems of cost and of stock piling ammunition which would be quickly used up in a high intensity war were discussed, as was the probable psychological effect on soldiers called upon to serve in devastating conditions. It was questioned whether men could, in fact, sustain the capacity to fight in the forecast conditions using the type of equipment and wearing the protective clothing which would in future probably be required.

2) The Possibility of New Defence Postures

This appreciation of the devastating effect of new weapons, many of them conventional in character, led to the suggestion that such developments might be turned to advantage. The possibility, especially in Central Europe, of relying on military systems which were more strictly and overtly defensive was put forward. The accuracy and lethality of these new weapons, some participants thought, might be applied to creating defensive barriers in depth which could amount to a new style of defence against territorial invasion. The investigation of such a possibility ought to be pressed especially in the light of the apparent decline in utility of nuclear deterrence. There was a growing belief that in the end nuclear weapons would never be used by major powers because of their effect and of the danger of escalation into global war. That being so the deterrent effect of possessing them would be likely to diminish. It might be possible to link the concept of strictly defensive systems to a notion of deterrence related more precisely to what it was intended to deter, namely the invasion and occupation of territory - an idea which might have particular attractions for Western European countries. Clearly, however, such defensive systems based on tightly controlled patterns of conventional weapons would in turn depend for their deterrent effectiveness partly at least on the ability to convince the other side that such a method would be effective.

3) Criteria for Evaluating the Dangers and Characteristics of New Weapon Systems

While it was accepted that weapons might be regarded as offensive or defensive according to the use to which they were put, and that there were only very few weapons which could be described as unequivocally defensive, nevertheless this particular discussion led on to a consideration of criteria for determining whether some weapons were more desirable or less objectionable than others - or whether ultimately all developments of weaponry should be, without discrimination, opposed and resisted.

Many participants were concerned about the arms control aspect of weapon innovation. The threshold might be lowered, in the case of nuclear weapons, by the modification and reduction in size of nuclear weapon systems themselves. There were circumstances in which to military planners such weapons would appear to be more cost effective than their conventional counterparts. Conventional weapons in their turn might become so sophisticated in terms of precision and the level of destruction which they could inflict that they, in their turn, would affect the threshold and tend to blur the distinction between conventional and nuclear technologies.

The application of criteria concerned with the relative inhumanity of different weapon systems was not easy but it was certainly one factor which should be taken into account.

Weapons of mass destruction and others capable of indiscriminate use should clearly be controlled in some way or another and initiatives especially to ban weapons of mass destruction and inhumane weapons such as napalm, as well as chemical and biological weapons, ought to be taken. The distinction between nuclear and conventional weapons was still valid and must be maintained.

4) Political Problems Relating to New Weapons

Any factors tending to reduce the inhibitions on the use of certain categories of weapons should be a matter of concern. Particularly important, however, are weapons which would destabilize the situation prevailing either at the centre or on the periphery, or affect the global balance of power. Weapons which tended to reduce the importance of surprise, or to preclude it, might be regarded as less dangerous than others.

The possibility of arms control measures related to particular new weapons was repeatedly referred to. It was however suggested, in the light of negotiations over chemical weapons, that the isolation of one weapon in arms control negotiations encouraged its significance for military purposes to be magnified and put it out of context. The more a particular weapons system was publicized and discussed, the more likely it was to be assimilated into military theory and its application promoted. There was on the whole a consensus that arms control focussed on particular weapons was liable to be counter-productive.

5) General Arms Control Considerations

It was suggested that new weapon systems such as the medium and long range cruise missile heralded a new era in arms control, or rather the end of an old era and perhaps of arms control as we have known it. There was a recognition of the fact that focussing on particular developments had led to those weapons being by-passed and others substituted. It was argued, for example, that to concentrate on establishing a European nuclear-free zone would be effectively to shift the emphasis to the achievement of conventional superiority. Arms control was first of all a political issue. Effective steps could only be taken which were compatible with political interests. Restrictions on military capability had to be linked with confidence-building measures conceived on a broader basis than in the past, and not only related to military manoeuvres and the more superficial aspects of military deployment. There was a general recognition that initiatives related to naval confidence-building measures and the possibility of some understanding about the use of the seas on a regional basis would have repercussions on the situation on land well beyond their apparent technical limitations.

