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WHY THE SOVIETS BUY THE WEAPONS THEY DO

By MATTHEW A. EVANGELISTA*

Robert P. Berman and John C. Baker, *Soviet Strategic Forces: Requirements and Responses*. Washington, D.C.: The Brookings Institution, 1982, 171 pp.

Andrew Cockburn, *The Threat: Inside the Soviet Military Machine*. New York: Random House, 1983, 323 pp.

David Holloway, *The Soviet Union and the Arms Race*. New Haven: Yale University Press, 1983, 211 pp.

I. INTRODUCTION

THE increase in public concern about nuclear weapons over the past few years has coincided with a resurgence of scholarly interest in determining the causes of the U.S.–Soviet arms race. Three recent books attempt to account for Soviet military developments; they employ a spectrum of possible explanations ranging from an analysis emphasizing bureaucratic politics and a “Soviet military-industrial complex” to an approach stressing strategic “requirements.” Antecedents of these types of analysis are found in the work of American social scientists and European peace researchers writing during the 1960s and early 1970s, mainly on U.S. weapons policy.

I will begin by placing the three books under review in the context of the earlier literature on arms control and military policy. Next, I will outline each author’s approach through a discussion of how each relates Soviet weapons procurement to military doctrine. The authors’ arguments will then be analyzed and assessed in relation to a particularly topical issue—Soviet regional nuclear force posture in Europe and the deployment of the SS-20 missile. Finally, I will put forward some tentative conclusions and recommendations for future research, again using Soviet regional forces as examples.

Scholarly attempts to explain the U.S.–Soviet arms race in the wake of the “missile gap” and the ABM debates of the 1960s resulted, by the end of that decade, in what James Kurth has called a “thicket of theories.”¹ Rational-actor models, favored in particular by economists and

* The author is grateful to Judith Reppy, Peter Katzenstein, and Myron Rush for helpful comments and criticisms on earlier drafts of this article.

¹ Kurth, “A Widening Gyre: The Logic of American Weapons Procurement,” *Public Policy* 19 (Summer 1971), 373-404.

strategic analysts associated with the RAND Corporation,² came under fire from political scientists, mainly at Harvard's Kennedy School of Government, who focused on the role played by bureaucratic politics in determining U.S. military developments.³ Other observers thought U.S. policy could be explained better with reference to a military-industrial complex.⁴ Related theories, set forth especially by European researchers, stressed the "autistic" nature of military decision making and, rejecting interpretations of rational actors responding to external threats, proposed instead models of an "internal dynamic" (*Eigendynamik*).⁵ Kurth described the dilemma of choosing between such competing theories of weapons procurement as "the problem of alternative causes or the problem of a *posteriori* overdetermination," and related it to the issue of level of analysis:

In brief, a *posteriori*, the military policy is overdetermined by several alternative and analytically coequal explanations. The logical dynamic of the process of discovering or inventing alternative causes is to equalize explanations, to destroy degrees of validity among them, while not destroying the explanations themselves. We are left entangled within a thicket of theories.⁶

As recent explanations of Soviet military policy resemble in many ways the analysis of U.S. policy that preceded them, so too do they suffer from many of the same problems—not the least of which is overdetermination. One goal of this essay is to propose a possible means of coping with the problem of overdetermination in explanations of Soviet weapons procurement by adopting an approach developed by Kurth. First, however, it is necessary to discuss the books under review and how they relate to the earlier traditions.

In *Soviet Strategic Forces: Requirements and Responses*, Robert Berman and John Baker attempt what has become known in the literature as a "requirements" or "mission analysis" approach to explaining Soviet mil-

² An excellent study of the RAND strategists—including, among others, Thomas Schelling, Herman Kahn, and Albert Wohlstetter—and the best work on the evolution of U.S. nuclear policy is Fred Kaplan's book, *The Wizards of Armageddon* (New York: Simon & Schuster, 1983).

³ See, most notably, Graham T. Allison, *Essence of Decision: Explaining the Cuban Missile Crisis* (Boston: Little, Brown, 1971), and Morton H. Halperin, *Bureaucratic Politics and Foreign Policy* (Washington, D.C.: Brookings Institution, 1974).

⁴ For example, Richard J. Barnet, *Roots of War* (New York: Atheneum, 1972); Edgar M. Bortome, *The Balance of Terror: A Guide to the Arms Race* (Boston: Beacon Press, 1971); Seymour Melman, *Pentagon Capitalism: The Political Economy of War* (New York: McGraw-Hill, 1970).

⁵ See, in particular, Dieter Senghaas, *Rüstung und Militarismus* (Frankfurt/Main: Suhrkamp Verlag, 1972).

⁶ Kurth (fn. 1), 377-78.

itary policy.⁷ This approach is generally considered apart from a rational-actor analysis, which posits cost-effective responses to objective threats. In a requirements approach, perceptions of threats are shaped by a country's specific history, geography, military traditions, and organizational structures. These factors in turn influence the nature of the response to external threats. Berman and Baker claim to have adopted this method of analysis (pp. 1-5); but, as I will attempt to demonstrate, their explanations more often resemble those of a rational-actor approach. In this regard, their analysis harks back to the early RAND studies of the vulnerability of the U.S. Strategic Air Command (SAC) that spawned the bomber and missile gaps. The authors describe Soviet responses to existing U.S. threats much as Albert Wohlstetter and others prescribed U.S. responses to projected Soviet threats in the 1950s—as sensible, cost-effective, “rational” responses based on objective “threat assessment.”⁸ Furthermore, in discussing Soviet nuclear weapons doctrine, Berman and Baker often employ concepts that are not found in Soviet military writing on nuclear weapons (for example, the notions of “strategic reserve” or “theater reserve” forces, on pp. 19-21, 62-65, 130-32), but that are quite commonplace in the terminology developed at RAND for thinking about the unthinkable.⁹ Consideration of the factors that constitute a true requirements approach receive comparatively little attention.

Andrew Cockburn's *The Threat: Inside the Soviet Military Machine* relies alternately on two competing types of explanation: a bureaucratic politics approach (emphasizing competition among military services and military-industrial interests), and a military-industrial complex approach (focusing on cooperation and collusion between military, political, and industrial interests). His work falls in the tradition of Graham Allison and Morton Halperin on the one hand, and of European peace researchers such as Dieter Senghaas and Johan Galtung on the other.

