A WORLD MOVEMENT OF ENGINEERS FOR PEACE

PROPOSAL FOR AN ACTION PLAN

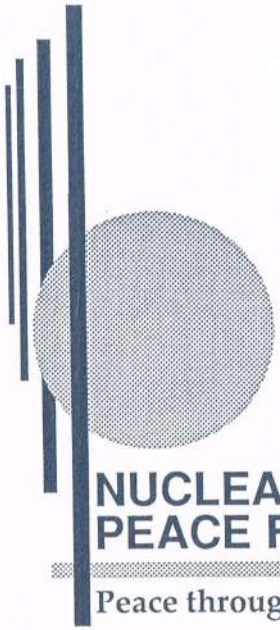
(Winner of the Nuclear Age Peace Foundation's $50,000 Peace Prize for Science)

by

Hungarian Engineers for Peace

Booklet 18

WAGING PEACE SERIES



NUCLEAR AGE PEACE FOUNDATION

Peace through Informed Action

WAGING PEACE SERIES

As far as is known, the term "Waging Peace" originated with Warren Wells, late husband of Ethel Wells of Santa Barbara, in a letter to President Eisenhower. It was a long-standing practice of Mr. Wells to keep in close touch with key national figures and give them his views on peace issues as well as other vital matters. This series is dedicated both as a memorial to him and in gratitude to Mrs. Wells for her continued efforts in this cause.

Just as peace is more than the absence of war, waging peace is more than supporting arms reductions. In addition, it embraces positive steps toward genuine harmony. In this series the Foundation will distribute short booklets stressing ideas for attaining peace. Some publications will be scholarly, others more popular in style—most will combine elements of both. Concepts expressed will include views of many authorities, and will not necessarily be those of the Foundation.

Suggestions for topics and your reactions to this issue are welcome. Quantity lots are available at minimal charge from the Nuclear Age Peace Foundation.

NUCLEAR AGE PEACE FOUNDATION
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Nuclear Age Peace Foundation

WAGING PEACE BOOKLETS

1. **Can We Change Our Thinking?** by Charles W. Jamison
2. **Creating a New Institution: A United States Academy of Peace** by Frank K. Kelly
3. **Preventing Accidental Nuclear War** by David Krieger
4. **Nuclear Strategy and the Defense of Europe** by Robert C. Aldridge
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7. **Accidental Nuclear War Dangers of the "StarWars" Proposal** by Dean Babst, Robert C. Aldridge and David Krieger
8. **The Psychology of Peace** by Roger Walsh, M.D.
9. **No First Use of Nuclear Weapons** by Dietrich Fischer
10. **Honest Language, Semantics of the Nuclear Debate** by Hannes Alfven
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12. **Mediating the Nuclear Stalemate** by Theodore Becker
13. **Revitalizing the United Nations** by Jan Tinbergen
14. **Informed Consent — From the Body to the Body-Politic in the Nuclear Age** by Diana Hull, Ph.D.
15. **Searching For a President in a Nuclear Age** by Frank K. Kelly
16. **Planning for Economic Conversion** by Seymour Melman
17. **Small States and Big Issues** by David Russell Lange
18. **A World Movement of Engineers for Peace - Proposal for an Action Plan** by Hungarian Engineers for Peace

INTRODUCTION

An essential challenge of the nuclear age is to control the destructive uses of science, and to channel scientific and technological efforts toward constructive ends. To promote creative thinking along these lines, the Nuclear Age Peace Foundation has taken a leadership role in coordinating the International Peace Week of Scientists. In 1987, in conjunction with the Second International Peace Week of Scientists, the Foundation offered a $50,000 Peace Prize for the best proposal offering an action plan to provide sufficient incentives that science be used for peaceful rather than destructive purposes.

The Foundation received many entries from individual scientists and distinguished teams of scientists throughout the world. The authors demonstrated serious concern for the destructive uses and abuses of science, and were thoughtful and innovative in their positive proposals. Reaching a decision on the winning proposal was an extremely difficult job for the contest judges. Each of the authors is deserving of commendation for caring enough to address seriously the problem of redirecting science from destructive to constructive ends.

