NAVAL TRANSFORMATION, GROUND FORCES, AND THE EXPEDITIONARY IMPULSE: THE SEA-BASING DEBATE

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FOREWORD

In an expeditionary age where the modern emphasis is upon joint operations, it is easy to forget the extent of the contribution that naval forces may make, and indeed need to make, to the successful conclusion of operations ashore. This Letort Paper focuses on the modern concept of sea-basing but argues that in an era of naval transformation, it is important to remember that the maritime effect on land operations is far greater than that.

The author, Dr. Geoffrey Till, demonstrates that point by making extensive use of allied, and particularly British, experience to set alongside American views and uses his subject to investigate the whole concept of naval transformation in the early 21st century. His conclusion is that, while there certainly are novel aspects to sea-basing, the concept, if not the words, would have been familiar to the navies of the past.

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GEOFFREY TILL is the Professor of Maritime Studies at the Joint Services Command and Staff College and a member of the Defence Studies Department, part of the War Studies Group of King's College, London. In addition to many articles and chapters on various aspects of defense, he is the author of a number of books including *Air Power and the Royal Navy (*1979*); Maritime Strategy and the Nuclear Age* (2nd ed., London: Macmillan, 1984), *Modern Sea Power* (London: Brassey's, 1987), and, with Bryan Ranft, *The Sea in Soviet Strategy* (2nd ed., London: Macmillan, 1989). More recently he has edited *Coastal Forces* (London: Brassey's 1994), *Sea Power: Theory and Practice* (London: Frank Cass, 1994), and *Seapower at the Millennium* (Stroud: Suttons Publishing, 2001). *The Challenges of High Command: The British Experience* with Gary Sheffield followed, and, with the aid of a research grant from the British Academy, he has completed a major study, *Seapower: A Guide for the 21st Century* (London: Frank Cass, 2004). *The Development of British Naval Thinking* (London: Routledge, 2006) followed. Forthcoming are *On Naval Transformation* (London: Praeger, 2008) and a major study of the impact of globalization on naval development. His works have been translated into nine languages, and he regularly lectures at staff colleges and conferences around the world.

SUMMARY

The end of the Cold War has ushered in a period in which Western military forces have engaged primarily in expeditionary operations. These have turned out to be much more complex politically than first thought and have required naval planners to focus on delivering effects from the sea rather than at sea. Accordingly, navies around the world are going through a time of transition and transformation in which questions are being asked about their priorities, the relative importance of their contributions to joint and combined campaigns, and how these best might be provided.

Because of the understandably widespread fixation on the warfighting phase of the expeditionary operation, current conceptions of the naval contribution, even in the United States, do not pay sufficient regard to the less obvious aspects of the naval contribution to campaigns which mostly are by their nature maritime. It is easy, for example, to neglect the importance of the diplomatic activity which acts as a kind of before-and-after-sales service to the main warfighting event. Naval diplomacy, of course, may reduce the necessity for high-intensity expeditionary operations in the first place. But even when it does not, a naval diplomatic campaign to win friends and influence people and to deter potential malefactors should be designed to create the optimum political context within which the expeditionary campaign may be fought. The same can be said for the naval effort to assure maritime security by maintaining good order at sea against those that threaten it (such as waterborne terrorists, pirates, smugglers, arms suppliers, and the like). Even navies

with their institutional and budgetary priorities for the requirements of high-intensity capabilities have a tendency to neglect these less visible low-intensity tasks that often are crucial to the winning and, as important, the sustaining of victory in the land campaign.

While the U.S. Navy may be taking the lead in developing capabilities of direct value to the prosecution of expeditionary operations, many other navies are doing so as well, if on a smaller and less ambitious scale, although this widespread effort may be predicated on assumptions about "an expeditionary future" which, in the end, may not be obtained. There are three maritime requirements of expeditionary warfare. First is the capacity to maintain sea control on the open ocean and in the littorals to protect the force and enable it to engage in missions against the land. Second is the projection of power ashore, and third is the provision of sea-based logistical support for maritime forces at sea and land forces ashore. These are interrelated in complex ways and should not be considered as separate and discrete.

The maintenance of sea control raises issues about the difference and relative priority between operations in the littoral and on the open ocean, and provides a set of significant technological challenges to today's naval planners and force developers. The effectiveness of the response of these planners to these sometimes novel challenges will have significant implications for those involved in the land campaign because of their military and political reliance on high degrees of sea control. Political constraints of the sort revealed in the Iraq war of 2003 also have emphasized the advantages of maritime power projection.

The apparently newest aspect of the maritime contribution to the joint expeditionary campaign,

however, has been the emergence of the concept of sea-basing, which generally is regarded as the most "transformational" aspect of the issue. Its advocates consider it a sea change in the extent to which maritime forces can support land and air forces ashore, emphasize the extent to which recent operational experience has high-lighted its political and military advantages, and consider it a thoroughly "joint" asset. But, since future performance will be determined by the extent to which many of these anticipated capabilities can be delivered technologically, definitions and expectations remain ambiguous.

A brief review of the military experience of the 20th century shows that the notion that navies can base military power at sea and can support forces ashore directly is by no means new, and a close study of the realities of the Normandy campaign of 1944, in particular, will reveal its historical strengths and weaknesses. Since that time, however, the demands of expeditionary operations have both grown and become more complex. Military conditions have become more difficult because of the increased distance from the home base, the unfamiliar and difficult terrain in which such operations may need to be conducted, and because of the growing sophistication of the adversary. On top of that, the political necessities of rebuilding the peace in fractured societies have placed an additional set of logistical burdens on any sea-based system intended to support the process.

Navies around the world, therefore, are busily reviewing their sea-basing policies in order to cope with these increasing demands. Solutions will depend on industry's capacity to provide technical solutions to the many detailed requirements that are being identified and on the political and military establishment's

ability to resolve key procedural difficulties. The first is largely a military-technical matter of producing the requisite platforms and capacities; the second, though, depends absolutely on service agreement, on a holistic approach to the entire sea-basing issue, and on government's willingness to give sea-basing the financial and political support that it needs.

For the time being, the expeditionary impulse will continue, and a quiet naval revolution is taking place in order to support it. But the extent to which these developments really will prove "transformational," and whether practice confirms theory, remain to be seen. Much will depend on the political consequence of current events and on how well thought-out the project proves to be.

NAVAL TRANSFORMATION, GROUND FORCES, AND THE EXPEDITIONARY IMPULSE: THE SEA-BASING DEBATE

INTRODUCTION

Kosovo, East Timor, Sierra Leone, Afghanistan, and Iraq have brought an increasing focus on the requirements of intervention, stabilization, and the subsequent transformation of fractured societies around the world. Experience shows that military victory on its own is not enough. For this to be translated into strategic success, the forces of intervention have to transform themselves from straightforward battle-winners into reconstruction forces. Such forces must be capable of providing and maintaining sufficient internal security, while helping provide all the services necessary to a settled society. "To conquer," said Napoleon, "is easy; to rule is difficult."

Recent experience suggests that the lessons learned with such difficulty by the allies when they confronted the chaos ensuing from the sudden collapse of Nazi Germany in 1945 were major casualties of the Cold War.[1] In Afghanistan and Iraq, the United States and its allies are being reminded painfully that stabilization and reconstruction require larger numbers of troops on the ground for much longer than preintervention planners might have thought necessary, and that the soldiers in question need much more than "mere" warfighting skills. To relearn these lessons will likely require a shift in the organizational cultures of the armed services.[2]

Navies and air forces around the world have drawn from this experience the obvious conclusion

that future defense priorities in countries with similar interventionist aspirations are likely to reflect a growing relative emphasis on the provision of intelligently trained and responsive "boots on the ground." With resources being finite, defense expenditure on those aspects of air and naval forces whose function seems less than wholly related to this central aim seem likely to be limited.[3]

Accordingly, naval planners are changing their emphasis from power *at* sea to power *from* the sea. The traditional demands of bluewater sea control which have dominated naval spending for centuries have dropped way down the priority list. The Royal Netherlands Navy, for example, has emphasized,

> The increasing importance of supporting land operations from the sea, the increase in tasks at the lower end of the spectrum of force, and the reduced scale of the traditional sea control and sea denial tasks. . . . Although these tasks, and the maritime supremacy of the West, continue to be important, they require fewer resources than was the case during the Cold War.[4]

Accordingly, the Dutch Navy currently is engaged in a major rebalancing of its capabilities, including a reduction in the number of bluewater M class frigates, the acquisition of additional smaller patrol vessels optimized for littoral operations, improved capacity for countering diesel submarines and mine warfare, development of an enhanced support vessel, the expansion and modernization of the Marine Corps, equipping their air defense and command frigates with tactical *Tomahawks*, and a theater ballistic missile defense upgrade.[5]

This policy reflects a great deal of original and innovative thinking about what the Dutch Navy needs

to deliver in an expeditionary age—helping "resolve security problems within and outside Europe, even those that are at a considerable distance away."[6]

These ambitions are entertained among navies all around the world, to a greater or lesser extent. The question arises: Does this amount to a real transformation in the roles of navies and the support they can offer ground forces engaged in expeditionary operations?

SO WHAT CAN AND SHOULD NAVIES DELIVER?

A Before and After Sales Service.

The potential contribution of navies to expeditionary operations is summarized inadequately by the U.S. Navy's mantra of "sea Shield, Sea Strike, and Seabase," since much of its content and all of its tone seem to relate mainly to the "easy" conventional warfighting phase of the operation.[7] However, navies have a great deal to offer before and after this central event.