⁷ The best work using the requirements approach has been done by Michael McCgwire, particularly on Soviet naval policy. See his articles in *The Soviet Union in Europe and the Near East: Her Capabilities and Intentions* (London: Royal United Services Institution, 1970); Michael McCgwire, ed., *Soviet Naval Developments: Capability and Context* (New York: Praeger, 1973); Michael McCgwire, Ken Booth, and John McDonnell, eds., *Soviet Naval Policy: Objectives and Constraints* (New York: Praeger, 1975); McCgwire “The Rationale for the Development of Soviet Sea Power,” in *United States Naval Institute Proceedings*, Vol. 106/5/927 (May 1980); and McCgwire “Naval Power and Global Strategy,” in Derek Leebaert, ed., *Soviet Military Thinking* (London: Allen & Unwin, 1981). Another good example is Raymond L. Garthoff's article, “The Soviet SS-20 Decision,” *Survival* 25 (May/June 1983), 110-19.

⁸ The major study is Wohlstetter, Hoffman, Lutz, and Rowen, *Selection and Use of Strategic Air Bases* (Santa Monica, Calif.: RAND, 1954), discussed in considerable detail in Kaplan (fn. 2).

⁹ See Kaplan's discussion, *ibid.*

In *The Soviet Union and the Arms Race*, David Holloway proposes a more complex explanation for Soviet military policy—one that incorporates aspects of the requirements and bureaucratic politics models but adds a historical dimension and an analysis based on study of the Soviet military “research-production cycle.” The closest parallel among the earlier studies of U.S. weapons policy is probably the work of Herbert York,¹⁰ although in certain respects, Holloway’s case studies of Soviet weapons decisions resemble studies of U.S. weapons conducted by Alison, Frederic Morris, Michael Armacost, and others.¹¹

It should be noted that of the three works under consideration, only the Berman/Baker volume sets out directly to explain the Soviet Union’s strategic posture.¹² Both Cockburn’s book¹³ and Holloway’s¹⁴ take broader approaches and cover a number of diverse issues. In focusing on the question of what drives the Soviet side of the arms race, I attempt to extract from the Cockburn and Holloway volumes explanatory approaches that the authors do not always make explicit.

¹⁰ York, *Race to Oblivion: A Participant’s View of the Arms Race* (New York: Simon & Schuster, 1970); and York, *The Advisors: Oppenheimer, Teller, and the Superbomb* (San Francisco: W. H. Freeman, 1976).

¹¹ For some representative case studies, see Frederic A. Morris, ed., “Acquiring Weapons,” Part II, pp. 111-215, in *Commission on the Organization of the Government for the Conduct of Foreign Policy* (Washington, D.C.: G.P.O., June 1975), Vol. IV, Appendix K, “Adequacy of Current Organization: Defense and Arms Control.” For a similar, but more in-depth approach, see Michael H. Armacost, *The Politics of Weapons Innovation: The Thor-Jupiter Controversy* (New York: Columbia University Press, 1969).

¹² Although Berman and Baker do not fulfill their promise of providing a true requirements analysis, they display a number of compensating strengths. The authors deserve a good deal of credit for their attempt to present a relatively parsimonious explanation for Soviet strategic posture, and also for the amount of detailed information they have compiled on characteristics of Soviet strategic weapons design and deployment. In addition, they provide useful material on U.S. and NATO nuclear weapons deployments, which they see as having greatly influenced Soviet developments. The book—particularly the many informative tables and charts found in the appendices—constitutes a valuable source of reference for researchers in the field of U.S. and Soviet military policy.

¹³ Cockburn’s book is a highly readable and carefully researched work, written with one primary intention: to counteract the practice of “threat inflation” by which some U.S. military and government officials greatly exaggerate Soviet military strength in order to rationalize procurement of the new weapons they favor. Cockburn focuses on four aspects of the Soviet military: the “hordes,” or regular conscript army; the “professional warriors,” or officer corps; the “weapons makers”; and the weapons themselves. For the purposes of this essay, the most relevant sections of Cockburn’s book are those in which he discusses the politics of the Soviet High Command, the process by which new weapons are procured, and the characteristics of those weapons.

¹⁴ Holloway’s book covers a number of topics, including the role of military power in the formation of the Soviet state; the early Soviet nuclear weapons program; Soviet thinking on nuclear war; the role of military power in Soviet foreign policy; Soviet arms control policies; the structure of military research and development; and the role of military production in the Soviet economy. This volume is especially valuable in that it brings together the results of Holloway’s many years of research into Soviet military policy in a form more accessible—particularly to nonspecialists—than his original articles and chapters in various books.

II. MILITARY DOCTRINE AND WEAPONS PROCUREMENT

The distinction between military and political roles lies at the heart of the debate over the determinants of Soviet military policy. Strategic theories hold that the military is subordinate to the political leadership and does not exert autonomous influence on weapons procurement. Theories emphasizing bureaucratic politics or a military-industrial complex posit that weak political control over the military allows weapons to be produced that have no genuine strategic rationale. The requirements approach often neglects the broader political goals that influence military policies.

In principle, military doctrine defines the relationship between military and political leaders in the Soviet Union. Therefore, as a starting point for comparing the explanations for Soviet military policy offered by the three works under review, it is worth considering how each of them treats the relationship of Soviet military doctrine to weapons procurement.

According to Berman and Baker,

In Soviet military writing the terms *military doctrine* and *military strategy* are used more precisely than in the West. Military doctrine, the highest level of military thinking, is dictated by the Communist party leadership as a set of official views about the types of warfare for which the Soviet military establishment must be prepared. Subordinate to Soviet doctrine are various levels of military thought, including military strategy, which develops the detailed organization, methods, and preparations for waging war (p. 24; emphasis in original).

The authors briefly mention “broader purposes” for which Soviet doctrine and strategy may be intended, including their use

in shaping public beliefs to conform with official thinking, . . . to influence the adversary’s perceptions, [and] to rationalize away intractable problems and to promote various institutional interests . . . Moreover, changes in Soviet statements on military doctrine and strategy may reveal the ideological, institutional, and technological influences that have shaped the Soviet Union’s strategic posture (p. 24).

Unfortunately, none of these broader purposes is explored throughout the rest of the book. Instead, the authors relate Soviet strategic posture to doctrine according to the formal definition: the political leaders determine the requirements of Soviet military forces on the basis of their perception of the foreign threat, and the military leaders carry out the political directives to meet that threat. The best summary of the explanation Berman and Baker provide for Soviet military developments is found in the subtitle of their book: Soviet military doctrine sets *require-*

ments for force posture, which are best explained as *responses* to foreign threats.

The requirements approach taken by Berman and Baker is in principle distinct from a rational-actor approach. Although not explicitly defined, it seems intended to take into consideration the role of military tradition and organization, geopolitical and historical factors, and perception of threat, whereas the rational-actor approach concerns itself only with threats and "rational" responses to them.

