

CENTRAL INTELLIGENCE AGENCY  
OFFICE OF NATIONAL ESTIMATES

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MEMORANDUM

Soviet Strategic Weapons Programs

I. INFLUENCES AND MOTIVATIONS

1. At the turn of the decade the Soviets face a situation profoundly altered by developments of the past several years. With respect to numbers of weapons for intercontinental attack, the USSR has emerged from the position of pronounced inferiority to the US that it had long occupied. The quarrel with China has escalated from an exchange of polemics to armed clashes that threaten major war. Events in Czechoslovakia have again exposed the difficulties of the Soviet position in Eastern Europe. And the use of military power and resources to support foreign policy has been expanded to new areas, notably the Mediterranean and Middle East.

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2. Among these developments the militarization of the Sino-Soviet dispute represented a new element introduced into Soviet strategic calculations and military policy. Throughout most of the post-war era Soviet military planners were concerned primarily with two major problems: the inter-continental strategic capabilities of the US and the military power of the US and its allies as deployed in Western Europe. Now they face a third: a hostile China with an incipient nuclear capability. The initial effect has been to increase requirements; the USSR has undertaken a substantial military buildup along the Chinese border.

3. Costly and burdensome as this Far East deployment is, it has brought no relaxation in the buildup of strategic forces against the US; indeed the possibility of war with China must give additional reason for insurance against the West. The ICBM deployment continues. Construction of ballistic-missile-firing submarines comparable to the Polaris proceeds at the high rate of six to eight a year. Military research and development continues in many lines: new or improved missiles, multiple warheads, depressed-trajectory and fractional-orbit ICBMs, antisubmarine weapons systems, nuclear testing, and the ABM.

4. It appears indeed that the strategic arms competition may be entering a new phase. The crude number of ICBM launchers is becoming

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less significant than the technical characteristics of missile systems: their capacity to survive attack, their accuracy and yield, their equipment with penetration aids or multiple warheads, their degree of vulnerability to defensive measures. The ABM, still in its earliest stages as an operational weapon, gives promise of destabilizing the strategic balance. Meanwhile the cost of future weapons development appears certain to increase substantially, as do the political and psychological dangers associated with an uncontrolled arms race.

5. In this situation Soviet strategic arms policies will continue as in the past to be shaped mainly by four influences: the Russian national experience and tradition; the pressure of the military establishment upon the Soviet administration; the problems of economic costs and resource allocation; and the politico-military action and reaction between the USSR and the United States in the context of the total international situation.

#### The Heritage of the Past

6. Among the imprints that history and geography have left on the Russian national consciousness are the ancient memory of invasion by Oriental hordes, a centuries-old sense of inferiority before the more advanced West, and the more recent experience of military conflict with Germany. From the days of the first Muscovite Tsars Russia has always maintained a massive

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military establishment by the standards of the day, and the state of the nation's armament has traditionally been considered a crucial mark of its place in the world. Stalin, though non-Russian by birth, clearly recognized and reforged the link between Russian patriotism and national defense:

. . . those who fall behind get beaten. But we do not want to be beaten. No, we refuse to be beaten! One feature of the history of old Russia was the continual beatings she suffered from falling behind for her backwardness. . . . You are backward, you are weak -- therefore you are wrong; hence you can be beaten and enslaved. You are mighty -- therefore you are right; hence we must be wary of you. That is why we must no longer lag behind.

7. The words are Stalin's in 1931, but the motives they reveal are virtually identical with those which impelled Peter the Great. Observers nowadays note that the Russians are a highly competitive people. They seem to want always to win, to be first, to have the biggest of everything whether it makes economic sense or not. These tendencies are compounded by communist ideology, which causes the leaders to consider that every success, even in such things as sports, is a proof of the superiority of their system and every failure a challenge to the system as a whole. Added to this is the ingrained aspiration -- common to most states -- to signify national power by the creation and maintenance of a formidable military posture. The Soviet regime did not create this aspiration though it has helped to make it more realizable. Communist ideology may reinforce it by assigning to the Soviet state a far

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more universal mission than Tsarism ever claimed for itself. But this messianic element is mitigated by the conviction, also derived from Marxism-Leninism, that since the future belongs to Communism in any case, military adventurism is a cardinal sin.