In the first place, naval forces deployed in troublesome regions have considerable value in massaging the strategic environment, most especially in the crucial littoral areas. Such forces increase readiness; contribute to the capacity to signal strategic interest; provide a safe, effective, and controllable means of monitoring the situation ashore, and enable constructive relationships with other like-minded countries. The importance of the coalition-building aspect of naval diplomacy deserves emphasis, for political agreement on how international maritime forces are to be used, and what for, is the essential precursor for effective multinational collaboration. Accordingly, the recent exercise in the Cape Verde Islands off West Africa of a

multinational mine-countermeasures squadron of the North Atlantic Treaty Organization (NATO) Response Force strengthens a useful military capability and also facilitates the kind of cooperative political thinking necessary for its actual use, should the requirement arise.[8]

For all its military power, even the United States needs allies to enhance legitimacy and to share the burdens in increasingly complex operations. This requires attracting more allied support before the conventional phase of the operation starts, not afterwards when the post-conflict phase is falling apart. In the analogy of one commentator, "bringing the allies in before the take-off may make for a more complicated flight, but a smoother landing." Thus, "our vision is and ought to be to extend the peace through an interconnected community of maritime nations working together. The enemy goes global. So should we."[9]

The more familiar, traditional, coercive aspects of naval diplomacy, once known as "gunboat diplomacy," are aimed at putative adversaries rather than allies. They can deter those potential adversaries from doing things they might otherwise be tempted to do, or compel that them to do things they do *not* want to do.[10] Coercive success here depends on convincing the adversary of the combat credibility of the naval forces in question and the political determination of the political authorities to use them if necessary. It works best when the aims are realistic, when the adversary can deliver what is expected of him, and when one's naval forces are already on the scene, influencing the flow of events and not merely responding to them afterwards.

Naval presence also is crucial in managing threats to the international sea-based trading system, ranging

from international crime (drugs and various forms of smuggling, for example) at one end of the spectrum to international terrorism at the other. These activities frequently are interconnected and geographically indivisible, since the sea covers about 71 percent of the earth's surface. Therefore, a holistic response is required that unites navies and coast guard forces from different countries in common cause.

To illustrate these points, the U.S., British, Australian, Singaporean, and other navies in the Persian Gulf have intercepted hundreds of small oil-smuggling craft, guarded oil rigs and merchant shipping from terrorist attack, and trained the Iraqi River Patrol and Iraqi Coastal Defense Force. These activities merge imperceptibly into the wider Operation ENDURING FREEDOM mission. Under this arrangement, set up in the immediate aftermath of September 11, 2001 (9/11), a large number of the world's navies is involved in a cooperative campaign against international terrorism by monitoring and intercepting all suspicious shipping, and trying to stamp out the smuggling activity used to finance it. In the Mediterranean, allied ships participate in NATO's Operation ACTIVE ENDEAVOR. In addition to contributing directly to the world's fight against international terrorism, this large-scale maritime monitoring exercise builds the cooperation between regional powers that indirectly supports the campaign.[11]

Similarly, through the Proliferation Security Initiative,[12] allied navies seek to control the passage of materiel that could contribute to the acquisition of weapons of mass destruction (WMD) by disreputable regimes and organizations. Finally, the great majority of the world's navies help protect the world trading system from terrorist attack by monitoring the

implementation of the Container, Shipping, and Port Facility Security codes.

Activity of this sort is justified by the widespread expectation that it will help make expeditionary operations unnecessary, in many cases by nipping troubles and instabilities in the bud. But in the case of Kosovo, East Timor, Sierra Leone, Afghanistan, and Iraq, such naval activities provide a kind of after-sales service as well, helping to consolidate military victories won ashore, thus translating them into long-term strategic success. Maritime operations in the Gulf and Arabian sea therefore have an important role in supporting stabilization operations in Iraq, not least because of the need to protect that country's legitimate oil exports, to intercept the passage of terrorists and their materials, to gather intelligence, and to fight organized crime in the area. Task Force 150, which operates in the Arabian Sea, is described as being "at the cutting edge of maritime security operations in a region that is rightly described as the 'laboratory' for those operations." The fact that the Pakistan Navy recently has been entrusted with command of Task Force 150 is strong evidence of its significance for "theater security cooperation" and coalition-building. These are intended to have a significant effect on the strategic environment in which the new Iraq will need to operate.[13]

However, the priority of high-intensity operations means that these low-intensity precursor or follow-up operations fail to attract the funding their importance would seem to demand. In the American case, the long neglect of the U.S. Coast Guard and the virtually complete absence of discussion of such issues in *Sea Power 21* exemplifies this indifference. The problem generally is less acute in most of the world's other

navies, where low-intensity operations are generally the accustomed mode, but it exists nonetheless. This being the case, it is hardly surprising that the other services, different agencies of government, and the news media fail to understand the importance of these kinds of activities.

The events of 9/11 and the experience of Afghanistan and Iraq have inspired the beginnings of a transformation within navies in their attitudes towards these naval activities, however. Although under continuing bugetary pressure, the *Deepwater* program will rectify many of the systemic weaknesses of the U.S. Coast Guard, and the issuance by the White House of a Presidential directive on Maritime Security[14] argues strongly for a coherent and holistic approach across the whole threat spectrum, thereby helping to correct the Navy's historical and understandable preoccupation with decisive battle. The current effort in the United States to revive the stalled National Fleet concept of integrating the activities of the U.S. Navy and the Coast Guard more successfully is further evidence of the determination to take general maritime security more seriously.[15]

We see this determination particularly in the current surge of interest in stabilization operations and in the comprehensive effects-based approach to the maritime sphere. Admiral Michael Mullen's recent advocacy of a "Thousand Ship Navy" also demonstrates, perhaps belatedly, acceptance of a more rounded and catholic approach to the need for, and the requirements of, maritime security. Similar developments may be seen elsewhere in the world, although in most cases, a less fundamental transformation in outlook is required.

Nonetheless, quite clearly, such low-intensity precursor operations sometimes are not enough in themselves. Even at their most robust, the crisis may

happen or degenerate anyway. At that stage, full-force navies themselves need to move into the territory described in *Seapower 21* if they are to make a substantial contribution to the conduct of the expeditionary operations ashore.

THE EXPEDITIONARY IMPULSE

Contemporary interest in littoral maneuver began after the end of the Cold War because of the the growing relative importance of the coastal zone in terms of population agglomerations, economic activity, and the strategic problems those developments entailed. It began to seem that the Coastal Zone was the locus of all the important events. The coastal zone itself has grown as the range of sensors and weaponry expands the area in which naval activity can have a direct and immediate impact on events ashore, and vice versa. During the Afghanistan operation, for example, coalition forces projected troops 400 miles inland when 600 U.S. Marines helicoptered into Bibi Tera airfield in only 4 hours, almost certainly the longest, fastest operational deployment in U.S. Marine Corps history.[16]

Accordingly, the maritime emphasis has shifted from power at sea to power from the sea. Naval thinking around the world has come to conceive of the sea not just as a strategic medium of transportation, but as the world's greatest maneuver space, the means by which military power might quickly and effectively be brought to bear on the world's trouble spots.

This has resulted in a remarkable growth of joint interest in the conduct of expeditionary operations as exemplified in the shifting defense policies of an increasing number of countries around the world. Planners focussed on the various requirements associated with littoral maneuver at all levels from

humanitarian interventions to all-out conventional war.

While the United States may be taking the lead, the phenomenon is universal, as other countries respond to the same challenges. The United Kingdom (UK), Australia, Japan, Singapore, France, the Netherlands, Germany, Italy, Spain, and other European countries also share an increasing sense that the new international context increasingly will require combined national action. These countries see themselves as having to become security providers in defense of national and, often more importantly, systemic interests that derive from universal dependence on globalized sea-based trade. This system, the argument goes, is faced with a myriad of threats ranging from the possibility of overt attack from hostile groups or countries on the one hand, to the prospect of general disorder on the other. The events of 9/11 only served to confirm this perception.

One caveat is in order, however. The long-term consequence of the attacks, such as the al-Qai'da assault on the World Trade Towers in September 2001, may discourage the conduct of expeditionary operations rather than encourage them, as generally is assumed now. If one of the justifications for expeditionary operations is to distance the homeland from the political instabilities abroad that threaten world peace and prosperity, we need to remind ourselves that 9/11 and its follow-ups in Madrid and London effectively overleapt such distancing and brought the crisis home.[17] The reluctance of potential expeditionary powers to get involved in other people's quarrels might be heightened if the enemy continues its retaliation on the homeland. Additionally, such outrages could well lead to a switch of effort away

from expeditionary operations towards all aspects of homeland defense. Since financial and technological resources are finite, this could mean a declining willingness to prepare for expeditionary operations.[18] It is plausible to argue from such points that we might at some future time unexpectedly find ourselves entering a "post-expeditionary" era[19]—in which many current assumptions will need reconsideration.

In short, defense planners of all persuasions might conclude that there is a need for caution in relying too heavily on expeditionary operations in their rationale for budgetary support, since such priorities may not last forever. For now, however, there are few signs of such a shift.

EXPEDITIONARY OPERATIONS— THE MARITIME REQUIREMENTS

The ability to use the sea as maneuver space depends on the expeditionary powers' capability to command the open ocean and the narrow seas in an adequate manner. Navies need to be able to project significant, appropriate, and sustained power ashore, to the extent that air and land forces ashore need such support. Navies require the physical capacity to transport military supplies and forces to the relevant spots, and to sustain them with everything they need for the duration of the subsequent operation.

These requirements have been explored in a variety of doctrinal formulations, especially in the U.S. Navy's *Sea Power 21*, largely under three mission headings: force protection, projection of power ashore, and sea-based logistics. It is important to realize, however, that these three missions are interdependent and mutually supporting; moreover, the relationship between them

is not necessarily linear. Accordingly, there are frequent warnings against "stove-piped" thinking about these requirements. For this reason, presumably, the Joint Integrating Concept for Sea-basing lists the protection of joint force operations and providing scalable, responsive joint power projection among the "principles of sea-basing."[20]

SEA CONTROL AND FORCE PROTECTION

The navies and air forces involved in expeditionary operations need to be able to protect the passage by sea of the forces required, both on the open ocean and in coastal waters. This kind of assured theater access, in turn, depends on naval forces securing the degree of sea control necessary for them to operate effectively and for the shipping they protect to arrive safely at its destination and operate there according to requirements. In the Falklands campaign, the initial working assumption was that supply and logistic vessels would maintain the bulk of operational stocks for the land campaign afloat, but the Argentine air threat forced ships back, increasing their need to offload ashore. This adjustment changed the conduct of the support campaign, illustrating the extent to which the projection of power ashore and sea-basing depend on sea control and force protection.[21]

The continuing concern for force protection against all manner of traditional and novel threats was reflected in *Sea Power 21* by the emphasis given to the concept of "Sea Shield"—a sensitivity that, in the wake of the attack on the USS *Cole* and the more recent threat to allied warships passing through the Strait of Gibraltar, has been echoed in many other navies, too.

