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# The Warfare-Welfare Tradeoff: Consequences of Continuing the Nuclear Arms Race and Some Policy Alternatives

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*This paper provides a survey of the positive functions of the nuclear arms race for segments of society and society as a whole. The analysis of the positive functions does not serve as a justification for the status quo, but is undertaken to point out the numerous constraints mitigating against change. Massive social forces operate in such a manner as to continue and expand the arms race, indicating large scale social changes are required to stop it. A series of policy alternatives are enumerated as functional alternatives which would have fewer negative consequences while preserving our national security.*

A report card on the current state of Americans' well-being would be an ambivalent one. It would contain some indicators of economic success, such as greater numbers of very affluent families and more people working than ever before. But it would also contain many indicators of economic failure, such as continued high rates of poverty and the relatively low wages associated with most new jobs. Under the "social" heading, passing grades would appear for "sense of national pride" and "plays well with allies" (except for occasional streaks of bullying), but failing grades would have to be given for the categories of "helps others in need" and "diplomatically resolves tension without resort to violence." A complete explanation for such a mixed review would necessarily entail a multidimensional analysis of economic, social, political and cultural phenomena that would cover an entire volume (or more). The purpose of this article is to examine only one part of this complex reality—the impact of the continued nuclear arms race on American society. It will do so by presenting a structural-functional analysis of the nuclear arms race as a means of suggesting policy alternatives to it.

The arms race is driven by a policy of extended nuclear deterrence. This policy is based on maintaining a weapons capability to fight and prevail at all levels of violence, from conventional battles to extended nuclear exchanges. Since both sides must presume worst-case scenarios, technological advances or build-ups on either side necessitate a response from the other side. Furthermore, the untestable nature of deterrence theory—that we can never be sure what level of threatened destruction will deter the enemy—does not enable establishing a maximum size of our arsenal (Marullo, 1985). As a result, the military requirements for extended deterrence dictate a continuous arms race.<sup>1</sup>

The military machinery needed to sustain an extended deterrence policy is enormous and presents a large strain on the U.S. (and the Soviet) economic and political systems. During the past seven years there has been widespread criticism of U.S. nuclear warfighting preparations necessitated by our strategic policy: citizen participation in the antinuclear weapons movement has reached unprecedented levels; grassroots peace and nuclear weapons freeze groups have sprung up in even the smallest, most conservative communities; the U.S. Roman Catholic Bishops and dozens of other national church bodies have questioned the morality of deterrence and have called for a halt to further nuclear weapons build-ups; and for the first time in U.S. history, Pentagon plans for a new major weapon system have been seriously curtailed by the Congress.<sup>2</sup> In the Soviet Union and the Eastern bloc nations, the unofficial or dissident peace movement has challenged the Communist Party's peace propaganda by organizing mass rallies in defiance of government orders and by being critical of the Soviet Union's role in the arms race.<sup>3</sup> We should not, however, allow this outpouring of public sentiment against the arms race to obscure the role nuclear weapons play in shaping and maintaining institutional and interpersonal relations in our society. The purpose of this article is to survey the consequences of our reliance on a policy of extended nuclear deterrence with respect to the economy, the political system, individual and interpersonal relations, and culture. The analysis proceeds by briefly surveying the status quo maintaining functions of the nuclear warfighting preparations

dictated by our policy of extended deterrence. We then turn to the consideration of a set of alternative policies which are functionally equivalent but less dysfunctional than our current policies. Before proceeding with the analysis, however, it is necessary to describe the major components of our deterrence policy and its implementation.

### Current Deterrence Policy and Its Implementation

Current U.S. nuclear weapons policy is best described as one of extended deterrence. Its purpose is to deter a Soviet (or other aggressor's) attack on the United States, our allies, and our strategic interests. This is accomplished by configuring our arsenal in such a manner as to: preserve an assured retaliatory capability (minimally), respond successfully to a wide range of an enemy's offensive thrusts, and assure that the U.S. can utilize force at any level of the escalation ladder in order to attain victory. Extended deterrence also calls for the ability to prevail in a nuclear war, which means having options at any point during an extended nuclear exchange to force the Soviet Union to cease hostilities on terms favorable to the United States. Former Secretary of Defense Weinberger summarized this strategy as follows:

should deterrence fail, then our strategy is to restore peace on favorable terms at the lowest level of conflict as soon as possible . . . we seek a flexible force structure that builds on our alliance commitments and forward deployments and provides us a variety of options for quickly responding to unforeseen contingencies in any region where we have vital interests to defend (U.S. Senate, 1983, pp. 10, 24).

