NORTHERN WATERS: THEIR STRATEGIC SIGNIFICANCE. (U)

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Robert G. Weinland
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CENTER FOR NAVAL ANALYSES
NORTHERN WATERS: THEIR STRATEGIC SIGNIFICANCE

Robert G. Weinland
INTRODUCTION

That the North Atlantic-Norwegian-Barents Sea area is of importance to those who use it is patently obvious. How each of them uses it -- not to mention the degree of importance that each attaches to that use -- is not so obvious.

This is particularly the case in the military sphere. On the one hand, since most military use of the area is connected in one way or another with preparations for war, security considerations preclude more than cursory discussion of such activity. On the other hand, until war comes to the area, many of the specifics of military use and importance will remain matters of conjecture.

Some things, however, seem clear. One is the potential importance of control of the North Atlantic-Norwegian-Barents Sea area to the outcome of a major Continental conflict. A second, derivative of the first, is the virtual certainty that control of this area would be contested vigorously if such a conflict were to occur. A third, derivative of the second, is the equal certainty that this contest would affect every state in the region, regardless of the role it might elect to play in the larger conflict.

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1This includes -- actually, for the most part it consists of -- efforts to deter war.
Each of these points deserves amplification. Because of the welter of factors involved, this must begin in the abstract; the discussion nevertheless will move toward the concrete. For the reasons cited above, however, it cannot arrive there.

IN THE ABSTRACT
A war between NATO and the Warsaw Pact cannot be won either at sea or on the flanks. It must be won on the primary battlefield: the Central Front. But who wins in the center and the ability of the winner to realize the benefits of victory, could both be determined by events on and around the Northern Flank. Either side could lose the battle that it must fight there, and thereby lose the war.

Two fundamental issues are involved. One is the isolation of the battlefield. The other is the expansion of the conflict to wider areas and higher levels of violence.

Isolation
NATO is on the whole stronger than the Warsaw Pact. Its readily-available combat capabilities are at least equal to those of the

\textsuperscript{1}What happens on and around the Southern Flank is likely to have more to do with the initiation of such a war than it is with its course and outcome. As a result, while neither Flank can be judged the more important, they don't really belong in the same discussion.
Pact, and its ability to generate additional combat capabilities (train men and produce materiel) is greater. NATO's strength is, however, widely dispersed. Some of its standing forces are located an ocean away from the primary battlefield; the same is true of the majority of its reserves — many of which can be mobilized only with difficulty. In order to defeat a head-on attack, NATO must not only concentrate its standing forces but also activate those reserves and bring them into the fight. That requires time.

In order to defeat NATO, the Warsaw Pact must carry its attack through to its objectives without those additional NATO capabilities being brought to bear on the battle. One way to accomplish that (the most direct way) is for the Pact to reach its objectives before all of NATO's capabilities materialize. Whether the Pact can move swiftly enough to do this will depend on a variety of factors, including surprise, the balance of forces available to the commanders directing the battle, their skill in using those forces, and the contemporary combat equation in ground-air warfare. If the Pact cannot move fast enough, it must take an additional step: it must isolate the battlefield from the sources of those additional NATO capabilities.

Both sides recognize this situation and have made preparations to deal with it. NATO has attempted to maintain strong standing
forces and has concentrated a significant fraction of them on the primary battlefield. A principal objective of these steps (in addition to enhancing deterrence) has been to slow the Pact's offensive so reinforcements will have time to arrive. NATO has also invested heavily in transport capabilities to insure that reserves can be brought to the battlefield rapidly, and in sea and air combat forces to provide protection for them en route. The Pact, on the other hand, has acquired and maintains at the ready levels and types of forces it thinks will give it the capability to advance rapidly across the battlefield. In addition, it has acquired forces that could be used to interdict the flow of NATO men and materiel into and through the theater.

Reasonable estimates of the individual and collective adequacy of those steps can be made, although it would take a war to establish their true value. That is not all that either side has done, however.