Among the proposals deserving of special honorable mention were those submitted by: Dr. Martin Hellman of the Beyond War Scientific Initiative; Dr. Richard Wendell Fogg of the Center for the Study of Conflict; Dr. Patricia Lewis of the Verification Technology Information Center, London; Dr. Gordon Rodley of the University of Sydney; Dr. Peter Wills of SANA - New Zealand; Professors J. Westerkamp, R. Maliandi, A. Bonilla, M. Gutierrez Brida, L. Rabanaque and M. Morales of the Argentine Association of Ethical Investigation; and Dr. Michael Nagler of the University of California at Berkeley.

The winning proposal, submitted by the Hungarian Engineers for Peace, is contained in this issue of Waging Peace. The Hungarian Engineers for Peace is a relatively new organization, which has approached the challenge of redirecting science toward peaceful ends with vitality and enthusiastic commitment in Hungary and internationally.

We are very pleased to support their proposal for convening a World Congress of Engineers for Peace in 1989.

David Krieger
President
Nuclear Age Peace Foundation

THIRD INTERNATIONAL PEACE WEEK OF SCIENTISTS

November 7-14, 1988

CONCEPT:

• During the Third International Peace Week of Scientists (IPWOS), November 7-14, 1988, scientists throughout the world engage each other and the public in a week of dialogues, lectures, seminars, debates, video showings, etc., all of which address the application of science for peace and constructive purposes.
• Local coordinating committees work independently of each other, announcing their events as part of the worldwide Peace Week activities occurring simultaneously.

GOALS:

1) to improve the climate for arms control and disarmament, and the application of science for peace, economic development and environmental protection;
2) to increase awareness of the impact of scientific developments on international security;
3) to encourage scientists to work for constructive rather than destructive objectives;
4) to involve scientists and citizens around the world in public dialogues on the great issues of our time;
5) to discuss and develop an ethical code for scientists which prohibits the use of scientific knowledge for destructive purposes.

TOPICS:

All topics s are related to the above stated goals. Some of the topics discussed in last year's Peace Week included: Nuclear Disarmament and the Responsibility of Scientists; S.D.I. and the Role of Scientists; Scientific Research and Education for Peace; Socio-Economic Consequences of the Arms Race; Technology and the Environment: Uses and Abuses of Scientific Knowledge; World Conversion of Arms Production to Civilian Production.

BACKGROUND:

• The First International Peace Week of Scientists was organized by Hendrik Bramhoff, a German mathematician, in 1986, and was supported by a 30 member International Coordinating Committee (ICC). In 1987 and 1988 the Peace Week has continued to be supported by the ICC, together with a growing and impressive list of organizations and individual endorsers planning worldwide activities and events during the Peace Week.
• The International Peace Week of Scientists has become one of the largest cooperative science-related peace events ever organized.

WHAT YOU CAN DO:

• Be an endorser • If you are a civic, religious, scientific, educational, social or political organization, invite scientists to speak to your members during the Peace Week • If you are a scientist, speak to an organization in your community • Arrange for radio, television and newspaper announcements of the events • For more ways you can participate in the International Peace Week of Scientists, please contact the Nuclear Age Peace Foundation.

A WORLD MOVEMENT OF ENGINEERS FOR PEACE PROPOSAL FOR AN ACTION PLAN

(Winner of the Nuclear Age Peace Foundation's $50,000 Peace Prize for Science) by Hungarian Engineers for Peace*

I. Preface

A vast majority of Hungarian engineers, physicists and natural scientists including ourselves, are deeply aware of our social responsibilities in safeguarding peace and in orienting the achievements of scientific and technical development to peaceful purposes. We want to join our individual stands for peace with others to increase in strength. We want to call people around us to join with us, and we want to influence social and political leaders and institutions of policy and economics in our country. We wish to join others with similar intentions, actions and movements in other countries to exchange ideas. We seek cooperation with everyone who aims at preserving peace and providing the conditions for peaceful creativity.

We, therefore, welcome the initiation of the International Peace Week of Scientists with great pleasure, and wish to take part personally in its organization and accomplishment. We deem that this is a very successful initiative that should be continued in the future. It is, however, also agreed that for the development of a peaceful, creative and harmonious world through this movement, new ways must be sought to make our joint efforts not only more colorful, but more efficient.

In our present proposal we want to present examples of the ways and means which we, Hungarian engineers and professionals in the natural sciences, deem necessary to accomplish the above ideas. We should like to encourage experts working in similar fields in other countries to join us in order to make use of the power in united efforts, as well as to have a mutual exchange of views and to build personal contacts.

