Arms control and beyond: a review

Thomas C. Schelling and Morton Halperin, *Strategy and Arms Control*
David Frisch, *Arms Reduction: Program and Issues*

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When one compares the recent literature on military policy to that which dominated in the West until four or five years ago, a striking change is clearly discernible. Beyond the fact that there is much more of it now than there was in either the pre- or post-World War II periods, there is also the impressive increase in sophistication. One is tempted to attribute this newly-found sophistication (which I will define in a moment) to the entrance of academics into a field once the near-exclusive domain of the military officer and the occasional military historian. To be sure, these pioneers have been joined—if not outnumbered and submerged—by physicists, logicians, operations analysts, mathematicians, sociologists, political scientists, psychologists, etc., but the question then becomes one of identifying the factors which brought all of these newcomers to a once-sacred domain. Perhaps it is best explained as a response to the urgency generated by the terrifying advances in weapons technology, or the sense of guilt experienced by those of us who have helped to create either the weapons themselves or the policies which made the weapons nearly inevitable. Or, it may be that governments and foundations, in their belated recognition that weapons are *independent* as well as dependent variables in inter-nation relations,[1] have provided enough incentives to lure us from other and less remunerative (financial or approbative) endeavors to this intellectually fascinating and socially crucial aspect of the twentieth century world.

Whatever the explanation, academics *have* moved into the military policy field, and have brought to it a degree of subtlety, sophistication, and intellectual rigor that was long overdue. Two of the more recent manifestations of this newer approach are those emanating from the 1960 Summer Study on Arms Control, financed by the Twentieth

[1] Elsewhere (12) I took great pains to make this particular point, yet the issue has never been joined; rather it has been ignored, which is perhaps the most effective way of getting on with the job.

Century Fund. These are *Strategy and Arms Control*, authored by Thomas Schelling and Morton Halperin (11), and *Arms Reduction: Program and Issues*, edited by David Frisch (5). Using these two studies as our point of departure, let us try to identify the ways in which strategic thinking seems to have changed over the past half-decade.

From Preponderence to Deterrence

The most obvious shift has been in terms of the articulated objectives of a nation's military policies. Whereas the old school thought primarily in terms of *winning* wars, the new focuses primarily on *preventing* them. This is not to say that the earlier purpose was to bring on, and then win, one war after another; the gap between political purpose and strategic doctrine was seldom that great. As a matter of fact, Flavius Vegetius—as far back as 385 A.D.—advised his Roman Emperors *"si vis pacem, para bellum"*; if you want peace, prepare for war.[2] But the relationship was cruder; the way to prevent war, or to gain political victories, or to prevent political retreats, was to have the capacity and the will to win a military victory. In other words, you deterred and influenced the adversary by threatening him with military defeat, and nothing less. Admittedly, it could be defeat in a war limited in space or in time or in forces committed, but it was nevertheless military defeat which you wanted him to contemplate.

And out of this emphasis on promising or gaining victory came a rather undifferentiated view of weapons technology. To be sure, we had our controversies over the

sword versus the crossbow, breech-loading versus muzzle-loading artillery, surface versus submersible warships, airpower versus landpower, and so on, but the prime focus was on quantitative and qualitative superiority. More specifically—and this is the significant distinction—there was almost no conscious differentiation between weapons that were designed to deter and those designed to defeat.[3]

Today's military specialists have, on the other hand, become thoroughly engrossed in this distinction, and have, as a result, helped to redress the great disparity between political purpose and military doctrine which the new technology has nearly obliterated. The two studies under review here, especially that by Schelling and Halperin, point up this concern in a most dramatic fashion, though neither is by any means the first to reveal and develop this new sophistication.[4]

Looking at *Strategy and Arms Control* first—since it best typifies what I would call the "sophisticated deterrence" approach—what are the major assumptions and predictions which emerge?

The most unorthodox assumption, in terms of the traditional thinking, is that one must and can *collaborate with the adversary*. Proceeding from the premise that internation conflict is not, and should not be regarded as, a pure zero-sum relationship, Schelling reminds us that even between

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[2] Similarly, students of World War II are fond of reminding us that one of the key causes of that war was the military weakness of the Allies.

[3] This is not to ignore the nineteenth and early twentieth century concern between offensive and defensive weapons, though this distinction preoccupied disarmament negotiators and peace movement leaders more than it did the professional strategists.