Escalation
There is a second and even more momentous situation for which both sides have prepared. That is the potential expansion of the conflict. Thus far, this discussion has considered that conflict to be limited to the Continent (and its maritime environs) and to conventional weapons. It could expand to other theaters of war and other levels of warfare -- in the end to intercontinental nu-
clear exchange. This could (but probably won't) occur more-or-less inadvertently; it could also (and is more likely to) occur deliberately, if either side were to conclude that it could not win on the primary battlefield conventionally, but must nevertheless (initiate or) continue the fight. Nuclear weapons could then be employed to change the combat equation on the battlefield or to escalate the conflict to an entirely different plane, with the hope of redressing imbalances and settling the issue on more favorable terms. Such decisions could be made before the outbreak of conflict, but -- if only because of the difficulty of predicting their consequences -- they are more likely to follow an initial test of conventional strength.

Regardless of when, where and by whom the use of nuclear weapons is initiated, as long as intercontinental-range forces remain to be used, they must be held at the ready. They would not necessarily be used, but until they have been exhausted or it becomes clear to all concerned that they will not be used, that necessity remains. And for a variety of reasons, a significant fraction of those forces will be held ready in northern waters.

**Ramifications**

In response to the requirements outlined above, at least two critical activities will be being undertaken in the North Atlantic—
clear exchange. This could (but probably won't) occur more-or-less inadvertently; it could also (and is more likely to) occur deliberately, if either side were to conclude that it could not win on the primary battlefield conventionally, but must nevertheless (initiate or) continue the fight. Nuclear weapons could then be employed to change the combat equation on the battlefield or to escalate the conflict to an entirely different plane, with the hope of redressing imbalances and settling the issue on more favorable terms. Such decisions could be made before the outbreak of conflict, but -- if only because of the difficulty of predicting their consequences -- they are more likely to follow an initial test of conventional strength.

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Ramifications

In response to the requirements outlined above, at least two critical activities will be being undertaken in the North Atlantic-
Norwegian-Barents Sea area in the initial period¹ of a war on the Continent. NATO will be deploying men and materiel to the front areas. Much of this movement will be taking place over and across the Continent's littoral seas. Secondly, NATO and Soviet strategic submarine-launched ballistic missile (SLBM) forces will be assuming a strike-readiness posture -- many in some of those same seas.

It is obvious that there will be more than this going on in that area at that time. How much more, and specifically what, will depend largely on the two blocs' war-fighting strategies. These will be addressed further below.

However, that there will be men and materiel moving over and on, and strategic strike forces moving within, these seas, must be considered givens. These givens are far less the products of strategy -- and thus open to short-run change -- than they are re-

¹Defined here as beginning with receipt by NATO of unambiguous warning of an impending Pact attack and ending with the initial use of nuclear weapons.
flections of the dictates of geography and technology. Given the differences in its members' capabilities, the distances (and expanses of water) that separate them, and the means of transport that are available, NATO presently has no viable alternative to moving men and materiel to the battlefield as early as possible and in large part by sea. Given the detectability (and, hence inherent attackability) of land-based forces, neither side has a viable alternative to basing a significant fraction of its strategic strike forces at sea. And given Western technological superiority in undersea warfare, the Soviets presently have no viable alternative to operating a significant fraction of their sea-based strategic strike forces in northern waters.

There are good reasons why both sides would like to see these activities carried out separately. One is that an action taken in one operational context could affect what transpires in the other. Among the more serious of these potential interactions would be the interception of patrolling SLBM force units by anti-submarine warfare (ASW) forces defending sea lines of communication (SLOCs). Strategic submarines need not actually come in contact with the SLOCs for this to occur. The introduction of sophisticated sen-

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1While geography cannot be changed, it can be rendered less relevant by technology. But technology is itself constrained -- in the first instance by the laws of physics, and in the second by the availability of the resources necessary to exploit it. These dictates therefore can be overturned, but only in the long run. And in the long run, as Lord Keynes noted,....
sors, high-performance launch-platforms, and stand-off weapons has dictated that shipping be defended in depth. And this means that, in addition to providing point defense of convoys, ASW forces will be out looking for submarines.