This proposal was prepared by: Dénes Berényi, DSc, physicist, academician; György Köteles, MD, PhD, DSc; György Osztrovszki, DSc, engineer, academician; and Csaba Részegh, PhD, engineer, psychologist. Correspondence may be sent c/o Dr. Részegh, 1131. Béke u. 112., Budapest, Hungary.

2. Why Act?

The view from the height that technical and natural sciences have reached takes one's breath away. On one side there is the happy laughter of playing children, creative work and all pleasure of adult life, while on the other side there is destruction and suffering — modern technology offers these two horizons.

Humankind has come to a turning point. The stakes are a prosperous future or destruction. It may be asked: In what manner does our present differ from the past? Why is there dramatic emphasis on today's problems? The answer is: Because all types of war at the present advanced stage of technology are senseless and fatal to everyone, including any group in power. Violence today is not only anti-human but self-destroying as well. There cannot be a winner in a nuclear war, while the loser would be the human race.

Not only nuclear war or the destruction of natural environment (e.g., Nuclear Winter) could bring such menace to us; every moment of our lives is directly or indirectly tied to our man-made environment as strongly as to the natural one. The home where we live and the workplace where we work are provided through a complexity of channels and links with hundreds of mental and physical supplies. Even a war fought with traditional weapons could break and destroy these links!

The slogan of the International Physicians for the Prevention of Nuclear War refers to the fact that in a nuclear war there would be no practical chance for medical care of the survivors. Now we know that even more is risked than that. Technology and natural sciences, which have given so much to our modern life, could not save either any country or the human race from annihilation in a new, even non-nuclear, war affecting continents or several countries. This idea has to be realized by everyone, and this process should be helped by the peace movement of scientists and engineers.

3. What To Do?

What can we do? Must we reduce the technology that can turn against us in case of war? No, this is not workable. There is no way back in technical development. We must be aware of this fact, and make everyone understand that further scientific and technical efforts for the development of new weapons do not lead to more perfect defenses or

higher levels of safety for any country. On the contrary, they increase the probability of annihilation of the country and the human race. Therefore, any such effort is senseless and unworthy of humankind.

The only way out is giving up war, national hatred, and violence. This is the requirement of the nuclear age for all of us. This is what we intend to analyze and elaborate with scientific accuracy in detail, and plant into the minds of people to act.

We have to learn not to fear technology, but to live with it. We have to reach the point that no one could even think of turning the power of technology against others, either willingly or unwillingly, by errors or malfunctions of computers. If someone still did, he would find himself confronting the whole of humankind, millions and millions of people forming an impenetrable controlling and banning chain. Therefore, we believe that safety primarily depends on a change of views, a new way of thinking, mutual tolerance and confidence built upon proper control of technology rather than on incentives based on financial means.

Our primary task is to promote this new way of thinking in as many people as possible. It is a twofold task. First of all, the fundamentals have to be established, built on the consciousness of people. This means that more and more people must become aware of the above risks and reach a common and correct understanding concerning the previously mentioned fundamental questions. Secondly, we have to find those methods which will accelerate the formation of this common understanding and its acceptance by the younger generations, thus spreading its economic and political benefits throughout the world.

4. How To Act?

Obviously, multiple methods are necessary. We believe that one efficient method could be for engineering and science professionals to consider and elaborate their own standpoint in the matter, and communicate their opinion supported by scientific arguments and verification to other citizens in their countries. This approach also provides the best chance for international discussion of the matter, since professional contacts and interest can help to bring these people together. What result can be expected of such a series of actions? One result can be that people's force will influence the policy of their country. Addi-

tionally, exchange of views of professionals tends to eliminate differences and contributes to establishing an atmosphere of confidence all over the world.

We believe that such a method would initiate a self-generating process. In the first stage, different groups of engineering professionals can achieve a common standpoint and a willingness to act. This, in turn, can mobilize other parts of the society, winning more and more people to actively support and demand constructive and peaceful uses of technology. The same impacts can, of course, come to life among engineering professionals from many different countries. As views crystallize around common points, steps will be taken to reach a consensus that will have the power to influence national and international policies toward peace.

5. First Steps of the Movement of Hungarian Engineers for Peace

Recognition of the ideas outlined in the previous sections and the willingness to act on this recognition led to the establishment of the movement of Hungarian Engineers for Peace. Having accepted the power of initiatives by individuals and small local communities as a force that cannot be replaced by anything else, we believe that this common thinking is a factor that multiplies the power of the peace movement and sometimes raises it to new quality. The movement of Engineers for Peace was launched in May 1986 in Hungary. The first actions of the organization are summarized in documents presented in the Appendices and briefly summarized below.

