

## EXISTING IN A WORLD OF INSTITUTIONALIZED DANGER\*

Progress was a good thing once,  
but it went on too long.  
Ogden Nash

Garry D. Brewer\*\*

### I. INTRODUCTION

We live in a world of institutionalized danger. Our world has increasingly become beset with critical problems demanding timely and effective resolution; however, as the number and intensity of these problems have increased, procedures and mechanisms to identify, assess, and interpret them have either not kept apace or have become so overloaded that resolution has not happened. In a world dominated by life-shaping and life-impacting trends that have remained unexamined for so long, we have become unable either to comprehend or cope with them in productive ways. Ours is a world in permanent crisis, a situation resulting in decisions affecting millions which are routinely ignored or deferred--only to emerge later in more pressing form, which are made by only a few individuals under such pressure that thought and analysis scarcely occur, or which are not made at all.

The prospects for international cooperation and the likelihood to reduce levels of tension and insecurity are dim and increasingly uncertain. This grim assessment, including its more apparent causes and implications, demands society's fullest attention.

Various factors contributing to the assessment are sketched out in the following according to their most distinctive features of form and texture. The portrait that thus emerges could not be captured in a single glimpse, for it is still far too complex for ready comprehension. Six separate illustrative areas of concern were, therefore, analyzed to ac-

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centuate specific issues contributing to the whole. Summaries describing each of the six partial views are presented and interrelated to give one a sense of the confluence of features and issues.

A separate section integrates the specific issues just noted by listing each topically and measuring it against a series of operational questions. What is the issue's priority? How hard is it going to be to understand, answer, or resolve? Who is primarily responsible for the issue's contributory factors? All such questions are meant to focus our attention in constructive ways, for it is far too easy to despair about our dangerous world, while it is imperative that we confront that world solidly and with hope.

Many well established and critical trends exist in the total context that are simply "invisible" to all but a few specialists, are visible only if one is prepared to look at the right time and place, or are plainly in view, but whose future implications are not appreciated.

The overall perspective is necessarily a limited, highly personal one. It stresses one from a multitude of alternatives and it is biased, having been refracted through a unique set of lenses of experience, training, and concern.<sup>1</sup> The six partial views and related topical issues are stark and highly selective.

Limitations, biases, and shortcomings aside, the purpose of this essay is to stimulate and bring to full attention many broadly stated ideas. A basic message is that hyper and over-specialization have often caused us to lose sight of the broad view and have contributed to our current condition of out-of-control, institutionalized danger.

## II. PRIMARY FEATURES OF THE CONTEXT

### A. Population

The world's population in mid-1974 was estimated to be 3.89 billion, and was expected to reach 8 billion by the year 2010, some 35 years hence. Compared with a 1974 annual growth rate of 1.9 percent, Africa and Latin America were growing at

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1. In a nearly seven-year association with the research program of The Rand Corporation, I have acquired many of the experiences and most of the training shaping this essay. Among a variety of technical reports and documents these matters began to take shape; they are most explicitly drawn out in book-form in The War Game: A Critique of Military Problem Solving, a joint endeavor with my colleague Martin Shubik which is scheduled for publication in late 1977.

2.7 percent, Asia at 2.1 percent, Europe at 0.6 percent, and China at 1.7 percent. The United States and the Soviet Union were growing at 0.8 and 0.9 percent per year, respectively.<sup>2</sup>

There is scarcely a world problem that does not stem at least in part from a worldwide crisis of population growth.

## B. Weapons

World spending on weapons had, by 1975, reached an annual aggregate rate of nearly \$300 billion, or slightly less than \$100 each year for every human being on the face of the earth. The United States and the Soviet Union accounted for 60 percent of the world's military expenditures, but the countries least able to afford it registered the greatest percentage increases in arms spending in the 1960-1975 period. Military spending more than doubled during the period, and the Middle East led the way with an eightfold increase.<sup>3</sup>

The United States, beginning precipitately in about 1970, became enmeshed in an escalating, out-of-control arms exportation spiral that by 1975 had reached an estimated \$12 billion, a sevenfold increase on the average from the five-year period 1965-1970, and an amount sufficiently large to make weapons this nation's second largest class of exports--right after agricultural products. The U.S. Department of Defense arranges, manages, and controls at least three-quarters of all weapons traffic, and does so usually on a "government-to-government" basis. While such exports contributed to a positive U.S. balance of payments position, increasing the opportunities for scandalous conduct by arms manufacturers and "friendly allied" buyers, and improving the likelihood and capability of many others to kill and be killed, they actually diminished the national security of the United States in the near term by allowing certain high priority items to be exported that were needed to maintain minimal manning levels and equipment readiness in U.S. military units around the world.

Besides the United States, Britain, France, and the Soviet Union, Israel has recently joined in the rank of major weapons exporters in a big way. Israel Aircraft Industries is reportedly planning on selling upwards of \$100 million worth of its Kfir fighter aircraft, and the Peruvians and Venezuelans,

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2. United Nations, Demographic Yearbook (1976).

3. R.L. Sivard, World Military and Social Expenditures (1976). Sivard was, until recently, an economist associated with the U.S. Arms Control and Disarmament Agency. The report, it is commonly known, was originally prepared in 1972 under official aegis. However, it was withheld by former Secretary of Defense Laird on political grounds.

among others, are the likely buyers.

The purchase of such weapons tends to aid inflation; furthermore, it occurs at the expense of other kinds of public needs. The price paid was most dear for the countries least able to afford it. "Half of the world's school-age children are not yet attending school; one-third of the adults are illiterate. Governments spend two-thirds more for military forces than for the health care of four billion people."<sup>4</sup>

The need for some sort of restraint seems long overdue.<sup>5</sup>

### C. Europe as a Focus and Telltale

Basic contextual shifts in Europe have occurred and the calculus of conflict has been altered there in many interesting ways. With nuclear parity, Ostpolitik, and the emergence of the Chinese superpower, many of the smaller, traditionally dependent nations and ethnic groups have responded vigorously to pursue claims long repressed out of fear or necessity. Such acts are often conflictful and divisive.

At the national level, Turkey and Greece battled over Cyprus within the shadows cast by the nuclear superpowers and despite desperate U.S. negotiations and entreaties. Portugal's turn to socialism and Italy's to its own brand of communism both were probably not possible in pre-1975 European context.

At the ethnic level, the number and intensity of conflicts appear to have jumped upward in recent years. During periods of perceived, common threat, e.g., Cold War or crises, less stressful elements in one's operational setting tend to be repressed. With the reduction of such external threats, the individual's focus of attention may contract, sharpen, and intensify on localized issues. Such has occurred in Europe, and elsewhere, in terms of the reemergence of traditional, ethnic differences: Welsh, Scots, Basques, Irish, Bretons; Croats, Jura-Swiss, and so forth. Couple detente (or other symbolic aphorisms indicative of the contextual shifts toward nuclear parity) with economic improvements having distributional differences which are overlaid on ethnic, class, religious, or territorial ones, and the potential for conflict must increase, just as it has.<sup>6</sup>

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4. Id. See also N.Y. Times, Feb. 29, 1976, at 1.

5. The dominance of weapons in current international negotiations and dealings has reached such a point as to be corrupting and grossly distorting. Sterile assertions that we must provide weapons reflect gravely on the poverty of thought and the dangerousness of the practice.

6. The phenomenon has taken hold around the world and suggests that many powerless groups will turn to terrorism and other weapons of the weak to pursue their claims, e.g., the

#### D. The Soviet Union and Europe

The Soviet Union continues to suffer from a modified form of national paranoia that has, with ample justification, shaped that nation's international policies and attitudes. The deeply embedded experiences of the post-revolutionary Soviet leadership persist; however, an obvious point is that by 1985 none of the leadership having memories of the revolution will remain, only a few who participated in World War II will be around, and most control will reside with those whose perspectives have been shaped by post-W.W. II experiences. If the Soviet Union can survive the up-coming, significant change in its leadership without resort to excessive internal disruption or without the emerging leadership's having to create extravagant, unifying symbols of external danger, e.g., heating up the Chinese, German, or American "threat" as a diversion from an internal transfer of power dilemma, then the prospects for reaching some significant, not illusory, understanding with the Soviets may increase. The upcoming ten years are going to be frightfully difficult--for the Soviets and for the world.

Despite contradictory evidence, Angola most recently, a long term and overall assessment of Soviet foreign relations since World War II proves to be not much worse than our own. Yugoslavia in 1948, Rumania in 1963, and Finland all have obtained and/or maintained some measure of independence from the Soviet Union. Czechoslovakia in 1968--and Hungary, Poland and East Germany before that--were all severely repressed, but each has since attained some relative measure of autonomy. The Czech case is perhaps the least clear of this set, but even in this juncture, one could argue that their 1968 tragedy served to consolidate Brezhnev's power, without which there would probably have never been a 1971 Berlin Agreement, Ostpolitik, or any of the lesser agreements that, taken together, have been labeled detente.

### III. TRENDS IN U.S. STRATEGIC POLICIES

The institutionalization of danger has not just happened, but has developed over a period of years, as can be recalled by summarizing the shifts and starts of U.S. strategic policies in the last fifteen years or so.