Physical separation would reduce the likelihood of their finding the opponent's SLBM forces. But as noted, geography and technology force them together. Temporal separation might be thought of as a substitute for geographical separation, but neither of these activities can be delayed. NATO's forces must be concentrated on the main axes of the Pact's attack as rapidly as possible if the offensive is to be stopped short of its objectives. And sea-based strategic strike forces must disperse and adopt a wartime posture (minimum vulnerability, maximum readiness) as rapidly as possible if they are to avoid being disarmed and be useable when required.

It should be clear by now that the intricacies of combat interaction also play a major role in determining how wars are planned and fought. The dynamics of combat pose demands that are additional to and no less forceful than those generated by geography and technology.

Thus far, the conflict has been treated largely in terms of simple, unopposed actions: a Pact thrust into Western Europe, NATO's efforts to concentrate its standing forces athwart the axes of the
Pact's attack and bring its reserves to play, both sides' efforts to pose a significant, secure nuclear threat to the other -- and to the other's forces on the primary battlefield. It goes without saying that these actions will, in fact, be not only complex, but opposed. Both have to be taken into account.

A Pact thrust into Western Europe, for example, would call for far more than just moving forces westward. It would necessitate three more-or-less distinct types of action: mounting the offensive (positioning forces and launching the attack), negating NATO's defenses (suppressing some, circumventing others, and absorbing the impact of the remainder), and seizing objectives. Forces must be allocated to each task. When so engaged, they will be unavailable for use in other tasks.

NATO will not be just standing there watching this take place. It will be opposing the Pact's initiatives, and that opposition will take its toll. Pact forces will sustain losses, and those losses will diminish its ability to sustain its offensive.

But that is not all. The Pact cannot count on NATO's undertaking only reactive operations. It has to assume that NATO will, in addition, undertake initiatives to achieve its own combat objectives. Given the circumstances, these initiatives will be designed primarily to weaken the Pact's offense: suppress some of its
attack capabilities, divert others, and impair the effectiveness of its support infrastructure. The Pact must also allocate forces to defend against these NATO initiatives, reducing still further the level of capabilities available for prosecuting its offensive.

All of the above is abstract in the extreme. But the situation under discussion is complex in the extreme, and abstractions are necessary to its analysis and -- hopefully -- understanding.

The fundamental message of those abstractions is nevertheless simple: the freedom of action of both parties to a Continental war will be constrained, not only by the physical parameters of the conflict but also by its dynamics. The broad outlines of some of those constraints have been sketched -- e.g., certain actions must be taken, can only be carried out through the use of the seas on the Continental periphery, will make significant demands on available forces, and will be opposed.

In order to see what this might mean in terms of actual combat operations, what impact those operations might have on the North Atlantic-Norwegian-Barents Sea area, and how the outcomes of those operations might affect the outcome of the conflict as a whole, we have to move from the abstract toward the concrete, keeping in mind that this discussion cannot arrive there. General Sir John Hackett et al. have given us a very useful vehicle for this.
MORE CONCRETELY

The Third World War\(^1\) is, of course, a work of fiction. But it
is fiction of a special kind: extrapolation from fact (or what is
on credible evidence widely held to be fact). The validity of
certain of these facts and the fidelity of some of those extrapo-
lations can be questioned. Some actions are more likely to occur
than depicted, others less, and many undoubtedly will take differ-
ent forms if war occurs. On the whole, however, the conflict sce-
nario presented in the book is credible.

That scenario is also articulated to the point where it becomes
possible to identify the antecedents of specific combat opera-
tions, trace the courses each might take, and analyze their poten-
tial impacts. Some likely operations are not addressed in this
depth, but others are, and there are enough of the latter to out-
line most of the aspects of the conflict that are critical to this
discussion.