Such experiences served as a warning that it would be dangerous to push the "power-from-the-sea"

strategy too far. The old tensions between the need to secure and maintain sea control while at the same time supporting operations ashore seem alive and well. Moreover, in the Iraq operation, U.S., British, and Australian naval forces were stretched thin in providing force protection for the merchant ships and high-value warships the operations required. Admiral Horatio Nelson's heart-felt plaint some 300 years ago about "a want of frigates" still appears highly germane.

That most of these operations take place in a littoral environment rather than on the open ocean makes for substantial differences in the conduct of the various maritime disciplines—for example, antisubmarine warfare (ASW) and antiaircraft warfare (AAW). As a result, expeditionary forces require high-grade equipment and skills that are specific to their particular task and operational area. With its projected family of littoral combat ships and its admittedly halting but growing interest in riverine warfare,[22] the U.S. Navy clearly is moving into this field. Given its blue water preoccupations of the past, this is a significant and arguably transformational, development.

Similar radical changes are taking place in the navies of western Europe, although these have attracted much less attention. The development includes the Scandinavian navies. They, too, clearly have recognized that they have much to offer in the specialized area of coastal operations, including niches in multilateral maritime operations by preparing to operate in other peoples' waters rather than their own. Resource shortages, even in the U.S. Navy, make such offers particularly welcome.[23]

Even so, at least three problems remain. First, there may be a tendency to focus force protection too much

on the sea lines of communication and not enough on the security of sea ports, both of embarkation and arrival. There also is a natural tendency to concentrate on the safe and timely arrival of soldiers and their equipment in the theater, neglecting the dangers that, in these asymmetrical days, may be posed to their collection and dispatch at home. In the Iraq operation, Greenpeace attempted to interfere with the loading of military supplies for the British forces at the military port of Marchwood in Southampton Water. They were ineffective and harmless, but nonetheless represented a useful reminder of the vulnerability at the supplier's end of the supply chain.

Second, many would doubt the permanence of the shift of naval priorities away from oceanic sea control and towards its coastal force-protection variant. The emergence of new maritime powers such as Japan and China, or the recovery of Russia, might lead to a resurgence of peer competition and old-fashioned maritime rivalry on the high seas. The U.S. Navy's current wariness about the prospective maritime expansion of China later in the century may be used to justify investment in more conventional forms of naval power.

Third, the ability of naval forces to maintain an operational posture against relatively unsophisticated shore-based opposition can be exaggerated. The vulnerability of ships to coastal mines, small, quiet diesel submarines, terrorists on jet skis, or radical weaponry of the kind recently demonstrated by the Iranians, has to be taken seriously.[24]

It is important to recognize that the foregoing concerns are not simply naval in nature. Allied operations against Saddam Hussein's Iraq in 1991 and 2003 would have been profoundly different had

coalition forces needed to fight for sea control; they would have been impossible if such control had not been secured. Securing sea control in the littoral region and the consequent capacity to protect support shipping from harm are major contributions to the success of forces ashore, however indirect.

THE MARITIME CAPACITY TO PROJECT POWER ASHORE

The Afghanistan operation showed how far from the sea expeditionary operations might have to be staged, and the range of support from afar the expeditionary forces might require. Hence the stress on sea strike in *Sea Power 21*.

Justification for the interest in littoral operations and for the defense expenditure such interest implies lies in the unique contribution to the land campaign that navies claim to be able to make. British maritime doctrine, for example, takes a rosy view of what it claims are the essential attributes of maritime power: access; mobility; versatility; flexibility in response; adaptability in roles; inherent joint and multinational characteristics; sustained reach; resilience; lift capacity; and poise.[25] These claims are based partly on historical experience and partly on new technological capacities in the shape of naval missiles, enhanced naval gunfire support, and so forth, which, taken together, means that the sea can influence the land more than formerly was the case.[26]

Operation IRAQI FREEDOM showed that the revolution in military affairs that has taken place since the end of the Cold War has transformed the kinetic effectiveness, range, and precision of the maritime contribution to the conduct of military operations

ashore. The ambitious Littoral Combat Ship and DD(X) destroyer programs suggest that such upgrades are a continuing development. Moreover, it is a worldwide phenomenon, by no means restricted to the U.S. Navy and Marine Corps, as attested by the widespread and developing naval focus on organic aviation, ship-launched, land-attack missiles, more sophisticated naval gunfire support, and enhanced amphibious capacities.

Although the scale of the technological advances this represents may be new, the basic principle is not. Navies around the world have conducted maritime power projection operations of various sorts for centuries. Indeed, they were the main activity of the British and other European navies during the 19th century. They continued throughout the 20th century, overshadowed perhaps by the greater attention understandably paid to classic peer conflict on the open ocean resulting from the urgent demands of World Wars I and II and the Cold War. With the conclusion of the latter, the main attention of many navies has reverted merely to its traditional focus on expeditionary capability—even if performed in rather different ways.

SEA-BASING

But what *is* claimed to be a fundamentally novel and therefore far more "transformational" aspect of the maritime contribution to the joint campaign ashore is the third element featured in *Sea Power 21*—sea-basing. Once again, this is not merely an American interest, since the same topic is being raised around the world. [27]

However, sceptics tend to press three closely related questions:

1. What does sea-basing actually mean?

2. How new is it?

3. Will it be able to deliver to the customer ashore what it claims?

This is such a major issue for the future conduct of expeditionary operations and for the wider issue of a putative transformation in the maritime contribution to the joint campaign, that all three questions deserve serious investigation.

Claims and Definitions.

The enhanced requirement to sustain forces ashore for complex, prolonged, and demanding operational periods has drawn attention to the new maritime solution. The concept envisages the ocean not just as the world's greatest maneuver space, but also the world's biggest truck parking lot.

Sea-basing is claimed to be more than simply a refinement of previous aspirations to support and supply military operations ashore from the sea. The Kosovo, Afghanistan, East Timor, Sierra Leone, and Iraq operations all demonstrated that a variety of physical and political factors may reduce the availability of land bases and highlighted the potential advantages of keeping supporting supplies and military assets at sea. Accordingly, the aim is to marshall logistically while afloat rather than ashore, and to employ a direct one-stage method of supplying the end-user rather than a two-stage process, making use of depots ashore.

Sea-basing also is intended to be a truly "joint" technique—and one with the capacity to offer end-users a support system that can be precisely focused, that is, scaled and tailored to the particular current and future needs of the end-user in various changing situations. Some of its advocates think of sea-basing in almost philosophical terms, pointing out that it should remove the distinctions between land and sea. Rather than representing sea-basing as a means of supplying the "teeth" ashore from the "tail" afloat, or requiring a cultural adjustment in priority from the teeth to the tail, advocates portray it as a movement toward merging the two. It is viewed as a national competence, a frame of mind, not just a mix of platforms or a set of procedures.

Sea-basing of this sort would revolutionize, and perhaps transform, the operations of expeditionary forces by improving operational access, enhancing their capacity for both forward defense and effective response across a spectrum that starts with crisis management and ends with forcible entry. Sea-basing facilitates the early implementation of joint command and control of the operation, and greatly increases flexibility by allowing the shaping of forces for particular operations. Unsurprisingly, sea-basing of this sort has been identified in the United States as a "critical future joint military capability."[28]

> The sea-base, protected by the Navy's Sea Shield, would provide the capability for joint forces to enter an area, forcibly if necessary, and move rapidly against the main objective while sustaining themselves from the sea, either until they could establish secure ports and airfields or for the entire duration of the operation.[29]

The Joint Integrating Concept definition, however, is slightly different:

> The rapid deployment, assembly, command, projection, reconstitution, and re-employment of joint combat power from the sea, while providing continuous support, sustainment, and force protection to select expeditionary joint forces without reliance on land bases within the Joint Operations Area.[30]

Debate is plagued by such differences in definition and nuance. To an extent, American conceptions do seem to focus on sea-basing as a means of exploiting the ocean as the world's largest truck parking space. British conceptions, on the other hand, extend the concept to include the ocean as a base from which to project military power ashore. The supply side of sea-basing is important, but not in itself a sufficient definition of the concept. Former British First Sea Lord, Admiral Sir Alan West, stated:

> There is inevitably a strong logistics flavour, but Joint Sea-basing is more than just logistics—it is concerned with projecting power in the Littoral and beyond. . . . In summary, Joint Sea-basing is not a new idea, but its current and future application stretches wider than the predominantly logistics-centred use of the sea in the past.[31]

The U.S. Marine Corps shares the perception that there is more to sea-basing than logistics. According to Marine Major General Gordon Nash,

> Sea-basing is not an entirely new concept, particularly for conducting amphibious operations. It was conceived during World War II to support naval forces fighting in the Pacific Theater that were located thousands of miles from any established logistics infrastructure. Today's evolving sea-basing concept is much more than just

> logistics support. It's about using the sea as maneuver space, being unencumbered by reliance on air or seaports of debarkation. It provides an immediate and protected environment for forward-deployed naval forces to assemble and initiate the correct response, without operational pause, to deter or react to an evolving crisis that threatens the national interests of the United States. It provides the means to support and sustain these forces, both at sea and on land, while engaging the enemy. If the situation requires, the sea-base can expand to accommodate surge forces to counter an escalating crisis. Sea-basing is at the core of naval transformation.[32]

General Nash, however, stipulates that sea-basing occurs within the context of joint operation:

> Sea-basing will reduce operational dependence upon fixed and vulnerable land bases, and offer future Joint Force Commanders increased freedom of action to deploy, employ, and sustain forces.[33]

Such ambiguities in use and interpretation are not mere semantics. Whether sea-basing is to be a mainly Navy-Marine show is an important issue. The ambiguity and definitional differences we have seen reflect the reality of a conditional concept, the exact and required meaning of which depends absolutely on the context. The U.S. Navy's version can be thought of as "silent on the particulars."[34] Sea-basing, for example, may be relative in terms of time. Should we, for example, be aiming for a sea-basing capacity that could last indefinitely, or should we be thinking about a more limited version which lasts only as long as it takes to move the capacity to sustain ashore? What is its envisaged scale? What is its level of defense? By conceptual definition, since sea-basing is tailored for each event, "no two sea-bases will look the same."[35] The protean nature of the concept makes assessing

the transformational potential of sea-basing quite difficult.

How Transformational?

