WAGING PEACE SERIES

We wish to introduce you to the 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.

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PREVENTING ACCIDENTAL NUCLEAR WAR

by

David Krieger

Booklet 3

WAGING PEACE SERIES

Nuclear Age Peace Foundation

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SUGGESTED READING

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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

PREVENTING ACCIDENTAL NUCLEAR WAR

by David Krieger

Nuclear weapons are part of complex military systems which involve humans, machines and information. These systems stretch over large areas of the earth and oceans and into outer space. Despite the enormous cost and talent that goes into building these systems, they are subject to human error, technological malfunctions and communication failures.

One of the most significant questions confronting humankind today may well be: *Could nuclear warfare begin accidentally?*

It is a question to which no one may have a final answer. The interactions between the human psyche, earth and space based sensors, computers and weapons is so complex that it is beyond our capacity to predict if or when an accident might occur.

An accident is "an unintentional or unexpected happening that is undesirable or unfortunate, especially one resulting in injury, damage, harm or loss." An accident could be the result of any of the following:

- a lack of understanding of the factors resulting in a given outcome (i.e., a lack of knowledge);
- a lack of care in using existing knowledge (i.e., faulty logic or reasoning);
- reasoning from false premises;
- lack of time to think clearly or act appropriately;
- inablity to think clearly or act appropriately due to crisis-induced pressure;

- mechanical failure in equipment;
- faulty use of equipment; and
- incorrect information providing the basis for poor decisions.

These are only some of the many factors that may contribute to accidents. When combined with our knowledge of human errors even under the most careful circumstances, they suggest that the possibility of an accidental nuclear war should not be dismissed lightly.

Arthur Schlesinger Jr., in an article in *Foreign Affairs*, wrote:

"I continue to find it hard to suppose that either superpower would deliberately embark on nuclear war *ab initio*. But it is not hard to foresee a nuclear overreaction to the frustration or embarrassment of defeat in conventional warfare. It is still easier, with 50,000 warheads piling up in the hands of the superpowers and heaven knows how many scattered or hidden or incipient in other hands, to foresee nuclear war precipitated by terrorists, or by madness, or by accident, or by misreading the flashes on a radar screen."[2] All of these ways of inititating a nuclear war would fall within the broad definition of "accident" which we are using.

Self-styled "experts" who attempt to provide assurances that an accidental nuclear war will *not* occur can provide no sound basis for their optimism. The record, they argue, points toward safety since there has not been a nuclear war for nearly forty years. The assumption underlying their argument is that what has not happened in the past will not happen in the future. This resort to the record, however, appears increasingly unreliable as weapon systems have grown in sophistication and complexity, and as fear of a first-strike attack has increased.

With so much at stake, and with new and changed factors making the past pattern less reliable as a means of predicting the future, we should not be lulled into a false sense of optimism that inhibits actions and agreements capable of preventing accidental nuclear war in the future. Rather, we should ask whether or not the past does, in fact, provide an adequate basis for predicting the future of accidental nuclear war.

As a general rule we can say that the past will allow prediction of the future *only* if all relevant variables are identified and none of them have changed or can be expected to change over time. With an issue as complex as accidental nuclear war, or even warfare in general, it seems certain that it is beyond our human capacity to identify all of the increasing number of factors which could influence the outcome. Additionally, in the case of accidental nuclear war, certain important variables have changed in the direction of making such a war more likely. These changes include:

1. **Nuclear weapons have become more numerous.** With a greater number of weapons it can be assumed that the organizational difficulties of command and control increase as well, thereby decreasing centralized control over weapons use.

More weapons also means more weapons handlers, some of whom are bound to be less reliable than others. Both psychological and drug-use problems have been found among handlers and guards.[3]

2. **Delivery systems for nuclear weapons have become more accurate.** The incredible accuracy of these delivery systems (to within a few hundred yards after an 8000 mile trip) has led military planners to believe that so-called surgical strikes may be possible and even desirable. Increased accuracy has also led to targeting the opponent's weapons systems which raises fears of a potential disarming first-strike attempt.[4]