[4] If, in passing, I seem to suggest that Schelling's contribution here is "old hat," it is mainly because he has written so intelligently, persuasively, and widely in the past few years; I would contend that almost no serious scholar in the field today has escaped his valuable influence. See, *inter alia*, (9) and (10).

enemies there is always a modicum of co-operation. This is inevitable if both players realize that certain outcomes of the rivalry can be mutually advantageous as well as mutually catastrophic. The trouble is that heretofore, and still among many political and military leaders on all sides, the dom-inant belief was that any outcome advan-tageous to one *must* be disadvantageous to the other, and that a "win" for one was always a "loss" for the other. It must be admitted that the anarchic character of the international system leads almost inevitably to such a view, but even in the jungle there is room for *some* measure of cooperative and collaborative behavior.

From this key assumption, the new mili-tary theorists usually move to a strategy of what is known as finite or minimum deter-rence. In its restricted sense (i.e., omitting the arms control aspects for the moment) this approach, or school, calls for a non-provocative set of military capabilities and doctrines. More particularly, both sides are admonished to opt for a strike-back or sec-ond-strike force only, and to eschew any-thing suggestive of a first-strike intent. In targeting terms, this means that one relies on a counter-city or counter-industry doc-trine, rather than one directed at the adver-sary's launch sites, airfields, naval vessels, etc. And in timing terms, it means that one does not strike until certain that the other has struck first, or is about to.[5] In order to adhere to these self-denying and stabilizing ordinances, one must create an "invulner-able" retaliatory capability. Having achieved

this, one may await any assault from the other with relative strategic impunity, know-ing that his cities and factories and trans-port will be obliterated by the inevitable retaliatory blow.

A central notion in this doctrine is that of the "exchange ratio": how many of what types of weapon are required to retain a cer-tain retaliatory capability after having been attacked by a predicted quantity and type of first-strike forces. This exchange ratio is, of course, a key variable in the degree of deterrence (and hence stability) one can rely upon generating. If the deterrer—and for our sophisticated strategists, there is a greater tendency to admit the symmetry of the relationship—is able to anticipate pre-serving an impressive strike-back force, and if the would-be attacker makes a similar estimate, then it is postulated that no attack will take place. Since the considerations affecting the exchange ratio and relative vulnerability have been widely discussed elsewhere, I will not go into these matters in any detail. Rather, it might be useful to look at those requirements for stabilized deterrence which raise the most serious doubts as to the efficacy of this approach to war-prevention.

The first is in the area of weapons tech-nology, and here we observe that the stand-off is highly reliant on either a prevention or retardation of breakthrough, or on the more or less simultaneous breakthrough on each side. For example, if either side were to de-velop and produce an anti-missile device with a reliability of about fifty per cent, the stipulated exchange ratio would be badly shattered. Or, if a major breakthrough in submarine detection or mobile missile de-tection were to occur (and the latter be-comes more likely as surveillance satellites are improved), the number of retaliatory weapons surviving an opening strike would be dramatically reduced. Or, if either side

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[5] Finite deterrers are compelled to hedge somewhat on this point because there is no such thing as *in*vulnerability; there are only varying degrees of vulnerability to contemporary weap-ons. Hence much of the debate over pre-emption, or striking before the other side does, but on the basis of intelligence which indicates his intention or plan to do so.

can produce a fission-less, nearly "clean" megaton warhead, it could afford to use an unlimited saturation attack designed to "dig up" and destroy the enemy's hardened or concealed or mobile retaliatory force with little fear of radioactive backlash.

The second major difficulty lies in the perceptual atmosphere which the traditional expectation of war and the new technology combine to create. As Schelling and Halperin see it, the principal danger of premeditated attack, as with pre-emptive attack, is "the vulnerability of either side's retaliatory forces to an attack by the other" (p. 11). But this is incomplete; there is an infinite regression of expectations at work, so that each fears that the other might seek to exploit his vulnerability so as to prevent its own vulnerability from being exploited, etc. It is, as he pointed out several years ago, the reciprocal fear that the second will fear the first's attack, and hence decide to strike first, and so on (9, 10).

From the point of view of the stable deterrer, this problem is largely solved by achieving mutual invulnerability, but as already suggested, this is never more than partially achievable, and it is continually susceptible to technological upset.

Moreover, even the expectation of vulnerability or upset can serve to trigger the opening blow. And it is here that Schelling makes—and has made frequently in the past—his major contribution. If each side can behave in such a way as to convey to the other that his military intentions are *purely retaliatory,* then he may well reduce the reciprocal temptation to strike first. Such conveyance depends upon the kinds of weapons one acquires, the manner of their deployment, and the nature of one's decisional process and, from Schelling's point of view, the key problem is to let the adversary know as much as possible about

these variables as is necessary to assure him that you have no intention of "going first."