Sea-basing is certainly new in the sense that it is little discussed in previous doctrinal formulations except in logistical appendices to other formulations. It is not featured, for example, in the "maritime strategy" of 1986. While it is claimed as the only strategic technique advanced in *Sea Power 21* that is new,[36] its transformational character remains a matter of debate. Sea-basing, moreover, may be seen as introducing changes that are more of degree than of kind. It may be seen as a capability that individual services and countries can "buy into" to varying degrees. In short, its transformational nature may well depend on its eventual objective manifestations in the real world.

However, the notion that navies can base military power at sea is not new. Navies always have taken their supplies with them to the extent possible, not least in support of traditional sea control missions. Admiral Nelson's battlefleet, for instance, pursued a policy of securing sea control initially through the maintenance of patient blockades. "Keeping the sea" for long periods, often measured in years, depended on his ability to sustain those forces for as long as necessary. High professional standards in all aspects of logistical support at sea gave the Royal Navy numerous military advantages over its adversaries in the age of sail.

In the 20th century, the fleet train concept was developed in the Pacific campaign of 1941-45 to the extent that Admiral Ernest King could claim correctly, "complete logistic support at sea had become a fact:

it was no longer theory. The endurance of the fleet at sea was limited only by battle damage, and human and mechanical endurance."[37] The subsequent arrival of nuclear propulsion has magnified such capability severalfold. The value of naval auxiliary vessels capable of offering to forward fighting ships supplies, operational maintenance and repair, waste disposal, fresh water, and rest and relaxation, is accordingly as important as ever. Sustaining the fleet's operations at sea to the degree envisioned by sea-basing will require at least incremental improvement in fleet train support. This is a major implication of Britain's Military Afloat Reach And Sustainability (MARS) program, for example.

Sustainment from the Sea.

The critical issue, of course, revolves around the fleet's capacity to support operations ashore. As we have noted, this support sometimes may need to be sustained over quite long periods of time. In the Gallipoli campaign of 1915, for example, the allied navies found themselves required to offer direct support continuously from April 1915 to January 1916. This support was comprehensive, including movement of forces to and around the theater of operations, naval gunfire support, and provision of food, ammunition, water, medical supplies, etc. Logistics and sea-based supply played a major role in shaping, and sometimes even determining, the campaign's outcome.

The British were able to establish a rear main base at Alexandria in Egypt and a forward operating base utilizing the great harbor at Mudros, 50 miles from the peninsula. Supplies were provided by a huge and variegated armada shuttling back and forth between

Britain (and, in some cases, points as far away as Australia and New Zealand), Alexandria, Mudros, and the peninsula.

Nonetheless, the scale and challenge of this sustainment effort never were mastered sufficiently by the British. This was the result of bad planning and very limited time for preparation. The planning flaws were due in large measure to lack of clarity on the aim of the campaign at the strategic level. This high-level indecision cascaded all the way down, for example, to faulty provision for medical support and casualty evacuation. In consequence, the British were unable to extend their bridgehead inland to the distance needed to develop the capacities to make the landed force essentially self-sufficient. Tactically, their supplies were under daily bombardment from the Turks; operationally, the campaign hardly moved beyond the amphibious phase. The main lesson of the Gallipoli campaign is that a failure to be absolutely clear about the objective and how it is to be achieved can have disastrous consequences for logistics planning, fundamentally undermining its prospects for success.

The same neglect and inattention to expeditionary logistics was evident in the U.S. Navy, Marines, and Army operations until well into World War II. Logistics were so bad for American forces in Russia in 1919—"two little slices of bread . . . one spoon of stew, and one cup of coffee a day"—that the Americans were forced to steal their supplies from their allies, the British.[38] In World War II, however, sea-based logistics began to receive its rightful priority. It was clearly at the heart of the Allied campaign in Normandy, the key issue being whether the Germans or the Allies could win the race to build up the most forces and supplies the fastest. According to Russell Hart, the German "defeat in Normandy was fundamentally a logistics defeat."[39]

Both sides faced an expanding task on the one hand, and an increasing demand for resources on the other. A combat infantry division required 700 tons of supplies a day. By early September 1944, 37 divisions would need 26,000 tons per day, amounting to a staggering 780,000 tons a month.[40] It was the biggest such sea-based supporting task to that point in history.

Logistics had a major impact on the shape of the Normandy campaign at every level. Operationally, the perceived importance of Cherbourg and other channel ports for the future support of the war in France framed the shape of the whole operation. The need to capture, restore, and exploit Cherbourg had a major—and strategically distracting—effect on the whole campaign in France. Because of it, there had to be two axes of advance. One would not suffice.

The Mulberry portable piers were intended to offset the attackers' initial disadvantages in port off-load capacity and help them win the buildup race with the Germans. Constructing them required a tremendous industrial effort. Mulberry A at Omaha Beach was expected to handle seven *Liberty* ships, five large coastal freighters, and seven medium-sized coastal freighters at one time. The Mulberries and over-the-beach off-loading together were expected to deliver 15,000 tons per day by D+10. For this to work, there also had to be effective air cover.

Despite its optimistic planning, however, logistics for the Normandy campaign went awry,[41] partly because of the tendency to overplan, insufficient flexibility, and excessive concentration on meeting the demands of the first few days of the landing. Ironically, the overplanning resulted from a conscious determination not to repeat the underplanning mistakes of Gallipoli. There was also an "us and them" attitude

between the supplier and the end-user. It was all push and no pull.[42]

The logistics problems were compounded by the fact that it took much longer than expected to capture Cherbourg. The Germans resisted stubbornly and demolished the dock facilities so thoroughly that even by mid-July, the port was handling only 2,000 tons a day. Unfortunately, Mulberry A was wrecked and Mulberry B was damaged during a storm on June 19-22, when 800 ships were beached, with 300 of them incapacitated. Fortunately, the U.S. Army's Engineer Special Brigades showed it was easier than expected to clear and utilize the beaches themselves as landing sites. Even so, supplies by D+15 were only 61 percent of what had been planned, and there were severe ammunition and fuel shortages. Paradoxically, the slow progress of the breakout resulting from the supply deficiencies also made things easier logistically, since the landed materiel had less far to go to reach the fighting units. However, the strategic and operational consequences of these deficiencies were considerable.

At the tactical level, the higher-than-expected tide on June 6 so reduced the physical area of the beach proper that the exit roadss, for example at Sword Beach, quickly clogged. Here the "littoral portal" (i.e., "the operational area defined by space and time through which a range of forces, capabilities and resources can be projected") was restricted in the key period to only 10 yards of sand.[43]

Moreover, at Sword Beach (and other beaches too), there was tension between the amphibious landing and the exploitation phases of the operation. Half-tracks were good for getting through the dunes, but not particularly good at negotiating the *bocage*, i.e., the thick, nearly impassable, criss-crossing hedgerows encountered further inland.[44] Lorries, the British motor

trucks, were essential for movement and exploitation, but tended to get stuck in the sand.

The result of such deficiencies was that the all-important initial assaults on German strongpoints had to be undertaken by disorganized light forces without the planned tank and artillery support. The consequent delay in getting past them allowed the defending 21st Panzer Division more time to react; consequently, the opportunities for a rapid advance on Caen receded.

The German Army, and especially its *Waffen SS* Panzer divisions, still was probably the best fighting force in the world at that time. The Allies planned to overwhelm the Germans by sheer weight of numbers and materiel, a technique often regarded as characteristic of the "American way of war": "Our guiding policy is to achieve not mere adequacy, but overwhelming superiority of material, thereby ensuring not only victory, but early victory with the least possible loss of American lives."[45] But the severe constraint on supplies in this case made such an approach much more difficult and time-consuming than anticipated.

The operational and strategic consequences of the early logistical difficulties were felt right to the end of the war and, indeed, well into the postwar era. The war in the West lasted much longer than it might otherwise have and became a significant factor in the shaping of postwar Europe. In sum, deficiencies in sea-based supply helped determine the nature of the Normandy campaign and everything that flowed from it.

Many of the same lessons held true for the Falklands campaign some 40 years later. Strategically, the forward base on Ascension Island provided an opportunity for rebalancing the support effort and for last-minute diplomatic overtures. The obvious difficulty of maintaining a major British naval presence at sea during the stormy weather of the South Atlantic

in winter determined the timetable for the politico-military resolution of the conflict. The operational and tactical consequences of the logistics campaign were equally striking. To illustrate, the British need for an "operational pause" to get supplies sorted out after the San Carlos landing afforded military targets and political opportunities to the Argentines that the British would have preferred they not have.[46] At the tactical level, helicopters occasionally may have delivered shells straight from sea to artillery batteries on land, but generally the pattern of sea-based supply was the traditional one. First, materiel was sent to the depot ashore and then from there to the end-user, with all the inevitable delays this caused. Overall, the importance of logistics is illustrated by the huge adverse impact on the shape of the campaign made by the loss of the cargo-carrying *Chinooks* when the *Atlantic Conveyor* was sunk with them onboard.[47]

Developments in the Post-Cold War World.

Little of such travails would have seemed new to Major General Charles Callwell, whose message was that the success of all military operations depends heavily on the success of the system by which supplies and equipment are provided for the forces engaged. He made the point that "the administration of supply" and the "strategy of the campaign" are interdependent in small wars.[48] But since Callwell's day, there have been substantial changes in the demands that military operations have made on logisticians. These certainly have a major impact on the prospects of sea-basing.

Some of these changes derive from the nature of the military forces conducting the operations. The dependence of modern military forces on their supplies, for example, has increased greatly. In

Operation DESERT STORM, the UK First Armoured Division, in its attack preparations, needed 1,200 tons of ammunition, 450 tons of fuel, 350 tons of water, and 30,000 individual rations (per day), the equivalent of the requirements of an entire Army Group in the 1944 Normandy landings.[49] Getting all the supplies needed for coalition forces in Operation DESERT STORM required probably the largest and swiftest movement of materiel to a single operating area in the history of warfare, with the exception of the Normandy campaign itself, which took 2 years to prepare for. There is no indication that this trend towards an increased demand for equipment and supplies will flatten out. There is always a tendency for the scale of these demands to be underestimated beforehand. Such logistics problems continued to be an issue, at least for the British, in the Iraq operation of 2003.