3. **Warning time for a nuclear attack has drastically decreased.** Whereas in the early days of nuclear weapons decision-makers may have had 10-12 hours *warning time* of a nuclear attack, today this time has been cut to 6 to 8 minutes in Europe and less than 30 minutes for an intercontinental attack. Due to the stationing of Soviet missile carrying submarines off the Atlantic coast of the United States, Washington, D.C. could have *less than* 6 to 8 minutes of warning time. *This allows almost no time for reasonable decision-making.*

The situation has led some theorists to suggest implementing a launch-on-warning policy which would turn over the decision to fire nuclear weapons to computers. Brian Crissey, a computer expert, and Linn Sennot, a mathematician, have conducted a computer simulation of what would happen if the United States went to a launch-on-warning policy. They concluded that "accidental firing is virtually certain within one year of commencement of such a policy."[5]

4. **The systems for warning against a nuclear attack have become increasingly complex and subject to error.** False warnings have occurred frequently in recent times, some lasting for several minutes before being cleared. The United States has many redundancies built in to check on false alarms, but other nations may be less sophisticated in their warning systems.

5. **The knowhow and materials for construction of nuclear weapons has spread to a increasing number of nations.** More and more nations have the potential to develop nuclear weapons. In many cases nations which could easily develop nuclear weapons have exercised self-restraint and refused to do so. In other cases, though, nations continue to make concerted efforts to develop nuclear arsenals. These weapons in the hands of unstable leaders and governments will increase the likelihood of their use.[6]

When these factors are taken together, they suggest that the possibility of using nuclear weapons has increased over time, and will continue to increase. Since the devastation of such use, whether intentional or inadvertent, would be beyond the bounds of both reason and morality, it is essential that all possible steps be taken to prevent the use of nuclear weapons. While the emphasis in this essay is on steps to prevent accidental nuclear war, the same steps should substantially reduce the possibilities of intentional nuclear war as well.

What Factors Make Accidental Nuclear War More Likely?

With nuclear weapons, we *know* that their use would result in enormous devastation of human life and possibly even the destruction of the planet. What we don't know is what unexpected event could trigger the use of nuclear weapons. We don't know what form of human or technological error could result in the use of nuclear weapons. We can theorize, however, based upon some of the methods currently used to prevent accidental firings. These methods include:

1. Responsibility for firing nuclear weapons is centralized. Weapons are engineered with "permissive action links" which require a special code to activate.

2. Nuclear weapons are guarded at all times by military personnel.

3. Early warning systems are designed to separate actual attack warnings from background noise (e.g., a flock of wild geese).

4. Weapons are engineered with safety devices to prevent their detonation even, for example, if one of them is involved in a plane crash.

5. Information on the development of nuclear weapons is classified so as not to be released to the public. (This is

supposed to prevent the spread of such information.)

6. Safeguarding procedures are employed on special nuclear materials, which could be used to construct nuclear weapons, to prevent their falling into the wrong hands.

To summarize, the major concerns in preventing accidental nuclear war are that the existing weapons not be used in an unauthorized way by someone within the chain of command; that the weapons not be commandeered by persons outside the chain of command; that early warning systems are designed with sufficient independent verifications of attack; that an unexpected event such as a plane crash would not result in a nuclear detonation; and that information and materials for the construction of nuclear weapons do not proliferate.

How effectively these concerns have been addressed is arguable. Some would say very effectively since there have been no accidental nuclear firings. Others have pointed out serious problems with the control systems, particularly those for the prevention of nuclear proliferation. Critics have argued that the information and materials for nuclear weapons is so readily available that it is only a matter of time before other nations and even terrorist groups develop nuclear arsenals.[7]

Based upon this examination of current methods to prevent accidental nuclear warfare we can conclude that the following factors make accidental nuclear war more likely:

1. More decentralized command and control systems;

2. Poorly guarded nuclear arsenals;

3. Poorly designed nuclear warning systems which trigger false warnings of nuclear attack;

4. Nuclear weapons designed without "foolproof" safety devices or with poorly designed safety devices;

5. The dissemination of knowledge on how to construct nuclear weapons; and

6. The proliferation of special nuclear materials suitable for constructing nuclear weapons.

The nations which currently have nuclear weapons may be capable of reducing the probabilities of an accidental firing to a low level due to the sophistication of their technology. There is no guarantee, however, that less technologically sophisticated nations will be able, or even desire, to do the same.