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Ainus, to cite only a recent, unexpected example, bombed a tourist spa in Sapporo in Northern Japan. Though Polish-Americans and other hyphenated Americans have noticeably asserted themselves lately, the extent of their deprivational differences has not been so great as to provoke more extreme behaviors.

A. A Survey: 1962-1975

The clear strategic superiority held by the U.S. in 1962 was down played by defense planners as they portrayed the threat of a large Soviet intercontinental ballistic missile (ICBM) force as being just over the horizon, or in any event, only a year or two away. (It was more than ten years away.) The basic U.S. strategic mission was to deter war by maintaining a capacity for the destruction of the enemy's war-making capability. Civil defense was a live public issue. Hence, at the beginning of 1962, our strategic policies are best seen as a mix of Assured Destruction (AD) and Damage Limitation (DL).

In 1963, AD received more emphasis. We were to achieve deterrence by not only being able to destroy the enemy's strategic nuclear forces and other military targets ("counterforce" in the jargon), but also by being able to destroy his urban population, if necessary ("countervalue"). A second-strike force was built to enhance our AD capability, and a protected force was to be employed or held in reserve for the second task. These discussions were carried out during the "Golden Age of Systems Analysis." A rereading of practically any document advocating the specific weapons intended to accomplish these missions is startling, e.g., bald assertions of the destructiveness inherent in each system for each dollar expended; incredible presumptions about the costs of building, operating, and maintaining any of these systems; and blatant assumptions about imagined conflict, which altogether amounted always to a "worst case analysis" mentality. Worst case analyses are where the enemy threat is overplayed and our current capability to contain that threat is never fully disclosed, except in terms of the future when a proposed weapon system x would be implemented in all of its glory.<sup>7</sup>

By 1964, U.S. policy shifted dramatically. Our retaliatory forces now had to be able to destroy the Soviet society fully, under all conceivable conditions--and to be visibly able to do so. Plus, these same forces should be able to limit destruction to our own cities. However, virtually all discussion

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7. No one has ever done a retrospective and comprehensive examination of the quality and uses of military analyses in the last decade or so. However, such would be a most instructive and revealing endeavor, were it done authoritatively and well. A rare instance, for one particular analysis, is T.A. Brown & E.W. Paxson, A Retrospective Look at Some Strategy and Force Evaluation Games (Santa Monica, Cal.: The Rand Corporation, R-1619, September 1975), from which several of the ideas in this section were derived.

and cash were devoted to strengthening AD, and DL was relegated to an occasional rhetorical flourish.

In 1965, the concept of Assured Destruction, around which three or four years of thinking, planning, and spending had been devoted, was for the first time defined. AD meant that one-fourth to one-third of the Soviet population would be killed, and two-thirds of the Soviet industrial capacity would be destroyed. Once defense analysts were confident about being able to attain AD, as defined it meant killing 50 to 60 million Soviets, then whatever resources were left would go to Damage Limitation (DL) efforts. Civil Defense funding at levels ranging from \$5 billion to \$25 billion were routinely discussed in public accounts, but actual expenditures for this were about \$150 million in 1965. Anti-ballistic missile (ABM) planning, development, and testing began in earnest.

In 1966 strong resource pressures to conduct a conventional war in Vietnam limited the concept of AD as a rationale, in the sense that it had been nearly achieved and the marginal return for added AD investment was diminishing. We were running out of Soviet cities to target. However, confusion about DL measures, and the likely Soviet response to them, reigned, and civil defense was quietly dropped, even as a rhetorical issue. However, ABM continued and grew in importance.

By 1967, AD was redefined. Now only one-fifth to one-fourth of the Soviet population and one-half to two-thirds of the industrial capacity had to be obliterated to assure destruction. DL was set aside, in fact, with a commonly stated argument that U.S. attempts to increase DL would only encourage the Soviets to increase their attack forces, and conversely. The logic seems acceptable enough, but one wonders why it was not applied to AD as well. Anti-ballistic missile deployment, by then advanced to a stage of large cash outlays for Safeguard and Sentinel systems, was seen to be mutually disadvantageous, but an institutional inertia had taken hold that eventually led to the full implementation of one U.S. site by 1975.

AD remained the mainstay of deterrence in 1968. All pretext to DL was removed, it was judged not to be effective; however, if the Soviets were to continue with their ABM, then we had to follow suit, despite the argument posed as early as 1967, noted above.

In Defense Secretary Clifford's 1969 budget message to Congress, it is clear that the U.S. would continue to have a qualitative lead and a solid superiority in both the number and overall combat effectiveness of strategic weapons. AD was the only aspect of deterrence; no mention was made of DL. Safeguard ABM deployment continued, however.

A predominant assumption of strategic thinking in the

late 1960s and early 1970s was that of "coercion." We must maintain sufficient strength that we could coerce an enemy, either to avoid initiating a nuclear war or, failing that, sufficient strength to coerce an enemy into cessation. However, no one ever bothered to define coercion and no one ever thought about what would be needed to produce cessation. Secretary Laird reflected a shift in thinking in 1970 and rationalized ABM deployment as a means to protect U.S. cities against the Chinese ICBM threat or to defend Minuteman ICBM silos against an improving Soviet first-strike capability.

Out of this diffuse thinking about our strategic policy came the notion of "sufficiency" in 1971, by which was meant a maintenance of forces sufficient to prevent the U.S. and its allies from being coerced. Sufficiency merely added to the previous confusion by making such objectives even more obscure. Replacing the AD concept, it was now inconsistent with the sufficiency concept to plan strategic forces solely on some finite, theoretical, capacity to inflict casualties presumed to be unacceptable to the other side.<sup>8</sup> However, what was sufficient was left sufficiently vague enough to allow it to mean just about anything the weapons planners and builders wanted it to mean. Wedding sufficiency to the concept of coercion did little to clarify operational objectives or procedures either.

The Nixon era came to full strategic flower with the concept of "flexible strategic options." No Chief Executive, so it was argued, should be left with only one strategic course of action, the mass destruction of enemy civilians and industrial facilities. Hence in recent years, we have seen efforts to create LSOs and LNOs, limited strategic and limited nuclear options, respectively. As with AD, DL, sufficiency, and coercion before, one does not know exactly what these concepts mean . . . except more of the same for weapons development and continued opacity on the policy side.

The so-called "posture statement" delivered in 1976 by then-Secretary Rumsfeld coined the term "Assured Retaliation" to describe our newest strategic concept. It means that we will maintain an assured second strike capability and plan for multiple limited strategic and nuclear options short of a first

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8. It is remarkable how precise are our calculations in areas where no one has experience, such as nuclear war, and how guarded and qualified these same calculations become as we in fact do have data, such as conventional war. The arrogance of strategic calculators of the 1965-1975 era is quite like that of the freshman algebra student who tailors his problems to the few tools he has at his disposal and presumes that all problems are thereby solved. It, like much strategic enumeration, is a fool's wisdom.

strike that will enable us to maintain strategic flexibility. Not one single word in the posture statement is devoted to the topic of assured destruction, for the first time in over twelve years. However, no one has yet to define a limited strategic option. What is it? What is going to be done, by whom? The bomber force has been emphasized in military discussion of LSOs, and some replanning of bomber missions has occurred as a response to the demand that we have options, but even here one must ask whether the concept is receiving little more than cosmetic modifications from the earlier efforts to assure destruction. Who is to initiate a limited option? Who is to carry it out? What is the purpose for such a conflict? These simple questions continuously arise, but no answers are given by its advocates.

Assured Retaliation also requires more thoughtful attention than it has been given to date. One must assume that such an idea means that the Soviets are expected to launch a first strike; otherwise, what are we going to retaliate against? However, the Soviet Union has bent extraordinary efforts in the last few years to protect its citizenry through civil defense (twenty or more million persons participated in such drills in the summer of 1975). Were the Soviets to take the first step, one must assume that their citizens would be as protected as possible, and, if so, what are we going to retaliate against?

The FY 1977 military budget will probably exceed \$120 billion, depending on last minute add-ons demanded by the Executive Branch. Looming large on the horizon is another destructive round of Navy and Air Force propaganda assaults reminiscent of the late 1950s and early 1960s. The Navy wants desperately to produce Trident submarines in numbers, and the Air Force sees this to be counter to its desires for the B-1 and MX ICBM programs. Budget debates in the late 1970s will likely be filled with lurid claims and counter claims about this "threat" and that "capability," but claims whose strategic conceptual content remains unexamined and beclouded by the heat of partisan debate.

Coupled with the quest for LNOs and LSOs and for more of the same big weapon systems are efforts to reduce strategic arms through mutual agreements, or strategic arms limitation talks (SALT). There is a serious "Catch 22" to SALT, however, which has only reinforced many of the old and destructive institutional impulses.

#### B. SALT: Bargaining Chips, Pot Limit Poker; and Strategic Policy in the Next Decade

Recent appeals from administration officials for increased strategic spending pose this anomalous argument: We must spend more dollars for various "bargaining chips," to be tossed on the

negotiating table to enable a SALT talk to be successful), and we must also spend more dollars, should these talks fail. Win or lose, attempts to limit strategic arms through negotiation are only adding to the number and potential destructiveness of the respective arsenals.