A. Call for An Engineers for Peace Movement. The call was first presented at the conference of the Hungarian Federation of Technical and Scientific Societies (MTESZ) where the participants, representing many thousands of engineers and natural scientists, accepted the call and joined the initiative. (See Appendix 1)

B. General Program. The general program has been elaborated by representatives of the Engineers for Peace movement. It is emphasized that this program is primarily one of an initiating and mobilizing character. (See Appendix 2)

C. Initiative for International Contacts. This letter was sent to 70 peace organizations, as well as scientists and well-known experts, in 20 countries to establish contacts, discussions and possible joint actions in

the future. (See Appendix 3)

Some of the goals of our program have been achieved recently. We have been able to express our opinion through different information networks. We have visited universities and factories for discussions, and sometimes we have had serious debates with people of different viewpoints. We have organized large meetings and discussed the moral and ethical conflicts of peaceful versus destructive uses of science and technology at several professional conferences. We can now claim an increasing influence on shaping the economic and political life in our country. These facts encourage us to call engineers and natural scientists of other countries to join our initiative.

6. Proposal for World Movement of Engineers for Peace

We hereby propose that, after having studied our initiative and considering local conditions,

* National "Engineers for Peace" movements should be organized in other countries;

* These movements of engineers and science professionals should form their own programs of national actions and international contacts;

* There should be at least one common point in the programs of each national movement;

* This common point should concern the prediction of the effects of a regional, continental or world war, based on scientific analyses and supported by technical data;

* This common point prepared at the national level should serve as a basis for a World Congress of Engineers for Peace.

Two main objectives of the common program would concern the inevitable destruction caused by a new world war, and a demonstration of the bright possibilities of using technology for peaceful purposes instead of destructive ones. Here are some suggestions for topics obviously worthy of elaboration at a World Congress of Engineers for Peace:

—Expected Release of Radioactivity from Nuclear Power Plants Raided by Conventional Bombs;

—Computers in Modern War, Including Their Technical Failures;
—Environmental and Physiological Effects of Biological Weapons;
—Expected Rate and Consequences of Cutting Off Water and Food Supplies in War;
—Effect of Damage or Breakdown of Energy Supplies on Inhabitants and Industries;
—Star Wars - Star Peace: Peaceful and Military Uses of Space Technology Achievements;
—Lasers in Modern Medicine and in Modern War; and
—The Role of Technical Control in Creating Confidence Among Nations.

To illustrate our ideas on the character of lectures and papers at a World Congress of Engineers for Peace, we have prepared an outline of a paper on the first topic of those listed above. (See Appendix 4)

It would widen the scope of such a conference and make the discussions better prepared and more comprehensive if other professional meetings, conferences and seminars of engineers and scientists included in their programs discussions on the above topics.

The World Congress of Engineers for Peace could be held in November 1989 in conjunction with the International Peace Week of Scientists. We are willing to play a leadership role in the organization of this event.