New weapons systems should in the first place be judged by the extent to which they might stimulate the arms race or interfere with the process of arms control comprehensively conceived.

6) Economic Implications of New Weapon Systems

It was recognized that the continual escalation in the sophistication of military technology might in economic terms work in two different directions. In the first place, keeping pace with potential enemies might lead a nation or group of nations into a situation in which their economies become broken-backed as a result. The defence burden in terms of the provision of new weapons might be eventually so great that they could no longer afford to finance them. There is some evidence that, for example, a fully developed Trident system for Britain would so increase economic pressures on the defence budget that other aspects of defence, perhaps seen as more vital, would inevitably be neglected. There was also the possibility that some

advantage might be seen in forcing a potential enemy to respond to a new development by adopting excessively costly counter measures; on the other hand, some weapons, and the cruise missile appeared to be such an example as well as certain types of anti-tank weapon, might prove to be relatively so cheap that their destabilizing and other undesirable effects could well be overridden as a result. The question too was whether the cost factor would reflect back on military policy and lead to an adoption of new tactics and strategies which were perhaps more aimed at war fighting than at deterrence.

The situation of the more developed industrialized countries in this respect, however, was clearly different from that of the less developed countries. One side effect of an ever increasing sophistication in weapon systems might be that the less developed countries would find it almost impossible to buy, if they wanted to do so, the cheaper and simpler weapons, which would have lesser repercussions on their societies. They would probably lose the option of choice in this respect. First and second generation jet fighter aircraft, for example, were now disappearing from the market and very expensive supersonic aircraft might soon prove much easier to obtain, with inevitable consequences not only for the economy but for the deployment of skilled manpower in a number of less developed countries.

Though it was recognized that the less developed countries might not be directly affected by many of the new developments taking place, regional stability was, in fact, being continually and disadvantageously influenced by military advantage achieved by particular countries in purchasing older systems which were new in their local or regional context. In general, the less developed countries feared the economic consequences of a continuing qualitative arms race more than the military applications of new technologies.

7) The Process of Weapons Development and Mechanisms to Manage and Control It

The nature of the systems which led to the introduction of new weapons was clearly an important element in any attempt to control or stop innovation. The Symposium was, in general, pessimistic about the possibility of checking the technical advance. It was unlikely that the acquisition of the techniques which led to the development and manufacture of miniaturized, portable, easily operable and maintained weapons could be inhibited. Ironically, one way of imposing restrictions on this development might be to give a greater priority to the definition of military needs within the procurement system of advanced countries so that the specifications of technical devices might be linked more directly to foreseen operational needs. The linking of this process to arms control impact statements, such as those which had been introduced in the United States, could be important. So would a radical approach to the reduction of their research and development budgets on the part of the superpowers. It should be possible to get some agreement along the lines already proposed on weapons of mass destruction and on inhumane weapons. It could be just as important for full predictions of the economic implications of technical developments to be worked out in advance. At present the effect of the continuing escalation, not only of danger but of cost, arising from the cycle of measures and counter-measures was unpredicted.

8) International Security Aspects

Though the discussion began and frequently returned to the technical aspects, including the implications of improved tanks and other armoured vehicles, and the possible military development of lasers, it invariably returned to problems of international security seen in political terms. One problem was how to convince the defence decision-makers of the need for positive control. As already indicated, weapon systems were too frequently justified in