Secretary of Defense Rumsfeld argued that the Soviets will threaten our Minuteman ICBMs with a large force of high-yield, accurate, and MIRVed missiles. The conclusion of this argument usually follows that we must replace our current missile fleet with the new MX series, at an estimated cost of between \$20 and \$30 billion. His predecessor, it needs be noted, consistently argued that this was infeasible. Our entire Minuteman force could not be knocked out by a Soviet first strike because of unreliability, uncertain accuracy, and readiness fluctuations; in other words, this kind of operation would always present an unacceptably high risk.<sup>9</sup> Furthermore, the triad of bombers, submarines, and missiles would be secure as a total deterrent system, no matter how vulnerable the missiles became.

The "heads we lose, tails they win" logic of current policy arguments can be seen clearly in the following terms. At Vladivostok in 1974, a ceiling of 1,320 MIRVed missiles was set for both the U.S. and the Soviets. The Soviets did not then have such a missile force, but when they do, they will in theory have adequate warheads to threaten Minuteman. One can only conclude that the ceiling was reached mainly to keep clear of on-going Pentagon programs, not to limit or reduce strategic arms. SALT will have no effect on the B-1 bomber, selling at three for a billion, the MX, at \$20 to \$30 billion for a set, or the Trident missile carrying submarine, whose costs vary widely depending on who negotiates with whom, and when the negotiation takes place. At the moment, all of these and several lesser programs represent an increase, at the margin, in strategic spending for research and development alone from the FY 1976 level of \$7.3 billion to a reported FY 1977 budget of \$9.4 billion.

A major longer-term and serious current flaw in strategic thought can be succinctly summarized as follows:

- ° A fifteen to twenty year preoccupation with the ideology of Assured Destruction, specifically its conceptualization and operationalization in succeeding generations of weapons, has led to the

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9. The venerable idea of "calculated risk" enters at this point. Often loosely and confidently used in practice, one never encounters the calculations themselves. What is risk? How does one calculate the same?

development of a large, out-of-control violence system or institution.

- ° Damage Limitation impulses have never been well cultivated over the years, and in any event have always been secondary in importance, attention, and budget to those related to strategic destruction.
- ° To appease those responsible for the violence institution, by allowing them to produce and deploy new weapons year after year, those interested in strategic arms limitation have had to resort to the use of "bargaining chips," i.e., press development of weapon x (which the violence specialists were going to build anyway) so as to have a chip to play in the next hand of strategic, pot limit poker. In the process, however, no one ever seems to have asked the name of the poker game, but it is beginning to look distinctly like a nuclear version of "show down," called "murder-suicide."
- ° Hence, we spend more dollars for new weapons to insure success in strategic arms limitation negotiations, and we also spend more dollars as a hedge against failure in those negotiations.

This flaw must be examined and corrected, and the longer term policy responsible for it and the violence institution must be reexamined and changed.

The greatest potential threat to international peace and a major source of rapidly deteriorating levels of individual and collective security is an institution of our own making.

#### IV. THE CONDITIONS FOR INSECURITY

##### A. A World of Institutionalized Danger

Violence specialists throughout the world appear to have gained a strong upper hand, and nowhere is this more remarkable than in the United States and the Soviet Union. An ideology of win appears to have overpowered clear thinking and fueled the cancerous development of violence institutions both here and abroad. Sadly, few have stopped to think enough or ask loudly or often enough what game it is that we are trying so desperately to win. It looks distressingly like murder-suicide and the

opportunities to fold in one's hand so as to play some other game diminish as the stakes continue to build.

The technological dimension has become so large that responsibility for weapons has devolved through time to many different skill and managerial specialists. This devolution carries with it high costs. While a technical specialist may move competently, such individuals seldom show concern for the direction of that movement. Furthermore, with the proliferation of technical skill groups, there is attendant diversification of outlook, preference, and loyalty. Morale and social cohesion become strong issues, and the requirements to maintain each is met, increasingly in our modern societies, by sophisticated propaganda--or symbol manipulation.

The depiction in Figure 1 accentuates this point to make its essentials clear.

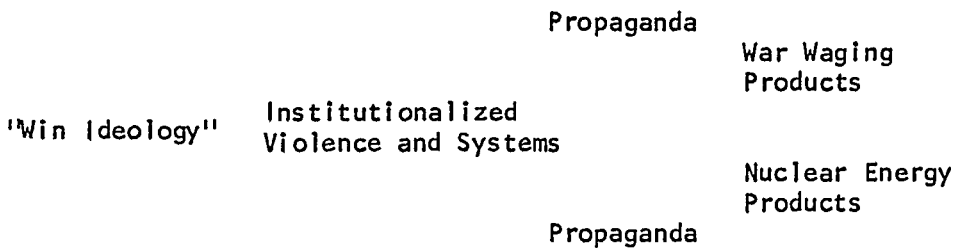


Fig. 1--The Violence System

The 'win ideology' embedded in our strategic thinking has created strong institutions devoted to the production of war-waging and nuclear energy products, either category of which could be further subdivided into its constituent, specialized products. The creation of such products has in turn been further stimulated by the manipulation of symbols or propaganda whose basic function has served to reinforce the need for more specialization and greater development of the institutions and systems responsible for the products. The total system has been stimulated by an ideology whose main components are not logically consistent and whose premises and initial rationalizations have too long been unexamined. The system itself is sustained and grows through a positive feedback of propaganda.<sup>10</sup>

There are several points which may need investigation and change: Reexamination of the ideology from many different

10. See J. Ellul's brilliant and worrisome Propaganda (K. Kellen & J. Lerner, trans. 1973 ed.).

points of view; analysis of the full extent of the institutions and systems of violence; review of the products for what they are; and measures taken to redirect their institutional bases to other pursuits. Currently we have "capabilities in search of threats," and threats in search of capabilities." Either way, it makes the violence system self-sustaining. Rather, the propaganda feeding the enlargement of the producing institutions needs to be altered, tempered, and mediated.

For instance, one concrete form taken by this propaganda is the absolute dominance of research and development (R&D) thinking and funding by several instrumentalities of the Department of Defense. Were the Office of the Director of Defense Research and Engineering<sup>11</sup> and the Defense Advanced Research Projects Agency, to name two obvious arms of the system, to have their considerable funding removed and placed under the control of the National Science Board, then perhaps the narrow and self-amplifying feedback loop would significantly change and hence so, would the institutions and systems. If the information contained in the two feedback loops were subjected to open investigation and debate, as happened with the anti-ballistic missile system in the early 1970s, then perhaps the adjustment and modification of the system might take place.<sup>12</sup> The following six separate pictures illustrate what the violence system has engendered.

## B. Six Pictures of Institutionalized Danger

The first picture concentrates on proliferation and the use of nuclear weapons and does so from the perspective of possible conflict in the Middle East. This is consistent with past patterns of instability in that troubled area and with recent, huge increases in the procurement of weapons and nuclear capabilities.

### 1. The Shah and the Bomb

Iran has embarked on an amazing program of nuclear energy development. Twenty, one-thousand megawatt reactors have been programmed to be in operation by the end of the 1980s. These reactors will be producing sufficient plutonium to build hundreds of bombs each year. The total energy consumption of Iran in 1975

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11. The Director in 1975 was brought to task for consorting with defense contractors at a Caribbean retreat. He has since taken a position with one of the largest defense firms.

12. Operations Research, Vol. 19 (Sept. 1971).

was only 14,000 megawatts.<sup>13</sup>

Iran is also planning to buy plutonium reprocessing facilities, ostensibly to prepare fuel for the next generation of reactors. Not normally noted, however, is the fact that such reprocessing facilities are equally capable of producing weapons-grade materials. The Shah will be able to build and deliver his own nuclear weapons by 1982, according to the present schedule. This great leap into the nuclear age has been aided by the hiring of the head of Argentina's nuclear program and many of his technical associates. Iran's grave political instability in the past years facilitated that move.

The basic problem is petrodollars. Lacking sufficient domestic incentives for productive investment of these wind-fall resources, the Shah has embarked on an ambitious and potentially devastating program of nuclear energy development. Uranium reactors represent an easy way for nations such as Iran to make an otherwise impossible "great leap forward." The need for the developed nations to provide alternative, safe investment opportunities to absorb these funds, in other than nuclear and war-waging products, is striking. Nuclear reactors are commonly regarded as an interim step in the ultimate development of peaceful energy sources. We must insure that the interim is as brief as possible to avoid unnecessary and dangerous proliferation of nuclear plants. The need for the developed nations to create and deploy the next generations of energy sources as a substitute for the nuclear option could not be more pressing.