As promising as such tacit communication may be, it still is largely vitiated by the fact that *there is no such thing as a purely retaliatory weapon.* Every strike-back system has powerful strike-first characteristics, and as a result there must always remain a marked degree of reciprocal fear, as long as *any* weapons remain.

Again, our authors are not oblivious to these considerations, but many of their conclusions suggest a greater discounting of them than this reviewer would think to be consonant with the strategic facts of life. On the other hand, this may be why Schelling devotes more of his attention to some of the problems of formal arms control in this volume than he has in the past. But since *Strategy and Arms Control* gives far less attention to the concrete aspects of this approach than does the companion book by Frisch, *et al.,* I will reserve my comments on these for later paragraphs.

My major criticism of the Schelling and Halperin study is that it is at great pains to argue against weapons reduction or elimination as the path to a stable military environment. Although one cannot find a direct statement to the effect that these approaches are definitely less satisfactory than the drive for invulnerability, etc., there is a constant needling of those whose confidence in stable deterrence is less than the authors'. For example, "primitive war is still possible, rearmament is possible; . . . nor is primitive warfare necessarily a very attractive alternative to the more modern type" (p. 60). Or, "conflict of interest will occur, potential force will always be at hand, and the military technology . . . will not have been erased from the records and men's memories" (p. 61). They claim to be treating "as an open question" whether the "most promising areas of arms control involve re-

ductions in certain kinds of military force" etc. (p. 2), but the answer is pretty well foreclosed throughout. Thus, *Strategy and Arms Control*, for all its usefulness and sophistication, is still too conservative to offer more than a limited and temporary reduction of the high probability of nuclear-missile cataclysm; it still relies on a capricious technology and a pair of adversaries living under a tremendous temptation to destroy the other's capacity to destroy one's self.[6]

Exploiting Achieved Stability

For those of us who have only a limited degree of confidence in the enduring stability of a stand-off based on less vulnerable weapons and less threatening postures, is there a range of intermediate steps which may carry us a step or two further toward the goal of a warless world?[7] The editor and most of the contributors to *Arms Reduction: Program and Issues* seem to think so, and this is the main difference between the two books under review. While Schelling and Halperin discuss a wide range of arms control issues in the abstract, they get down to only a handful of the practical and concrete steps of arms *reduction*. They are

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[6] Nor does the stable deterrence approach take adequate account of the destabilizing effect of new players being brought into the environment. The problem is recognized, but hardly resolved. I should also add that one's confidence in the nuclear "umbrella" must diminish when one considers that the side which is both anti-status quo and more inclined toward risk-taking may nevertheless *threaten* to upset the balance and thereby gain significant political concessions.

[7] It should hardly be necessary, but let me emphasize that a warless world is not necessarily a conflictless world. Many critics of the peace movement (whatever that includes) waste a lot of energy alleging a naïveté and utopianism which, on investigation, seldom exists.

emphasizing an *attitude*, while Frisch *et al.*, choose to address themselves to certain specific problems that are bound to arise if the major powers ever attempt to negotiate and execute the reduction or elimination of certain segments of their national arsenals. The scope and detail of this latter volume defies adequate treatment in this limited space, but I would like to focus on the central paper—which is a rather concrete proposal by Louis Sohn and the editor. Let me first make brief mention of several of the other papers in the book.

The introductory chapter by Bernard Feld is a highly intelligent discussion of the issues which arose in the course of the Summer Study, and while I might quarrel with a point or two, I wholly concur in his conclusion that "limited stabilized deterrence could provide the interim stability which would permit a really drastic reversal of present armament trends . . . it could set the stage for . . . more long-range solutions to the problem of how to settle conflicts without resorting to war" (p. 9). The same general theme is reiterated in an excellent essay by John Phelps (like Feld, a physicist), "On the Role of Stabilized Deterrence." After reminding us of the hazards and impermanencies of such a state of affairs, he nevertheless concludes that "these [stabilizing] actions may have a decisive catalyzing effect on the processes of formal negotiation toward disarmament. . . ." (p 90).

A similar conclusion is also reached by Dalimil Kybal in a chapter of the same title ("On" is omitted), though the development of his argument would not have forecast it. If, in a "situation of mutual deterrence, motivations for both arms race and surprise attack cease to exist on both sides," and if invulnerability and powerful retaliatory forces "would serve to perpetuate the nuclear stalemate and preserve the non-aggressive at-

mosphere" (p. 137), why worry about arms reduction or elimination?

A more limited view, and one similar to that of Schelling, is in Frank Bothwell's plea for American initiative in arms control. He makes the standard (and for this reviewer, compelling) case for finite deterrence as opposed to the pre-emptive, counter-force strategies. Not only does he find the latter doctrine "highly destabilizing" and "technically and practically impossible," but also a dangerous diversion of our intellectual and material resources (p. 17). Throughout, his emphasis is on those strategic measures we can undertake unilaterally in trying to build maximum stability into the stand-off.