The Third World War is not the only such story that has been or
could be written. A conflict scenario could have been developed
especially for this discussion. It would have been no less plaus-
ible, and it could have dealt with those critical aspects of the

\(^1\)General Sir John Hackett and other top ranking NATO generals
and advisors, *The Third World War: August 1985*, (New York: Mac-
conflict both more extensively and in greater detail. But it wouldn't have been a familiar story, and since in this case the medium is not the message it might -- needlessly -- have impeded the discourse. The Third World War on the other hand suffers no such potential disability. It has been read widely and carefully. Most who might read this discussion will already have read it and already have come to terms with the story it presents. That is a significant advantage.

What follows below is consequently drawn in its entirety from the conflict scenario laid out by General Hackett et al. Where that scenario contains inaccuracies, this reconstruction repeats them; where there are gaps in that scenario, those gaps reappear in the reconstruction. The only (intentional) change that has been introduced is in the way the information is presented. That scenario was originally elaborated in a narrative. It has been extracted from that narrative and is presented here in two parts. One is a summary description of the conditions under which the conflict is initiated and develops. This section draws heavily on the book's depiction of Soviet war plans. The second part is a recapitulation of the principal combat operations described in the book. They have been reorganized here into a series of analytically-defined "campaigns."
Background

The conflict depicted in The Third World War breaks out in the summer of 1985, after almost a decade of desultory, and the better part of a year of intensive, political and military skirmishing between the blocs -- primarily, but not exclusively, in the Third World. That desultory skirmishing has stimulated NATO to increase its defense capabilities. Its intensification in the period immediately before the outbreak of conflict (in particular, Soviet intervention and U.S. counterintervention in Yugoslavia) has led NATO to begin mobilizing those capabilities. NATO thus has acquired and (somewhat belatedly) made use of, strategic warning. The Pact nevertheless achieves a significant measure of tactical surprise, and, given both the weight of its initial onslaught and the less-than-full status of NATO's mobilization, its offensive thrust into Western Europe achieves significant gains.

This is in line with imputed Soviet expectations. Their attack was deliberate. By destroying NATO, they hoped to eliminate Western constraints on their efforts to preserve their empire against dissidence in their own and their subjects' populations and to expand it against the PRC, and into the Third World.

Their immediate political objective was the occupation and "neutralization" of the FRG. This was to be accomplished by the rapid military defeat of NATO forces deployed on the Central Front and
simultaneous neutralization of the flanks. In the process, Pact forces were to advance across Germany and the Netherlands to the Channel, seize Northern Norway and the Baltic exits and occupy Northern Italy. Their offensive would, however, stop short at a line roughly paralleling the Belgian-French-Swiss borders. They hoped that if France were left out of the conflict it would stay out.

All of this was to be accomplished before NATO reinforcements could arrive from North America (estimated to take at least 16 days). It was also to be accomplished without the use of nuclear weapons (estimated to be feasible if they permitted themselves the use of chemical weapons and achieved their military objectives before NATO could reach a decision on nuclear weapons use).

The Soviet schedule called for Pact forces to be at their stop line within ten days. Once there, they expected that a ceasefire would be declared, NATO would collapse, and they could then enter into bilateral negotiations with the United States to terminate the conflict.

The Course of Conflict
If one considers the war to be made up of thrusts and parries by the Pact and NATO on land and at sea, eight analytically-separable
"campaigns" can be defined. Six of these are relevant to this discussion: the Pact's thrust and NATO's parry on land, and both sides' thrusts and parries at sea. The book's scenario permits discussion of five of them. The first two play the predominant role in determining how long the conflict lasts -- as a classical Continental war. That, in turn, determines what role the latter four play in structuring the outcome of the conflict: who wins, and what is "won."

The Pact's Thrust on Land

Soviet planning called for their forces to advance rapidly across the battlefield. Initial breakthroughs were to be accomplished by concentrating forces and firepower to achieve very substantial local superiority on very narrow fronts -- employing armored and armored infantry forces, heavily supported by artillery and tactical air -- and overwhelming NATO defenses by the sheer mass and momentum of their attack. Penetrations would then be exploited by second-echelon forces which, largely ignoring their flanks, would thrust forward as rapidly and as far as feasible. Armored offense was their key.