Developing a nuclear reactor capability needs to train technicians to man and operate these reactors. For Iran, and other nations, this step has been facilitated through the employment of skilled foreign technicians and through the crash training of their own domestic technicians. The development of the reactors themselves has been facilitated by the purchase of French and German technical talent and by contracting for "turnkey projects," i.e., reactors that are complete and ready to run at the turn of a key. In the Iranian case, there are about five to six years left before the "turnkey" reactors will be on-line, producing power and plutonium. For those who doubt that an underdeveloped nation can train an adequate number or quality of nuclear technicians, one needs only refer to the Indian case and the recent explosion of that country's own nuclear weapon: euphemistically referred to as a "peaceful

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13. I am indebted to George Quester, a former colleague at the Center for Advanced Study in the Behavioral Sciences, for sharing his concerns, which he develops and enlarges in "The Shah and the Bomb," 8 Policy Sciences 21 (1977).

nuclear explosion," or PNE.<sup>14</sup>

Institutional controls seem to exist, but these are flimsy at best. A Middle East Nuclear Free Zone has been proposed, but its Latin American counterpart indicates that such an exercise is empty, containing the "peaceful nuclear explosives" loophole. Brazil, thought to be on the verge of producing its own weapon, has resisted even this small gesture toward control and restraint. The International Atomic Energy Agency (IAEA) could be cited as a positive control over the misuse of nuclear energy, but here too there are significant limitations. IAEA has but 67 inspectors to cover some 469 nuclear sites worldwide in 1976, and it has been estimated that there will be on the order of 1000 such sites by 1980.<sup>15</sup> The major discrepancy in the actual operation of the IAEA is one related to propaganda efforts, the lower feedback loop shown in Fig. 1. Two-thirds of the IAEA budget is devoted to the promotion of nuclear energy, mainly through its so-called "nuclear power planning study" mechanism. Less than one-third of its budget, or about \$37 million in 1975, went to inspections and other regulatory efforts. Promotional propaganda leads simply enough to proliferation, not to restraint.

Complicating the Iranian case and making the whole picture of the Shah and his bomb more ominous is the current state of governance in that nation. The Shah runs the country. There is little or no governmental infrastructure. An accident, such as an assassination, would be disastrous for stability in Iran and would present increasingly grave danger to the world as Iran's nuclear reactors come on-line. This potential instability is reinforced by American desires, stemming from the "win ideology," to use Iran as a buffer and counter to the Soviet Union in that particular area of the world. In a passion to assure that the Soviet Union can be destroyed, indirectly through a strong Iranian ally, the United States has ignored the potential inherent in the nuclear reactors that the Shah has so vigorously sought. Moreover, the United States has provided him with an impressive nuclear delivery capability as well in the form of the "Tomcat" fighter aircraft.<sup>16</sup> In this case, there is a syner-

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14. The Arms Control Report (U.S. Arms Control and Disarmament Agency, Publication 89, July 1976), is instructive on these and related issues.

15. Walske, "Nuclear Electric Power and the Proliferation of the Nuclear Weapon States," 1 Int'l Security 94 (1977).

16. In an unattributed interview, one formerly high-ranking defense official noted that Iran would never be able to counter a determined Soviet advance in the Middle East; however, with nuclear weapons, "the Shah could probably rip off a Soviet arm or a leg." This individual was unconcerned about the Shah's

gistic effect between U.S. desire to produce and sell weapons, a nuclear reactor capability, and U.S. ideological thrusts in the murder-suicide game. The sum of all these factors has not been adequately considered.

Several more hopeful signs exist worldwide, however.

South Korea has recently been denied a similar nuclear reprocessing capability through the quiet acquiescence of the French and the resultant cancellation by the Koreans of their reprocessing facility. West Germany, however, continues to plan for the delivery of such a plant to the Brazilians, and the French continue (despite demurrals) to promote their technological prowess in this field to the Pakistanis. Neither Brazil nor Pakistan has signed any non-proliferation treaty.

What is needed, besides the specific proposals noted for the Iranian case, are regional, multi-national fuel recycling centers to meet the world's near-term energy needs safely. Also needed are more detailed, open, and scientifically informed inquiries into the likely implications and future developments of apparently "safe" technologies, such as those carried out in Sweden but in few other places.<sup>17</sup>

## 2. Big Power Accident: Communications, Command and Control

For a number of complex reasons, there is growing realization that the war-waging capabilities of the United States and other nuclear nations may not be as subject to political control as they should be. The heart of any large-scale and far-flung defense system is communications, but the present state of the United States' military communications system, and hence its controlling links to the weapons of mass destruction, is poor. Not only are command and control of weapons questionable, but we know very little about end-of-war bargaining and negotiations, in theory, structure, or process. Both of these issues become obvious by simply asking the following question: Were a nuclear weapon to be used, no matter what the reason or who initiated the use, would the involved parties

impending bomb-producing capability, and was delighted about his procurement of other weapons. Current sensational revelations about the acquisition of the F-14, "Tomcat" only reinforce our concern.

17. See Stockholm International Peace Research Institute, Safeguards Against Nuclear Proliferation (1975); and idem, World Armaments and Disarmament (1975), for a collection of thoughtful essays on this topic. Professional societies, worldwide, have an unrealized responsibility to perform this forecasting and appraisal function.

be able to terminate the conflict even if they wanted to? Both technical and socio-political information necessary to answer the question are in critically short supply.

At the moment, military commanders rely on commercial cable, satellite channels, and two unreliable parts of what should have been a military global satellite system. About two-thirds of all international military message traffic currently flows over commercial communications facilities--one-third over cable and one-third over satellites. The Defense Department leases about 200 commercial channels, and the current cost for this for the three year period, 1975-1977, totals about \$1.2 billion. A prime question is why the commercial operations are able, technically, to maintain reliable service and why the military is not. This is not to say that there is no attention and money being spent on these matters, e.g., the NAVSTAR global positioning system, which will in theory yield positional information that will enable bombers, missiles, and ships to determine where they are to within 30 feet of true location, is being pressed into service at an estimated cost of at least \$1 billion. It is to say that the delays and cost overruns in building a reliable communications system continue and the possible loss of command and control over the weapons of war grows.<sup>18</sup>

The issue of war termination has not received a fraction of the time and attention it deserves.<sup>19</sup> The existing literature emphasizes the problem of communicating the willingness to terminate and the terms for negotiating an end to armed conflict. Ambiguity, misperception, and distrust in termination communications have all been noted at one time or another in this regard. The problem of coordinating military and diplomatic actions during war is exacerbated by an unwillingness or simple failure of the political leadership to engage in "peace planning," the relationship of military strategies with diplomatic-termination strategies. Typically, peace planning has been avoided, and when wars near conclusion, evidence of coordination between military and diplomatic initiatives is usually absent.<sup>20</sup> We have,

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18. These problems have been well known within the military community for some time. Open discussion of them has surfaced occasionally in Aviation Week, and even U.S. News & World Report (Mar. 8, 1976), at 89-91, picked up on the issue.

19. F. Ikle, Every War Must End (1971), is a modest, historically derived account. But cf. Foster & Brewer, "And the Clocks Were Striking Thirteen: The Termination of War," 7 Policy Sciences 225 (1976).

20. Besides deficient pre-planning, several other conditions normally exist that impede rapid termination of wars: domestic political concerns, cries of "treason," and loss of control of war-making to the military have all, at various times,

in our strategic thinking and force deployment, come to expect that the military will be responsive to politically imposed constraints on action and to expect that the political leadership will be able to monitor the battle situation and to communicate those constraints as the situation changes. Such expectations require close examination in the nuclear, as opposed to conventional or limited, warfare setting.

In the limited, conventional war context, there is adequate time to formulate and negotiate termination conditions before the military eliminates either side's capability to continue or wrecks unacceptable damage on the combatant's civilian populace. In the nuclear context, the time element is greatly diminished while the destructive potential increases drastically. Time is not measured in years or months, but rather in minutes or seconds. Potential destructiveness is not measured in tens or hundreds of casualties sustained over lengthy periods of time, but rather in terms of thousands or millions of deaths inflicted in moments.

Nuclear war is likely to end in ultimate destruction before anyone has time to consider why there was a war in the first place, let alone what would constitute grounds for its limitation or end.

Deterrence thinking and the "win ideology" have provided little indication that the nuclear powers would be restrained. Both the United States and the Soviet Union have emphasized unlimited, spasm strategic attacks in the event of nuclear war, e.g., Assured Destruction, Assured Retaliation. However, no nuclear "rules of the game" exist by which the purposes and intentions of either side might be communicated by a combination of words and military actions. Though strategic thinking has emphasized limiting escalatory incentives and ultimate destruction of warfare, it has not related war initiation and conduct to a clear termination concept.

In advancing the Limited Nuclear Options concept, former Secretary of Defense James Schlesinger at least recognized this problem, but he did not come to grips with it. Previous strategic thinking and doctrine, "neither contained a clear-cut vision of how a nuclear war might end, or what role the strategic forces would play in their termination."<sup>21</sup> Limited options as a concept has been endorsed by relating it to early termination: "To the extent that we have selective response options . . . we may be able to bring all but the largest nuclear con-

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been prominent. For a review of the literature, see Wallace Theis, "Searching for Peace: Vietnam and the Question of How Wars End," 7 Polity, 305 (1975).

21. J. Schlesinger, Annual Defense Department Report (1974), at 36.

flicts to a rapid conclusion before cities are struck."<sup>22</sup>

Unfortunately, Schlesinger did not indicate how or why a limited nuclear war could or should come to a "rapid conclusion" any more than a limited conventional one. One must wonder whether military limited options planners have a strategy for bringing early termination, or, are they planning options which, failing early termination, lead rapidly to an all-out attack? Considering that the institutions responsible for this planning have traditionally prepared for all-out attacks and lacking any clear concept of war termination, the latter possibility seems more likely.