retrospect. They ought at least to be justified in anticipation so as to avoid a lack of clarity about the objectives. The confusion between deterrence and war-fighting had arisen largely because of an unwillingness openly to define what it was perceived as necessary to deter. New technologies provided primarily for flexibility in design and the possibility of simplicity rather than of continuing sophistication. The probability that any future global war would begin outside Europe and not through an initial confrontation between the superpowers was significant in this respect. New weapons made more and more difficult the achievement of relatively exact balances. Somehow or other public opinion had to influence the decision-making process towards a breadth of consideration which would lead to an acceptance of the concept of rough parity rather than continued agitation in search of positions of strength. The fallibility of the military establishment and the political decision makers in relation to defence was evident, but needed to be emphasized. Any steps towards regional détente on the part of the small nations was to be welcomed and the secondary powers, whilst accepting the fact of the strength of the global superpowers, should recognize that they had their limitations and that cooperation amongst a number of determined states to move towards a more positive era in arms control could have results. The lessons of the failure of arms control so far needed to be learnt, while at the same time its limitations as a mode of negotiation should be recognized. New weapons in general involved not only an upward swing in the qualitative arms race but also an increase in costs, which might in the end reach a point which in a number of countries was economically unbearable. Publicity should be given to the criteria for adopting new weapon systems. It would not be impossible to devise a set of indices against which they might be assessed. At the same time their financial implications in relation to the effect on social priorities could be raised. It was important that the technical aspects of the problem should not be allowed to become dominant and that it should be realized that even in terms of security conventionally conceived they are not the most important factor. Peace depends more upon the development of mutual trust and of clearly understood rules and limits as a basis for military and civil détente.

William Gutteridge
Trevor Taylor

PUBLIC MEETING ARRANGED BY THE BRITISH PUGWASH GROUP

In conjunction with the 36th Pugwash Symposium a meeting open to the public was convened on Thursday, 11th December 1980, in the Scientific Societies Lecture Theatre, London. Professor Rotblat chaired the meeting whose theme was "Nuclear War : Is its Danger Increasing?" The topics and speakers were:

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| Can we rely on deterrence? | - | Lord Zuckerman |
| The future of arms control negotiations | - | Professor B. T. Feld |
| Implications of the modernization of theatre nuclear weapons in Europe | - | Professor F. Calogero |
| The role of a British independent nuclear force | - | Field Marshal Lord Carver |
| Radical solutions | - | Lord Noel-Baker |

Many of the 250 people who filled the hall participated in a spirited question and comment period which followed the presentations.

Report on the Meeting

"Nuclear War : Is Its Danger Increasing?"

A public meeting on this topic, associated with the Symposium on New Weapons Systems, was held in London on 11th December 1980. The audience of nearly 250 was composed chiefly of scientists. The Chairman, Professor J. Rotblat, said that there were two facts basic to the present situation. Firstly, the explosive yield of the bombs now existing in the nuclear arsenals is equivalent to more than one million times the Hiroshima bomb, but secondly, during the past 35 years no bomb has been used. A balance of deterrence has existed, but it was an ever-changing, dynamic balance.

Lord Zuckerman speaking on "Can We Rely on Deterrence?" said that all of us (including U.S.S.R.) not only can but must rely on deterrence. The consequences of failure were too great. In a single incident, a bomb on a city of a million inhabitants (such as Birmingham or Detroit) would kill about 300,000 people instantly and a further 100,000 to 200,000 would die of radiation sickness. Rescue services could deal with one such incident but 6 to 10 strikes would break the communications network, destroy unified command and lead to an uncontrollable situation. Deterrence was threatened by (i) the arms race (ii) proliferation and (iii) the dangerous idea that nuclear weapons can counter-balance an inferiority of conventional weapons in a limited nuclear war. We needed first a halt to the arms race and then balanced disarmament. Unbalanced disarmament (i.e. unilateral disarmament on either side) would be dangerous. The first step was to stop current R and D which would lead to the deployment of unknown new weapons in 10 years' time.

Professor B. Feld (U.S.A.), Chairman of Pugwash Executive Committee, spoke on "The Future of Arms Control Negotiations". He said that the general approach of recent negotiations had been to recognize the existence of a huge overkill capacity and to seek to reduce the rate at which stockpiles were increasing - if possible to stop the increase. No attempt to negotiate actual reduction of stockpile had been made. The negotiators had also sought to reduce the probability of nuclear war starting by accident or design. These negotiations were useful insofar as they might buy time in which a popular demand for real disarmament might arise. The present situation was extremely bad. SALT II had virtually no chance of U.S. ratification. Popular pressure in favour of disarmament on the U.S. government was less than economic and military pressure for increase of arms. The whole concept of restraint had been abandoned. There were just one or two rays of hope. There was, in the U.S.A., an increasing tendency to analyse the consequences of a nuclear strike in a more realistic way. Medical men had begun to consider the problem and to tell the public that they would be quite unable to deal with the casualties. This was important because people listened to doctors more than to scientists.