Thus, Berman and Baker state at the start of their work that "Soviet strategic forces are as much a product of military traditions as of changing circumstances" (p. 1). The argument here would seem to be that because the Soviet Union never had a tradition of strategic air power as did the United States, it never developed a strong strategic air command with a large fleet of intercontinental bombers. By contrast, the Soviet strategic posture derives from the fact that, as a land power, Russia had long emphasized artillery in its military policy; early Soviet interest in missiles, as opposed to bombers, should be understood in relation to the Russian artillery tradition. Indeed, the first Commander in Chief of the Strategic Rocket Forces, Marshal Nedelin, was a former artillery commander, and artillery officers have played a major role in shaping the missile forces.¹⁵ Berman and Baker mention, but do not fully develop, this notion (pp. 26, 47-48, 110). The concept seems particularly important for distinguishing a true-requirements approach (which explains an early emphasis on regional missiles) from a rational-actor approach (which does not explain why a regional posture should take preference over one that emphasizes intercontinental missiles, or even bombers, from the start).

Consistent with the military-requirements approach is a historical rationale for Soviet emphasis on regional systems. Berman and Baker argue that,

historically, the most vital interests of and greatest threats to the USSR have been in neighboring areas. Hence the Soviet tendency—not fully appreciated in the United States—to attribute a strategic importance to its regional nuclear forces (p. 2).

The authors have in mind Russia's long history of invasions of its territory from both east and west; they mention in particular the impact

¹⁵ See the biography by V. Tolubko, the present commander of the Strategic Rocket Forces: *Nedelin* (Moscow: Molodaia Gvardiia, 1979). Holloway points out that the officers of the Strategic Rocket Forces "have tended to see their missiles as extensions of artillery, not as pilotless bombers." He suggests that the artillery concept of "operation in depth" may account somewhat for early Soviet emphasis on regional missiles by encouraging "Soviet designers to concentrate on extending the range of their rockets step by step, thus increasing gradually the Soviet capability to launch deep strikes against the enemy" (p. 153).

that the German invasion of June 1941 had on Soviet military thinking (p. 22).

One wonders to what extent historical and military-traditional factors would have produced a similar Soviet regional nuclear policy in the absence of concrete threats—the formation of NATO and the deployment of U.S. atomic bombers on bases surrounding the Soviet Union in the late 1940s, and the introduction of tactical nuclear weapons into Europe in the early 1950s. According to the requirements approach, such threats must be taken into consideration. In fact, however, by devoting relatively little attention to the organizational, military-traditional, and historical aspects of a requirements approach, Berman and Baker are left mainly with foreign threats as the basis for explaining Soviet military policy:

In the past, Western actions have created or affected many basic requirements that have determined how the Soviet strategic forces would develop. . . . Clearly, [however,] the Soviet strategic force posture has developed not only in response to strategic developments in the United States and the countries adjoining the USSR. As part of a complex and interactive process, the USSR has sought to take account of external developments and develop a capability to counter them while attempting to fulfill its long-standing security requirements (p. 72).

By providing only a superficial account of the “complex and interactive process” by which threats are translated into security requirements, Berman and Baker make it difficult to distinguish “long-standing security requirements” from rational-actor responses to external threats. It is not clear from their explanation, for example, that even if Russia throughout its history had never been invaded from the west, Soviet leaders would have responded any differently when faced in the 1950s with the threat of nuclear-armed aircraft on bases that encircled the U.S.S.R.

The authors try to explain the peculiarly Soviet nature of the response to external threat by attempting to understand Soviet targeting requirements. Once the targeting requirements are known (to the extent that is possible), the requirements approach differs little from the rational-actor approach. An external threat causes a change in targeting requirement; the best means of fulfilling that requirement constitutes a “rational” response.

The main problem in this exercise is arriving at an accurate understanding of Soviet targeting requirements. Berman and Baker infer Soviet targeting priorities from selected translations of Soviet military writings, from missile deployment locations, and from “the presumed

Soviet TVD [*teatry voennykh deistvii*, or theaters of military operations] planning framework” (p. 19, fn. 28). They come up with a list that, by including virtually everything, seems to provide little guidance:

The broad list of requirements compiled by Soviet planners is likely to be composed of strategic nuclear targets, including missiles, submarines, strategic aircraft bases, naval bases, nuclear storehouses, and command-and-control centers; operational and tactical nuclear targets, including aircraft carriers, aircraft, cruise missiles and tactical missile deployments, tactical airfields, nuclear storage sites, and formations and reserves, logistical and fuel centers, naval bases and air defense bases and facilities; and administrative and economic targets, including critical industrial facilities, national administrative and political centers, transportation centers and ports, and centers of state administration (p. 19).

In order to explain the appearance of a new Soviet weapon (or an apparent change in Soviet force structure), the authors speculate how their presumed list of Soviet targets may have changed as a result of foreign developments, and call the new Soviet weapon a response to those developments.

In contrast to Berman and Baker, Andrew Cockburn believes that foreign threats have rarely created requirements or generated responses that are helpful in explaining either Soviet or American military policies. With the exception of the development of Soviet interceptor aircraft as a counter to U.S. strategic bombers, Cockburn finds “very little evidence that either the Americans or the Russians have actually initiated research and development of a particular system in response to a move by the opposition.” On the contrary, “the record indicates that the desire for the new weapon or a longer production line comes first; only afterward is the threat discovered that the weapon is supposed to meet” (pp. 13-14). Thus,

It may be that the military on either side is engaged not so much in an arms race as in simply doing what it wants to do for its own institutional reasons. The other side is relevant only in that it serves as a convenient excuse for these unilateral activities (p. 12).

It should therefore come as no surprise that Cockburn’s views of military doctrine are quite different from Berman’s and Baker’s: “Military doctrine tends to evolve in response to demands from generals for an excuse to justify whatever they happen to be interested in spending money on, and the Soviet marshals and generals are no exception” (p. 238).

Cockburn’s approach here seems consistent with theories of the military-industrial complex,¹⁶ and he specifically uses the American model as his point of comparison:

¹⁶ See Steven Rosen, ed., *Testing the Theory of the Military-Industrial Complex* (Lexington,

Just as names like General Dynamics, Lockheed, and McDonnell Douglas are synonymous with American warplanes and missiles, so too the Russians have big-name defense contractors. They are called design bureaus and are named after the designers who originally set them up. . . . [T]he relationship of these "contractors" to their military customers and the manner in which the bureaus execute their contracts have many similarities with how American defense contractors conduct their business (p. 79).

At times, Cockburn focuses more on bureaucratic competition between military services and between design bureaus than on cooperation within a complex. In any case, he argues that Soviet military policy can be explained better on the basis of these internal factors than as responses to external stimuli.