The material and technological requisites for implementing an extended deterrence policy are met through a multi-step process leading to nuclear weapons being put in place ready for use against an enemy. This process includes pure and applied scientific research and development, testing of new or improved weapons, the production processes related to manufacturing the weapons, and the eventual deployment of the weapons. The strategic component of nuclear warfighting preparations refers to the development and implementation of plans that guide the construction and configuration of our arsenal in such a way as

to best accomplish the intended objectives. Obviously this process beginning with pure research and leading to deployment does not occur in a vacuum. These objectives are determined through a political process largely dominated by an "iron pentagon" of elites in segments of government, military, university, research, and industrial bureaucracies (Adams, 1981; Melman, 1974; Mills, 1956). Nuclear warfighting preparations are thus best conceived as a set of broad enterprises that operate to determine which political objectives (beyond deterring an attack through an assured retaliatory capability) can be accomplished through the use of nuclear weapons, how they can be best accomplished, and the implementation of those decisions through the development and deployment of appropriate weapons systems.

Since 1979, our nuclear arsenal has been undergoing a "modernization" process through which each leg of the nuclear triad is upgraded. The land-based leg is being enhanced by the addition of highly accurate MX missiles, with a mobile "midgetman" missile under development. The sea-based leg has been modernized by the addition of more sophisticated Trident submarines, the deployment of sea-launched cruise missiles, and the development of the Trident 2 D5 SLBM. The air-based leg has been upgraded by the deployment of air-launched cruise missiles on modernized B-52 bombers, the addition of the B-1B bomber, and the development of the "Stealth" bomber. Research and development of the Strategic Defense Initiative to enhance deterrence has grown into a multi-billion dollar enterprise. Forward basing of intermediate range nuclear weapons (GLCMs and Pershing 2s in Europe) took place before the weapons were dismantled under the recent INF agreement between the United States and Soviet Union. And numerous "enhancements" to our warfighting capabilities have been undertaken, such as improving command, control and communication facilities, and hardening missile silos. Overall, roughly \$1.9 trillion has been spent for national defense from 1982-1988, of which \$429 billion was spent for nuclear war preparations (Center for Defense Information, 1987, pp. 2-3).

Obviously, such an enterprise with its attendant costs are likely to redound throughout the entire society. Twelve functions

of the operation of these broad enterprises are enumerated below. I have divided them into four categories for ease of presentation purposes, but they clearly overlap and are interconnected with each other. A set of alternatives is outlined in the conclusion. The functions of our extended deterrence policy are examined in the realm of the economy, the political system, social psychology, and culture.<sup>4</sup>

### Functions of the Arms Race for Society

#### *Economic Functions*

Nuclear warfighting preparations are carried out through a cooperative venture by the government and the private sector. Not surprisingly, the hundreds of billions of dollars of defense spending during the past four decades has had an enormous impact on the composition of the work force and the types of goods and services produced.<sup>5</sup> Spending for nuclear warfighting preparations has also had the effect of: stabilizing and strengthening particular industries and corporations, providing a means of upward mobility for individuals within the "iron pentagon," and reinforcing our political economy by maintaining the value of consumer goods.

*Function 1. Nuclear warfighting preparations create thousands of jobs for strategic analysts, engineers, lawyers, contractors, technicians, military personnel, weapons assemblers, Defense Department officials, etc.* The Department of Labor estimates that for \$1 billion of Defense Department procurement, an average of 26,000 jobs are created (Anderson, 1982). In addition, many support or auxiliary jobs are created as well, such as civil defense planners and administrators, university research support staff, and public relations and advertising positions to promote new weapons and maintain a favorable public image.