Professor F. Calogero (Italy) spoke on "Implications of the Modernization of Theatre Nuclear Weapons in Europe". His address centred round the conclusions of the December Workshop in Geneva which is reported elsewhere in this Newsletter (p.88), therefore only his conclusion is given here. "Modernization is a euphemism for increase. If no agreement is reached, then in 10 years' time there will be several hundred intermediate

weapons deployed on both sides - but it is optimistic to believe that we shall still be here in 10 years' time!"

Field Marshal Lord Carver spoke on "The Role of a British Independent Nuclear Force". He gave a summary of the history of the British nuclear force and said it was originally started for political reasons of national prestige and subsequently justified with military reasons. True independence had been abandoned because we were unable to produce adequate means of delivery and Polaris had been purchased. American attempts to obtain some degree of control over Polaris had failed. The ships were under British Command but assigned as part of our contribution to NATO. Lord Carver said he was not in favour of an independent British nuclear deterrent which would be used only if bombs fell on Britain. He was not, however, in favour of British unilateral nuclear disarmament because this would weaken the west by creating the impression that we were pulling out of the alliance. We should maintain a long- and short-range contribution to NATO. Possibly the best way of doing this involved having some Tridents but we should not need 4, nor need they be on station all the time. We needed to face an aggressor with the knowledge that he would meet with very strong resistance from conventional forces, that he risked being opposed by battlefield nuclear weapons and risked the holocaust of general nuclear war. Lord Carver does not believe in nuclear war limited to Europe or limited in type or in time.

Lord Carver thinks that the danger of nuclear war breaking out is not increasing because there is a growing understanding of the consequences. Our dilemma is to reduce weapons - but not so far as to lose the deterrent effect which maintains peace.

Lord Noel-Baker, speaking on "Radical Solutions", said that his first radical solution would be to put the media under the control of men who would tell their fellows about the dangers of nuclear war and would go on doing so with the energy and persistence now devoted to advertizing a commercial product. Man's attitude to war must change. It was now considered glamorous to kill and glorious to die in war. Men must come to feel that the ideal was not to die for one's country but to live for it, to promote its true greatness by a dedicated life.

Scientists should convince men that society could change. Man was the dominant species not through his aggression but through his altruism and his ability to cooperate. Let the scientists convince the average man that we can get rid of armaments totally and of war itself, and that the need for deterrence can be abolished. Radical solutions are not only possible, they are indispensable.

Discussion. There was about an hour's discussion in which 14 people took part. The overall impression of the meeting was that the dangerous results of a nuclear war are increasing but that one cannot conclude whether the danger of nuclear war breaking out is increasing or decreasing at present.

Robert Ditchburn

THE "TEST EXPLOSION" IN THE SOUTH PACIFIC : ALARM FALSE OR TRUE ?

(The following comment refers to the note by B. T. Feld and J. Rotblat in the April 1980 issue of the Newsletter, p.100)

There seems to have been a misunderstanding by Professors Feld and Rotblat when they stated that my letter to the Executive Committee does not enumerate the evidence on which I based my conclusion. The facts are that my letter merely requests discussion of the issue in the Executive Committee, since the public airing of different views to date had led to no conclusive agreement. I therefore requested the two authors to publish their comments in the Newsletter. The reason I issued the challenge and requested publication was the concern expressed by some groups over Pugwash's seeming reluctance to take stands on the nuclear situation in Africa and the Middle East, as compared to the vigorous stand taken by the Committee after the Indian test explosion, a protest which some of us thought was too precipitate and without the usual consultations with concerned groups, particularly the Indian group.

The evidence referred to the nature of the observed flashes and their timing. Some experts thought that the chance of their replication by non-nuclear artifacts was of very low probability indeed. Coupled to that was the withdrawal of the New Zealand conclusion on the identification of the fallout after the central laboratory claim of contamination. Again such an unusual error in such a weighty matter gave rise to scepticism in worried quarters. The conclusive evidence to a layman like myself relates to the circumstances which no objective observer can overlook.