7. Action Plan and Time Schedule for a World Congress of Engineers for Peace.

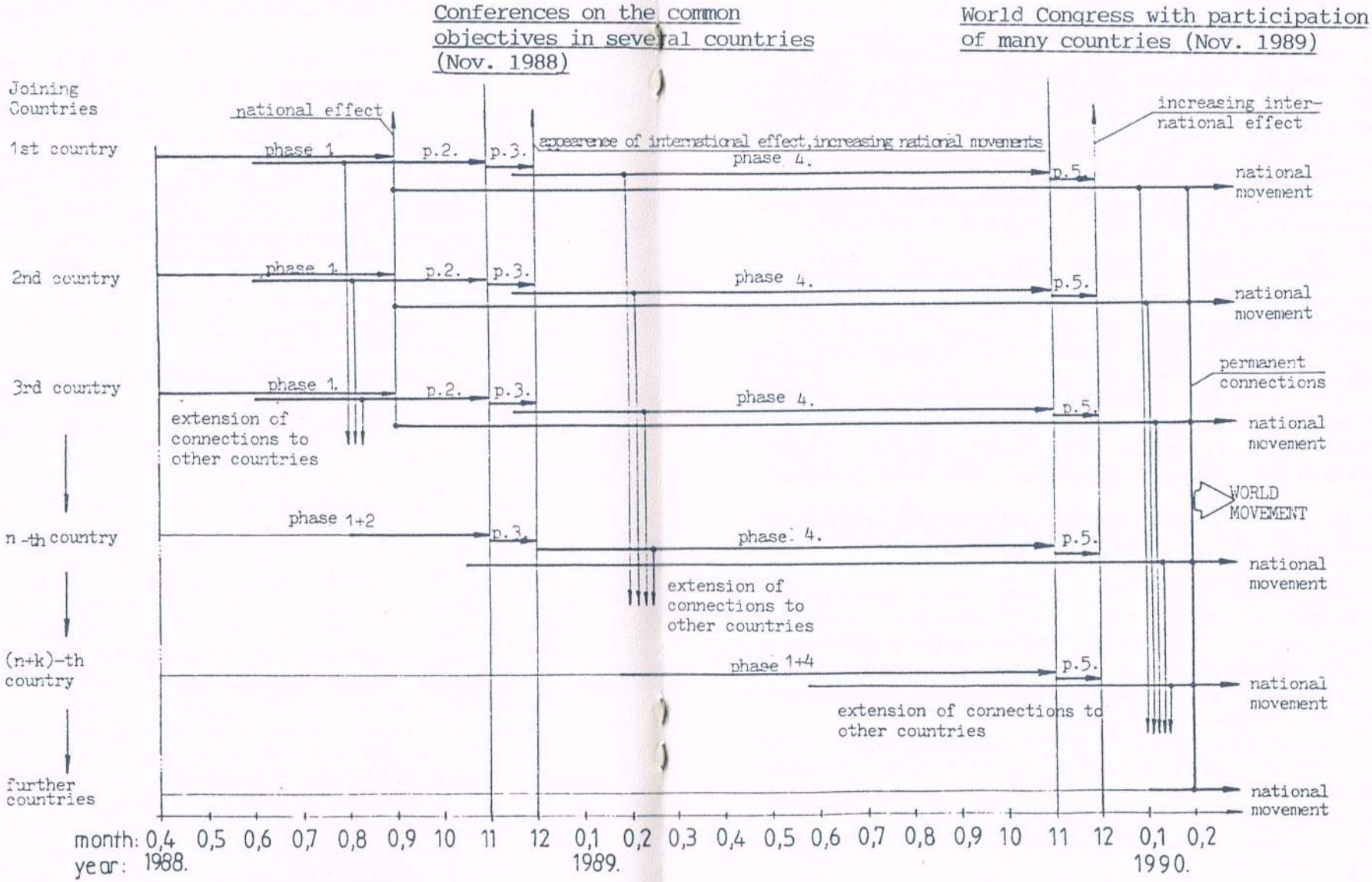
The ideas outlined above are transformed into an action plan and time schedule in the accompanying chart. As has been mentioned, we think it is possible to hold simultaneous conferences on common topics in several countries at the end of 1988, which can be followed by a World Congress of Engineers for Peace in November 1989. To realize these goals, it is necessary that some countries join our call at latest in September this year and organize their national movements of Engineers for Peace and peace committees. Together with the national actions, these countries should also encourage other countries to establish national organizations of Engineers for Peace. It would be a great help in this respect if the movement of Engineers for Peace joins the programs of the Third International Peace Week of Scientists. Experience and proceedings of conferences, simultaneously held in every participating country on the common objective, could serve in winning

other countries round, and giving an adequate basis for the preparation and organization of a World Congress of Engineers for Peace in late 1989. In this way, this initiative might turn into a respected world movement which could influence and strengthen the expression of the wish for peace on a national and global scale.

8. Link to the Third International Peace Week of Scientists.

As is the case with most new initiatives, some time is necessary for organizing an international movement. This time period could be reduced significantly if this initiative were linked to the Third International Peace Week of Scientists. Therefore, we propose that the lectures of this event, to be held in several countries of the world simultaneously, deal with the two main objectives of communicating the destruction that would be caused by a new world war and demonstrating the possibilities of using technology for peaceful rather than destructive purposes.

ACTION PLAN AND TIME SCHEDULE



RESPONSES TO THE CONTEST QUESTIONS

In our responses to the main questions of the contest we do not want to repeat previous sections. Therefore, we point out the main ideas and refer to previous sections of our proposal where relevant details are outlined.