Few well established and rehearsed procedural rules exist to guide adversaries, should they wish to terminate an in-progress nuclear war. Certainly no precedents exist. For instance, should someone initiate a preemptive attack, there are strong incentives for the first aggressive actions to be taken against communications systems: the launch of anti-satellite missiles meant to blind and degrade one's ability to detect incoming missiles and bombers or the purposeful decapitation of primary command centers so as to parry an expected counter-thrust. However, a resort to perfidious scenarios is not necessary to arrive at much the same uncomfortable situation with respect to command over the war-making machinery and control of the ultimate destruction inflicted on all parties.

Blinding, degradation, and the loss of control may occur simply as a result of high altitude nuclear detonation; no one really knows with sufficient confidence what the worldwide communications implications of such an explosion would be. Should communications between political leadership and military command posts be interrupted, responsibility for the conduct of nuclear war transfers eventually to a number of dispersed military command centers. What are the consequences? The military personnel in charge, one can assume, are primarily motivated by what one could call war-conduct incentives; they are responsible primarily for carrying out large-scale, pre-planned strategic retaliatory attacks to achieve the greatest possible military destruction. Defining limited objectives, constraining operations to conform to such objectives, and negotiating war termination short of all-out attacks are not part of their training or assigned responsibilities. Nor is it clear that the necessary coordination and control of operations would be possible in such a "headless" war.

The creaky military communications system being what it is and considering all of these unexamined problems, one has the bitterly ironic vision of a political leader trying to find a dime and an undamaged telephone booth so that he might call a

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22. Id. at 380.

mountain command post to try to stop a nuclear war.<sup>23</sup>

### 3. Intentional Big Power

Popular thought allows that a direct attack by one nuclear power on another would be suicidal. This is, of course, the keystone of deterrence thinking. However, little attention has been devoted to a deceptive initial gambit as one means to reduce or delay a suicidal, retaliatory response.

If a great power were to initiate nuclear war intentionally, it would probably be through a deceptive move. Alternatively, were a great power to initiate a conventional, limited war it would probably be as a result of a self-deceptive miscalculation of the risks inherent for doing so.

Deception has been a normal matter in the practical conduct of international affairs, but surprisingly little scholarship exists related to the topic. Needed in this area is the development of a base of information of those instances in international affairs where deception has been employed. There is some literature on this, but it is far from the mainstream of scholarship and active concern and barely relates to operational doctrine or strategy.<sup>24</sup> Having such information would allow one to move on to the creative tasks of figuring out ways to practice deception better, more effectively, and more efficiently, and hence, figuring out what might be done to counter the typical forms discerned in history.<sup>25</sup>

Deception calls to mind the need for more and better in-

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23. The celebrated blackout during 1976's first Presidential debate contained an ominous message for us all.

24. R. Wohlstetter, Pearl Harbor: Warning and Decision (1962), is an excellent work, but it has failed to stimulate much activity in this area, despite many research leads it contains. See B. Whalley, Codeword BARBAROSSA (1973), for an excellent source of ideas and experiences on this topic. B. Whalley, Strategem: Deception and Surprise in War (Center for Int'l Stud., CIS-C/69-9, 1969), provides a veritable goldmine of pertinent information.

25. This task has been begun and produced some interesting preliminary results. See W. Harris, On Countering Strategic Deception (The Rand Corporation, R-1230, 1976). Besides coining the clever label, "sprignals"--meaning "spurious signals"--another interesting feature of both the Whalley and Harris works is that they have been developed entirely with open, unclassified, published sources.

telligence studies and procedures.<sup>26</sup> One would have to be able to determine the source of a deceptive first strike as rapidly and accurately as possible, e.g., was it a Soviet weapon, a Chinese weapon, a terrorist's weapon? Miscalculation or misperception would be deadly. Hardened, deep-space vehicles to aid in answering this question, placed under international control for instance, would seem to be one interesting option for consideration. However, Buck Rogers' appeals for more technology are by themselves insufficient. One should also examine current intelligence reporting procedures from the point of view of securing information about intended and actual deceptive moves as fast as possible. The current situation, where floods of data, not hard information, routinely inundate busy decisionmakers needs to be reappraised from top to bottom. Communications could collapse under the strain of time urgency in a nuclear, crisis context, even without the added uncertainty of having sustained nuclear damage. In the avalanche of priority messages directing this unit to go to alert, or that unit to come into positions of highest readiness, one would expect other messages meant to explain errors and to correct oversights would be buried and left unread and unexecuted.

Other intentional big power uses of nuclear weapons can be imagined. For instance, the ground warfare that persists along the Chinese-Soviet border could easily flare into a wider, nuclear conflict. Were nuclear weapons, "tactical" probably, to be used in this setting, how would one be able to know the source and whether a claimed mistaken use was in fact a "mistake"? Were the Soviets to make the first move, what kinds of controlled responses would be called for, by the Chinese? By the United States? Might we provide the Chinese with a launch-on-warning capability, tell the Soviets that we were doing so, and then remove ourselves from the direct confrontation in hopes that this minimal involvement would be sufficient to stifle the next, dangerous moves?

The usability of nuclear weapons is built into them; they have been designed and primed for ready use. Whether through deliberate decision or for some other reason, the actual use of such weapons would result in a horror so great that responsibility could not possibly be assigned to only a few men. The blame would belong to the system that failed to avert the horror. We need to reduce the danger inherent in the modern engines of war, and such should be a topic for discussion in

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26. See McDougal, Lasswell & Reisman, "The Intelligence Function and World Public Order," 46 Temple L.Q. 365 (1973). See also Colby, "The Developing International Law on Gathering and Sharing Security Intelligence," 1 Yale Stud. World Pub. Ord. 49 (1974).

future arms limitation discussions. We should think through methods and procedures to insure the "reversibility of crises," for in the current situation a crisis is more likely to work its way up, ratchet-like, to the use of nuclear weapons, but it is not likely to wind its way back down with equivalent ease. The Sino-Soviet situation calls attention to the fact that international relations studies of the future should focus on local sources of conflict that are likely to lead to confrontation. What risks are inherent in changing alliances? What is likely to follow from the increased intermingling of nuclear forces in distant oceans, on remote land masses, and in space?

These issues have not been examined in sufficient detail, and as long as nuclear weapons proliferate as they have been, we must expect and be prepared for the fact that they will be used, sometime, somewhere.

The problems of perception and signaling are fundamental in the international context, but we have not yet undertaken enough systematic investigation of these topics to know with certainty just how much or how little impact different versions of the same situation will have on real world outcomes. For example, what differences exist in terms of perception, risk, and likely decisions that might be taken in various likely conflict situations? How can misperceptions and miscalculations be spotted early enough that appropriate actions can be taken to avoid the resort to armed conflict? These questions are not adequately considered in the current literature or in current practice.<sup>27</sup>

The concept of flexible, limited strategic options carries with it an increased burden that someone in authority might be tempted to exercise one of these options, or that there might be a mistaken use based on a "calculated risk" whose implications are believed to be less than a call for an all-out arsenal exchange. Flexibility, in this sense, represents an enormous, unexamined threat of intentional use.

The impact of symmetry assumptions about force structure and doctrine may carry with it the seeds of increased danger of intentional big power initiation of either a conventional, limited conflict or of a first-strike nuclear one. In essence symmetry means that opposing forces are equivalently structured and endowed. In the real world, as exemplified in discussions about Mutual and Balanced Force Reduction in Europe, symmetry assump-

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27. See R. Jervis, The Logic of Images in International Relations (1970), for a thorough treatment of the general issue. The relationship of risk taking behavior to perception is admirably handled in F. Ikle, How Nations Negotiate (1964). See also R. Jervis, Perception and Misperception in International Politics (1976).

tions could very easily lead one to the erroneous conclusion that equivalent reductions in forces would have approximately equivalent effects on either side. Of course, this overlooks the fact that a Soviet division removed from Poland only travels across a border, while an American division removed from West Germany ends up some 4000 miles from the scene. Symmetrically altering the status quo may only tip the delicate calculation of risk enough to encourage one to initiate, intentionally, a conventional conflict.

The impact of symmetry assumptions in SALT is reflected in the fact that a Soviet missile or weapons system is not equivalent to an American one, and crude "numbers games" matching absolute amounts of missiles and warheads discloses very little about either the weapons or their effectiveness.

We are stuck with symmetry largely as a result of our predominant ideology and because it is easier to think in simple terms than complex ones. A simple assumption of symmetry in the real world has led to the rather unimaginative tendency to progress in lock-step fashion with one's imagined foe of the moment; innovations, as achieved in research and development by violence specialists, tend to focus on "keeping up" or "staying ahead" by making marginal adjustments to the current hardware and forces and resisting basic changes in extant procedures, tactics, strategy, and doctrine.<sup>28</sup>

The symmetry assumption persists, however, and currently crops up and impedes constructive efforts to reduce the number of nuclear weapons deployed in NATO. It is publicly known that there are on the order of 7300 nuclear weapons currently on alert in NATO. These weapons present grave security problems, they are expensive to maintain, and they are increasingly obsolescent. Current discussions regarding the removal of at least 1,000 of these weapons represent a step in the right direction for those interested in reducing the levels of insecurity and tension and the likelihood of nuclear use; however, symmetry has proved to be a stumbling block to such reductions. Do 1,000 NATO nukes mean the same thing as 1,000 Warsaw Pact nukes? Probably not, but this is the current level and status of the debate.