8. In making military policy the present leaders have thus been building broadly on layers constructed in the distant past and responding to motivations which lie deep in the national character. Yet there are also important ways in which the domestic and international political environment of the last few years has left its stamp. For various reasons the hallmark of policy under the collective leadership has been conservatism shading over in many instances into reaction. Add to this the unsettling impact of events -- the uncertainty about US intentions arising out of the war in Vietnam, the complementary fear aroused by Chinese behavior, the war in the Middle East, worry over currents in Eastern Europe, and the appearance at home of a small but hardy protest movement -- and it is not surprising that the Soviet leadership found a new appeal in the orthodox verities. It is not surprising either that in these conditions it neither wanted nor dared to ignore the needs of defense. The hardening of ideological outlook and the leadership's generous response to the demands of the military establishment in recent years have had the same immediate causes.

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The Influence of the Military Establishment

9. There is no reason to believe in the existence of sharp conflict between the Soviet military establishment and the Party bureaucracy. Political controls over the military structure, which run from top to bottom, are evidently as effective as they have ever been, and though the military may occasionally chafe at these controls they do not seriously challenge them. Moreover, the political and military leaders are not divided in broad outlook and view of the world. They see eye to eye on most major questions of policy. Certainly they agree on the general proposition that the US represents a threat to Soviet security and Soviet interests, and that measures must be taken not only to counter the military threat but also to demonstrate Soviet power and thereby increase the credibility of Soviet diplomacy.

10. The influence of the Soviet military establishment in the USSR is probably much like that of the military establishment in the US. It is a powerful element in government, and its professional concern is with defense and with the policies, techniques, and weapons which assure defense. Together with its associated scientific and industrial groups it exerts pressures and urges reasons for the continuation of current arms programs and the undertaking of new ones. Final decisions are made by civilian authorities, who of course do not question the requirement for national security. Yet

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the Party leaders must perforce take a wider view; they have many demands to consider apart from those of the military. In particular they have exhibited much concern about the state of the Soviet economy, and have indicated hesitantly that they would like to obtain some relief from the pressures of military spending.

Economic Constraints

11. It is not the amount of money spent on the military establishment which accounts for the increasingly poor showing of the Soviet economy. Measured in rubles, the military only takes about 8 percent of GNP, a comparatively modest proportion. What it does take is a wholly disproportionate share of the best and most scarce resources: special materials and machines, skilled technicians, competent management. Enterprises supporting defense are also relatively free from the bureaucratic harassments which are as responsible as shortage of investment for the slowing growth of Soviet industry. Merely to switch funds from the military to the civilian economy would ameliorate but not solve the problems of declining productivity of labor and capital.

12. Clearly there is a belief within the Soviet leadership that, if it could safely be done, some of the resources now going into defense could

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be put to more productive use elsewhere. The issue, however, is one of desirability and not of overriding necessity, for there is no doubt that present and even higher levels of defense spending can be supported by the Soviet economy. Economic constraints alone will not slow down the Soviet military buildup. The burden can be borne. It cannot be appreciably lightened without a substantial modification of relationships between the Soviet Union and the US.

Action and Reaction Between the USSR and the US

13. It is no more than a truism to remark that any two states having energetic and effective governments, and deeply committed to mutual rivalry, will be especially concerned about their respective military establishments. If one of these states feels itself to be in a position of strategic inferiority its efforts to catch up will be given highest national priority. For a good many years the Soviet leaders have seen their country to be in this inferior position, and it is this which accounts in large part for the rapidity and magnitude of their recent strategic buildup.