Agreements Between the United States and Soviet Union

The United States and Soviet Union have not been indifferent to the issue of accidental nuclear war. Neither side wishes to stumble into a nuclear war that could substantially destroy its population. As early as 1963 the two nations established the Direct Communications Link generally known as the "Hot Line."[8] The purpose of the system was to allow a continuously available communications link between heads of government to be used in times of crisis.

The original Hot Line called for a wire telegraph circuit with a back-up radio telegraph circuit. An updated agreement in 1971 established communication linkages between the two countries via satellite.[9]

Article 2 of the 1971 agreement states: "Each Party confirms its intention to take all possible measures to assure the continuous and reliable operation of the communications circuits and the system of terminals of the Direct Communications Link for which it is responsible in accordance with this Agreement and the Annex hereto, as well as to communicate to the head of its Government any

messages received via the Direct Communications Link from the head of Government of the other Party."[10]

The method of communicating envisioned in this agreement is very primitive by today's standards. Messages are encoded and sent via teleprinter. They must then be decoded and translated before being answered. There is no provision for direct voice communication, nor for the transmission of maps, charts, graphs, or pictures. The current system has been criticized by Senators and by the Reagan Administration as being inadequate to its important mission.[11]

A second agreement was reached simultaneously with the Hot Line Modernization Agreement in 1971. This was the "Agreement on Measures to Reduce the Risk of Outbreak of Nuclear War Between the United States of America and the Union of Soviet Socialist Republics."[12] It is also known as the "Accidents Measures" Agreement. In this agreement the U.S. and U.S.S.R. promised to maintain and improve their "organizational and technical arrangements to guard against the accidental or unauthorized use of nuclear weapons..."[13] The two parties also agreed to notify each other immediately in the event an accident or unauthorized use should occur, and to make every effort to render harmless or destroy a nuclear weapon which could create a risk of outbreak of nuclear war.

The parties further agreed to notify each other in the event of detecting unidentified objects on their missile warning systems, or in the event of signs of interference with these systems. If either party is launching a missile beyond its territory in the direction of the other, they agreed to notify the other party in advance. Should "prompt clarification" be necessary, the parties agreed to consult over the Hot Line.

This is a good agreement insofar as it goes. It would be interesting to know how often the two parties have had to consult over accidents to date. This information has not

been made public, although U.S presidents have said that the system was used during the 1967 and 1973 Arab-Israeli conflicts.[14]

The problem with the agreement is that it is reactive rather than proactive. It attempts to respond to a crisis rather than to take the necessary steps to avert a crisis from occurring. In a sense the agreement may be offering "too little, too late." Once a crisis is underway it may be too late to begin explaining.

Proposals by the United States

Some 13 years have passed since the "Accidents Measures" Agreement was signed. In those years the nuclear arsenals of the superpowers have grown in size and complexity. During that period false alarms and near-misses have abounded.[15] It is time for new agreements.

In April 1983 Defense Secretary Weinberger presented four proposals to the Soviet Union to curb the risk of accidental nuclear war. These were:

1. Enhancing the existing "Hot Line" by giving it the capability of transmitting maps, charts, graphs, and pictures.

2. Creating a parallel communications linkage between the top military leaders of the two nations.

3. Installing new high speed communications linkages between Washington and its embassy in Moscow, and between Moscow and its embassy in Washington.

4. Developing contingency plans by a broader group of nations on procedures to follow if terrorists obtained nuclear weapons.[16]

Secretary Weinberger commented at the time of making the proposals, "These are very simple things. They're

things that I believe would benefit everybody. I don't see why you couldn't get a quick agreement."[17]

A New Agreement

Over a year later, on July 17, 1984, it was announced that an agreement between the two countries had been reached on the first of the four proposals. They agreed to add facsimile transmission to the current teleprinter, thus making it possible to send maps and charts. The upgraded system will also reduce the time it takes to send a message on the Hot Line (for a two page document transmission time will be reduced from 6 minutes to 2 minutes). It is estimated that the agreement will take from 18 to 24 months to implement.[18]

In announcing the new agreement President Reagan stated, "I see this agreement as both an appropriate technical improvement to the Hot Line, which has served both our governments well for over 20 years, and as a good example of how we can, working together, find approaches which can move us towards a reduction in the risks of war."[19]

While this agreement to improve the Hot Line is a welcome step it is aimed more at managing crises than preventing them. This is also true of the other U.S. proposals presented by Secretary Weinberger. One proposal which aims at crisis prevention as well as management is that for a United States-Soviet Union Joint Crisis Consultation Center.