Then there are three general papers of an allegedly "supporting" nature. In the first of his two, Arthur Barber reiterates the standard (and again compelling) argument against NATO reliance on massive nuclear forces based on fixed and vulnerable sites. He reminds us (without mentioning names) that Thor and Jupiter sites in Europe are "provocative in peace and useless in war" (p. 62), but endorses continuous airborne alert (a sop to the Air Force?). Barber's main thrust is that Europe's defense should rest mainly on conventional weapons, and that this could be achieved even while negotiating atom-free zones in the area. His second paper expands on the role of conventional forces and offers some useful notions regarding their role in a United Nations police force. The third paper is that of Arthur Smithies, a Harvard economist, who makes a brief but very persuasive case for the usefulness and acceptability of regional arms limitation applied to sub-Sahara Africa.

Next, there are three papers of a relatively technical nature. An ingenious one by Marvin Kalkstein (co-author of [3]) and Winthrop Smith devises a means of estimating national nuclear stockpiles, and ends up with the "guess" that the U.S. has produced 40–50 metric tons of plutonium and 300–350 of uranium-235. The significance of being able to make such a calculation to the reliability of a reduction of nuclear stockpiles cannot be overemphasized. As a matter of fact, in a second paper by Kalkstein, he points out that "the more accurate this determination is, the smaller will be the possible size of any illegal stockpile" (p. 99). He concludes here that inspection for both the production of new stocks and the existence and activation of present stocks is relatively feasible, emphasizing that the purpose would probably be to inspect "for intent," with a "reasonable chance of uncovering violations" (p. 102). While the two papers just mentioned seem to bear out technical conclusions which have been widely accepted, the one on missile production inspection by Phelps raises some minor questions. Noting that "the capabilities of record inspection for this task seem particularly disappointing," he argues that "physical surveillance of known missile component plants will need to be very close" (p. 120). This departs somewhat from the impression left by Feld *et al.* (4) and by Melman (7). However, there is in all three sources a general conviction that missile production *is* highly inspectable, providing a *combination* of techniques is employed. And as Phelps points out, when an inspectorate "can draw information from a variety of sources and techniques, and if the population of the host country can be induced to cooperate with it, clandestine missile production and many other things can very probably be prevented" (p. 122).

Arms Reduction: Some First Steps

In these few remaining paragraphs, let me return to the general characteristics of the proposals made by Sohn and Frisch. Noting the incompatibility between the con-

temporary positions of the U.S.S.R. and the Western powers regarding the relationship between the diminution of national weapons and the creation of inspection and enforcement arrangements, the authors seek a possible compromise which need not threaten—and may well enhance—the security concerns of both sides. Basically, the proposed first stage (of about three years' duration) toward ultimate comprehensive disarmament involves: (a) creation and gradual development of the Control Organization; (b) gradual and phased reduction of IRBM and ICBM forces down to a level of 100-200 on each side; (c) gradual and phased reduction of nuclear stocks down to a level of 2-4 metric tons, with conversion of balance; (d) prohibition on the testing of missiles and anti-missile devices, and supervision of space probes, etc.; (e) sharp reduction in permitted production of all delivery systems; (f) creation of partially demilitarized zones in Europe and Asia, and gradual withdrawal of all nuclear-missile forces from these zones; (g) gradual reduction in military airbases and local and foreign armed forces in these zones; (h) gradual elimination of all strategic weapons from Africa and a partial ban on export of conventional weapons to the area; (i) gradual reduction of major power armed forces to 1.4 million each; and (j) an immediate ban on production of BCR weapons, with gradual destruction of existing stocks.

If the Control Organization were working effectively, and if all the measures indicated had been carried out during this three-year period, the plan would use the next two years or so to consolidate these very sweeping arrangements. In the third and final phase—of five to seven years' duration, Sohn and Frisch would have a further reduction of both nuclear-missile and conventional forces down to levels limited to "militia (police) forces required for the purpose of

maintaining internal order and to contingents of the international peace force" (p. 37). To those who suggest this is too radical for acceptance by the West, I would point out how closely this parallels recent Western proposals, and to those who fear the Soviet would not accept the degree of inspection required, let me refer to Sohn's rather ingenious supporting paper "Phasing of Arms Reduction: The Territorial Method."