In the event, their offensive progressed rapidly forward, but not quite as rapidly as they had anticipated. They gained significant ground in the center, and were able to neutralize both flanks. Their losses were, however, higher than anticipated. The same
proved true of the diversion of forces to other than front line combat tasks -- e.g., manning and protecting lines of communication. In the process, their offensive lost the driving momentum with which it had begun.

D+9 came and went, and Pact forces had attained only a portion of their territorial objectives on the Central Front. They continued fighting, but by D+10 their offensive had stalled. By D+11 they had been put on the defensive; and since they had allocated their resources to advancing across rather than securing territory, their position became untenable and they began regrouping rearward. By D+18 most of their forces in the center had withdrawn from NATO territory.

The Pact's Thrust at Sea

Soviet planning called for their naval forces to support their thrust into Western Europe both directly and, more importantly, indirectly. The former was to be accomplished by providing transportation and fire support services to ground forces securing the maritime flanks, primarily in the Baltic exits and around North Cape. The latter was to be accomplished by maintaining a ready, secure strategic strike capability (to deter NATO's use of nuclear weapons on the battlefield) and by interdicting the movement of NATO reinforcements into and through the theater. Where appropriate, Soviet naval forces were to be assisted in these operations
both by elements of their own air forces and by the naval forces of other Pact members.

The driving factor in these plans was the expected course of events in the land battle. Combat at sea was to be limited for the most part to those actions required to carry out these supporting tasks. NATO naval forces operating in the combat zone would, of course, be attacked -- especially in the Greenland-Iceland-UK Gap, where the Soviets considered it essential to establish control in order to preserve freedom of movement for their submarines and to deny transit to NATO forces. But NATO forces operating outside the theater, and hence unable to have a direct impact on events there, would not necessarily be targeted.

Ground force actions in support of Soviet operations at sea were also planned. These included the seizure of airfields in Northern Norway, so they could be employed by Soviet forces to expand defensive fighter cover over the Norwegian Sea and extend the radius of action (and reduce the flight time) of strike bombers operating over the Atlantic. They also included an amphibious landing in the Faroes, to deny NATO important maritime surveillance information. Seizure of the Kiel Canal and Danish Straits would permit Pact forces from the Baltic to operate in the North Sea.
This tasking applied to the first 10 days of the conflict, after which it was assumed a ceasefire would be in force. Since seaborne reinforcements from North America were considered unable to reach the Continent before D+16, the primary battlefield-isolation task during this first 10 day period was considered to be the interdiction of shipping within the theater (for the most part between the UK and the Continent). Air attacks on ports along the Northwest European littoral, supplemented by coastal force sweeps against movements across the North Sea and Channel were emphasized. Mining figured prominently in these operations.

Anti-shipping forces -- primarily long-range, missile-launching aircraft and attack submarines -- were nevertheless allocated to the interdiction of any operations that might in fact be initiated along the trans-Atlantic SLOCs. And, given the potential importance of such operations, the forces committed to this task were substantial: at one point two thirds of the Soviets' nuclear-powered attack submarine force and as much as one half of their available high-performance strike bombers were so engaged.

The Soviets attempted to fight the war at sea in this manner, and achieved major successes; but they were unable to carry it through fully. Unexpected attrition to a significant portion of their Naval Air Forces' strike bombers at the opening of the conflict reduced Soviet anti-shipping capability significantly. Unexpected
rapidity, both in the assembly and dispatch of well-defended reinforcement and resupply convoys and in their progress across the Atlantic, required the Soviets to launch a major (extensive in terms of geography, intensive in terms of the forces involved) interdiction campaign during the first week of the war. This came before ground and air force operations undertaken to improve the situation on the periphery of the maritime combat zone had run their course. In the event, they were able to sink some 25 percent of the ships carrying reinforcements and resupply across the Atlantic. They were not able, however, to prevent the remaining 75 percent from reaching the Continent.