A United States—Soviet Union Joint Crisis Consultation Center

The late Senator Henry Jackson, a leading proponent of military strength, became a passionate advocate of the creation of a United States-Soviet Union Joint Crisis Consultation Center. Jackson, like other Senators, became concerned about the possibility of terrorists detonating a nuclear device, and one superpower thinking it was the

responsibility of the other. He wanted to create a mechanism to prevent such an incident from resulting in nuclear warfare between the superpowers.

Senator Jackson described his vision of the Center in a speech at Washington State University shortly before his death.

"The Center," he said, "would be a permanent organization at a location agreeable to both sides. It would have areas where the Soviet and American representatives would meet and consult together, and also areas where they could work and confer in private. The American staff would be linked to Washington by secure American-controlled communication links, and the Soviets would be tied to Moscow by their own communications system. The Center would be open, fully staffed, every hour of the day and every day of the year.

"The two staffs should include technical advisers and military representatives knowledgeable about such matters as command, control and surveillance systems, force deployments, readiness testing procedures and the like. However, the Center's basic mission would be neither technical nor military. The decisive issues of nuclear war or peace are and always will be political and diplomatic, and the Center's staffing should reflect this fact.

"The Center would be instantly alerted when there were any war-threatening development. It would supplement, and work in tandem with, the modernized hotline. The superpower dialogue in time of crisis could thus become vastly more effective. The two sides at the Center would consult by actually talking with each other face-to-face across the width of a conference table, and each side would report its assessment as quickly as possible to the tops of their governments. As needed, Soviet and American experts on the kind of problem threatening the peace could meet with each other without any bureaucratic delays. The two

teams would be *known* quantities to each other, and this could assist in understanding and in judging the credibility of their counterparts.

"The Center could work on crisis prevention as well as crisis resolution. It might draft proposed codes of nuclear conduct for the two superpowers. Each side might agree to refrain from doing things—undertaking certain types of force deployments or readiness exercises, for instance—that might appear threatening to the other side.

"The early establishment of a Joint Center would produce still further benefits. Popular fears over nuclear war are fueled in part by a concern that war might break out by accident just because Moscow and Washington were out of touch and not talking to each other. This permanent Center—in business around the clock—could do much to lessen these apprehensions.

"Furthermore, agreement on the Center could help strengthen our relations with our friends and allies, and our European partners in particular. They have as big a stake as we do in preventing an accidental nuclear war. They would surely applaud an American initiative to create an institution making such a conflagration less likely.

"And, very importantly, I believe an early accord on creation of the Joint Center would increase the chances of success in the Geneva Arms Reduction Talks. The road we will have to travel to arrive at peace-serving weapons cuts will almost certainly be difficult and long. But the Center could so clearly serve the interests of both our sides that it should be possible to bring it into being at an early date. A negotiating successs in this regard would be reassuring, and it could help build world confidence in the possibilities for stability and peace."[20]

Nunn-Warner Proposal

A proposal for U.S.-Soviet Risk Reduction Centers is

being pursued by Senators Nunn and Warner.[21] They have proposed that initially there be two Centers rather than one—one in Washington and one in Moscow. In their version the two Centers would be in regular communication. "These Centers would maintain a 24-hour watch on any events with the potential of leading to nuclear incidents."[22] On June 15, 1984 the Senate recommended this proposal by a vote of 82 to 0 as a non-binding amendment to the defense authorization bill.[23]

The Nunn-Warner Working Group suggested the following potential roles for the Risk Reduction Centers:

- To discuss and outline the procedures to be followed in the event of possible incidents involving the use of nuclear weapons;

- To maintain close contact during incidents precipitated by nuclear terrorists;

- To exchange information on a voluntary basis concerning events that might lead to nuclear proliferation or to the acquisition of nuclear weapons, or the materials and equipment necessary to build weapons, by subnational groups.

- To exchange information about military activities which might be misunderstood by the other party during periods of mounting tensions.