First there was the matter of R & D cooperation between South Africa, Israel and certain European concerns in the enrichment of atomic fuel techniques, as well as missile delivery systems. A working group raised this issue, with evidence, at the Munich Conference and continued the investigation with our colleagues in the FRG. We received the assurance that no government organization was involved in such an activity! The project is now expected to enrich 300 tons of uranium per year.

Then, there was the very conclusive incident in 1977 when the USSR reported the building of a nuclear-test zone in the Kalahari Desert which, somehow, the intricate USA observation system, apparently including an embassy aeroplane with photographic equipment, failed to report. The international outcry led to the abandonment of the Kalahari project.

In spite of the UN Embargo, there was the acquisition by South Africa of the American 155-mm cannon system capable of firing nuclear bullets.

Also, there was the reported reservation from even USA Government departments on the conclusions of the presidential expert groups that Feld and Rotblat referred to.

Coupled with the widespread assurances over years by experts, and even official quarters of east and west, of South African and Israeli established capabilities and co-operation, the assessment of these observations cannot be laid aside with technical detachment.

I abide, for the time being, by the assessment of our expert and distinguished colleagues. As I originally stated I can do no less nor more as a non-expert. I do differ, however, with them basically on their conclusion. While they may be justified in their

first and second conclusions regarding lack of evidence and the risks of alarms, I strongly feel that the use of "false" alarm in connection with South African and Israeli nuclear preparation is not only completely unjustified but may undermine the whole purpose of this dialogue. This was, and still should be, to assure international opinion of Pugwash concern and dedication against all and every proliferation.

E. F. Galal

THE SECOND INTERNATIONAL STUDENT PUGWASH CONFERENCE ON
"MORAL DILEMMAS OF TECHNOLOGY AND DEMOCRACY"

Yale University, 15-21 June 1981

The first Student Pugwash Conference was convened at the University of California, San Diego, in June 1979 (See January 1980 Newsletter, p. 75). The major aims of the second Student Pugwash Conference are to sensitize undergraduate and graduate students, both scientists and humanists, to the ethical issues surrounding their studies, and to provide the opportunity for students to discuss their concerns with senior scientists, humanists, public officials and professionals.

Each of five workshops will be devoted to a different subject. They are:

- (1) Biomedical Technology and Health Care;
- (2) Weapons and World Peace;
- (3) Regulation of Science and Technology;
- (4) Energy, the Economy, and the Environment; and
- (5) Computers and Society.

A total of 75 student participants will be selected from their respective colleges and universities, and their hospitality costs at Yale will be covered. The deadline for applications will be 15 March 1981, and selections will be announced shortly thereafter. Prominent Pugwashites will be amongst the senior participants. For further information and applications write to Jeffrey R. Leifer and Gregory S. Gross, Conference Directors, c/o History of Science, Yale University, 2036 Yale Station, New Haven, Connecticut 06520 (Tel. (203) 436-3445).

CALENDAR OF FUTURE MEETINGS

1981

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| 2 - 4 April | Eighth Pugwash Workshop on Chemical Warfare, Geneva, Switzerland |
| 9 - 11 April | 37th Pugwash Symposium, "Confidence-Building Measures", Hamburg, FRG
(For agenda, see below) |
| 23 - 24 May | Fourth Workshop on The Current Crisis on Nuclear Forces in Europe, Geneva, Switzerland |
| 26 - 29 May | 38th Pugwash Symposium, "The Future of Pugwash", Rehovoth, Israel |
| 27 August -
1 September | 31st Pugwash Conference, Banff, Canada.
(see July/October 1980 issue of the Newsletter for the agenda) |
| October
(tentative) | Second Workshop on Averting Nuclear War: The Role of the Media, Geneva, Switzerland |
| November
(tentative) | Ninth Pugwash Workshop on Chemical Warfare, Czechoslovakia |

37th Pugwash Symposium, "Confidence-Building Measures"
9-11 April, Hamburg, FRG

Agenda

1. Theory and concepts of CBM in the East and West
 2. Non-military CBM, especially in the economic field
 3. CBM within the framework of the UN and in different regions
(for instance Latin America, Middle East)
 4. CBM and SALT
 5. CBM in and for Europe (MBFR, CSCE/Madrid, European Conference on Disarmament)
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