Of course, this type of government spending is one of the least cost-effective methods of producing jobs. Government programs for virtually any other purpose, such as education, health, environmental regulation, etc., produce more jobs, and more less-specialized jobs, than nuclear weapons modernization outlays. In fact, even allowing taxpayers to retain the equivalent amount of money to such expenditures through lowering their tax burden would create more jobs simply by increasing demand

for consumer products (Anderson, 1982). Nevertheless, substantial numbers of jobs are directly dependent on the arms race, and it is primarily among those whose votes are taken quite seriously by elected officials. Slowing or halting the arms race will require a significant relocation of human labor. Planning for such changes and providing services for those whose lives have been dislocated or disrupted must be an essential component of any alternative policy.

*Function 2. Some products originally created for nuclear war-fighting purposes have been utilized in the civilian economy, partially benefitting all consumers.* The U.S. government provides billions of dollars for military research and development.<sup>6</sup> Some of the technology developed for use in electronic guidance systems, computer microcircuitry, laser applications, telecommunications and satellite networks, and other areas has been put to use in commercial products or otherwise serves the public good. Perhaps, in the not-too-distant future, solar energy technology, currently used for powering military satellites and remote stations, will become commercially available for use in home space and water heating.<sup>7</sup>

*Function 3. Military contracting practices have stabilized dozens of large corporations that otherwise might have gone out of business, creating massive economic disruptions, financial hardship for stockholders, and job loss for thousands of workers.* Several major corporations receive the bulk of their revenues from government military contracts, depending on them for their survival.<sup>8</sup> One of the criteria the Pentagon explicitly considers when awarding contracts is stability of the corporation; for firms that are one of but a few suppliers of a certain product, its financial instability may actually improve the chances of being awarded a contract. This has served not only to protect the investors and employees in these corporations, but since many of these corporations also produce other goods, it also benefits the consumer. Among the larger corporations whose stability has been enhanced by defense contracts in the recent past are Boeing, General Electric, Lockheed, Westinghouse, and General Motors.

*Function 4. The steady increase in nuclear warfighting preparations has functioned as a source of upward mobility for thousands of individuals working in weapons production and military indus-*

tries. Many careers have advanced entirely on the basis of the development of a particular weapon. The early retirement provisions for career military men, manifestly an inducement toward a military career, allow for lengthy careers in the private sector after retiring from the military. Often, these civilian positions are in the weapons industries in which the officer has worked, so the industry benefits from the retired officer's expertise.

The careers of many engineers, technicians, analysts, etc. in the private sector benefit from their work on particular weapons systems. Although funding varies from one year to the next, and weapons undergo design changes or become obsolete, there is relatively high job stability and above average compensation for defense related specialists (Melman, 1974). In sum, the steady growth of our nation's capacity to wage nuclear war has been good for the careers of the individuals who work in the "iron pentagon."

*Function 5. The allocation of massive amounts of our nation's wealth to nuclear warfighting preparations contributes to a perpetual shortage of consumer goods.* Nuclear weapons are obviously a non-consumable portion of our G.N.P. At first glance this may appear to be a negative consequence, but it does have the positive effect of making the remainder of the goods and services produced more valuable. Massive disruptions may occur if, instead of stockpiling nuclear weapons, the marketplace were suddenly flooded with billions of dollars worth of additional consumer goods, making them available to more households through lowered prices. The individual's work ethic may be severely challenged, potentially undermining a necessary component of our political economy.

### *Political Functions*

Social scientists have long been aware of the positive functions of conflict for social life. In particular, Simmel (1955) and Coser (1956) theorized on the consensus building and unifying consequences that conflict has for a group, i.e. in-group differences are minimized or suppressed and animosities are directed at the external enemy. Nuclear warfighting preparations operate in a similar manner, without the actual conflict, provid-



ing a source of internal unity expressed through our disdain for the Russians (or more generally, communism). In addition, our political system has benefitted from the experience and leadership of individuals who were originally trained in warfighting. Finally, in the international realm, U.S. opinion and policy have great influence on global-decision making which is partially supported through our primacy in nuclear capabilities.

*Function 6. Domestic political cohesion on foreign policy matters is enhanced by agreement on nuclear warfighting preparations felt to be necessary against the Soviet Union.* The two major political parties differ in their response to the Soviet threat only in the fervor with which they articulate anti-communist policies. This bipartisan unity is a source of stability for foreign policy, which then reinforces public opinion disdain for the Russians. According to opinion polls, fear and mistrust of the Russians are among the most strongly held convictions of our political creed (Ladd, 1982; Smith, 1983; Yankelovich and Doble, 1984). Our increased nuclear warfighting preparedness is believed to be a response to an increased Soviet threat. The collective sacrifice required to respond to the threat confirms our fears, but simultaneously reinforces this bedrock belief.