Expectations of logistic support, in any case, have grown. There is today an aspiration for a supply system that does not constrain the operational freedom of the end-user. This, after all, was the whole point of the emphasis on Focused Logistics in *Joint Vision 2020*.[50] Hence, given the U.S. Marine Corps' interest in ship-to-objective maneuver, the precision and effectiveness of modern weaponry seem to offer the prospect of fast, distributed, and decisive campaigning. Conflicts are expected to be much less linear in time and space. The interest in dynamic Agile Mission Groups reflects the search for simultaneous effect and the consequent need for logisticians to make it all possible. This fusion of all stages and types of conflict in a single operational scenario may require, for example, the air assault to be synchronized with amphibious landings from over the horizon and, accordingly, a supply system that can cater to the accelerated needs of this style of operation.

The logistic demands of expeditionary operations in less familiar places, at great distances from the home base in what is normally the developing world, impose particular challenges.[51] There may well be strong contrasts between the technological sophistication of the equipment the expeditionary forces need and the possibly primitive conditions prevailing in the theater of operations. The transportation infrastructure in such theaters often will be third-rate or under attack or both, thereby throwing the expeditionary forces very much back on their own resources. Further, as Charles Callwell reminds us, "The difficulties increase in proportion to the distance the theater of war has from from the home arsenals, from what may be properly called the national base."

Lack of familiarity with the geographic, climatic, and political conditions of such operational areas may be a problem, too. In such circumstances, the ability to develop and exploit an information advantage over the adversary is key. But, again in Callwell's words, "It is a very important feature in the preparation for and the carrying out of small wars that the regular forces often are working very much in the dark from the outset."[52] Thus early acquisition of intelligence is absolutely key, but it has always been a major problem in Western interventions.[53]

Modern network-enabled capability notwithstanding, this fundamental disadvantage probably is inevitable, especially when it comes to local political and topographical knowledge. The adversary often will tend to have an initial advantage here, being thus able to exploit unexpected and asymmetric options. The force ashore, and the supply system afloat, will need to be able to cope with the basic unpredictability of the situation that confronts them.

As Afghanistan and Iraq have demonstrated, "one of the fundamental challenges is the distributed nature of the battlefield over long tenuous distances," resulting in unsafe lines of communication.[54] In the fast-moving and constantly changing situations that result, a particular premium is put on speedy responses in reconfiguring forces and adapting operational plans to new operational environments. These requirements call, in turn, for agile supply.

There will be a need to *anticipate* supply requirements. In the Afghanistan operation, according to the U.S. Navy's Admiral David C. Brewer, Commander of Military Sealift Command, "We found that we've had to anticipate possible changes in strategy and operational level focus in order to ensure that we were ready for changes in sealift tasking."[55] These difficulties for sea-based logisticians are aggravated by the highly politicized nature of the expeditionary operation. Diplomatic considerations, for example, can be expected to shape the campaign, imposing intrinsic limits on what can be done. They are likely to make it more difficult for expeditionary commanders to seize the strategic initiative and achieve early and decisive effect, condemning them instead to campaigns of attrition.[56] Such considerations, incidentally, reinforce the point made earlier that the political line of development is an important one, and that maritime forces have something to offer in that regard.

For a good example of the adverse effects of political constraints, we need look no further than the political restraints on maritime surveillance activity north of the Saudi-Kuwait border, which hugely complicated subsequent maritime operations during Operation DESERT STORM in 1991.[57] Such limitations may well conflict with the imperatives of the logistic campaign.

Britain's reluctance to be seen preparing for war in 2003, before diplomatic efforts to avert it finally had been exhausted, delayed the start of the logistic buildup. This contributed to the tactical supply difficulties regarding such items as desert boots and enhanced body armor that the British faced in the theater.[58] At the operational level, the major repositioning effort required after Turkey's last-minute diplomatic refusal to grant basing rights to the U.S. 4th Infantry division in 2003 had a considerable effect on the logistics campaign. It demonstrated the need for flexibility on the one hand, and the considerable advantages of sea-basing on the other. Such examples show the need for speed and flexibility in the logistic campaign in order to offset the abbreviated warning time and other complications that are likely to be introduced for diplomatic reasons; they also point to the benefits in controllability and speed to be expected from basing the supply operation at sea to the extent possible.

Expeditionary operations today and into the foreseeable future are likely to be *intrinsically* complex. The complicated, uncertain, ambiguous, and unpredictable strategic context increases the complexity of the logistics requirement. The requirement may be to counter disorder, insurgency, crime, terrorism, and/or a collapse in governance. Inevitably, the precise mission blend will have significant operational consequences for supply and for the sea-basing component of the expeditionary operations. Callwell stressed that "the conduct of small wars is, in fact, in certain respects an art by itself, diverging widely from what is adapted to the conditions of regular warfare."[59] These operations will not simply be conventional military operations on a smaller scale. Instead, they are likely to be broader, requiring much more than military responses. This in itself is not new, however.

The nation-building element of expeditionary operations was explicitly emphasized in the U.S. Marine Corps' 1940 *Small Wars Manual* which defined small wars as:

> Operations undertaken under executive authority, wherein military force is combined with diplomatic pressure in the internal or external affairs of another state whose government is unstable, inadequate, or unsatisfactory for the preservation of life and such interests as are determined by the foreign policy of our nation.[60]

This definition recognized that conventional military operations can deliver only part of the effects required. Accordingly, the U.S. Marine Corps became adept at such public works as road-building, medical support, and education. Such an approach, later exemplified by the U.S. Marine Corps in its "Three Block Warfare" thinking, has now become commonplace. Thus Lieutenant General Claude Christianson here describes such multi-tasking: "We are constantly changing what we are doing. One day a unit may be building a school, the next day protecting infrastructure, and then training Iraqis to be logisticians the next."[61] In this situation, an effects-based approach depends on close coordination and cooperation between nations, government departments, nongovernment organizations (NGOs), and other international organizations, so that military force is used successfully but in conjunction with other means.

Since the ultimate issue is not that of winning the battle, but rather of winning the peace, the supply system will need to be versatile to cope sufficiently with the entire spectrum of war and nonwar, possibly catering to humanitarian activity and stabilization operations at the same time.

Because such operations are concerned with building the peace in situations where societies often are fractured and governments collapsed, experience suggests that expeditionary intervention operations usually will have to last far longer than expected. Events in Afghanistan, Kosovo, and the Persian Gulf also demonstrate that expeditionary operations can be very demanding, both politically and militarily, and for that reason might well last an uncomfortably long time before their objectives are achieved. As the British discovered in Sierra Leone and the Australians both in the Solomons and East Timor in the spring of 2006, a well-intentioned but early departure well may prove premature, necessitating an early return.[62] Such experiences suggest that logisticians should plan for the long haul and not for "drive-by interventions."

The U.S. Army's *Field Manual 3-0* states that "the American people expect decisive victory and abhor unnecessary casualties. They prefer quick resolution of conflicts and reserve the right to reconsider their support should any of these conditions not be met."[63] Such realities in Western countries make it clear that sustainability also needs to be measured in political terms. Public opinion's limited tolerance for casualties makes the early and possibly decisive use of lethal force more difficult, increasing the need for longer, more deliberate, and apparently safer prosecutions of the campaign. The situation ashore also may require a force to land, operate, and withdraw, and then repeat the process, possibly elsewhere. This process increases the need to be able to reconstitute the force at sea. For all these reasons, supply arrangements have to provide sustainability for the long haul.

Despite this reality, practice often has fallen well short of theory, and planners seem to need

constant reminders of the requirement to widen their horizons well beyond the confines of warfighting and conventional military operations "to develop policy and strategies for post-conflict situations."[64]

The recent tsunami and Hurricane Katrina relief efforts demonstrate that the variety of desired effects requires diverse forces with diverse capabilities in equipment and support, greatly increasing the demands on sea-basing, especially when a requirement for supplies to support the humanitarian effort has to be factored in.

Moreover, the adversary can be expected to do his best to make a difficult situation worse. The campaign is likely to be against adversaries who command respect, not for their aims, but for the surprising sophistication of their methods. They often have proved to be adept at adopting effective responses that were asymmetric, either politically or technologically. They have access to weapons technology that in some circumstances is as good as the equipment of Western expeditionary forces.

This potential increases concerns about the vulnerability of the supplies both in their depots and during their movement. Of course, bases always have been vulnerable to attack. The advent of nuclear weapons raised concerns about the growing vulnerability of conventional bases. In 1946, the British worried that,

> Bases as we know them at present, with large depots and installations dependent for their operation on low-grade troops and frequently on "coolie" labour, are exceptionally vulnerable to attack by atomic bombs. In particular an invading Army cannot in future be allowed to depend for its supply on two or three large ports. Our strategic conception as to the mounting and subsequent maintenance of any military campaign will require revision in light of these factors in the future.[65]

The conclusion was obvious: the supply system needed to be made as invulnerable as possible. More recent incidents, such as the missile strike on the docks of Al-Jubayl in 1991 and the attack on the USS *Cole* in Aden harbor, reinforce this view. Such threats increase the apparent advantages of basing the supply effort at sea. Furthermore, the disruption to plans for Operation IRAQI FREEDOM caused by the Turkish decision to withdraw basing rights demonstrated anew the political vulnerability of such bases, again demonstrating the importance of the diplomatic line of development.

All such considerations point to the fact that land-bases of all sorts are now more open to threat than they were in Callwell's day. The threat pertains as much to the task of moving supplies about as it does to storing them. In Iraq, the passage of convoys of trucks has become a major military operation that further erodes the distinction between teeth and tail. Interestingly, vulnerability to interdicted supplies may well encourage local commanders to carry their mini-iron mountains around with them if they can, even if at the expense of some measure of operational mobility.

The scale of the intervention project usually will require the response to be joint and combined so that the supply system needs to cater to all services and all allies, and, indeed, all the services of all the allies.

The humanitarian operation in Uum Qasr, Iraq, in 2003 provides a good case study illustrating all these points.[66] The coalition was well aware of the common wisdom of the day, here expressed in Colonel G. A. Furse's formulation: "The advantage to be reaped by winning over the inhabitants of an invaded country are many: but, from some unexplained reason, a conciliating policy is not always followed."[67] Getting humanitarian supplies, especially drinking water,

into the port as soon as possible therefore was seen as a humanitarian imperative, politically essential if the support of the local population and world opinion was to be secured. (Actually, early intelligence was erroneous since, as it turned out, food rather than water was what the inhabitants of Uum Qasr really needed.)