David Holloway's discussion of Soviet military doctrine indicates that he, too, believes that internal factors must be taken into account in order to understand Soviet military developments. He presents definitions of military doctrine (both its political and military-technical aspects), military science, and military art, as found in the official *Soviet Military Encyclopedia*, arguing that the formal definitions themselves "are relevant to an understanding of Soviet policy making, for they express a definite conception of the proper relationship between political authority and professional military expertise" (p. 30). In the "proper relationship," the Party dominates the formulation of military doctrine. Holloway has found, however, that in the post-Khrushchev period the Soviet military has attempted to exert more influence on doctrine.¹⁷ Thus, "these abstract definitions reflect a certain tension between Party and military prerogatives in Soviet military thought" (p. 31). Contrary to the emphasis in the Berman/Baker approach, Holloway maintains that

Policy cannot be derived directly from military doctrine because doctrine is too general to do more than provide broad guidelines. Policy must be understood as the product of a political process, in which both low politics (bureaucratic infighting and struggles for power) and high politics (disagreement over the direction of policy or over its implementation) play their part (p. 163).

Although Holloway's explanations resemble those of Cockburn in their emphasis on politics, his more detailed case studies of specific weapons developments also stress factors that are integral to a genuine require-

Mass.: Lexington Books, 1973), esp. chap. 5 by Vernon Aspaturian, "The Soviet Military-Industrial Complex: Does it Exist?" 103-34; also see John McDonnell, "The Soviet Defense Industry as a Pressure Group," in *Soviet Naval Policy* (fn. 7), 87-122.

¹⁷ See Holloway, *Technology Management and the Soviet Military Establishment*, Adelphi Paper No. 76 (London: International Institute for Strategic Studies, 1971); and his articles in *The Soviet Union in Europe and the Near East* (fn. 7).

ments approach—organization of the research-production cycle, and the influence of military traditions and history.

III. SOVIET REGIONAL FORCES AND THE CASE OF THE SS-20

The emphasis that Berman and Baker place on Soviet regional requirements constitutes one of the most valuable contributions of their work, and holds considerable relevance for the current debate over nuclear weapons in Europe. In essence, the story they present is one of Soviet capabilities constantly lagging behind requirements and threats.

In response to the postwar atomic monopoly of the United States, the Soviets built up a system of air defenses¹⁸ and accelerated programs for developing their own atomic weapons and delivery vehicles for carrying them. (See Holloway, chap. 2.) However, partly because of Stalin's unwillingness to allow even discussion of the role of nuclear weapons in modern warfare (perhaps because he thought it might discredit the "permanently operating factors" he claimed to be responsible for the Soviet victory in World War II), Soviet troops received no nuclear weapons until after his death in 1953. The Soviets initially countered U.S. air bases and military facilities in Europe with a fleet of Tu-4 bombers (copies of the American B-29) armed with conventional weapons. The first nuclear-capable bomber, the Tu-16, appeared in 1954. In 1959 the Soviets began deploying the SS-4 medium-range ballistic missile (MRBM), and two years later, an intermediate-range system (IRBM), the SS-5. They deployed no new MRBMs or IRBMs until the SS-20 appeared in 1977. Berman and Baker argue that, throughout the postwar period, Soviet regional nuclear forces never successfully met the threat posed by U.S. and NATO aircraft, cruise and ballistic missiles, and nuclear artillery.

The SS-4 and SS-5 missiles were particularly unreliable, requiring unstable liquid-fuel propellants; they were deployed at vulnerable, "soft" sites rather than in hardened underground silos, and needed eight to twenty-four hours to prepare for firing. Their vulnerability was increased dramatically, according to Berman and Baker, when the United States began deploying "quick-reacting and highly survivable Polaris missiles [that] could effectively strike both Soviet regional nuclear missiles and strategic bomber bases" (p. 59).

In the mid-1960s, the Soviets attempted to remedy these problems by

¹⁸ Berman has addressed this issue in *Soviet Air Power in Transition* (Washington, D.C.: Brookings Institution, 1978); see also Matthew A. Evangelista, "The Evolution of Soviet Tactical Air Forces," in David R. Jones, ed., *Soviet Armed Forces Review Annual* (hereafter *SAFRA*), Vol. VII (Gulf Breeze, Florida: Academic International Press, 1983).

developing the medium-range SS-14 and intermediate-range SS-15 missiles: both employed mobile launch systems (to decrease vulnerability), and solid-fuel propellants (to improve "reaction time"). However, the Nadiradize design bureau that was charged with developing the missiles had considerable difficulty producing a satisfactory solid-fuel system (pp. 90-91), and neither missile was ever put into series production. Berman and Baker argue that because of this major technical failure, coupled with an increasing threat, the Soviets were forced in the late 1960s to adopt a "quick-fix" solution to their regional security requirements. Their answer was to divert the variable-range SS-11 missile, apparently designed originally for maritime use (against U.S. carriers with nuclear-armed aircraft), for employment as part of the regional force. By the early 1970s, some 120 SS-11 missiles were deployed in SS-4 and SS-5 missile fields in the western U.S.S.R., and another 200 or so along the Sino-Soviet border (pp. 60, 111, 122).

Berman and Baker believe that the SS-11 solution might have gone far toward fulfilling Soviet regional requirements but for the fact that deployment of the missiles was constrained by the SALT treaties. Although the Soviet Union had pressed from the beginning for inclusion of regional nuclear forces in the strategic arms talks, the United States was unwilling to discuss its forward-based systems in Europe, or the British and French nuclear forces.¹⁹ Thus, Berman and Baker maintain, the Soviets were forced to develop a system specifically intended to fulfill the regional role that the SS-11s had satisfied. That system—the SS-20 IRBM—is the Soviets' first successful solid-fuel missile. It has been deployed with three independently targetable warheads (MIRVs), and is considered mobile (although it must be launched from presurveyed sites). Berman and Baker term the SS-20 "a long overdue follow-on to the vulnerable SS-4 and SS-5 missiles," one that has gone a long way toward meeting Soviet regional requirements (p. 67). Nevertheless, the authors foresee increases in Soviet requirements generated by NATO's deployment of Pershing II and ground-launched cruise missiles (p. 71).