14. In the present era, however, the compulsion of advancing technology tends to produce especially vigorous action and reaction between the military programs of the USSR and the US. It is true that for thousands of

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years the art of warfare has been revolutionized from time to time by technological developments. During the last three decades, however, such developments have been more numerous and their putative effect more appalling than in the whole previous span of history. There is no reason to doubt that this rapidity of technological advance will continue.

15. In this situation neither side can afford to rest comfortably - as states often did in the past - upon the security afforded by a stable military establishment, with weapons and doctrines inherited from its last previous war, and with new developments slowly and cautiously adopted. Technology has made the strategic relationship susceptible to sweeping and rapid change, which can only be prevented if each side assiduously presses forward the frontiers of scientific advance and carefully observes what the other side is doing. The contest becomes one of research, development, testing, deployment, and intelligence. Above all it becomes one of anticipation; each side must provide not so much against what its adversary has at the moment, but against what it will have or what it may have five to ten years ahead. The technological rivalry takes on a life of its own. Each side is powerfully impelled to consider the "worst case": to prepare against the most alarming possibilities that can be envisaged. Thus there appears a strong and almost inescapable motivation for continuing vigorous weapons development and deployment.

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II. SOVIET STRATEGIC WEAPONS POLICIES

16. As the preceding discussion indicates, it would have been out of character for the USSR to refrain from a vigorous strategic buildup. The Soviet leaders, to be sure, had some latitude in determining how rapidly the program should be pushed and what particular weapons systems should be favored. Yet there were limits to their freedom of choice. Things could move no faster than the advance of technology permitted. The allocation of resources to military purposes had to be constrained by considerations of general economic and social policy for the country as a whole. At the same time, the decision-makers were urged towards large and rapid programs by various pressures: the desire for more power to back up their diplomacy, the influence of the military establishment and of the constituent elements thereof, above all the felt imperatives arising from estimates of what the US was doing and what it might do in future. Moreover, once large and expensive weapons programs get under way they acquire numerous personnel with an elaborate organizational structure and many installations for research and development, deployment, training, command and control. Enterprises of such magnitude tend to keep moving if for no other reason than their own inertia; even their pace is difficult to alter and they can be terminated only by bold and far-reaching decision.

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17. Evidence from the past decade or so leads to the judgment that while the Soviet buildup in strategic arms has been great it has not been frenzied. There has been no such vast expenditure of national product or massive mobilization of national effort as would indicate a clear intent to overshadow the strategic posture of the US, or a conviction that general nuclear war was a likely prospect. And there is no good reason at present to believe that future Soviet arms policies will have a markedly different priority. Yet the course of international affairs, or of Soviet domestic affairs, or of both, could be such as either to increase or to diminish the magnitude of the effort.

18. In the near future the strategic arms limitation talks offer some hope of reducing the intensity of competition. Some Soviet leaders obviously think that the prospect is worth exploring. Their motives are doubtless mixed, and may include the hope of gaining through negotiation some limited strategic advantage over the US. Yet some apparently think that an agreement would be beneficial to the USSR if it perpetuated a relationship of rough strategic equality with the US and averted the necessity of keeping expenditure and effort at the levels required by an arms race. Even an arrangement of less scope, referring perhaps only to one or two important classes of weapons, might permit some relaxation of the Soviet effort.

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19. On the other hand, vast difficulties would attend the formulation of an agreement establishing rough strategic equality. It is true that many Soviet and US authorities declare that the two states have already reached nuclear parity, by which is meant a condition of more or less equal mutual deterrence. This state of affairs might well be perpetuated by agreement. As between two great powers, however, the phrase "strategic equality" signifies something broader than mutual deterrence. It is an equality of strategic "posture". But strategic postures cannot be measured or compared with precision. The geopolitical situation of the two countries differs, and their respective strategic requirements are in many respects incommensurable. By the time the USSR acquired what its major interest groups believed to be true equality, most Americans would believe it to be clearly superior.