This scheme has two key aspects. Firstly, "each cut in armaments would be accompanied by an extension of control to a specified part of a nation's territory, the size of the controlled territory growing in proportion to the amount of the arms reduction" (p. 124). Secondly, each signatory power would divide its territory into as many regions as there are time periods in the arms reduction schedule. Before the first period, each would provide the Control Organization with a list of all the facilities (plants, depots, test sites, etc.) subject to inspection, broken down by regions. As in certain other "games of skill," the host nation may divide and allocate as it desires, but cannot know in advance which region will be inspected during which phase. (Though Sohn leaves this choice to the inspectorate, I would leave it to a roulette wheel or other random device.)

An ingenious variation on this scheme is proposed in an adjoining paper by Joseph Salerno (who, with Frisch, presents a useful critique of the Sohn-Frisch plans). He is also concerned with finding a minimum degree of inspection consonant with acceptable probabilities of detection. In effect, he has each power declaring its own levels and estimating what the other has in each category, and then permitting inspection to ascertain the accuracy of the allegation. If the estimate is lower than the levels subsequently found to exist, the inspected nation is arbitrarily assumed to have some

proportionally higher level and must surrender a greater number of weapons during that period. But if the estimate made by the other side is *higher* than that found, then the *estimating* nation is conversely penalized. Essentially, the plan assumes that penalties for either inaccurate declarations or overly suspicious estimates will impel each side toward honesty and objectivity in reporting one's own forces and estimating those of the other side. A second essential provision—which is treated too briefly and casually—is for weapons to be turned over to U.N. depots within the host countries, rather than being scrapped.

Space prohibits any detailed critique of either the arms reduction program or the various inspection schemes, but certain general observations seem to be in order. To my way of thinking, these are extremely useful exercises. Whether one can predict their being adopted in the near future is less relevant than the fact that they compel the student—and hopefully, the policymaker—on all sides to get down to the very sensitive and specific roadblocks to disarmament. They also make more meaningful the more general debate as to whether disarmament does or does not present a useful avenue to the sort of enduring stability which all seem to desire.[8] More specifically, such proposals enable us to recognize, and perhaps alter, the straw man constructed by those who fear going much beyond informal arrangements of stabilized deterrence. Obviously a *disarmed* world would be an unstable world, but critics of multilateral and comprehensive disarmament fail to recognize—and advocates fail to suggest—that there is no intention of seeking

a disarmed world.[9] Rather, the goal is a world in which the sovereign *nations* are more or less disarmed, but in which the international "government" is very much armed, albeit with conventional weapons only.[10] The problem is not so much the presence or absence of arms, but their possession and control. Every social system requires some measure of centralized coercion, and the global one is clearly no exception.

Summary

In conclusion, these two studies must be welcomed as valuable additions to a body of literature which is growing not only in quantity but in rigor, sophistication, and technical expertise. The Schelling and Halperin book represents an effective capstone to the developing doctrines of finite, stable deterrence in a bipolar world. As a result of this and prior work by the senior author,[11] my hope would be that we need no longer backtrack over the familiar ground. By now, it should hardly be necessary to reiterate that invulnerable weapons are less provocative than vulnerable ones, that certain secrets are better "leaked" to the adversary, and that intentions and expectations are as important as capabilities; *Strategy and Arms Control*

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[8] By stability, I do not mean a freezing of the economic, social, or political status quo; reference rather is to the sort of military stability which appreciably diminishes the probability of international war.

[9] The blame in this case is partly Sohn's, inasmuch as the build-up of U.N. forces so cogently proposed in *World Peace through World Law* (2) is barely discussed in either of his papers here.

[10] Although I speak only for myself here, I would doubt that many serious proponents of disarmament would prefer either an unarmed or an overarmed international control organization. My own present approach is spelled out in some detail in a forthcoming study (13).

[11] The junior author, Halperin, has already published an excellent analysis of certain limited war problems, has collaborated on a first-rate study of the nuclear test ban issue (with Donald Brennan), and is currently completing a fuller, theoretical dissertation on limited war.

helps provide the basis for moving ahead in our thinking.

What makes these two studies a valuable combination is that *Arms Reduction: Program and Issues*, despite some inevitable overlap, points the way to the next phase in the growth of sophisticated strategic analysis. It constitutes a solid link with stable deterrence, yet is not restricted solely to what may turn out to be the "pause that regresses."

What is needed now is the sort of careful, yet imaginative, and technical, yet sweeping analysis of the arms *reduction* problem that we have recently seen in regard to the stable deterrence and arms *control* problem, and the Frisch book is an excellent beginning. The Twentieth Century Fund is to be congratulated for mobilizing the intellect and publishing the results bearing on this most crucial dilemma of man's history to date. These are valuable contributions to an emergent synthesis in the security policies of nations.

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