This unanimity is derived from the public's limited and controlled knowledge of the Soviet Union. There is little discussion or debate over what U.S. policy toward the Soviet Union should be, and that which emerges is largely dominated by the elites within the "iron pentagon" (Adams, 1982; Tobias, 1983). There is very little independent information with which to either verify or repudiate official statements, which by default become truth.<sup>9</sup> The lack of knowledge, elite control of public debate, and the unchallengeable assertions of the "iron pentagon" promote public fear of the Russians, leading to increased military preparations with which to confront them, which then further reinforce public consensus on the Soviet threat. The point here is not to question whether the Soviets are not to be trusted, but that the unanimity and strength of this belief is a source of foreign policy stability and bipartisanship.<sup>10</sup>

A closely related function of this widely shared definition of the Soviet threat is its utility as a domestic social control mechanism. The federal government reserves for itself the sole au-

thority to classify the secrecy of warfighting related information. This authority is used to minimize dissent by withholding information that would challenge the publicly shared definition of the Soviet threat. Individuals who disagree with official definitions are thus deviants by the mere fact of their disagreement—or at the very least they can be discredited as “harmless dupes” of the enemy. Thus boundary maintenance and social control functions are enhanced by warfighting preparations and its attendant secrecy.

*Function 7. The leadership and expertise of individuals trained in and responsible for nuclear warfighting preparations have contributed to their effective fulfillment of other important positions within the political system.* Many military officers and other government officials who were previously responsible for nuclear warfighting preparations have left those positions, but have used the knowledge they acquired to try to help change, improve, or otherwise serve in our political system. To name but a few of these individuals and cite the diversity of their present activities, we should look to: former General Alexander Haig, who served as Secretary of State; Henry Kissinger, former National Security Advisor and Secretary of State, now a private citizen and former head of a Presidential Commission to resolve conflict in Central America; Daniel Ellsberg, former analyst for Pentagon strategic nuclear war plans, now an ardent peace and disarmament activist; and Robert McNamara, former Secretary of Defense, and current advocate for a bilateral nuclear weapons freeze, no-first-use pledge, and a campaign against world hunger.<sup>11</sup>

*Function 8. In the international realm, our political/diplomatic status is enhanced by our primacy in nuclear warfighting capabilities.* One of the explicit functions of our nuclear warfighting capabilities is to use it as a threat or form of blackmail when dealing with other countries.<sup>12</sup> On a somewhat less explicit level our nuclear arsenal is the “big stick” that can be used to facilitate our diplomatic efforts in dealings with our allies as well as our enemies.

### *Social Psychological*

Nuclear warfighting preparations have several positive consequences for our emotional well-being and collective psyche.

First and foremost, our warfighting preparations help make us feel good about ourselves, our national strength and determination. However, the tasks of planning and preparing to actually fight a nuclear war are potentially disturbing ones. The division of labor in our society and the existence of a specially trained elite to handle these problems allows the rest of us to not have to worry or think about these preparations.

*Function 9. Our preeminence among nations in nuclear warfighting capabilities serves as a source of national pride. We feel a collective strength and confidence that comes from being Number One in military power. Public displays of our military strength—air shows, parades, media coverage of military exercises—not only make us feel good about ourselves, but encourage us to continue our efforts. There is thus an interaction among the large cost of preparing for nuclear war, the individual sacrifices required to pay these costs (especially taxes), and the sense of reward, pride, and unity that results from sacrificing for this noble cause. This feedback is necessary to enable the next round of preparations to continue.*

Nuclear warfighting preparations can be seen as a sort of contemporary, hi-tech potlatch ritual.<sup>13</sup> Nuclear weapons are not made to be used, but rather to sit in their launchers until they become obsolete and are replaced with more sophisticated weapons. The old weapons are literally dismantled, and the new ones are, in essence, waiting for the same fate. The weapons can be seen as a gift from the taxpayer to the military, which, with our approval, ultimately destroys them (Thompson, 1982). In return, however, we receive the sense of security, satisfaction and reward which derive from being able to afford to have our wealth sit in the ground and never have to be used.