20. But would any sort of "parity" or "equality" satisfy the Soviets? Do they perhaps intend to attain a clear superiority, so that whether or not they actually make war they can exert a preponderant political influence over the US? The question is intrinsically interesting, and may be of importance in connection with the SALT talks. Assuming a continuing arms competition, however, the question of intent becomes secondary; the dynamics of the competition are primary. Each side, though motivated

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by the fact of rivalry with the other, wages the contest not directly against the other, but indirectly upon the frontiers of technological advance. It does the best it feasibly can to improve its own position, to anticipate future possibilities, and to counter what it believes to be its adversary's developing position. It tries to insure that it shall at a minimum stay equal through the years to come. The adversary perceives in this effort an intent to achieve superiority, or at least a threat that superiority may be achieved; it accordingly accelerates its own efforts. In the course of these processes one side or the other might conceivably acquire a useful degree of superiority, either through an important technological breakthrough, or because the adversary relaxed his effort sufficiently to fall well behind. The Soviet leaders may hope for one or both of these eventualities, but it would be idle for them to count on either, or seriously to plan on the basis that either will occur.

21. What, then, do the Soviets seriously plan to achieve? Do they for example simply want to maintain a credible deterrent, or do they aim at a force capable of substantially impairing the credibility of the US deterrent? In the early 1960's the second alternative was out of the question, since no effective counter to ballistic missiles could be more than dimly envisaged. Now, however, technology is beginning to change the situation. The

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prospect of ABMs is taking shape. Ballistic missiles can be of sufficient yield and accuracy to destroy the adversary's land-based ICBMs. Neither system has yet become a deployed reality to any significant extent. Neither promises in the foreseeable future to give adequate insurance against massive retaliation in case of attack. The deterrent force therefore remains a sine qua non of the strategic posture of both sides, and in our view will remain so for many years to come.

22. This is not to say that the nuclear armaments of the two countries must be kept at "parity", whether computed in numbers of delivery vehicles, megatonnage, or similar measures. There is a fairly wide though indefinable range within which the relative nuclear strengths of the two powers may vary without significantly impairing the condition of mutual deterrence. Whatever force they may think necessary for the purpose, however, we are confident that the irreducible minimum objective of the Soviets is to maintain the credibility of their deterrent. Meanwhile they will surely continue research and development in defensive and counterforce systems, partly with the aim of reducing the US deterrent, but even more because continuation of research and development is the essence of the strategic competition.

23. In a broad and general sense, then, the motives and impulses as well as the feasible objectives of Soviet strategic arms programs are fairly

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plain. It is when one comes down to specifics that questions become unanswerable in any confident or precise way. How many ICBMs will the Soviets deploy, and of what kind, and when? Will they develop MIRVs? Will they produce an ABM which they consider dependable, and if so when, and how widely will it be deployed? How many ballistic-missile-firing submarines will they build? Which among the manifold lines of technological advance that can be foreseen or imagined will they decide to work on? And so on.

24. On the basis of hard evidence, questions like these can be answered for no more than the coming two or three years. When we look further ahead we must formulate judgments resting on assumption and argument, and endeavor to evolve what for the Soviets would be rational goals and programs. Experience has demonstrated, however, that what seems rational to us does not always appear to seem rational to the Soviets; moreover, it is a generous assumption to suppose that any country's arms programs are developed purely in accordance with rationality. Yet a few propositions may be offered on one or two of the more specific questions, even though none can pretend to be definitive.

#### Land-based ICBMs

25. The Soviets had 250 ICBMs operational in 1966; at the beginning of 1970 they had 1,158. Since it seems obvious that the US would have been

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adequately deterred from practically any adventure by the prospect of receiving far less than this number of missiles on the homeland, why such an inordinate and expensive buildup? Probably the most cogent explanation is that the US itself had at the beginning of the 1960's programmed a force of  Minutemen, and the Soviets did not propose to be left numerically behind. But there are doubtless other reasons: the demonstrated fondness of the Russians for inexplicably large numbers in certain elements of their military forces, or a judgment that great numbers of ICBMs were desirable for massive psychological effect on the US and the rest of the world, or a calculation that a surplus of Soviet ICBMs would compensate for US superiority in manned bombers and Polaris-type submarines. Perhaps the number of ICBMs represents nothing more subtle than the success of the Soviet rocket command in gaining large appropriations for its new and glamorous weapons. Or the

25X1



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26. For whatever reason or combination of reasons, the buildup continues; by 1972 the Soviets will have some 1,400 land-based missiles capable of attacking the US. Insofar as these missiles are intended for deterrence, that is, for establishing a credible capability for retaliatory attack after a US first strike, we see no rational basis for pushing the number higher.