By contrast, Cockburn does not interpret the emergence of the SS-20 as a rational response to U.S. and NATO nuclear threats, although he, too, presents the technical failures of the SS-14 and SS-15 as part of his explanation. He accounts for the SS-20 in a manner consistent with a military-industrial complex approach. In essence, he argues that the SS-20 should be understood primarily as a means of keeping the Nadiradize design bureau in business, pointing out that the bureau "has

¹⁹ Jane M. O. Sharp, "Four Approaches to an INF Agreement," *Arms Control Today* 12 (March 1982).

been trying and failing to build a solid-fueled ICBM for twenty years” (p. 87). Its first attempt was the SS-13, which was considered a counterpart to the U.S. Minuteman missile; only 60 were produced because of serious technical problems. Next came the mobile SS-14 and SS-15 missiles, derived from the SS-13, which were also unsuccessful. The SS-16 was the Nadiradize bureau’s most recent try at developing a solid-fueled mobile ICBM. It has only been flight-tested once since 1975, and unsuccessfully at that (p. 200). This missile was such a failure that the Soviets were willing to bargain it away as part of the SALT II treaty.²⁰ Cockburn describes the sequence leading to the SS-20:

Nadiradize and the strategic rocket forces did manage to salvage something of their reputation from the SS-16 debacle. By removing the third stage of the SS-16, they had a missile that could manage a flight of 3,000 miles—not enough for the serious business of intercontinental warfare but sufficient for use against targets in Western Europe and China. There was a market for such a missile because the medium-range SS-4s and SS-5s, which had first been installed in their silos in the late 1950s, were, in the words of one report, “crumbling in their silos” (p. 200).

Thus, Cockburn’s explanation for the SS-20 is the Soviet version of the “bail-out imperative” that James Kurth has identified as a factor influencing the procurement of U.S. aerospace weapons.²¹ According to Cockburn, the SS-20 was needed to satisfy the parochial interests of the Nadiradize design bureau and its military backers in the Strategic Rocket Forces—to find a “market” for their “product.”

Holloway’s explanation for the deployment of Soviet regional nuclear forces follows that of Berman and Baker fairly closely. Regarding the SS-20, for example, he discusses the problems inherent in the Soviet regional nuclear force, the exclusion of regional systems from SALT negotiations, and the advantages presented by the modern SS-20; he suggests that “the case for deployment must have seemed overwhelming” (p. 70). He also makes an important point about Western interpretations of Soviet policy and the extent to which they determined the reaction to the SS-20:

Western governments appear to have regarded the Soviet SS-4s and SS-5s as no more than a stopgap, intended to hold Western Europe hostage until an effective intercontinental force was deployed. Because of this

²⁰ Cockburn has covered this issue in some detail in articles in the *Columbia Journalism Review* 21 (July-August 1982) and *The New York Times*, April 27, 1982; see also Strobe Talbott, *Endgame: The Inside Story of SALT II* (New York: Harper Colophon, 1980), 133-35.

²¹ Kurth, “Why We Buy the Weapons We Do,” *Foreign Policy* 11 (Summer 1973), 33-56; see also his article in Rosen (fn. 16).

misunderstanding, they did not anticipate the deployment of new systems, now that the Soviet Union possessed powerful strategic forces capable of striking the United States. The new systems, therefore, have been interpreted not as a follow-on to the older ones, but as part of a Soviet attempt to tilt the balance of power in its favor by making NATO strategy unworkable (p. 71).

The notion of “competition in strategies” that Holloway introduces is a particularly important one. Whereas Berman and Baker stress only the new NATO weapons that threatened the force of SS-4s and SS-5s during the mid-1960s, Holloway emphasizes the impact of the new NATO strategy of “flexible response” as well. He recounts how

Soviet ideas about a war in Europe began to change in the late 1960s as a result of NATO’s shift towards a strategy of flexible response, which envisages the possibility that war in Europe may begin with a conventional phase. The Soviet Union did not wish to be tied into an inflexible one-variant strategy of its own, and accordingly adjusted its policy to prepare for non-nuclear as well as nuclear operations in Europe. Since a European conflict might go nuclear at any time, flexible weapons, which could be fired quickly, were required. The SS-4s and SS-5s did not meet this requirement (p. 69).

Holloway suggests that Soviet leaders view the planned deployment of new Pershing II and cruise missiles in combination with strategies for “limited nuclear options” (the Schlesinger Doctrine and Presidential Directive 59) with the same (or greater) concern they evinced in response to changes in NATO weapons and strategies in the 1960s. He concludes that “what has been taking place between NATO and the Warsaw Pact is not only a competition in arms, but also—and perhaps more importantly—a competition in strategies” (p. 72).

In discussing Soviet regional nuclear policies, Holloway touches on an important point that he develops more thoroughly in his chapter on Soviet thinking about nuclear war: the distinction between military responsibility for preparing for wars and political responsibility for deterring them. The point is brought out in the author’s discussion of Nikita Khrushchev’s views on Soviet regional nuclear forces. Evidently the Soviet leader saw his medium-range missiles not only as military weapons, but as a deterrent broadly conceived. He maintained, for example, that the threat of nuclear destruction by Soviet missiles would keep France and Britain from joining the United States in a war over Berlin (p. 67). Moreover, Khrushchev’s use of “missile diplomacy” to support broad foreign policy goals is well documented.²²

²² See, for instance, Arnold L. Horelick and Myron Rush, *Strategic Power and Soviet Foreign Policy* (Chicago: University of Chicago Press, 1966).

Holloway's analysis of Soviet regional nuclear forces suggests that it is important to consider the role of the top political leadership in certain types of decisions regarding Soviet force posture—particularly decisions related to broader foreign policy goals or requiring major changes in strategy. At the same time, he has identified other important factors—organizational, bureaucratic, historical—that are also emphasized by the other authors. It may therefore be argued that the level of analysis at which one studies Soviet military policy affects the nature of the explanations one derives. If all the relevant levels of analysis are considered, the result—as Kurth suggests—is overdetermination. It does seem possible, however, to study Soviet policy in such a way as to mitigate the level-of-analysis problem and to arrive at general conditions under which one type of explanation would be more appropriate than another. The issue of overdetermination would thereby be rendered less problematic.

IV. LEVELS OF ANALYSIS AND TYPES OF EXPLANATION

Not all phenomena are best explained with reference to a single level of analysis. Even explanations for a particular category of phenomena, such as decisions regarding Soviet weapons procurement, would seem to benefit from a more eclectic approach. The problem lies in deciding at which point a given level of analysis provides more explanatory power than another. Students of international political economy have found it useful to consider the relationship between—and the relative strengths of—state and society as one way of helping to determine the appropriate level of analysis, and thus the most important explanatory factors for a given phenomenon.²³ In this section, I will first describe the level-of-analysis problem as it appears in the books under review. I will then consider the applicability of a state-society approach to the level-of-analysis problem in explanations of Soviet weapons decision making. Finally, I will address the related problem of overdetermination by employing the taxonomy developed by Kurth for analyzing U.S. weapons procurement.