*Function 10. The manner in which we prepare for fighting a nuclear war enables the vast majority to not have to worry about it. Our affluence allows us, through a highly specialized division of labor, to maintain an elite which plans and prepares for a nuclear war. Obviously, nuclear war is horrible to ponder, but the existence of a competent and well-trained group to whom we have delegated this responsibility allows us to carry out our daily routines without overwhelming despair. Lifton labels this phenomenon "psychic numbing" (Lifton and Falk, 1982, p. 101) but we should not overlook its utility for enabling the remainder*

of society to continue to be productive, to enable it to generate the surplus necessary to sustain our nuclear capabilities (Canjar, 1985).

### *Cultural*

Two different levels of culture are discussed here as having benefitted from nuclear warfighting preparations: science and popular culture.

*Function 11. The growth and acceptance of the role of science and technology in our society has been both directly and indirectly facilitated by our nuclear warfighting efforts.* In a direct manner, billions of dollars in government funds have been allocated to the enterprise of science for the purposes of pure and applied research aimed at improving nuclear weapons technology. In an indirect manner government support of the growth of science and the incorporation of its products for non-military purposes has increased the public's acceptance of science and its reliance on technological solutions to many diverse problems. Science as an institution now enjoys one of the highest ratings on public trust among the major institutions, and scientists rank near the top of occupational prestige ratings.

*Function 12. Nuclear warfighting language and scenarios have enriched our popular culture.* Motion pictures and television movies "entertain" us in their depiction of nuclear holocaust and its aftermath (e.g. "War Games," "On the Beach," "Testament," and "The Day After"); novels on world war three or life thereafter have reached the bestseller lists (*War Day; Alas, Babylon*); video games in which nuclear wars are fought and board games of war and the struggle for survival fill our leisure time; poets, artists and musicians incorporate nuclear imagery into their work; and the fashion industry markets military fatigues and survivalist fashions in a multi-million dollar industry. Finally, our language has become enriched by such phrases as: "it's about as easy as nuclear war" (an extremely difficult task indeed), and "nuke 'em 'til they glow."

### Conclusion: Implications and Functional Alternatives

The fact that some segments in our society benefit from nuclear warfighting preparations should now be obvious. Clearly, weapons contractors, scientists, and military officials are di-

rectly rewarded for their efforts in nuclear warfighting preparations. But other groups indirectly benefit as well, for example: international diplomats, processors of important natural resources, civil defense planners, and segments of the telecommunication, fashion, and entertainment industries. In addition, several consequences benefit society as a whole rather than particular groups, through such processes as: encouraging the development of science, promoting social cohesion, and assuring our access to natural resources.

However, the functional analysis presented here also makes obvious many of the negative consequences of our policy of extended deterrence. Some segments of the population are directly adversely affected by these efforts, whereas other consequences have a more general negative impact on the whole of society. Rather than belaboring the negative consequences of our nuclear warfighting preparations, I would now like to turn to a set of functional alternatives—alternatives which preserve many of the positive consequences while mitigating the negative effects. These alternatives, which are presented here in a necessarily brief form, are discussed within the four major categories used above.

### *Functional Equivalents*

The manifest functions of our policy of extended deterrence are the protection of the United States as a sovereign state and the preservation of our democratic form of government. On a secondary level, extended deterrence serves to sustain our current lifestyles, contain communism, define a global order compatible with our domestic needs, and secure our supplies of natural resources.

Over the past two decades, however, the challenge of maintaining our definition of a global order, backed by the use of force and ultimately our policy of extended deterrence, has become increasingly difficult and may well be beyond our capabilities in many circumstances (Sanders, 1984; Wolf, 1984). The tensions in U.S.-Soviet relations is a condition conducive to escalating hostilities between the superpowers. The technological advances in the arms race by themselves give us less and less time to evaluate data to determine if our forces are being at-

tacked by increasingly accurate weapons, making the hair-trigger ever more taut. Increased global militarization has increased the number of arenas (and the intensity of conflict in them) which could escalate into early use of tactical nuclear weapons. These factors, taken together, indicate new levels of danger which call for immediate shifts in strategic nuclear policy and our overall foreign policy.