1. What is the best way to depict the increasing probability of total annihilation of life on Earth if we do not change the direction of scientific effort from destructive to constructive objectives?

—depict, emphasize and illustrate the dependence of humankind on the environment formed by modern technology in an expressive and suggestive manner;

—depict how this environment would be disorganized and turned against us in case of war;

—prediction and visualization of scenarios showing technical, environmental and human consequences of explosions of nuclear or conventional warheads.

These ideas are outlined in more detail in section 2 and Appendix 4.

2. How can we unplug the bottleneck of stagnant thinking to respond to the drastic changes created in the nuclear age?

—make people realize the consequences of a war by scientifically supported information (see answer to Question l), to stimulate the formation of views on giving up the possibility of war and violence;

—unite social groups of different professions to discuss their views and communicate to other members of the society, thus influencing political and economic institutions;

—establish international contacts between professionals with similar interests for acquaintance and respect of each other, for synchronizing peace efforts on the international level, and for creating cooperation and confidence.

The above ideas are outlined in more detail in sections 4, 5 and 6 and in Appendices 2 and 3.

3. and 4. What incentives are needed to counteract current incentives (monetary and other) that cause scientists to work for destructive objectives? What incentives can be used to prevent scientists from stepping into the destructive jobs left by scientists who have refused to continue working for destructive objectives?

—according to our opinion, these problems cannot be resolved by using financial incentives within the present political and social systems, but rather they require a new way of social thinking and an atmosphere of international confidence based on mutual trust;

—it is imperative to form a political atmosphere in which no government can require scientists to work for destructive goals because they would be refused by the force and activity of the masses.

See also section 3 for further explanation of our answer.

5. How can these changes be accomplished in the most cost-effective manner in the shortest possible time?

—preference of constructive objectives to destructive ones can be achieved in a cost-effective way only if money is afforded to transforming people's views instead of trying to influence the rivalry of these two areas for material resources and incentives;

—the changes can be achieved in the shortest possible time if use is made of the professional contacts of scientists taking part in peace movements, and if these movements interact and unite to form a common international force.

See also sections 3 and 4, and Appendices 2 and 3.

Appendix 1

Call For Engineers For Peace Movement
Federation of Technical and Scientific Societies
(MTESZ)

ENGINEERS FOR PEACE

We, engineers, technical, scientific, agricultural and economic experts, are well aware of the fact that the means of creation and destruction are developed by us. We are fully aware that in our days, for the first time, the human race has become capable of destroying itself, as well as of speeding up its own development by opening new paths to achieve the universal attainment of living conditions worthy of human beings and to start the elimination of famine and poverty.

For us, too, peace ensures the best atmosphere to unfold our creative capabilities. While the weapons are silent, social progress gains impetus. Under the circumstances of peace and social progress, technical and scientific intellectuals will not come into conflict with themselves, for all their activities will serve life and the human race.

The Hungarian technical and scientific professionals as the main instrument of the scientific revolution in our country not only executes policies, but together with other groups also shapes them. We professionals want to exercise the rights evolving from this increased role, and are ready to bear the burdens of the responsibility assumed with it. Recognizing our position and the strength inherent in our knowledge, we are of the opinion that we have a say, we have responsibilities, and we have something to contribute to our people, our nation and our world.

On the basis of our professional knowledge, we can state with full responsibility that the weapons accumulated are capable of destroying our planet, of completely annihilating human civilization and life itself many times over. Therefore, every technical and scientific expert who is concerned about the future of our civilization acknowledges that for humankind the first and most important responsibility is to maintain

peace.

It is our firm belief that a nuclear catastrophe can and must be prevented!

We, technical and scientific experts, say "no" to senseless destruction, to the arms race. We are exerting our efforts for life, to make life more beautiful and rich. With our professional and social activities we are striving for this goal—the goal of all decent people—to be realized to the fullest extent. We shall take part in carrying out the universal tasks of national and international peace movements. In our way, with words and with acts, we have to prove that we are using our knowledge for peace, and for its protection.

This is why we are calling on all engineers, technical, scientific, agricultural and economic experts to join the movement of ENGINEERS FOR PEACE!