Preliminary mine clearance of the Tigris-Euphrates delta waterway and the suppression of hostile activity on the river banks was therefore essential. This specialized and very local supply effort was central to the operation on the Al-faw peninsula, extending southeast of Basra, an operation which was itself only a small component of a major conventional military campaign in the rest of Iraq, which it both influenced and was influenced by. This operation exemplified the mixed military/political and nonlinear nature of the conflict since military and political dimensions of the operation had to be addressed at the same time. Furthermore, the Uum Qasr operation was notably joint and combined in execution, since it required the integrated participation of Australian, British, and U.S. ships, aircraft, and ground forces. We may note finally that this operation was but a small part of a far bigger campaign that turned out to be much more strongly resisted, more complicated, and longer-lasting than had been anticipated.

Producing the Goods.

To summarize, expeditionary operations of this sort would seem to require a specialized and tailored logistics effort. It needs to be entirely responsive to each phase of the conventional campaign including all the second- and third-order effects. The supply plan has to be able to sustain the teeth regardless of their

mission of the moment, and, ideally, to react rapidly to unplanned contingencies. It needs to be able to deal with humanitarian disasters such as the Indonesian tsunami and Hurricane Katrina in the Gulf of Mexico. It needs to be able to satisfy the needs of the international and multiagency coalition that such expeditionary operations normally will require for their execution.

The theoretical advantages of putting as much as possible of the logistics effort at sea are considerable. A sea-based supply system will be more mobile and lift-capable than any practical alternative, and by virtue of the omnipresence of the ocean, be within reach of the majority of likely operational areas. Sea-based assets will face much lower levels of threat from hostile attack than their land-based equivalents and, provided that the direct supply of forces ashore is possible, obviate dependence on port and shore facilities, which are often lacking or subpar in much of the developing world. Finally, sea-basing reduces political reliance on local allies.

Whether an effective sea-based supply system can be produced, however, depends on the resolution of two sets of issues. The first set revolves around what is militarily desirable and technologically feasible on the tactical and operational levels. The second set relates to the relative strategic priority of the capability, and the resources that should be devoted to creating the capability.

TECHNICAL SOLUTIONS

At this point, it is appropriate to remind ourselves of just how inclusive the concept of sea-basing has become:

> A sea-base is not just a ship, not just prepositioned materiel, not just helicopter assault—it represents a complex capability. One must think of a sea-base as a hybrid system of systems consisting of concepts and operations, ships, forces, offensive and defensive weapons, aircraft, communications, and logistics, all of which require careful planning, coordination, and exercising to operate smoothly.[68]

Sea-basing is thus a system of systems in which the efficiency of the components depends on how well the linkages between them can be made to work. This distinguishes sea-basing from the earlier and conceptually simpler, if technologically more demanding, Mobile Offshore Base Concept, which was not a system of systems in the same way.

An effective sea-basing policy therefore may require a potentially radical systems-based and holistic approach that meshes all the variables in a coherent and perhaps novel manner. It may, for example, call for new balances to be struck between teeth and tail procurement, not least because of the anticipated cost of some of the linkages in the system. Many of these issues remain obscure, however, because planning is still in its infancy, even in the United States.

The Components of the System.

The sea-based supply system is truly joint in that it comprises a synergistic mix of aircraft, ships, and land bases, the latter including the home base (likely in the continental United States), the area of operations, and any advanced mounting bases it may be possible to use. All the elements are linked together, forming a system, by information technology (IT) networking and a variety of ship and aircraft "connectors" (see

Figure 1). The system itself is part of a wider set of dependencies reflecting the coalition's ability either to produce the supplies needed by the forces ashore or to procure them reliably from appropriate sources.

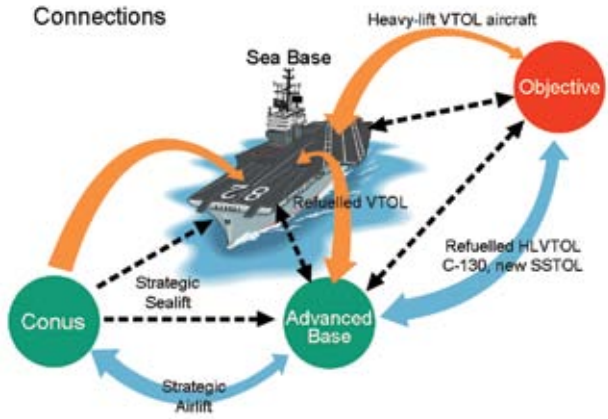

Figure 1. Sea-based Supply System.

Carriers and Other Combatants.

As the tsunami relief operation graphically demonstrated, all warships, great and small, carry surprisingly extensive and useful supplies that can be used to sustain operations ashore. The bigger they are, the more they can carry. U.S. Navy carrier battle groups (CVBGs) bring considerable organic sustainment for their maritime power projection tasks. U.S. Navy Amphibious Ready Groups (ARGs) carried 10-15 day's worth of diverse supplies to sustain initial operations by Marines ashore. Expeditionary Strike Groups (ESGs) have replaced the U.S. Navy's 12 ARGs and include 36 various amphibious ships which can transport two Marine Expeditionary Brigades (MEBs) totalling 13,100 Marines. At any one moment, 15-20 percent of these ships are undergoing refitting.

The recent Uum Qasr operation provides a good example of the advantage of sustaining operations from a sea-base, as described by Alan West:

> Inclement weather conditions restricted flight operations in support of other forces during the early stages of the campaign, and the U.S. and Royal Marine elements projected from the sea gained a tactical advantage. 7 Armoured Brigade was only able to move into Iraq, following 3 Commando Brigade and U.S. forces, in a timely manner, because of logistics support from the amphibious task group.[69]

Merchant Shipping.

There was, of course, no commercial shipping at Normandy, although this often had been a feature of expeditionary operations in the past, as at Gallipoli, for example. Nonetheless, most navies will be driven to expropriating or leasing commercial vessels that are appropriate and suitable for the task. Commercial sealift still will be needed to transport the great majority of Britain's armored and mechanized units, ammunition, and other supplies. Operation IRAQI FREEDOM required Britain to charter 56 merchant ships. For many years now, there have been major concerns about how much longer the greatly reduced and increasingly specialized merchant fleets reliably available to the United States and Europe will allow this practice to continue.

IRAQI FREEDOM also illustrated the extent to which the restoration of local services, the establishment of a secure environment, route clearance, and ordnance disposal are prerequisites for sealift into ports by conventional merchant ships. Moreover, the use of such ships raised many legal and force protection issues for the crews, especially when they were reflagged. The

employment of civilians in sea-basing ships would, of course, raise many similar issues.[70]

These difficulties increase the attractiveness of retaining this lift capacity within the naval service, but such an approach is comparatively expensive. Adopting commercial practices, such as civilian manning, often yields significant financial savings—and may in fact be the only way of achieving the necessary objectives. Nonetheless, commercial air and sea freight costs money. In Britain's case, this amounted to some £109 million ($192 million) during Operation TELIC/IRAQI FREEDOM.[71]

Sealift and Maritime Prepositioning Forces.

Within the Military Sealift Command of 188 ships, the U.S. Navy operates 36 ships in three squadrons comprising the Maritime Prepositioning Force (MPF). Each of the squadrons carries the equivalent of a 30-day supply for a 6,550-man brigade force, and can be expanded in order to support larger operations. These ships are civilian-manned and can off-load only in properly equipped ports, which may be unavailable, insufficient in number, or vulnerable. The U.S. Army has its own shipping underpinned by a parallel Afloat Forward Staging Base Concept (AFSBC) which clearly needs to be integrated with U.S. Navy thinking.[72] Forces of this sort are sufficient for limited regional conflicts but not for major theater warfare.

Other navies adopt a similar approach, if on a smaller scale. The UK, for example, has launched its MARS program. Estimated to cost some £2.5 billion (US$4.4), this program is intended to replace many of the Royal Navy's aging Royal Fleet Auxiliary ships, thus significantly enhancing its capacity to support

naval assets deployed both forward at sea and as joint forces ashore. While the assets afloat might be seen as the incremental modernization of a traditional mission force, the joint forces ashore, in the shape of its three planned Joint Sea-based Logistics (JSBL) vessels intended for delivery in 2016, 2017, and 2020, are regarded as a key enabler for future expeditionary operations. According to the project director, Ann Holden of the Defence Procurement Agency, these ships:

> will operate in the littoral with a strategic offload capability necessary to support transfer from ship to shore. In addition, they will have off-flight deck spots to support an initial amphibious assault, and aviation and vehicle maintenance and repair facilities. The JSBL concept will reduce the logistic footprint for landed forces and during the withdrawal from an operation.

These JSBL ships are similar in concept to Canada's Joint Support Ship (JSS) concept, although rather larger and more sophisticated.[73]

The Australians likewise are investing in two amphibious warfare/sealift ships that are considered to offer "a major advantage for regional disaster relief, the delivery of humanitarian aid, support for peace operations, and policing and military operations anywhere in the world." Significantly, the Australian Army pushed for this procurement which will be a "joint buy."[74] The Dutch have their *Rotterdam* and *Johann de Witt* amphibious transport docks (LPDs), the French their two Mistral program projection and command ships (BPCs);[75] the Italians are working on the acquisition of a new modular 20,000-ton multimission sealift ship to complement their earlier, smaller *San Giorgio* class; the Spanish also are acquiring a large

general purpose amphibious assault ship with an internal dock (LHD), the *Principe de Asturias*, at 27,000 tons, their biggest warship ever; their neighbors, the Portuguese, are building a smaller one at 10,215 tons. The Danes, true to form, have come up with their particularly innovative *Absalon* class of small multimission combat support ships. Even the Omanis have recently ordered two innovative sealift vessels which will sometimes double as tourist transports.[76] Large or small, it would seem the world's navies are investing heavily in the sea-lift business.

New Ship Connectors.