The broad outlines of such a strategic and foreign policy should include:

1. Moving away from extended deterrence toward a policy of minimal nuclear deterrence, which would include, among other things, replacing the more vulnerable, multiple warhead land based missiles with more survivable submarine based missiles, and multilaterally reducing our strategic stockpiles by retiring the most vulnerable weapons;
2. Immediately withdrawing forward based tactical nuclear weapons and declaring a policy of no early first use. This should be followed by multilateral reductions of conventional forces in Central Europe and a no first use declaration at the completion of such reductions;
3. Halting technological advances in nuclear weapons by agreeing to multilateral proposals to cease missile flight testing, warhead testing, ASAT testing, and all weapons testing in space;
4. Asserting political initiative to reaffirm and then strengthen all existing arms control treaties;
5. Removing U.S. conventional forces based all over the globe except from where they are essential to protect vital security interests. This includes cooperating with the European NATO allies to allow them greater definition of and responsibility for their defense needs;
6. Supporting social science research and development in the areas of: crisis intervention, mediation, and negotiation; studies on the perception of deterrence; and critical explorations of the international conditions necessary for avoiding war and creating a stable peace; and establishing mechanisms for testing and implementing the results of this work; and
7. Replacing military aid with development aid for less developed countries and easing their debt repayment burdens. This would lower the likelihood of intra- and international conflict in third world countries which could escalate into superpower intervention and conflict.

The United States could make unilateral initiatives, especially in areas one, three, five and six, which would not adversely affect national security, but which could provide the basis for further incremental reductions.<sup>14</sup> Accompanying these changes would be U.S. domestic policies that discourage reliance on foreign resources and provide incentives for increased energy self-sufficiency (Barnet, 1981; Lovins, 1977).

### *Economic*

The impact of our preparations for nuclear warfighting on the economy is obvious, as partially evidenced by functions one, two, three, and five. The policy of extended deterrence leads to an open-ended arms race that is projected to consume an increasingly larger portion of our tax dollars. Moving toward a policy of minimal deterrence will demand fewer resources of our economy and allow for more growth in nonmilitary sectors. However, the influence of the military industrial complex must also be curtailed and replaced by a more consciously considered economic program. We should acknowledge the piecemeal and uneven cooperation between the public and private sector, and admit consumer and labor representatives into the process as partners. The economic reconstruction program should consider explicitly labor, development, corporate, consumption and conversion objectives.

1. *Labor*: A program of job creation in the areas of infrastructure repair and (re)construction, mass transit, railroads, and energy construction; and education programs to provide individuals with talents and skills needed for a changing economy. This can be done through the tax structure, providing incentives to corporations to increase the number of jobs it creates and employee education or retraining programs it operates, while reducing tax benefits to corporations who relocate or destroy jobs without adequately preparing and compensating workers who are no longer needed.
2. *Development*: An increase in government supported, nonmilitary research and development, including guaranteed investments where appropriate, in the following areas: eradication of health problems such as high infant mortality, cancer, AIDS, and heart disease; energy conservation; environmental protection and clean-up; more efficient mass transportation systems; and renewable energy resources.

3. *Corporate*: The explicit institutionalization of a federal planning body, answerable to Congress, that guarantees consumer and labor prominence in its composition. This body will set guidelines and priorities for a federal corporate bank, which will encourage or subsidize particular kinds of investments it deems socially desirable.
4. *Consumption*: Assure that each person has a minimally sufficient bundle of the following essential goods and services: food, shelter, clothing, health care and education. This can be accomplished with minimal market intervention by the federal government through an income tax restructuring; through a combination of a nonmarket system of allocating a minimal bundle of essentials with a market system for the remainder; or by a combination of expanding current programs and altering our tax structure to exempt these essentials from taxation.
5. *Conversion*: Some of the current military industry will no longer be required, but the workers in defense facilities and the communities in which they are located should not be abandoned. A planning body of labor, management and community representatives should explore alternative uses for no-longer-needed defense facilities, with the objective of producing socially useful products. Federal legislation can mandate the formation of alternative use committees at each contract site, and provide economic support for the process by earmarking a portion of the funds from canceled military contracts.<sup>15</sup>