**NATO's Parry and Thrust at Sea**

NATO's extensive maritime surveillance capability had a substantial effect on the development of the war at sea. It denied the Soviets the luxury of predeploying the augmenting submarine and surface forces they would need to contest effectively for control of the maritime approaches to the Continent. It also enabled NATO, once war had begun, to employ its own sea control forces with some effectiveness against those Soviet units that already were on station, and to position its principal defensive forces athwart the avenues of advance of augmenting Soviet strike forces.
In the opening hours of the conflict, NATO forces also succeeded in closing the principal Baltic exits, restricting Pact egress into the North Sea to those forces -- principally coastal -- able to transit the still-open Kiel Canal. They also were able to impose significant losses on the maritime follow-up to the Soviet airborne attack on Northern Norway, and to block the attempted Soviet seizure of the Faroes. On the other hand, NATO proved unable to prevent Pact forces from disrupting its intra-theater movements, although the latter were by no means stopped entirely, and NATO was able to exact a high price from the Pact's attackers.

As the conflict progressed, NATO lost the use of its airfields in Northern Norway. It was, however, able to prevent their being used by the Soviets to extend seaward the "reach" of their defensive fighter umbrella and offensive strike bomber threat. NATO was also able to maintain a substantial degree of control of the air over the UK, enabling the extension of a relatively effective defensive umbrella over its Western approaches and forcing Soviet strike forces en route the Atlantic to take circuitous routes.

NATO's defensive operations were not, however, confined solely to responses to the Soviets' thrusts. Within hours of the opening of conflict, NATO had itself taken the offense, launching a (successful) raid by land-based aircraft against Soviet long-range strike aircraft at their bases. Subsequently, when NATO's sea-based
strike forces arrived within range, air strikes against Soviet bases on the Kola Peninsula were resumed.

This NATO striking force, which reached the Greenland-Iceland-UK Gap on D+6 was also performing another crucial mission: covering, by running ASW "interference" and providing forward air defense for, the convoys that had sailed from North America on D+4. Although screened by escorting forces that gave them close-in ASW and AAW protection, these convoys were defended in great depth. In the first instance, this was provided by attack submarines operating in "barriers" established far forward in the Northern Norwegian-Western Barents Sea area, backed-up both by ASW aircraft operating outside the "reach" of the Soviet's defensive air umbrella and by air-capable ASW "hunter-killer" groups sweeping the area behind those barriers and ahead of the convoy screens. The second and no less important element of this defense in depth was provided by land-based interceptors, operating from airfields in Canada, Iceland, the UK, and -- while NATO retained the use of its bases there -- Norway. Outside their combat ranges, the sea-based interceptors of the striking force provided area AAW protection.

Those defenses were unable to prevent the Soviets from crossing the Norwegian Sea and penetrating the Greenland-Iceland-UK Gap with large-scale submarine and air strike forces; nor, once through the Gap, could they keep those strike forces from launch-
ing large-scale attacks against the approaching convoys. Those defenses were, however, able to disrupt and substantially reduce the effectiveness of some of these attacks, block others, and in most cases destroy a significant number of the attackers -- each time reducing the weight of the attacks the Soviets could mount subsequently.

Despite heavy losses, NATO retained the ability to use critical portions of the North Atlantic-Norwegian Sea area at critical times for its own critical purposes. Had it not, the convoys would not have gotten through to the Continent in time, and the war would have been lost.

**NATO's Parry on Land**

The war would have been lost in any event if NATO's ground and air forces had not been able to slow the pace of, and eventually stall, the Soviet offensive. That they were, providing an opportunity for the Alliance's strategic reserves to be brought into the fight, which tipped the battlefield balance in NATO's favor, was a reflection of at least two factors. One of these was the significant across-the-board buildup in NATO's defense capabilities that had taken place over the decade preceding the war. The other was NATO's timely acquisition and appropriate combat exploitation of weapons technologies that were to prove especially effective against the kind of driving armored offense employed by
the Pact. They adopted a sponge-like defensive posture that, at each available opportunity, absorbed a portion of the momentum of the Soviet advance -- concentrating in front of spearhead forces to reduce their numerical superiority, attacking their flanks and follow-on elements, attempting to impair their command structures and enfeeble their support systems, and exploiting to the fullest the geographical advantages accruing to the defender. Precision-guided munitions, especially portable anti-tank weapons, played a major role in these momentum-sapping attacks.