- To establish a dialogue about nuclear doctrines, forces and activities.[24]

An Accidental War Assessment Center

A proposal for an Accidental War Assessment Center was put forward in Congressional Hearings by Dean Babst and Alex Dely.[25] This Center would have the responsibility for evaluating weapons programs and policies for their impact upon accidental war. The theory behind their

proposal is that someone should be examining existing and proposed weapons and doctrines to see if they add to defense as they are intended, or if they are in fact making accidental war more likely.

A United Nations Space Patrol

One of the most novel and dramatic of the proposals put forward for preventing accidental nuclear war is that for the creation of an unarmed multi-national Space Patrol. Representatives of all nations serving on the United Nations' Security Council would participate in a space-based surveillance system which would be in continuous communication with International Atomic Energy Agency Centers to be established in every nation.

The author of this proposal, Genevieve Nowlin, has written, "The truly and distinctly human component of the Space Patrol is the essential factor in inducing trust and confidence in governments and peoples."[26] Comparing her proposal to the French proposal for an International Satellite Monitoring Agency, she suggests the following advantages to the Space Patrol: "The recurring fear of 'accidental war' due to technically induced false alarms would be eliminated: no more 'hair trigger' scrambles, close calls. The highly desirable 'hot line' would be instant and universal: no more delayed, relayed crisis communication snafus. The anxieties provoked by threat of 'nuclear proliferation' would be alleviated: no more rivalry between nuclear or aspiring non-nuclear powers, but opportunities for mutual beneficial scientific and economic collaboration in space. Insistence on further 'verification' of arms treaties would have immediate attention from on-board experts: no more strident demands for proof across the miles, but improved surveillance and weighted diplomatic exchange. The dread of 'terrorist' takeover of satellites, etc., would be greatly diminished: no more need for nations to develop extreme measures and exotic defense devices. Best of all, the universally shared expense of the Space Patrol would cost a fraction of the wasteful escalation of the arms race

into space: no more fantasies of a 'star wars,' but the fulfillment of a treaty envisioning the 'peaceful use of outer space' as the rightful heritage of all nations."[27]

This proposal for a multi-national Space Patrol deserves serious attention. In one bold, imaginative stroke it would place representatives of humankind in orbit and on patrol for the benefit of all. It would require Soviet—American cooperation, setting a proper tone for the two superpowers to begin the process of reversing the nuclear arms race. It would relieve tensions on earth by providing fast and open access to information on events on earth.

A New Way of Thinking

Our own imperfections as humans, including our inability to perfectly control complex systems, may prove to be our greatest enemy. Nuclear technologies have raised the stakes of error. In order to perpetually avoid mass annihilation by nuclear warfare we must aspire to perfection under not only conditions of hostility, but periodic times of crisis. This is too high a task for humans to achieve. We must find methods of cooperation and conciliation that allow us to reverse the costly and dangerous forward thrust of the nuclear arms race. The United States, along with the Soviet Union, must change its example to the world that now gives other nations reason to believe that nuclear weapons bestow both power and prestige upon their possessors. This signal is contrary to the best interests of both superpowers. While this process of reversal is taking place, new institutions for preventing as well as managing crises such as the United States-Soviet Union Joint Crisis Consultation Center and a United Nations Space Patrol are needed.

A United States Academy of Peace has recently been authorized by the U.S. Senate. Among its functions should be to study and assess the dangers of accidental nuclear war, report to the American people on those dangers, and offer proposals to the Congress on methods to reduce

those dangers.

You Have a Role

It would be a mistake to overlook the danger of accidental nuclear war, or to hesitate to take all necessary steps to prevent such an occurrence. Even were the probability of the use of nuclear weapons to be very low (which is probably not the case), the gravity of the potential harm is so great that reason suggests every effort should be taken to reduce this risk. However, much that could be done has not been done. Many of the needed corrective measures which would not be difficult or dangerous to implement, will probably not be implemented unless citizens put pressure on their government to achieve the needed changes.

Thus, once again, a matter of critical importance is turned over to you, the concerned citizen, for action. It is up to you to help educate your neighbors, friends and representatives in government. The latter must be encouraged to act while time remains.

The success of the United States Peace Academy Campaign, which now has more than 40,000 members, was a key factor in persuading the U.S. Senate to approve the Peace Academy proposal. Perhaps a non-profit National Committee to Prevent An Accidental Nuclear War would be equally effective. The Nuclear Age Peace Foundation stands ready to aid the organization of such a Committee.

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