Berman and Baker, after collapsing historical, military-traditional, and organizational factors into a Soviet target list, explain Soviet weapons decisions at the international level by assessing threats. This method has certain shortcomings when the authors are trying to explain weapons that seem redundant in terms of their missions. For example, even with their long Soviet target list, they can explain the fact that the SS-18 and

²³ Most notably, Peter J. Katzenstein, ed., *Between Power and Plenty: Foreign Economic Policies of Advanced Industrial States* (Madison: University of Wisconsin Press, 1978), see especially his introduction and conclusion.

SS-19 missiles seem to offer redundant capabilities only by arguing that the latter missile constitutes "an additional hedge" (p. 125). In this case, it might make more sense to focus on the level of the Soviet leadership, and observe, as Holloway does, the extent to which Soviet leaders are committed to numerical parity with the United States in nuclear forces. (See his chap. 3.) Such a policy, in the context of an ongoing arms race, would by definition eventually lead to redundancies. In order to maintain "parity," the Soviets may feel obliged to match quantitative changes in U.S. force posture, such as increases in warheads, even if these do not necessarily represent developments of great strategic significance. For example, an increase in the number of warheads on existing U.S. missiles (through MIRVing) that does not add anything to the Soviet target list or render Soviet forces appreciably more vulnerable might engender a Soviet response for which a requirements explanation could not fully account.

Likewise, by relying only on the requirements approach, Berman and Baker would have trouble explaining the Soviet Union's current interest in developing modern ground-launched cruise missiles. Recent Soviet tests of such missiles indicate a "requirement" that the authors do not recognize in their book.²⁴ That requirement, as Cockburn suggests, could be a political one—the perceived need to match the latest products of American technology, regardless of their utility in the Soviet context or of whether the technology in itself is effective. (See esp. pp. 134-37, 148-49, 154-55.)

In his explanations, David Holloway discusses a number of levels of analysis: the international system for evidence of threats; the overall Soviet economic system for allocation of resources; the research-production cycle for processes of weapons innovation and procurement; factors at the organizational level; and the influence of technology and history. He maintains that "one reason why a historical perspective is important is that Soviet policy is not easily explained by the theoretical models of the arms race to be found in the social science literature" (p. 178). Since Holloway has considered such models as "action-reaction" and the "autistic" or *Eigendynamik* (internal dynamic) approach in the current work and in earlier articles,²⁵ his contention seems well supported. It still, however, begs the question which factors are more important under which conditions.

²⁴ See the Associated Press report on the SS-CX-4 in the *Washington Post*, April 7, 1983; also William M. Arkin, "Soviet Cruise Missile Programs," *Arms Control Today* 13 (May 1983).

²⁵ See esp. Holloway, "Technology and Political Decision in Soviet Armaments Policy," *Journal of Peace Research* (No. 4, 1974), 257-79; and Holloway, "War, Militarism, and the Soviet State," *Alternatives* 6 (March 1980), 59-92.

Since Cockburn, in his “theoretical model,” borrows from the bureaucratic politics and military-industrial-complex approaches, he looks mainly at the level of the military service and the design bureau for his explanations; he therefore finds the determinants of Soviet weapons decisions to lie in the competition between or cooperation among them. At times, he considers the higher level of the political leadership in order to explain the broad contours of Soviet military policy, but only by relating them to personal power struggles—for example, Brezhnev favored heavy industry and military production in order to gain military allies and win out over Kosygin, who supported consumer industries and cuts in the military budget.

For particular military procurement decisions and even major changes in force structure, Cockburn relies on an analysis at the level of bureaucratic politics. This type of explanation does not always work. In order to challenge the image of a monolithic Soviet military carrying out the dictates of the Party, Cockburn discusses the extent to which the Air Defense branch of the Soviet armed forces opposed the 1972 U.S.–Soviet treaty limiting antiballistic missile systems—which was the responsibility of the Air Defense Command (p. 223). The fact that the ABM treaty was signed anyway, and the Air Defense budget was reduced, suggests, however, that in this case Cockburn’s bureaucratic explanation is insufficient. The Air Defense forces are considered a separate branch of the Soviet armed forces, ranked third in the hierarchy (ahead of the Navy and Air Force); according to a bureaucratic politics or military-industrial-complex argument, they should have won the ABM debate.²⁶ The fact that the Soviet ABM was unsuccessful should not have mattered—as Cockburn argues, Soviet military bureaucracies are particularly adept at obtaining their desired weapons, whether or not they work. By the same token, Cockburn’s assertion that the expansion of the Soviet fleet during the past decade or so can be attributed to the bureaucratic machinations of its commander, Admiral Gorshkov, is unconvincing when one considers the weak bureaucratic position of the Navy within the military and the government. Explanations based on the expanding requirements of the Soviet Navy (put forth by Western analysts) or the utility of a blue-water navy in supporting broader foreign policy goals would seem more accurate.²⁷

Although the comparative perspective Cockburn has adopted—study-

²⁶ David R. Jones, “National Air Defense Forces,” in *SAFRA*, Vol. V (1981), 81.

²⁷ The expanding-requirements argument is McCwire’s (fn. 7), while the foreign-policy rationale has been put forth by Gorshkov himself; see his *Morskaiia Moshch’ Gosudarstva* [Sea Power of the State] (Moscow: Voenizdat, 1979).

ing the Soviet military-industrial-complex with reference to the United States—can engender useful insights, it can be taken too far. There is no reason to believe, for example, that the situation that obtains in the U.S.—a weak state penetrated by a strong society—is duplicated in the Soviet Union. In fact, the United States appears to occupy an extreme position in its relationship of weak state to strong society, and it seems likely that the Soviet Union represents the other extreme.²⁸ Such a generalization should not be used to solve all problems associated with explaining Soviet weapons procurement. Nevertheless, it seems helpful in dealing with the problem of overdetermination, especially when considered in tandem with an approach James Kurth developed for overcoming the analogous American problem.

In his “Widening Gyre,” published in 1971,²⁹ Kurth attempted to cut through the “thicket of theories” used to explain U.S. military procurement, and to resolve the problem of overdetermination. His approach was to posit “modes of change” and relate them to “modes of causation” for application to types of weapons decisions and stages in the processes of research, development, and procurement. Specifically, Kurth found that four modes of change—quantitative, innovative, renovative, and redistributive—fit four modes of causation—bureaucratic politics, bureaucratic process, bureaucratic-corporate alliances, and the economic system. It is not surprising, in light of the state-society approach discussed above, that Kurth should find bureaucratic forces most important for determining decisions on weapons procurement in the United States—a country with a relatively weak state apparatus and strong interest groups.