Outcome
Neither side had resorted to nuclear weapons to change the combat equation on the battlefield. And, with the introduction into the battle of NATO's strategic reserves, that equation had produced a stalemate.

The Soviets, in order to force the issue to resolution in a context in which they still enjoyed advantage, launched a limited nuclear strike against NATO -- one ICBM warhead on Birmingham -- accompanied by a demand for negotiations. The West immediately retaliated in kind, but more strongly, putting four SLBM warheads on Minsk.

Nuclear exchange did not, however, continue. A deus ex machina, in the form of widespread nationalist rebellions in the Soviet em-
pire, intervened. The Soviet leadership that had unilaterally
initiated the conflict, and then unilaterally decreed its escalat-
tion, was overthrown; and the Union dissolved as its constituent
Republics and foreign vassalages declared, and then implemented
concretely, their independence. The war was over.

BUT WHAT IF THAT SCENARIO WERE DIFFERENT?
The conflict depicted in *The Third World War* could have progress-
ed, and ended, much differently. Even as depicted, the course of
events deviated significantly from Soviet expectations.

They are shown to have gambled on being able to reach their objec-
tives in 10 days -- backing up their wager with the sea and air
control forces they thought would give them extra time should
reaching those objectives prove more difficult than expected. But
"was," is, such rapid progress across the battlefield a realistic
prospect? Warning and other factors affecting relative strengths
at the opening of conflict, not to mention the question of gener-
alship, can only be assumed. The contemporary equation in ground-
air warfare -- the relative combat effectiveness of the forces
that will be contending on the battlefield -- is, however, amena-
bale to investigation and, within limits, specification. Wars have
been fought with contemporary sensors and weapons. Lessons have
been learned. One of those lessons appears to be that precision-
guided munitions, especially "fire-and-forget" weapons, are elimi-
nating many of the benefits deriveable from mobility and restoring
the advantages traditionally accruing to the party able to remain
stationary, which more often than not will be the defender.

This line of argumentation should not be carried too far, particu-
larly by the non-specialist. It is not, however, out of place to
conclude that, given contemporary developments in combat tech-
nology, should war actually break out on the Continent in the now-
foreseen future, it will take far longer than 10 days for the issue
to be decided; nor is it out of place to suggest that its duration
might be several orders of magnitude greater than that.

Now, given the scope and intensity of combat for control of the
maritime approaches to the Continent depicted in The Third World
War's far shorter conflict, and the critical role the ability to
use those seas played in determining that war's outcome, what is
likely to occur in the North Atlantic-Norwegian-Barents Sea area

1 There is an extensive and contentious literature on this sub-
ject. The following four articles provide a handy introduction to
this literature: C.N. Donnelly, "Tactical Problems Facing the So-
viet Army: Recent Debates in the Soviet Military Press," Inter-
ternational Defense Review 11-9 (Dec 78), 1405-1412; John J. Mear-
sheimer, "Precision-guided Munitions and Conventional Deterrence," Survival 21-2 (Mar-Apr 79), 68-76; Daniel Goure and Gordon McCor-
mick, PGM: No Panacea," Survival 22-1 (Jan-Feb 80), 15-19, and
John J. Mearsheimer, "Rejoinder", Survival 22-1 (Jan-Feb 80) 20, 21. One of the more useful discussions in this literature is:
Brereton Greenhous, "The Armour-Aircraft Interface: An Histori-
ans Perspective," RUSI Journal 124-3 (Sep 79) 61-65.
in a conflict of, say, 30 to 60 days' duration? Would questions of use and control of the sea be any less crucial to the outcome of such a conflict? Would the resolution of those questions receive less attention, absorb fewer resources, or make a slighter mark on the landward extensions of that maritime combat zone? The answer has to be "no."