Conventional merchant shipping and maritime sealift and prepositioning forces tend to focus on off-loading ashore, as they largely did in Operation IRAQI FREEDOM. Moreover, they are relatively slow. The more radical conceptions of sea-basing, however, envisage the use of much faster and more versatile ship "connectors." These are small high-speed feeder craft (e.g., hovercraft of the proposed LCAC(X) type) to "connect" the sea-base to the shore on one hand, and larger vessels to "connect" the sea-base to the home base or any advanced mounting bases, on the other. These latter are the fast MPF (Future) ships of various kinds.[77] The U.S. Army and Navy currently are exploring, for example, a Rapid Strategic Lift Ship (RSLS) common to both, having the clear advantage of speeds that would allow transit of 1,000 miles a day or more.[78]

At the moment, these are no more than ideas, although the *Quadrennial Defense Review* (QDR) for 2006 calls for eight of the possible 14 such ships to be operational by 2015 as the core of the concept.[79]

Advocates suggest they could be designed to operate almost entirely at sea, and capable of taking cargo from, and delivering it to, a variety of other vessels and aircraft, thereby acting at once as the main connector and constituent of the sea-base. To have such a capability, the MPF (Future) ship would need strengthened decks and possibly power-boost capabilities to assist radically new heavy-lift aircraft in their take-offs. They also might require sophisticated cargo-transfer equipment such as stabilized cranes for skin-to-skin transfer to-and-from ships alongside. Cost estimates vary wildly between $1 to $4 billion per ship, depending on how ambitious the ship designs turn out to be. Slower, smaller ships designed to interact with either aircraft or other ships in less demanding sea and weather environments obviously would require lower investment.

The capacity for cargo transfer at sea is clearly central to the whole sea-basing concept: "If the United States is to attain a true sea-base capability rather than a maritime prepositioning capability, significant improvements must be achieved with regard to capabilities to transfer cargo."[80] Such improvements absolutely depend, in turn, on the significant development of existing and commercially available enabling equipment (in the shape of ramps, mobile cranes, capacity for selective off-load, etc.). They will likely drive design of the MPF (Future) itself. Another challenge will be to persuade all the services and coalition partners to adopt the common standardized joint pallet and container sizes that would make cargo transfer at sea so much easier and efficient.

Ideas about the hull and propulsion systems of the MPF (Future) also vary widely, being the subject of considerable current experimentation. There is a developing interest in fast ships, including catamarans

(after the success of the high-speed Australian HMAS *Jervis Bay* in the East Timor operation), the British partial air-supported catamaran (PASCAT), unmanned connectors of various sorts, and even something of a return to the idea of large floating mobile offshore basing systems. The resource attractions of building to commercial standards rather than military ones are being reflected upon. Varied though these ideas might be, few are likely to be either easily affordable or translated into reality for a decade or two.

Versatile Airlift Connectors.

Sea-basing clearly demands that part of the necessary supplies would be flown from the home base, and very possibly flown from any advanced mounting base as well, to the ships operating offshore. This arrangement thus might well require include long-range, heavy-lift, ship-landable aircraft capable of transporting 20 tons or more in a standard 20-foot container, or perhaps a *Stryker* combat vehicle. These tasks would require an aircraft with super-short (SSTOL) or vertical take-off-and-landing (VTOL) features. All avenues need to be explored, for the engineering obstacles are truly formidable:

> The requirements to fly long distances with a heavy payload and to take off and land vertically are almost mutually exclusive. Long-range aircraft must be large in order to carry the necessary fuel, but it is difficult for large aircraft to hover. This is a consequence of the square-cube law, which implies that as the size of an aircraft increases, its weight goes up faster than its thrust.[81]

Experience in Iraq has shown that land-based supply lines may be subject to severe attack. This has led to the demanding aspiration for a one-stop

supply system capable of delivering equipment and ammunition straight from the sea to the end-user ashore. Such a system would, in turn, demand shorter-range airborne delivery systems able to take sizeable loads from the sea to the customer possibly hundreds of miles away. But air systems can be vulnerable too. Iraqi civilians armed with AK 47s employing crude barrage fire badly damaged 27 of the armored *Apache* helicopters that assaulted the Revolutionary Guard's Medina Division near Karbala on March 24, 2003.[82] Similarly, the biggest single loss of British life in the Iraqi conflict occurred with the shooting down of an RAF Transport Command *Hercules*.

The broad conclusion to be drawn is that short- and long-range air connectors should be able to operate at night and will need to be resilient when attacked. The requisite number and carrying capacity will be a direct and mathematically-derived function of the size and demands of the military forces ashore.

Asset Trackers.

After World War II, Admiral Ernest King observed, "War production had shifted the emphasis from procurement to distibution: that is, while production was still of high importance, a still greater problem was that of getting well-balanced material support to designated positions at certain fixed times."[83] Tracking distribution is a data-based activity calling for sophisticated means of supply chain management. But the problem is aggravated by the nature of the modern expeditionary operation. The general principles behind ship-to-objective maneuver and the emphasis on local engagement—preconditions for stabilization operations—will demand the supply of very small, highly mobile, and widely-dispersed ground force

units with diverse requirements for support. In such a case, the customer and his changing needs have to be tracked constantly. In short, the "designated positions" and "fixed times" of the future may be harder to predict than they were in the past.

Navies also are aware of the need to track the supplies being carried into the theater more accurately. In the Falklands campaign, materiel was thrown into ships with such abandon that items could not be off-loaded in the order and coherence dictated by operational need. It was not possible to take stock and shuffle on the way to Ascension Island because of the difficulty of accessing and moving tightly packed cargo. It took 12 days to sort everything out at Ascension Island.[84] The system has improved a great deal since then, but still in recent operations in the Adriatic Sea and the Persion Gulf, some £18.5 million worth of ammunition was "written off" through a lack of visibility and consequent storage in unprotected environments. Moreover, about £357 million worth of supplies were unaccounted for.[85] According to the Commanding Officer of the British 7th Armoured Brigade, the problem was "our inability to know where things were in theatre. That is because we do not have a robust system for tracking our logistic material and our equipment."[86] Recent experiences, in sum, demonstrate the need for a much better, more comprehensive system of tracking assets than employed in the Gulf in 2003—especially if "selective off-load" from ships at sea is to be a realistic aspiration.[87]

STRATEGIC REQUIREMENTS

The technological and operational capacity to meet such demanding aspirations is, of course, important, but there are broader strategic requirements as well, and it is to these that this paper finally returns.

Sea-basing requires a thoroughly joint approach for both its construction and its operation. In the United States, some have argued that progress has been bedeviled by the lack of a unified vision and sufficient coordination among interested parties, when it really has to be a joint service effort.

At best, the U.S. Army at the moment is only "moving in the direction"[88] of configuring its forces to accord with this concept, and some suspect it may see sea-basing as a threat to existing plans. For example, if field hospitals can be moved around readily under sea-basing, perhaps there would be an argument for reducing their number. However, the U.S. Army has been exploring the sea-basing concept actively since 1999, and has every incentive to make it work in order to achieve the operational imperatives of getting a brigade in place within 4-7 days, a division in 10 days, three divisions in 20 days, and five divisions in 30 days.[89]

Inevitably, each service agenda will tend to reflect differences in perceived interest between them. There may well be a sense that, in the present circumstances, it is only the Marines and the Army that command public attention in the Iraq and Afghanistan campaigns. Accordingly, it is sometimes argued that the Navy and Air Force believe themselves relatively more vulnerable in future defense budget allocations unless they can cut themselves a bigger slice of the action. Of course, providing manpower to help hard-pressed armies engaged in stabilization operations might be a better way of cutting themselves in on the action, but here, it could be said, those volunteered naval/air elements simply would be acting as amateur soldiers.[90]

Sea-basing, on the other hand, is a distinctively dark- and light-blue activity which directly supports ground forces ashore, and so by the suspicious could

be perceived as a cynical way of wriggling back into the budgetary and operational limelight. Clearly, there is a service argument in play here. If sea-basing is perceived cynically by either its advocates or its detractors, it is unlikely to prosper.

In the United States, owing to existing service disunities, there is no agreed joint vision of the role of sea-basing, of how and with what it will operate, and of how it might be procured. Perhaps a Joint Sea-basing Planning Office of some kind, with significant buy-in from all three services, will be thought of as the way to go. The crucial role of long-range air connectors means that, in the United States, U.S. Air Force elements would need to be transferred into the sea-basing system or at least made available to it. This indicates the extent of the buy-in likely to be required. One measure for this might be the readiness of the three services to sign up to a common information system—a kind of purple gateway that captures data on every item of supply that flows into the theater, regardless of its service origin. While this mechanism would help resolve the asset tracking issue, it would require quite a change in service procedures to make it work.

The need for other painful choices has to be recognized as well. Culturally, among all military services, there is a preference for attaching priority to the teeth rather than the tail, i.e., the support arms. But the development of the more ambitious versions of sea-basing would require a shift in attitude in the areas of procurement, planning, and training. It implies a recognition not simply that the tail is getting more important, but that the differences between teeth and tail are narrowing.

A holistic approach is called for because strategic sustainability for the long haul requires not just stockpiles of the necessary equipment, but assured sources

from industry at home and, increasingly in this globalized world, from abroad. In the Falklands campaign, there was a significant underestimate of ammunition usage rates. The UK government needed to go into NATO stocks and to make special arrangements with industry to keep up with demand.[91] A secure end-to-end supply chain reaching from factory to foxhole requires a grand strategic policy linking supplier to end-user. Unless sufficient attention is paid to this broader view of the end-to-end supply chain, there might not be much to deliver to the end-user. In short, sea-basing aspirations need to be framed by the realities of industrial planning in a globalized world.

One of the claimed advantages of sea-basing is that it would lessen operational dependence on air and sea routes and ports under the jurisdiction of other countries. Ironically, one perceived danger in this system is that a developed sea-base system would facilitate, even encourage, U.S. propensity for independent and unilateral action. The complete absence in the Joint Integrating Concept of any reference to allied participation in sea-basing, apart from a few disparaging references to the dangers of relying on host nation support, together with references to the "sovereignty" of the proposed system, rather confirms that impression.

However, the U.S. Navy in *Seapower 21* at least refers to a more positive linkage between allies and sea-basing: "Sea-based platforms will also enhance coalition-building efforts, sharing their information and combat effectiveness with other nations in times of crisis."[92] Other countries are approaching sea-basing and sealift collectively. In 2001, for instance, nine NATO nations agreed to establish a Multinational Sealift Group to increase the cordination of their sealift

efforts, and a specific Sealift Coordination Center has been set up. More countries are applying to join. This may be taken as evidence that sea-basing itself could well be regarded as an arena for broader coalition-building.[93]

While the Iraq campaign of 2003 highlighted both the advantages and the disadvantages of relying on allies, it also demonstrated the tremendous advantages of relatively safe forward land bases, such as Gibraltar and Cyprus for the British or Diego Garcia for the United States. Advanced or forward mounting bases of this sort play an important part in most conceptions of sea-basing, making the problems it faces more manageable.