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28. A. Marshall, Problems of Estimating Military Power (unpublished paper read at the Annual Meetings of the American Political Science Association, 1966), emphasizes these issues. "To continue to rely to any extent on the notion that [military] organizations have a well-defined consistent set of objectives which they seek to attain with fairly optimal expenditures of resources given them by their governments is seriously in error." at 22.

#### 4. Conventional War

One of the most disturbing developments in the international context is the escalating, out-of-control arming of the world with conventional weapons. Dramatic changes in conventional military capabilities coupled with the facts of nuclear parity and a lengthy worldwide recession all contribute to this spiral.

Nuclear parity has reduced the credibility of reliance on nuclear weapons for deterrence, and the rapid accumulation of conventional capabilities by the less developed countries of the world increases the chances for conflict. If we learned nothing else from Vietnam, we should have realized that an available means will lead to a search for ends to justify use of those means.<sup>29</sup> Nuclear parity is effectively removing many of the constraints that have for two decades impeded worldwide conventional arms competitions. As nuclear parity diminishes the prudence and relative authority of the great powers, the value of their security guarantees to clientele states decreases. The incentives for and potential instabilities in conventional arms races increase accordingly.<sup>30</sup>

Tied to these political, contextual factors is a revolution in conventional weapons capabilities. As Dr. Malcolm Currie, former Director of Defense Research and Engineering, remarked, "A remarkable series of technical developments has brought us to the threshold of what I believe will become a true revolution in conventional warfare."<sup>31</sup> The list of nearly simultaneous developments includes precision-guided anti-tank munitions; precision-guided standoff aerial ordnance; accurate shoulder fired anti-tank weapons; mobile long-range, surface-to-air missiles; and man-portable, precision guided air defense weapons. The importance of these developments was forced to world attention during the late stages of Vietnam and most dramatically during the Arab-Israeli War of October 1973. The full implications of these developments have not yet been adequately considered in such areas as future conventional wars, the U.S.-Soviet balance

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29. A. Yarmolinsky, The Military Establishment 119-33 (1971).

30. I have been enormously stimulated and enlightened by my colleague, James L. Foster, who shared with me most of the ideas and concerns developed in this section of the essay. See Foster, "The Future of Conventional Arms Control" 8 Policy Science 1 (1977) for a more thorough, sophisticated accounting of these issues.

31. "The Automated Battlefield," New York Times Magazine, Feb. 23, 1975, at 12.

in Europe,<sup>32</sup> the distortion of economic priorities and infrastructures in producer and consumer nations, and international stability.

In general these developments have the following common properties; They are cheap to develop, procure and operate; they are small in size; they increase the firepower and lethality of minimally trained forces, including terrorists, guerrillas, and irregular forces; they are relatively easy to develop and produce; there are few constraints to proliferation; and even the largest of these weapons can be hidden or disguised to look like something else.<sup>33</sup>

Lacking data and systematic analyses of the capabilities of these new weapons, definitive assessments of their implications are difficult to make. However, the systems of institutionalized violence are hard at work producing propaganda which makes these weapons look very favorable to U.S. defense objectives. Such assessments need to be examined, for they appear to suffer from a number of basic limitations: They tend to focus on the effectiveness of individual weapons in narrowly contrived or simulated battlefield environments rather than on their total realistic implications in peace and war; they overlook the inevitable development of counter-measures; and they tend to assume a one-sided possession of the new technologies.<sup>34</sup> Such assessments furthermore mask over some of the more substantial effects these and other conventional weapons are having on the social fabric of the producer and consumer nations.

The United States is largely responsible for the out-of-control escalation in arms worldwide and has been the source of most of the new technological developments that have altered the conduct of conventional war drastically. Since World War II, it is estimated that over \$100 billion worth of arms have been exported to more than 136 states, more than the combined arms sales of all the other states in the world. More than one thousand U.S. companies are engaged in the production and legal export of weapons.<sup>35</sup> This traffic has been steady over the years,

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32. T. Cliffe, "Military Technology and the European Balance," Adelphi Papers, No. 89, International Institute for Strategic Studies (August 1972).

33. For example, the use of remotely piloted vehicles cast out of a "commercial" Boeing 747, or its equivalent, would present untold problems of identification should an enemy wish to make a deceptive first strike. Foster, supra note 30, at 5-6.

34. James F. Digby, Precision-Guided Weapons (Santa Monica, Cal.: The Rand Corporation, P-5384, March 1975), is one open source that indicates most of these issues in arguing for wholesale development and deployment of the new technologies.

35. N.Y. Times, Feb. 11, 1976, at 44, col. 1.

and prior to 1970, accounted for about \$1.5 billion annually. Since 1970-71, however, this level has risen sharply to the point where in 1973 it accounted for \$4.2 billion, in 1974 some \$10.2 billion, and in 1975, more than \$12 billion in total exports. This increase has been stimulated by greed as much or more than it has been by concern for international security; it has been aided significantly with federal credits, encouragement, and arrangements. The corrupting influence of the large sums involved has only become evident in recent sensational disclosures about Lockheed and other defense producers.<sup>36</sup> The issue has been succinctly summarized in these terms: "The short term health of a politically powerful segment of American industry has weighed more heavily in Washington's calculations than the destabilizing effects of huge arsenals in far-flung areas of the world."<sup>37</sup>

A most depressing aspect of the current revolution and escalation in conventional weapons is that the weapons appear to have changed the nature and conduct of conventional war in several fundamental ways. Generally one should come to expect more frequent conflict of greater intensity, happening with less forewarning, and resulting in greater losses of men and material. These general outcomes follow when one analyzes the likely specific implications of having and using these weapons: They appear to result in increased incentives to build larger conventional forces, requiring larger logistics and support bases; they encourage surprise attack; and they induce speedy campaigns having dramatically heightened, acceptable tolerance levels for losses of men and material. At least these seem to be the tentative conclusions of the Arab-Israeli, October 1973 encounter. There is little reason to disbelieve that these

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36. This aspect of multinational corporations is noted in Multinational Enterprises (J. Wilson & C. Schaeffer, eds., 1974). This calls to attention an earlier comment made with respect to the loyalties of diversified technical skill groups, and the need for sophisticated propaganda to maintain some semblance of social cohesion. To whom does a multinational owe allegiance? What kinds of symbols sustain its existence?

37. N.Y. Times, supra note 35. Similar concern is finally being evidenced in France, which sold on the order of \$8 billion worth of arms in 1975. A prime rationalization there has been that arms sales provide employment for French workers, an important, domestic political result. The Archbishop of Paris, Francois Cardinal Marty has noted that the French "cannot resign ourselves to make money by putting deadly weapons in the hands of others. The commerce of arms is actually becoming an institution." N.Y. Times, Jan. 25, 1976, at 8, col. 1.

findings will also hold for any other conventional wars in the future.

### 5. Unconventional Warfare

The world's population will double in 35 years at current rates of population growth, and such a doubling will bring the total number of mouths to feed to about 8 billion. The problem is feeding twice as many people with a fixed amount of agricultural resources.

At the moment, the United States is responsible for over one-half of all the grain moving in international trade; the value of this export resource amounted to \$22 billion in 1975. To date, food has been a constructive element in the conduct of U.S. foreign policy: We have shared our harvest through various aid programs to the tune of about \$1 billion annually over the last 20 years; over 80 percent of all relief food distributed worldwide has been of U.S. origin; and food has contributed to relaxed U.S.-Soviet relations. What is likely to happen in the future when surpluses are outstripped by the worldwide demand for food? The future has lately been ominously alluded to by several politicians. Senator Herman Talmadge reportedly told a gathering of Kansas farmers that "agri-business means agri-power."<sup>38</sup> The concept has been cropping up more frequently than ever, and implicit in the concept is a policy advocating the use of food as a coercive weapon. Food is a weapon.<sup>39</sup>

There are other likely, but as yet unrealized, weapons that might be employed in unconventional conflicts of the future. Several of these have already appeared on the international scene.

Oil was used against the developed nations by the oil cartel in the early 1970s, and is likely to be used again as the leadership of the Middle East is forced to play its main trump cards to attain world stature and power. Other natural resources have been similarly used, but with less success to date, mainly because of substitutional effects and the absence of political cohesion and solidarity among those controlling the resource in question. As certain natural resources are exhausted, the coercive use of resources is likely

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38. Christian Science Monitor, Jan. 23, 1976, at 32, col. 4.

39. A closely related matter concerns the likely disposition of unwanted and unsupportable masses of humanity. Sensitive scholarship, such as that undertaken in support of inquiries into the Holocaust of World War II's death camps, is desperately needed.

to increase.

Technology has been used as a carrot in the past, and will likely be used as a stick in the future. We have entered into technological exchanges with the Soviets as a gesture of our sincerity about detente. Point IV, Technical Assistance, in our foreign aid programs of the last 25 years was a constructive use of technology to advance our own foreign policy aims and to advance mankind. Television, "The Pill," credit institutions, fertilizer, nuclear technology, and the most up-to-date weapons of war have all, at one time or another, been used in this manner. Although such uses will continue into the future, their use will become increasingly coercive and competitive throughout the next decade or so, as unconstrained population growth places unimagined stresses and burdens on social and political institutions around the world.