Only detailed research will reveal how useful Kurth’s taxonomy is for understanding Soviet developments (more research is necessary to assess its validity for U.S. developments as well). At this time, it is worth attempting a tentative application in the context of Soviet regional forces.³⁰ Although Kurth’s categories of change seem relevant to the Soviet case, his modes of causation do not always apply; indeed, those for the Soviet weapons procurement process are often the opposite of those for the American. Again, this conclusion is what a state-society analysis would predict.

²⁸ See Katzenstein (fn. 23). The analysis offered by Zbigniew Brzezinski and Samuel P. Huntington is also generally consistent with this observation; see their *Political Power: US/USSR* (New York: Viking Press, 1963), esp. chap. 4.

²⁹ Kurth (fn. 1).

³⁰ For the purposes of this essay, the order in which Kurth discussed his “modes of change” will not be followed, so as to permit a chronological presentation of the Soviet cases.

For example, in Kurth's category "innovative change" he argues that because an innovative change is unfamiliar and sometimes inexpensive, it normally begins not in a decision at the higher levels of policymaking and budget-making but in technical and organizational procedures for research and development. At this initial point, some sort of technocratic explanation seems best.³¹

To go from research and development to production and deployment, Kurth argues, probably requires bureaucratic momentum and "strategic fears." He therefore divides innovative change into two stages: the first relies on a technocratic explanation, while the second emphasizes bureaucratic forces. This distinction is perhaps not necessary. If weapons designers want to promote technical innovations, they must act much as any other bureaucrat and contribute to the process of generating strategic fears.³²

In the Soviet system, the situation is quite different; in fact, it is almost the reverse, as Holloway indicates:

Soviet military R & D in the post-war period can be seen as the effort of a basically non-innovative system to cope with revolutionary technological change, which has been generated primarily by the Soviet Union's potential enemies. . . . Major innovation decisions cannot easily be handled within the standard operating procedure of the military R & D system, and require intervention from the top to authorize new funding and new institutional arrangements (pp. 148-49).

Thus, political intervention (based on strategic fears or technological opportunities) is necessary to generate bureaucratic momentum and to stimulate innovation. It is true that Soviet weapons designers have proposed innovative developments on their own initiative—particularly in some areas of aircraft and radar technology—but the successful implementation of their proposals usually required strong political (and not simply bureaucratic) backing.³³ In the context of the Soviet regional

³¹ *Ibid.*, 396-97. Innovation is made even less expensive when weapons manufacturers are reimbursed by the government for unsolicited, "independent" research and development costs. See Judith Reppy, "Defense Department Payments for 'Company-Financed' R & D," *Research Policy* 6 (1977), 396-410; and her *The I R & D Program of the Department of Defense*, Cornell University Peace Studies Program Occasional Papers, No. 6 (Ithaca, N.Y.: March 1976).

³² I am grateful to Judith Reppy for bringing this point to my attention. A good example of a weapon designer's engaging in bureaucratic politics in order to promote his product is provided by the inventor of the "neutron bomb," Samuel Cohen, in *The Truth about the Neutron Bomb* (New York: William Morrow, 1983).

³³ On radar developments, see the memoirs of a former Soviet radar designer, A. Fedoseev, *Zapadnia: Chelovek i Sotsializm* [The Trap: Man and Socialism] (Frankfurt/Main: Possev-Verlag, 1976), and John Erickson, "Radio-location and the Air Defense Problem: The Design and Development of Soviet Radar, 1934-1940," *Science Studies* 2 (1977), 241-68. On aircraft,

forces, an important stimulus for research and development of rocket technology came from Germany during World War II, and top political support was crucial for developing ballistic missiles during the early postwar period.³⁴

The next stage in the development of Soviet regional forces in the postwar period could fall into Kurth's rubric of "redistributive change."³⁵ Although in the American context Kurth has in mind primarily redistribution of economic rewards among industrial sectors, his examples find a close Soviet analogue in Khrushchev's creation of the Strategic Rocket Forces in late 1959 and the large-scale change from production of aircraft at aviation industry plants to production of medium-range missiles.³⁶ Clearly, the impetus for this type of change in the Soviet military posture meets Kurth's requirements of being "both unusual in kind and general in scope." As Berman and Baker recount, the major deployment of U.S. nuclear weapons systems around the periphery of the Soviet Union during the early postwar years fits this description.

Kurth terms another type of change "renovative." In its "pure form," it is defined as "the production and deployment of a weapons system whose technical characteristics are generally familiar, whose strategic implications are generally minor, whose production renovates an established aerospace organization."³⁷ In the Soviet case, the deployment of the SS-20 seems to conform to this definition quite well. Its MIRV technology was certainly familiar, as was its solid-fuel propulsion system (albeit due to years of unsuccessful development). As Cockburn reminds us, the SS-20 served to renovate the flagging Nadiradize "corporation" as well as the regional component of the Strategic Rocket Forces. And, although the strategic implications of the SS-20 were deemed anything but minor by NATO officials, there is reason to believe that when the Soviets first made the decision to deploy the SS-20, they perceived the system mainly as a follow-on and did not expect that type of response.³⁸

see the memoirs of designer A. S. Iakovlev, *Tsel' Zhizn'* [The Goal of a Lifetime] (Moscow: Politizdat, 1966).

³⁴ See Holloway's studies of missile development—in particular his chapter on "Military Technology," in Ronald Amann, Julian Cooper, and R. W. Davies, eds., *The Technological Level of Soviet Industry* (New Haven: Yale University Press, 1977), 407-89; and "Innovation in the Defence Sector," in Ronald Amann and Julian Cooper, eds., *Industrial Innovation in the Soviet Union* (New Haven: Yale University Press, 1982), 276-414.

³⁵ Kurth (fn. 1), 399-400.

³⁶ See Khrushchev's speech, *Pravda*, January 15, 1960, and his remarks in his memoirs, *Khrushchev Remembers: The Last Testament*, trans. by Strobe Talbott (Boston: Little, Brown, 1974), 51.

³⁷ Kurth (fn. 1), 397.

³⁸ See Raymond L. Garthoff, "The Soviet SS-20 Decision," *Survival* 25 (May-June 1983); see also Garthoff, "Brezhnev's Opening: The TNF Tangle," *Foreign Policy* 41 (Winter 1980-1981), 82-94.