Budapest, May 22,1986
MTESZ Committee for Peace

Appendix 2

GENERAL PROGRAM OF THE MOVEMENT OF ENGINEERS FOR PEACE

Hungarian technical and scientific intellectuals and the federation of their professional and scientific associations, MTESZ, are the main media of the scientific revolution in our country, elaborating and executing technical development policy. These intellectuals are aware of the fact that their achievements and creations can be equally used for creative and destructive purposes. Recognizing the strength inherent in the knowledge and moral and ethical obligations of this social group, we believe it necessary to express and communicate its joint opinion about avoiding nuclear war and ensuring the chances for peaceful creative work. By this, we want to contribute actively to forming public opinion and domestic and international peace policies, taking into account other countries similar to us. We intend to make more use of public relations and professional activities of the MTESZ in making people understand: peace is the only chance for social progress and creative work for the human race.

Beyond avoiding nuclear or conventional war, our main targets are: reduction of armament expenditures, applying the reduction to social and economic purposes, and the quickest possible transfer of high-tech developments in military research to peaceful uses. The MTESZ Committee for Peace was established in December 1985 to promote the efficient realization of the above aims. During its short period of operation, this Committee sent forth a call at the national peace forum of the MTESZ on 22 May 1986 to Hungarian technical, scientific, agricultural and economic intellectuals. Representatives of regional and professional associations responded to the call by joining us.

The basic principle of relying on the efficiency of the movement of engineers upon individual and local initiatives proved to be right. The primary task of the committee is to establish and coordinate Hungarian and international activities for peace. The most important task of the near future is strengthening and increasing the human and substantive background of the peace movement in MTESZ.

To achieve the above goals, the following actions are necessary:

I. Internal organization of work and relations among professional and regional associations of the MTESZ.

II. Organization of Hungarian cooperation and relations external to the MTESZ.

III. Establishment of international contacts and cooperation.

The above main actions include the following activities:

I. Internal organization of work and relations among professional and regional associations of the MTESZ.

1. In strengthening and increasing of the human and substantive background of the peace movement, local and individual initiatives play a fundamental role. Such initiatives in different towns, factories and institutions should be espoused. Professionals devoted to the peace movement have to be sought out, because they can be the heart of local initiatives.

2. All opportunities should be grasped to demonstrate and discuss items at professional meetings, programs and lectures that have relevancy to the peace movement.

3. Peace forums, exhibitions, round-table discussions, depending on the local social and political conditions and interest, and on professional-political conditions, must be organized to inform and influence public opinion beyond professional circles.

4. The Committee for Peace has to elaborate adequate working methods, based on international experience, to coordinate and promote local initiatives and to propose and launch central actions.

II. Organization of Hungarian cooperation and relations external to the MTESZ.

1. Relations with peace movements of other groups of intellectuals in Hungary should be developed. In this respect the Hungarian National Peace Council and those of physicians, scientists and teachers are of special importance.

2. Technical-scientific intellectuals have a significant role in education and in influencing their immediate social environment and public opinion. This influence should be made more efficient via the Association of Popular Science Education (TIT).

3. To win the youth round to the peace movement is a task of outstanding importance. Development of relations with schools, primarily with universities and high schools, has to be considered and worked on. With the participation of popular teachers and with scientific information, affecting mind and soul, we shall have to increase the feeling of obligation for peace in students.

III. Establishment of international contacts and cooperation.

1. It is necessary that matters of our peace movement obtain appreciation due to their importance in international relations. We are calling for a World Congress of Engineers for Peace and are willing to contribute to its organization and work.

2. Bilateral and multilateral international relations are urged in the peace movement to promote direct exchange of views and spread our intentions for peace beyond the boundaries of our country. In this area, close cooperation should be developed with other Hungarian peace movements and organizations.

For the realization of our General Program, we want to win the support and participation of all those members and associations of the MTESZ whose activities are linked to the Federation and who want to act for peace, life and creativity.

Appendix 3

INITIATIVE FOR INTERNATIONAL CONTACTS

Dear Colleagues:

It was about two years ago that we, Hungarian engineers and professionals working in the natural sciences, reached the decision to increase our activities in order to establish and safeguard peace in our country and all over the world. We felt that the effect of the many-sided initiatives and expressions of opinions and positions by individuals and smaller groups could be multiplied if possibilities were created for the joint expression of opinions. These joint opinions, being factual and professionally sound, can help to make people and public opinion more correctly and fully informed, thus bringing them to act and speak for peace. We were aware of the fact that such a force can influence even politics, reinforce peace initiatives, and impede or prevent steps contrary to peace.