Two rather unexpected future forms of powerful instrumentalities might be credit and information. Credit and regularized and civilized international monetary institutions have never been so much in demand, nor has their absence been more noticeable. Masses of windfall cash credits accumulate in one sector of the world, but the existing institutions are unable to relocate these assets to relieve the creditors of their burden or to satisfy potential debtors' productive and basic human requirements. Resort to wasteful arms and nuclear energy purchases have too often been the short term and non-productive alternative available to potential investors.

Information, in the form of early warning about natural events or potentials, e.g., earthquakes, storms, crop blights and failures, and untapped resource deposits; in the form of processed information and analyses relating to resource use, national planning, and communications; and in the form of monitoring and early warning about hostile advances on one's territory, all will contribute to international cooperation and stability, if treated wisely.

These instrumentalities have the potential for reducing tension levels and increasing the prospects for international cooperation. Nevertheless, because of its increasing value and decreasing availability, each instrumentality also has the terrible potential of becoming an object of conflict and hostility. The chances of these commodities being used for peaceful and integrative--versus hostile and disintegrative--purposes, appear to depend to a large extent on the world's ability to regain control of its population. It is, for instance, important that alternative food supplies be developed, such as the production of Brazilian soy beans or Argentine grains; it would be insufficient, however, if these efforts were not accompanied by commensurate and meaningful attempts to control population. The tragedy of the "Green Revolution" only underscores the obvious:

Better to have a population and hunger crisis with 4 billion people than with 8 billion, for at the lower level the net human suffering must be some significant amount less. To encourage fecundity by developing additional agricultural productivity may be a more heinous act than not working for increased productivity at all.

## 6. Terrorism

In this decade, terrorism has grown from an esoteric aspect of aggression and violence to a predominant means for international and intranational conflict resolution.<sup>40</sup> It appears likely that as the smaller nations and weaker specialized interest groups of the world acquire the technology of modern war, both conventional and nuclear, they will increasingly turn to terrorism--just as the Palestine Liberation Army has done in the Middle East, as the Irgun and Stern Gang previously did against the British Empire, as guerrilla groups in various Latin American countries do, and as the 19th Century eastern European revolutionaries did in order to bring down autocratic governments. The justification of such miniscule terroristic groups as the Weathermen, the Symbionese Liberation Army, and the Revolutionary Army of America, to cite only three current ones in America, is that the government exerts terror on its population and that these groups are merely responding in kind. The irony is that the formalization of the concept of terror came from the governmentally imposed Terrorisme of post-revolutionary France, mainly under Robespierre.

It is also ironic that terrorist groups are among the first to exploit the interdependence of our lives in a planetary community, rather than a conglomerate of national communities. The consumption of irreplaceable elements by a relatively handful of the human race affects the lives of all members of the race. Coupled with the knowledge that the great powers have the ability to destroy both opponents of the moment and probably all of human society, and one comes quickly to the few alternatives that exist to resolve conflict.

A main alternative is terrorism. By this we mean, taking a cue from Willrich, "threats or acts of violence planned, attempted, or carried out by an individual or group with a specific political intent in mind." And in the case of interna-

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40. Dr. Lawrence Z. Freedman of the University of Chicago's Institute of Social and Behavioral Pathology has been extremely helpful in shaping the arguments and thoughts in this section of the essay.

tional terrorism, the definition is expanded to include the following condition: "such acts must fall outside the accepted norms of international diplomacy and rules of war."<sup>41</sup>

Terrorism as conventionally understood was the prerogative of the powerless;<sup>42</sup> it was a technique whereby a few determined men and women could affect the destinies of large empires. This has changed.<sup>43</sup> Today the technique is used by elements of virtually all societies: The CIA of the United States and the comparable organizations of the Soviet Union and China routinely carry out terroristic acts against feeble, virtually preliterate, and almost entirely agricultural societies with as much abandon as they operate against one another and the citizens of their respective nations.<sup>44</sup>

In this global setting, terrorism has become the predominant form of confrontation between differing sub-components of societies which seek to overcome each other, regardless of size. Yet, there is no visible nuclear terrorist prevention doctrine, nor is there an institutional focus for preventing terrorism that is in any respect commensurate with that for deterring nuclear war. If the likelihood of nuclear terrorism is remote, it is not because anyone has made a concerted effort to prevent it. If nuclear terrorism, as only one impressive form that this kind of activity might take, is rapidly becoming more practical and legitimate, then a need exists to examine the factors which determine the shape of terrorist prevention policy and the efficacy of present safeguards programs. We include not only safeguards in the nuclear power industry, but also in the military nuclear programs as well. Other things being equal, terrorists would likely challenge the least reliable security system. To the extent that traditional concerns of the military, i.e., producing and deploying weapons,

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41. Willrich, "Terrorists Keep Out!" 31 The Bull. of the Atomic Scientists 12 (1975). See also, B. Jenkins & J. Johnson, International Terrorism (The Rand Corporation, R-1597, Mar. 1975; Paust, "Terrorism and the International Law of War," 64 Mil. Rev. 1 (1974).

42. E. Guevara, Guerrilla Warfare (1969), is illustrative of the out-dated view.

43. D.V. Segre and J.H. Adler, "The Ecology of Terrorism," 40 Encounter 17 (Feb. 1973); A. Burton, Urban Terrorism: Theory, Practice, and Response (1975); and S. Hook, "The Ideology of Violence," 34 Encounter 26 (Apr. 1970).

44. J. Niezing, Urban Guerrilla: Studies on the Theory, Strategy, and Practice of Political Violence in Modern Societies (1974); and Yaari, "Al Fatah's Political Thinking," 11 New Outlook, 20 (Nov.-Dec. 1968).

vie with terrorist prevention programs for attention and resources, then one should expect the latter to be slighted. Likewise, to the extent that the nuclear power industry's traditional concerns, i.e., promoting, producing and using nuclear reactors, vie with the terrorist prevention programs, then one should also expect the latter to be slighted.<sup>45</sup> Both cases describe the current state of affairs.

The revolution in conventional arms is having an impact on terrorism, and that impact has yet to be examined sufficiently. New, small, cheap, and accurate weapons are ideal for terrorists. Some governments support, train, and equip groups to wage war against other governments and groups. Such "surrogate warfare" is likely to increase. Smaller and smaller groups of extremists and disaffecteds are acquiring more and more power to disrupt and destroy. Governments are hard pressed to counter them without resorting to numerous, oppressive restrictions and affronts to the general citizenry. The emerging world is becoming an unstable collection of nations, ministates, autonomous ethnic substates, governments in exile, national liberation fronts, guerrillas, and shadowy but destructive terrorist organizations. On an international scale we have not come to realize this basic fact.<sup>46</sup>

We do not know as much about all of this as we should. We need, for instance, to consider the common structural features of the act of terrorism: Audience, terrorist, victim, media, spectator, authorities, allies, and sanctuaries. We should also examine the separate phases of the terrorist act, which include in the play of the game, preparation, execution, climax, and denouement. Such a structural framework, or its equivalent, could serve the very useful purposes of organizing much of the existing, fragmented, case study literature on terrorism and of understanding terrorism's many forms and processes so that preventive and ameliorative policies and procedures might be developed.<sup>47</sup>

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45. M. Willrich & T. Taylor, Nuclear Theft: Risks and Safeguards (1974), contains some absolutely chilling case materials and speculations on this topic. Blair & Brewer, "The Terrorist Threat to World Nuclear Programs," J. Conflict Resolution, September 1977 (forthcoming), focuses on Minuteman ICBMs in making a case for heightened vigilance for both military and domestic safeguards.

46. Brian Jenkins, High-Technology Terrorism and Surrogate War: The Impact of New Technology on Low-Level Violence (The Rand Corporation, P-5339, Jan. 1975), is perhaps the only published and available

47. One recent example of this literature is Micholus, "Statistical Approaches to the Study of Terrorism" (Paper read at the Conference on International Terrorism, Ralph Bunche Institute of the City University of New York, June 9-11, 1976).

## V. TOPICAL ISSUES AND AN AGENDA FOR CONCERN: APPRAISAL AND RECOMMENDATIONS

The six pictures of institutionalized danger just presented contain many pressing and unresolved questions. In the following section several of these questions are summarized, interrelated, and operationally identified as to who might be most directly concerned with their resolution or understanding.

Beginning with a listing of issues from each of the six pictures, we conclude with a summary chart outlining productive "next steps."

### A. Institutionalized Violence: General Comments

There is little doubt that the great powers have allowed their own fears and desires for short term gain to overpower any sensible conduct of longer term affairs in our dangerous world. The violence system is out of control, and the world is too tightly configured to allow it to run amok much longer.

It needs to be emphasized that the general thrust of this essay explicitly includes all great power initiatives and activities. It is as necessary to be critical of our own delusions as it is to be critical of those held by others in the international arena. The mirror image and lock-step behavior of the primary national interests in our dangerous world serve as the basic foci and objects of study and attention in the following suggestions and recommendations for change. The "win ideology" did not spring full-blown from the paranoid fantasies of any individual but rather is rooted in the dismal facts of present day life.