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The marginal deterrent value of each additional Soviet ICBM has long since become practically zero. But since we have seen little rational basis for pushing the number as high as it is, we can have no confidence in any prediction for the farther future.

Counterforce Capabilities

27. There is in sober fact no hard evidence that the Soviets contemplate the development of a ballistic missile force capable of effectively attacking US ICBMs. The SS-9, however, has been estimated to have the combination of yield and accuracy  there are now 204 SS-9's 25X1 operational. If enough were deployed they might indeed destroy the entire Minuteman force, assuming (it is a dubious assumption) that they all actually arrived on target before Minutemen were launched. Or the Soviets might equip the missile with multiple independently-targeted re-entry vehicles, thus requiring a much smaller number of launchers. The SS-9 has been tested 13 times with multiple re-entry vehicles, though not independently-targeted ones; equipped with a warhead heavy enough to carry them, however, the missile has not yet demonstrated a range great enough to reach more than a small fraction of the Minuteman force.

28. We think that the SS-9 is a possible counterforce weapon. In any case we have estimated that the Soviets will in fact develop a counterforce

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weapon, perhaps an improved SS-9, more probably a new missile with better range and accuracy, and with MIRVs. It is worth observing that although there has been some evidence of the development of a new and improved missile, its purpose and effect have been judged wholly on the basis of technological feasibility and probable Soviet desires; it has not been flight tested. Since the possibility of a counterforce weapon exists, we estimate -- or perhaps more properly we assume -- that the Soviets will seize it. And US officials therefore seriously discuss the likelihood that land-based, fixed-site ICBMs will before long become obsolete, and that this important element of the US deterrent force will lose its credibility. Even the discussion of this eventuality represents a notable score for the Soviets in the strategic competition.

29. The Soviets may hope to achieve at least a marginal alteration of the strategic balance in their favor by introducing counterforce weapons plus defensive systems, especially the ABM. They would expect thereby to reduce the number of US warheads which might otherwise descend upon them. They would expect to create in the world an enhanced impression of their military capabilities. They might even hope that the US would estimate that its deterrent capabilities had been grievously impaired -- perhaps negated. To the extent that the US made this judgment they would indeed have succeeded in altering the strategic balance, which is, after all, essentially what the respective governments think it is.

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30. Whatever the US came to think, however, we doubt that the Soviets would feel themselves liberated from the constraints of the US deterrent. It is almost inconceivable that they could ever have such confidence in counterforce weapons against Minutemen as to feel no sense of deterrence from the Minutemen that might survive an attack or be launched before the attack had done its work. And there would remain the threat from manned bombers based in the US, in Europe, or on carriers, and from the Polaris submarines, against the last of which no effective counterforce is in sight. It is difficult even to believe that any foreseeable combination of counterforce and defensive systems would give the Soviets such massive assurance of immunity as to make the risks of deliberate attack on the US seem acceptable, or even to make unintended general war appear much less intolerable.

#### Ballistic Missile Firing Submarines

31. We have a good deal of confidence in judging that the Soviets will build a substantial force of ballistic missile firing submarines. One reason for such confidence is that the technology is clear; the system has proved to be feasible. Another reason is that submarines are likely to remain for years to come almost invulnerable to counterforce. Moreover the Soviets have lately commenced series production of a new and effective submarine -- the Y-class. By the middle of the 1970's they can have as many of these as the

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US now has, and probably will. Because of the geographical situation of the USSR, however, and its lack of bases in the Western Hemisphere, we think that the Soviets may want a larger force than the US has in order to establish strategic "equality" with respect to this system.