In this spirit, the representatives of local and professional organizations of the Federation of Technical and Scientific Societies, gathering an important part of the technical and scientific intelligentsia in Hungary, adopted an appeal in May 1986 for the creation of a national Engineers for Peace movement. We think that the past period has justified the correctness of our ideas since there have been more and more local initiatives, and our joint stand has strengthened the attainment of our goals in different fields.

We, Hungarian engineers, are planning, beyond our well-tested actions, to hold a series of discussions during the course of the year showing where even a war waged by conventional arms would lead, given the present level of technology. Such a war, besides the immediate deaths caused, would make human life impossible due to the destruction of energy sources and networks, the pollution of the environment, and obstacles to the satisfaction of distribution requirements. We also wish to point out how the creative use of the technical possibilities we are creating could enormously improve our living conditions and create a better life for men and women all over the world.

When analyzing our present work and future plans, it has been rec-

ognized that it is not enough to act in our own country and our own circles, since peace is an international issue. In this field it is particularly important for the peace movements of different countries to maintain relations. For this, an excellent opportunity exists in the case of professionals working in similar fields, since the love of their profession naturally generates the interest and respect for each other so needed for cooperation.

We would be pleased to get in touch with professionals of similar branches in any country, to stage joint actions for the establishment and safeguarding of world peace and to help avert threats to peace. We are also eager to hear the views and experiences of engineers and scientists of other countries in the form of discussions, bilateral or multilateral contacts, and are ready to give information about our activities and ideas. We could create in this way a forum which could promote a better knowledge of each other, bring our positions closer together and as a result enable us to shape a common will.

We are waiting for your answer to our initiative and are open to any individual or group contact.

Sincerely yours,

On behalf of the "Engineers for Peace" movement

Dr. Csaba Részegh
Vice-President of the Movement

Dr. György Osztrovszki
President of the Movement

Appendix 4

Outline of a paper on

EXPECTED RELEASE OF RADIOACTIVITY FROM NUCLEAR POWER PLANTS RAIDED BY CONVENTIONAL BOMBS

As is known, in the nuclear age, not only nuclear weapons can cause radiation damage to the environment, but an air raid with conventional, non-nuclear bombs over a nuclear power plant may result in a similar outcome. In this paper our purpose is to demonstrate the nuclear consequences of conventional war with rough estimates. The sources of the presented data are two publications of IAEA/Safety Series: No. 75, INSA G-1, IAEA, Vienna; and Nuclear Power: Status and Trends, IAEA, Vienna, 1987.

In 1987, 397 nuclear power plants were in operation in the world with a total output of 273,725 MW. With rough approximation, the Soviet Union produced 30 thousand MW in 30 plants, the Federal Republic of Germany and France together produced 60 thousand MW in 70 plants.

Let us assume that 60 percent of these power plants are air raided in all three countries.

To make a rough estimate of the expected effects, we can consider the data from the Chernobyl catastrophe. From the damaged 1000 MW reactor block, about 4% of the total 4.10^{19} Bq radioactivity was emitted to the environment. 135,000 people had to be evacuated from the surroundings.

If we assume that the same emission rate occurred from 60 raided plants, this would mean the evacuation of some 8 million people, of course, assuming the same emission rate is a rather conservative, even optimistic estimate. A ten-times higher emission rate than at Chernobyl could easily result from an air raid. Even if this does not mean the evacuation of 80 million people, instead of 8 million, it does mean much more severe radiation injuries.

We did not consider here the almost 100 nuclear plants in the USA

that may also be hit by missiles carrying conventional explosives. Plants in smaller countries of Western and Eastern Europe are also disregarded in the above estimation, though they might also be jeopardized in the same way.

The next estimate concerns the affected area. In the case of Chernobyl, 30 km was the evacuation radius, though significant radioactive pollution was detected within a 60 km radius. This 60 km radius roughly means a 10,000 sq. km affected area. In the case of raiding 30 nuclear plants with conventional bombs, the area affected by severe radioactive pollution, neglecting overlapping of the 60 km radius circles, would add up to about 300,000 sq. km, more than the area of the Federal Republic of Germany.

These estimates can perhaps give some idea of the consequences of a "conventional" war in our nuclear age. What would it mean to Europe to have, say, 60 "Chernobyls"? As this very approximate estimates shows, in our nuclear age every war may be a nuclear war, with no winners and losers, but only losers.

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