On the other hand, could a NATO-Warsaw Pact war that did not reach resolution quickly remain conventional? The evidence suggests that the Soviets have explicitly considered, and made preparations for, fighting any war that might break out on the Continent virtually from the outset as a nuclear war. And, in the light of that prospect, how likely is it that NATO would for long grant immunity to Soviet strategic strike forces? It would have a powerful incentive to exploit its superior undersea warfare technology in an offensive against the Soviet SLBM force, reducing the level of damage it otherwise would suffer, and perhaps damping the Soviets' inclination to escalate.

Those questions cannot be answered here -- even tentatively. And definitive answers will only be forthcoming if conflict occurs. The various issues involved must, however, be kept in mind in any evaluation of the strategic importance of the maritime theaters in a Continental war.
CONCLUSION

The "bottom line" in all this can be stated quite succinctly. What happens at sea will be determined by, and may in turn determine, what happens on land. The better able NATO becomes to defend itself on the land, the better able it must become to defend itself at sea. This is nowhere more true than in, on, and over northern waters. While NATO can win there and still lose the war, it can't lose there and win the war.
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PP 216

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Colle, Russell C., "Bibliometric Studies of Scientific Productivity," 17 pp., Mar 78 (Presented at the Annual meeting of the American Society for Information Science held in San Francisco, California, October 1976), AD A054 442

PP 218 - Classified

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Hantsinger, M. Later, "Market Analysis with Rational Expectations: Theory and Estimation," 60 pp., Apr 78, AD A054 422

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Huntor, Donald G., "Diagonalization by Group Matrices," 28 pp., Apr 78, AD A064 443

PP 221

PP 222

PP 223

PP 224

Portions of this work were started at the Institute of Applied Mathematics and Statistics, University of British Columbia, Vancouver, B.C., Canada

PP 225

Portions of this work were completed at the Institute of Applied Mathematics and Statistics, University of British Columbia, Vancouver, Canada.

PP 226

"Bell Telephone Laboratories, Inc.

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Mengel, Marc, "Uniform Treatment of Fluctuations at Critical Points," 50 pp., May 1978, AD A058 539

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Mengel, Marc, "Relaxation at Critical Points: Deterministic and Stochastic Theory," 54 pp., Jun 1978, AD A058 540

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Mengel, Marc, "Diffusion Theory of Reaction Rates, II: Formulation and Einstein-Smoluchowski Approximation," 50 pp., Jan 1978, AD A058 541

PP 230

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Jacobsen, Lula, "Can Policy Changes Be Made Acceptable to Labor?" Aug 1978 (Submitted for publication in Industrial and Labor Relations Review), AD A061 520

*DNA Professional Papers - 1970 to Present*

"DNA Professional Papers with an AD number may be obtained from the National Technical Information Service, U.S. Department of Commerce, Springfield, Virginia 22151. Other papers are available from the Management Information Office, Center for Naval Analyses, 2000 North Beauregard Street, Alexandria, Virginia 22311. An Index of Selected Publications is also available on request. The Index includes a Listing of Professional Papers with abstracts; issued from 1969 to June 1981."


Ungoff, Kathleen Glasson, "Unemployment Insurance and The Employment Rate," 20 pp., Oct 1978 (Presented at the Conference on Economic Indicators and Performance: The Current Dilemma Facing Government and Business Leaders, presented by Indiana University Graduate School of Business), AD A061 527


Powers, Bruce, "Goals of the Center for Naval Analyses," 15 pp., Dec 1979, AD A063 759

Mangel, Marc, "Fluctuations at Chemical instabilities," 24 pp., Dec 1978 (Published in Journal of Chemical Physics, Vol. 69, No. 8, Dec 1978), AD A063 761

Simpson, William R., "The Analysis of Dynamically Interactive Systems (Air Combat by the Numbers)," 160 pp., Dec 1979, AD A063 760


PP 320

PP 321

PP 322

PP 323

PP 324

PP 325
Hamm, Capt., USN and Graham, David R., Dr., "Estimation and Analysis of Navy Shipbuilding Program Disruption Costs," 12 pp., Mar 1980

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Loder, Robert F., "Alternative Approaches to Attrition Management," 50 pp., Jan 1982

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