Kurth argues that for renovative change to occur in the absence of a major strategic threat, the proponent of the new weapons system must mobilize many allies in industry, government, and so forth. In the presence of a threat, "bureaucratic-corporate alliances can be rendered unnecessary by bureaucratic-strategic anxieties. Whether this happens seems to be a function of the relative bureaucratic power of the nurturing military organization."³⁹ The Strategic Rocket Forces represent one of the strongest bureaucratic powers in the Soviet military. Furthermore, as Berman and Baker point out, the threat or requirement that the SS-20s were expected to meet was a longstanding one. Finally, it was not necessary to rally great support among the design bureaus or military industries because the Strategic Rocket Forces already had the candidate weapon—the two-stage version of the SS-16, which became the SS-20.

The case of the SS-20 also serves to illustrate Kurth's remaining category, that of "quantitative change." In the United States, Kurth argues, such change depends mainly on bureaucratic-corporate alliances.⁴⁰ During an era of negotiated arms control agreements, this explanation does not adequately account for Soviet developments, however. One American participant in the SALT negotiations argues, for example, that at certain times the levels of Soviet missile deployments seemed quite sensitive to the political requirements of the arms control negotiators and were used as "signals" of Soviet intentions.⁴¹

Do Soviet arms control proposals regarding the SS-20 reflect a similar process at work? Holloway suggests that the various proposals put forward by Brezhnev between October 1979 and March 1982 to limit Soviet regional nuclear forces in return for cancellation of the NATO decision to deploy Pershing II and cruise missiles were designed to maintain a large Soviet nuclear force targeted against Europe; they probably did not entail cutting back the amount of SS-20s deployed (pp. 76-78). At this stage one could argue, as Berman and Baker do, that military requirements demanded a large force regardless of NATO's decisions on further deployments, and that such deployments would call forth an even larger Soviet force as a response. Or one could imagine, as Cockburn does, that a bureaucratic-corporate alliance of the type described by Kurth was formed between the Strategic Rocket Forces and the Na-

³⁹ Kurth (fn. 1), 398.

⁴⁰ *Ibid.*, 400-401.

⁴¹ Raymond L. Garthoff, "SALT and the Soviet Military," *Problems of Communism* 24 (January-February 1975), esp. 30-32. For a further discussion of the influence of arms control negotiations on military posture, see Jane M. O. Sharp, "Is European Security Negotiable?" in Derek Leebaert, ed., *European Security Prospects for the 1980s* (Lexington, Mass.: Lexington Books, 1979).

diradize bureau in order to press the political leadership not to limit the numbers of SS-20s deployed. At a later stage, however, if the Soviet leadership were more interested in obtaining an arms control agreement with the United States than in satisfying the desires of its military services and design bureaus, the "bureaucratic-corporate alliance" explanation would no longer serve. Before breaking off negotiations in response to deployment of new U.S. missiles in Europe, the Soviets indicated a willingness to negotiate a substantial reduction in the number of SS-20s deployed (in return for cancellation of the NATO deployment), although presumably neither the military "requirement" nor the interest of the Nadiradize bureau in having its missile produced and deployed in great quantities had decreased.⁴² Thus, when considering quantitative change, one must keep in mind the stage at which the quantitative decisions are being made, and whether the weapons under consideration are the subject of arms control negotiations.

In the above analysis, I have attempted to apply James Kurth's four "modes of change" to Soviet weapons procurement in the context of the development of Soviet regional forces. Some tentative conclusions emerge: First, the "modes of causation" for Soviet developments differ considerably from those Kurth identified in U.S. weapons procurement, with a greater emphasis on political intervention and strategic threats and opportunities as the stimuli for Soviet decisions, and a lesser role for bureaucratic factors. Second, it is important to distinguish stages within each type of change; the sequence and characteristics of the stages may differ in the U.S. and Soviet cases.

An analysis drawing on Kurth and informed by consideration of relative strengths of state and society would suggest that, for innovative change to occur in the United States, technocratic impulses must lead to bureaucratic momentum, which must be followed by the generation of strategic fears. In the Soviet case, strategic fears or technological opportunities lead to political intervention, which generates bureaucratic momentum and innovation. This interpretation seems consistent with the role that political leaders are supposed to play in the formation of Soviet military doctrine as formally defined. Although these conclusions are only tentative generalizations and can hardly serve to explain all U.S. and Soviet weapons procurement decisions, they do seem to hold some value for comparative purposes. Further research is required to test and refine these general observations.

⁴² For details of Soviet and U.S. proposals, see Chalmers Hardenbergh, ed., *The Arms Control Reporter* (Brookline, Mass.: Institute for Defense and Disarmament Studies, monthly).

For conducting such research, the analysis presented here suggests the importance of applying a particular framework (such as that developed by Kurth) to the study of weapons procurement decisions in order to begin to specify conditions under which certain factors are more likely than others to influence the decision-making process. Identification of these factors, and the conditions under which they are most relevant, will serve as a guide to the proper level of analysis on which to focus, and will help to mitigate the problem of overdetermination.

V. CONCLUSION

The three books under review provide important insights into the factors that influence Soviet decisions concerning weapons procurement. They demonstrate that much can be learned of specific cases of weapons development, production, and deployment by applying analyses based on military requirements, bureaucratic politics, organizational structures and processes, and historical factors. Two tasks of future research in this area might be the following: first, it would be useful to propose a framework for analyzing weapons decisions that will suggest generalized conditions under which particular factors come into play. A second step would be to undertake parallel studies of particular Soviet weapons decisions in order to make generalizations about sequences in decision making and the relative weights of different types of determinants at different stages of the process. This kind of research can make an important contribution to understanding the main influences on Soviet military policy—influences that must be understood better if the dangers posed by the current arms race are to be addressed.

ERRATA

SUPPORTIVE PARTICIPATION WITH ECONOMIC GROWTH, by Ikuo Kabashima
(April 1984)

Page 311—the last full paragraph should read:

The indices of different modes of political participation are the same as those constructed by Verba, Nie, and Kim.⁸ The income figure is based on the respondent's family income before taxes. Relatively speaking, the structure of participation in Japan is quite income-neutral. Income elasticity in voting, campaigning, and communal activities is 0.06, 0.13, and 0.36 respectively. Income elasticity in voting is lower in Japan than in five of the other countries; it is lower still for Austria and India. Not only is the coefficient small; it is also not statistically significant at an 0.05 level. Japan's income elasticity in campaign activity is the lowest of the seven countries; in communal activity, it is comparable to India, lower than the United States, the Netherlands, and Nigeria, and higher than Yugoslavia and Austria.

Page 314—the first letter on line 12 should be "1."

Page 331—in each of the diagrams, one of the arrows should be reversed: in the upper figure, it should point from "Less Political Stability" to "Less Political Participation"; in the lower, from "Less Political Stability" to "More Political Participation."