### *Political*

Political unity in the United States is based on the submission of individual desires and cultural diversity to a set of higher principles, such as liberty, freedom, and respect for others' rights. There is not only no need for solidarity through xenophobia, but this hysteria in fact undermines our civil rights, individuals' control of government, and our mutual respect for diversity. We should recommit ourselves to these ideals through our basic institutions of the family, schools, and church. Each of these can, in turn, benefit from increased (no strings attached) support from the federal government, through such policies as: increased funding for all forms of child care arrangements and larger tax credits for child care costs; assuring adequate pay for all laborers, especially females and minorities, in the work force; increased support of public education at all levels; and preventing



political interference in the operation of our religious institutions by strengthening the wall of separation between church and state. Once the artificial inducements for work within the "iron pentagon" are removed, the "best and brightest" will turn to serving their country in other capacities.

### *Social Psychological*

The source of our collective pride need not be our ability to destroy, but should instead reside in our ideals and principles, and the methods we use to implement them. We should be able to "walk tall" in the knowledge that we have promoted liberty, democracy and self-sufficiency through means that are consistent with their ends, rather than through the use of force. At home, individuals will have a greater sense of pride and accomplishment in their ability to participate in the political system and control their government. Less noble, but perhaps more important for long term human survival, is the need to roll back the growing "life-boat ethic" and replace it with a social solidarity ethic (Reich, 1985). Rather than viewing the rest of the world's "have-nots" as being out to take our resources, we must begin to see our mutual interdependencies and appreciate that our own survival and lifestyle depends on the well being of others. Rather than adopting a fearful "bunker mentality," our psychological well-being will be enhanced by improvements in the quality of life of others.

### *Cultural*

On the cultural level, there are innumerable alternatives to nuclear war based entertainment. The film, music, and videogame industries will turn to other sources of inspiration when the threat of nuclear war no longer has a mass public appeal. We have already begun to see the effects of improved communications with the Soviet Union resulting from U.S.-U.S.S.R. city-twinning projects; cultural, educational and scientific exchanges; collaborative documentaries and television specials; and other "citizen diplomacy" initiatives.

The enterprise of science also has innumerable options available to it, and is well-enough established to pursue them should the "iron pentagon" no longer require its services. Health, en-

ergy, communications, computer applications, conservation, genetic engineering, transportation and agriculture are but a few industries that could benefit from an influx of highly capable scientists and government funded basic and applied research.

The functional alternatives to nuclear warfighting preparations are obviously only briefly mentioned here; each is in itself worthy of volumes of discussion. The more detailed discussion of the functions of nuclear warfighting preparations is not intended as a rationale for the status quo. Rather, its purpose has been to demonstrate the complex interconnections of military buildups to the rest of our society and to point out the large number of vested interests outside of the "iron pentagon" in addition to the more obvious ones within. Many social forces in addition to belligerent leaders are responsible for the escalation of the arms race. We must change these too if we hope to alter our present course.

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### Footnotes

1. This implies that limits to the arms race have to be external, which could take one of two forms. The first is that technological changes can be proscribed and ceilings placed on all types of weapons, which is the goal some seek to achieve through arms control. The second is that as the resources required to maintain technological and infrastructural demands grow at an increasing rate, the military burden becomes larger than the political system can bear.
2. The MX missile funding was cut and stretched out in the FY 1983 and FY 1984 budgets, and the FY 1985 defense appropriation set conditions for delaying and halting funding altogether. In a compromise, the Administration agreed to reduced levels of funding and a cap on the number of missiles (100) for FY 1985. Further cuts, stretch-outs, and a lower cap (50) were set in the FY 1986 budget authorization. The FY 1987 budget further stretched the timeline for producing and deploying the fifty missiles. Technical problems with the guidance system and continuing Congressional skepticism regarding the utility of the MX make it highly unlikely that more than 50 missiles will ever be deployed.
3. For descriptions of the Eastern bloc dissident peace movement, see Gordon (1984), and Rubenstein (1983). Of course, the dissident groups' operations are greatly restricted in the Eastern bloc and in the U.S.S.R., but in conjunction with Gorbachev's arms control initiatives, increasing peace rhetoric, and recent *glasnost* efforts, the seeds for real reform may be beginning to germinate there.
4. Several caveats regarding my use of a functional analysis are in order before proceeding. 1) I would like to make it clear that I am not necessarily making claims of causality between the warfighting preparations and the function being described—sometimes the association is a spurious one, sometimes causal, and sometimes mutually causal. It is clear from the context which claim is being asserted. 2) It should be understood that the term positive function is not an evaluative term connoting goodness. 3) As with all functional analyses, the groups or segments which enjoy the positive benefits are either obvious or explicitly specified.
5. Globally, roughly \$9,000 billion was spent between 1960 and 1981 for all military expenditures (Sivard, 1982:6). The United States spent roughly \$1,700 billion on weapons procurement, construction, research, development and testing during this interval (U. S. Senate, 1983:11). Using a very conservative estimate of 15% of the total being dedicated to nuclear weapons (a standard defense department estimate), this implies \$255 billion for nuclear weapons investment between 1960 and 1981.