### The ABM

32. Unlike the Polaris-type submarine, the ABM is still a weapons system which exists only upon the frontiers of technology. Both the US and the USSR have developed ABM systems which can destroy incoming objects, and to some degree can differentiate between warheads and penetration aids. But neither side has, or has in any near prospect, a defensive system which could cope with the hundreds, perhaps eventually the thousands, of warheads which the other side could discharge against it. Both countries continue to work at the problem, as they have done for many years. The effort to develop an effective ABM represents probably the clearest current example of the sort of scientific and technological contest which characterizes the strategic relationship between the two powers.

33. The Soviets have in fact already deployed the ABM-1 system around Moscow, but both the US and the USSR recognize that this system is incapable of dealing with anything more than an attack of most limited scale. It could easily be saturated and rendered useless. In the early days of its development

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the Soviets may have expected more from this system, but they must have come to realize that it would be ineffective; why, then, did they go to the great cost and effort of deploying it? Probably they argued that a "thin" defense of Moscow was better than no defense at all; at least it might cope with "accidental" firings. Perhaps also the operational deployment contributed to foreseeing and solving problems to be faced by later and better systems. The Soviets have often exhibited a propensity to early deployment of new weapons, without waiting for as thorough a testing and proving as the US usually thinks necessary for new and advanced systems.

The "Multiplier Effect" of Soviet Strategic Weapons

34. With the deployment of the ABM-1, ineffective as the system is, the Soviets nevertheless scored another "first" in the arms competition. Thereby they acquired a certain prestige; everyone was moderately impressed, and slightly raised his estimate of the probable strategic stature of the USSR in years to come. The US was worried. The political and psychological effect of the ABM-1 deployment was greater than the military usefulness of the weapon justified.

35. Soviet leaders must indeed be conscious of this "multiplier effect" in many of their strategic weapons programs. It required only a few Soviet heavy bombers in the mid-1950's to produce debate in the United States about

a "bomber gap". The first few Soviet ICBM tests led the US to make an exaggerated judgment of the rapidity with which these weapons could be operationally deployed, and led to talk of a "missile gap". The SS-9 was originally designed as a successor to the early SS-7; almost certainly it was intended to be merely another deterrent weapon. But the Soviets know that US defense authorities have concluded that the SS-9 is a "counterforce" weapon, and are sorely troubled. They also know that in half a dozen tests of simple multiple re-entry vehicles on the SS-9 some US officials saw a hitherto unsuspected and highly threatening MIRV technique. They know that their SA-5 and even their SA-2, both designed for use against aerodynamic vehicles, are considered by some Americans to have a significant capability against ballistic missiles.

36. We cannot assert that the Soviets confidently plan for each technical advance of their own to exert such effects on the US as in the above cases. Indeed it might be supposed that they would think this sort of US reaction disadvantageous, since it stimulates the US to renewed efforts of its own to stay ahead, or at least to stay even. But Soviet leaders have never displayed much inclination to alleviate US fears. They seek to enhance their own strategic stature in the eyes of the US and of the world, and their strategic stature depends partly on their real capabilities but even more on the adversary's estimate of these capabilities. It is reasonable to suppose that the Soviets are gratified, on the whole, if the

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US occasionally magnifies existing threats or even discovers threats which do not exist.

36. The ultimate test of "real" capabilities can only occur in war, but there is no reason to believe that the Soviets intend to appeal to this test. On the contrary, they may hope to stabilize the strategic relationship with the US by an arms limitation agreement. Saving this possibility, however, they appear to see the strategic competition as being of indefinite duration, a continuing contest in which each side is likely to feel its ups and downs from time to time but never (at least until the coming of the Communist millenium) to know either total defeat or total victory. They know that the arenas in which the competition is conducted are technological, political, and psychological, and that the interaction among these is continuous. All the evidence indicates that they intend to keep the contest in these fields, and to avoid the ultimate test of general war.

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