Recognizing the self-amplifying nature of much current propaganda (Fig. 1) provides one key to restoring system control. Suggested by this view of the system's operations is a need to train and educate specialists counter to those currently responsible for the violence system.

Increased self-monitoring of the world's status, with respect to international cooperation and control, is the order of the day, and this order might begin to be filled by encouraging existing specialized bodies of professional experts to promulgate periodic reports about the world context reflective of their own areas of competence and expertise. Regular review reports from physics, chemistry, agriculture, demography, and weapons technology would all serve as a periodic reminder of the current status of knowledge in any of these important specialties and would also alert the world's leadership to areas of likely or impending conflict. Besides stressing a global perspective, which is not presently done very well, each report would help

advance more general knowledge in the areas treated.

The development of a global perspective might also be encouraged through initiatives to create and operate a world university, research institutions devoted to global--as opposed to narrowly national and militaristically oriented topics, and through the training of scholars and analysts to have a future and global orientation, rather than narrower, limited ones.

A more specific concern relates to the development of a two-sided advocacy system, rather than the lopsided system that currently dominates the flow of propaganda stimulating the violence institution. The current process of conducting defense weapons analyses provides an important illustration of the clash between science and advocacy. There is need for open, regular, and more rigorous review of the millions of dollars worth of studies and analyses done annually by the Department of Defense and its many clientele groups. In the last thirty years, a multitude of consulting and advisory groups has sprung up and has been used extensively by the Department of Defense or by specific armed services. These groups have provided a high level of professional analytic support for the Department of Defense. Unfortunately, there is little countervailing technical power available to the Congress in situations where it becomes necessary to evaluate proposed Department of Defense expenditures.<sup>48</sup>

Needed is an independent "think tank" consulting group which would provide legislators with the technical support needed to judge the merits of complex budget requests. Inasmuch as the Department of Defense's budget requests are based in large part on studies having a considerable technical component, it would benefit the Congress, the Department of Defense, and ultimately the general public to have the technical expertise available to obtain reasonably objective and independent assessments of those requests.

This requirement should not actually be met with disapproval in the more thoughtful quarters of the military establishment, if the following comments from former General Glenn A. Kent are in the least indicative of a growing awareness and mood.<sup>49</sup>

[D]ecisionmakers are becoming increasingly annoyed that different analysts get quite

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48. The Congressional Budget Office (CBO) has, in the last year, begun to make modest inroads here. It is a commendable, albeit insufficient, first-step.

49. Kent, "Decision-Making," 22 Air Univ. Rev. 62 (1971). Kent speaks with authority, as he formerly headed all of the Air Force's studies and analysis activities.

different answers to the same problem.  
[And] there must be something wrong when  
quantification of some particular problem  
produces such radically different results.

In a current situation of grave misgivings about any and all arguments presented by the Defense Department, and the consequent tendencies for elected representatives to reject these arguments out of hand or to accept them on blind faith, the creation and active participation of such a countervailing technical analytic institution could improve the quality of debate by allowing "the facts" to emerge and be judged more on their merits than is currently the case.

A good starting point for any professional institution-building attempts designed to self-monitor and to create a two-sided advocacy situation would be a thorough reexamination of all U.S. and Soviet strategic policies, assumptions, plans, and force configurations. This task has only been suggested in this essay, but one would expect such a thorough reevaluation to be as suggestive of old and lingering impediments to international security as they would be of ways to begin their rectification.

In this same vein, a thorough, detailed evaluation of all military studies and analyses produced over the last decade would serve as a valuable socializing and learning experience for the next generation of military and international analysts.<sup>50</sup>

#### B. The Shah and the Bomb

Clearly needed are better methods and procedures of regulation and control of nuclear reactor technologies and their proliferation. International fuel recycling centers need to be developed. Concerted and meaningful efforts to move on to the next generation of power sources are imperative, so as to minimize the interim period during which countries around the globe feel compelled to resort to nuclear power. International monetary and investment institutions, procedures, and practices need to be examined and improvements implemented with greatest haste.

#### C. Accident

The likelihood of accidental nuclear war has never been as grave, and our means for coping with such an eventuality have never been so ill-conceived and poorly institutionalized. Communication, command, and control of the war making machinery all

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<sup>50</sup>. This might even help to counter the currently disturbing reluctance of this nation's best minds and most talented individuals to seek careers in these neglected areas.

need to be reexamined with utmost care, but from the point of view of terminating an in-progress nuclear conflict, not from the current views of war initiation and conduct. These kinds of inquiries would logically stress organizational, technical, and procedural details, and should be taken from a comparative perspective inclusive of all the great powers. Studies of perception, threat, risk and negotiations are desperately needed to inform such inquiries. Efforts must be bent to translate current theories in these critical areas into operational terms. The entire concept of limited strategic options has not been critically discussed or reviewed, and the time seems ripe for doing so.

#### D. Intentional

Serious investigations into deceptive practices from the past in international affairs are needed to thwart future attempts to use these or modern variants for illicit purposes. Intelligence studies need to be openly carried out and their operational recommendations implemented; such should, of course, no longer be the sole responsibility of those to whom the intelligence function has been entrusted, considering their flagrant violation of that trust. Creative options to control or bring to rapid conclusion regional conflicts must be imagined and brought to full, international attention. Primary research into the areas of perception, signaling, and negotiations is needed and would likely relate well to efforts to control regional conflicts. Likewise, basic examinations of old predispositions, embodied in current military doctrine, need to be carried out, e.g., symmetry assumptions in nuclear and conventional force posture and operational procedures.

#### E. Conventional

Every effort, public and private, is urgently needed to deescalate the conventional arms race which has engulfed the world. Besides regaining control of the technological resources that stimulate and encourage this traffic, such as by removing them from the various agencies of the Department of Defense and placing them under the control of the National Science Board, it might be useful to require the preparation of a "War Impact Statement" to be attached to any and all military spending bills in the future. Such a statement could be prepared by official agencies of the government, such as the Arms Control and Disarmament Agency, or they could be prepared by professional societies and groups.<sup>51</sup> Were this to exist, legislators would at least be

51. A "toothless" version of this prescription does in fact exist. Because the requirement is levied on the violence

forced to confront their own consciences before readily acceding to the military's unrelenting demand for newer and better weapons. Weapons capabilities analyses are needed to better understand the full implication of the so-called "revolution" in conventional arms. The world's best minds must come to grips with the basic distortions that have been created in the industrial and social fabrics of the arms producing nations: What alternative sources of employment are possible, in the short and longer terms, to keep these institutional resources productively employed while at the same time reducing their contributions to world insecurity? And finally, international monetary and credit institutions must be designed and implemented to reduce impulsive investments of national treasure in weapons and to induce other more productive investments.

#### F. Unconventional

The population specter looms large when taken from the point of view of likely, unconventional conflicts of the future. Population issues lack a single frightening event that might otherwise galvanize attention and action. Slow to develop, they are also diffused and long-lived. Glacier-like, demographic pressure mounts slowly and massively. The pressure mounts steadily but goes unnoticed until the impact of a long-developing trend becomes evident in numerous places. At that point, or so it seems, the sheer scale of the issue diverts leaderships from effective action. The pressure mounts, and with every passing day, constructive reaction to that pressure becomes less likely.<sup>52</sup> Focal areas of future unconventional conflict, in which some positive steps might be taken before it is too late, include agriculture, technology, depletable resources, and information.

#### G. Terror

Basic research in abundance is needed to better understand the causes and functional forms that terrorism has taken and is likely to take in the future. If the picture presented in this essay is even partly correct, the world of the next decade will become an increasingly insecure one--personally

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specialists themselves, the typical reports are more self-serving than enlightening.

52. Peter Morrison, a demographer-colleague, has pointed out the glacier analogy to me in conversation. It is a good one. See his Demographic Trends that Will Shape Future Housing Demand (Santa Monica, Cal.: The Rand Corporation, P-5596, February 1976) for an example of his own professional work.

and collectively, and terrorism will be a dominant form contributing to this insecurity. Research tied to operational initiatives in the nuclear power and weapons areas is called for, as is similar work related to conventional arms and weaponry.

#### VI. SUMMARY CHART

The foregoing discussion is summarized in Figure 2, and concludes this essay. The reader is encouraged not to be too disheartened, or at least not so disheartened that action is inhibited. There is still time that most of these problems could be confronted and dealt with, but that time is plainly running very short indeed.

The chart is not filled in, and this is intentional. My task has concluded for the moment, but the reader's has just begun.



Figure 2 (continued)

	Priority Level	Difficulty	Prime Operational Responsibility	Plausible Research Sponsor	Likely Study or Analytic Group	Magnitude (time and resources) Needed to Do the Job	Minimal	Maximal	Odds of Success
<u>Accident (continued)</u>									
Termination Studies									
Perception, Threat, Risk, and Negotiations									
<u>Intentional</u>									
Deception Research									
Intelligence Studies									
Control of Regional Conflicts									
Perception, Negotiations, Signalling Studies									
Symmetry and Other Self-Deceptions									
<u>Conventional</u>									
Deescalation									
Control of Technological Developments									
'War Impact Statements'									
Weapons Capabilities Analyses									