6. In FY 1984, the amount authorized for military R & D was approximately \$30 billion (U. S. Senate, 1983:3), and over the previous decade, 1974–83, the total was \$177.6 billion (U. S. Bureau of the Census, 1983:593). In contrast, the federal government provided only \$1.3 billion in FY 1984 to the National Science Foundation, and \$7.8 billion during the 1974–83 decade (U. S. Bureau of the Census, 1983:595).
7. It should be fairly obvious that the spinoffs from nuclear warfighting weapons have been relatively few and disproportionately expensive. This is due to the secrecy requirements of military research and the atypical requirements necessitated by military objectives. High technology consumer products could be produced much more cost-efficiently through directed civilian applied research programs. For a fuller discussion, see Reppy (1985). Because the dysfunctional consequences for each of the remaining ten functions are fairly obvious, they will not be considered explicitly here.
8. In his study of the eight largest defense contractors, Adams (1981) finds that during 1970–79, defense department and NASA contracts accounted for an average of 50% of their total sales. This ranged from a low of 31% for Boeing to a high of 82% for Grumman (Adams, 1981:34). Aldridge (1983:Ch. 11) presents data demonstrating that Lockheed's corporate profitability and survival depend on defense contracts.
9. Nor can there be any firm, independent data, because a major part of our fear rests on Soviet leaders' motives or intentions, which are not observable. The manner in which these unverifiable assertions over Soviet intentions are used to serve the interests of the hard-liners within the "iron pentagon" is examined in Sanders (1983) and Wolf (1984).
10. This undoubtedly works in an identical manner within the Soviet Union—fear and mistrust of the United States become a source of social cohesion and a political rallying point. Needless to say, the effects are probably even stronger there, due to their significantly more restricted sources of information.
11. The list could obviously be extended indefinitely, but for some of the more prominent and interesting career paths, the reader could follow those of: Hans Bethe, Frank Carlucci, Eugene Carroll, Noel Gaylor, Daniel Graham, T. K. Jones, Gene LaRocque, John Lehman, Roger Molander, Richard Perle, Hyman Rickover, Eugene Rostow, and Edward Teller.
12. Blechman and Kaplan (1978) and Ellsberg (1981) enumerate several episodes when nuclear threats were brandished in order to achieve desired outcomes.
13. Potlatch refers to the Kwakiutl American Indian ritual in which hosts would give their guests some of their material possessions to throw into a fire, thereby destroying them. This would be a demonstration of the host's strength or wealth—that he could afford to have his guests destroy it.
14. The Soviet Union's unilateral warhead test moratorium from August, 1985, through February, 1987, is an example of such an initiative, as is

the continuing U. S. ASAT test moratorium imposed by congressional funding cutoffs. Unfortunately, the political will to carry these initiatives further has proved to be insufficient. The recent INF agreement also could have served to increase momentum for more drastic strategic reductions (e.g. 50% cuts), but here too it is the political reluctance to take the next step that has blocked further progress.

15. For more in-depth discussions of the economic proposals mentioned here, as well as other alternatives, see: Barnett (1981), Bluestone and Harrison (1982), Gordon and McFadden (1984), Harrington (1982), Melman (1980), Mische and Mische (1977), U. S. Congress (1982), Zwerdling (1980).