The importance of assuring long-term access to these bases and fully integrating the possibilities of host nation support, however, reinforce the need for an all-round grand strategy which includes a sustained effort to cultivate the necessary local allies. Sea-basing needs to be linked with foreign policy. It is not simply that sea-basing is the means by which foreign policy objectives can be achieved. Sea-basing also may affect what those objectives are.

Recognizing the seemingly paradoxical connections between a developed sea-basing concept and the need to cultivate allied strategic support and operational integration in that concept, U.S. Navy Chief of Naval Operations Admiral Michael Mullen has made coalition-building a major plank of his policy. This also shows the synergies between naval diplomacy, on the one hand, and sea-basing on the other, reinforcing the point that the diplomatic activities of naval forces materially benefit the operations of ground forces.

Finally, the recent tsunami and Hurricane Katrina disasters suggest the growing vulnerability of the world's littoral zones to catastrophic events which

require relief for a whole variety of humanitarian, political, and strategic reasons. Such events reflect the widening of our concepts of security. Military forces have a great deal to offer here, especially when operating from a sea-base. To make the most of its potential contribution to this wider notion of security, we must design sea-basing from the start to take account of the requirements of such relief operations. Accordingly, planning for sea-basing will need to take the likely requirements of NGOs as well as other agencies of government into serious consideration. This prospective requirement ideally should be a design driver, not simply a fortuitous bonus from a supply system expressly intended for other purposes.

CONCLUSIONS

For the time being, the "expeditionary impulse" seems likely to continue as the dominant paradigm of defense planners around the world. The attention naturally paid to the operations of ground forces in Iraq, Afghanistan, and elsewhere sometimes obscures the actual and potential contribution made to such operations by naval forces.

Arguably, a quiet revolution is taking place, relating first to conceptual and policy developments in those naval activities which indirectly enable operations ashore, and, second, to those which make a direct supporting contribution.

The enabling functions comprise the growing focus on diplomacy (in both its coercive and coalition-building guises), on maintenance of good order at sea through naval presence and diplomacy, and on the maintenance of sea control, especially in local waters. The first two have a major role to play in massaging

the strategic environment, either reducing the need for expeditionary operations or making them easier to win; control of blue and local waters makes it all possible. There is nothing new, or inherently transformational, about any of these concepts in principle, although relatively greater effort is going into all of them—and needs to. A major problem is to convince observers of their importance relative to the operations of forces ashore, and of their need for a higher budgetary priority.

Contemporary conceptions of the role of sea control in an era without a first-class adversary on the high seas illustrate the point. To support expeditionary operations, navies need advanced capabilities of the sort equivalent to those normally associated with high-intensity operations against peer adversaries. This need is partly because of casualty aversion and partly in consequence of the proliferation of serious maritime capabilities around the world. The forces engaged in the East Timor operation, for example, found themselves being shadowed by Indonesian Type 209 SSKs having much greater tactical flair than had been anticipated. They required complex countermeasures, illustrating "the importance of sophisticated force protection to a contemporary peace-making operation in a maritime littoral environment."[94] Australia's General Peter Cosgrove was well aware of the importance of this requirement for the success of his overall mission, and his successors elsewhere need to be too.

Naval functions in direct support of forces ashore are composed of Sea Strike, or maritime power projection, and sea-basing, the major focus of this paper. Clearly, the capacity for navies to launch operations against the shore has increased a great deal in recent years, with the increasing number of aircraft

carriers being acquired by the world's navies and the growth of amphibious assault and ship-to-shore missile and naval gunfire support capabilities. While these developments may appear evolutionary rather than revolutionary, such a characterization does not seem to apply to the concept of sea-basing. Its three basic aspirations are all transformational: (1) a one-stage system of supplying the end-user ashore; (2) a supply system that can be fully scaled and tailored to meet changing and particular purposes; and (3) the capacity to conduct most of the buildup safely afloat.

Like most other concepts in maritime strategy, however, the notion of sea-basing is a relative one. When the British anchored RFA *Fort George* at the port city of Split to supply their forces in Bosnia for 2 years, or when the Australians used HMAS *Kanimbla* to support operations in East Timor in 1999 and Sumatra in 2004-05, they were, in fact, operating sea-bases. In the same way, the Dutch and Canadians, in the procurement of their Joint Logistics support ships, are signalling the intention to do likewise.

The potential of sea-basing may be expressed by any number of metrics—how much can be provided and for how long the effort can be sustained being the most obvious. It is thus not a question of *whether* a country should "do" sea-basing, but rather *how much* it should do. And here, of course, the major decider is how much effort and money a country or a coalition is prepared to spend on the concept, relative to other requirements.

Whether even the United States can afford the more ambitious versions of sea-basing is debatable, especially at a time when defense spending is subject to so many other pressures. The global war on terrorism (GWOT), including certainly the ongoing conflicts in Iraq and

Afghanistan, appears to be costing about $7 billion per month[95] against the backdrop of a Defense Budget for 2006 of $450 billion. When the costs of Hurricanes Katrina and Rita are factored in, the strains on the federal budget are considerable. Given this background, a degree of scepticism about the affordability and even the cost-effectivness of sea-basing is not surprising. Sceptics point out that many of the individual projects within sea-basing are very expensive and critically depend on untried technnologies; perhaps it would make more sense to go for less ambitious, less costly near-term alternatives.[96] For such reasons, many of the key sea-basing programs essentially remain unfunded at the moment. If they remain so, or are only partially supported, then it will be difficult, if not impossible, to realize sea-basing's full potential.

Evidently, in the United States, the jury is still out. The theory may be transformational, but it remains to be seen whether it will become so in practice, even in 20 years' time. The key technical and operational issue is the extent to which the linkages in the system can be made to work. These, in turn, doubtless will depend on how well thought-through, supported, and financed the whole sea-basing project eventually turns out to be. Paradoxically, it may be that the smaller navies of Europe, which are showing the most striking evidence of a transformational shift in their priorities towards the direct and indirect support of forces ashore, will be the ones that capitalize most on sea-basing's considerable advantages.

ENDNOTES

1. See, for example, Omar White, *Conqueror's Road: An Eyewitness Report of Germany 1945*, Cambidge: Cambridge University Press, reprinted 1996, pp. 35, 104, 120, for some startling parallels with Iraq 2003-06.

2. These arguments are summarized conveniently in Joseph J. Collins, "Planning Lessons from Afghanistan and Iraq," *Joint Forces Quarterly*, No. 41, April-June 2006, pp. 10-14.

3. Discussions with senior Royal Naval personnel, Ministry of Defence, London, May 2, 2006.

4. Naval Study 2005 to Parliament, October 14, 2005, official English translation, p. 2.

5. "Tomahawk Buy Cleared by Dutch Parliament," *Jane's Defence Weekly*, December 7, 2005.

6. *Netherlands Defence Doctine*, The Hague: Ministry of Defence, 2005, p. 36.

7. U.S. Naval thinking is summarized conveneintly in Admiral Vern Clark, "Seapower 21: Projecting Decisive Joint Capabilities," *Proceedings of the U.S. Naval Institute*, October 2002, pp. 33-41.

8. "Mine Countermeasures Forces Emerge from Splendid Isolation," *Jane's International Defence Review*, February 2006, pp. 36-40.

9. Collins, p. 14; Remarks of Admiral Michael Mullen, *Naval War College Review*, August 31, 2005, available at *www.navy.mil*, and "Principles for a Free and Secure Global Maritime Network," *Journal of the Royal United Services Institute* (RUSI), December 2005, pp. 24-26.

10. The literature on naval presence is vast. It is summarized conveniently in my *Seapower: A Guide for the 21st Century*, Portland, OR: Frank Cass, 2004, pp. 271-309.

11. "Russia Earns NATO Interoperability," *Jane's Defence Weekly*, April 12, 2006.

12. For a good introduction to this, see Mark Valencia, *The Proliferation Security Initiative: Making Waves in Asia*, Adelphi paper 376, London: International Institute for Strategic Studies (IISS), 2005.

13. Commodore Anthony Rix, Royal Navy (RN), "Maritime Security Operations in the Arabian Sea," *RUSI Defence Systems*, Autumn 2005, p. 38; "Pakistan to Get Control of CTF-150 in Arabian Sea," *Pakistan News*, April 5, 2006. For mixed Indian reactions to this, see Mahendra Ved, "Pakistan to Play Peacekeeper!" *India Strategic Review*, Vol. 1, April 2006, pp. 54-55.

14. "The National Strategy for Maritime Security," September 2005.

15. "US Coastguard Outlines Deepwater Plan," *Jane's Defence Weekly*, July 27, 2005; U.S. National Fleet Concept to Get New Emphasis, *Jane's Defence Weekly*, April 12, 2006.

16. Still, the HMS *Suffolk* probably continues to hold the record for the longest instance of maritime power projection in history with its support of a Russian navy manned armored train on the Trans-Siberian railway 2,500 miles from the sea during the Russian Civil war in 1919!

17. The British mantra on this, derived from the *Strategic Defence Review*, 1997, was the statement: "If we don't go to the crisis, the crisis will come to us." Compare Admiral Michael Mullen: "The job remains the same: to take the fight to the enemy so that he cannot take it to us." Cited in Nash, p. 23.

18. Martin Kettle, "The Special Relationship that Squandered a Noble Cause," *The Guardian*, May 27, 2006.

19. I am grateful to Major General Rob Fry, Royal Marines, for this thought.

20. JIC on sea-basing, p. 6.

21. To illustrate the point, the SS *Canberra* was not able to act as a field dressing station for this reason. Julain Thompson, *The Lifeblood of War: Logistics in Armed Conflict*, London: Brasseys, 1991, pp. 266, 271.

22. "Sailors Volunteer to Dive into High-Risk Mission, But Money, Materials Fall Short of the Mark," *Navy News*, April 10, 2006.

23. "313 Ships Plan Could Mean Doubling Shipbuilding Budget," *Defense Today*, March 30, 2006; "More Billions for Navy Ships Questioned by Congress," *Chicago Tribune*, April 1, 2006. For more detail, see "Defense Acquisitions: Challenges Associated with the Navy's Long-range Shipbuilding Plan," GAO-06-587T, Washington, DC: U.S. Government Accountability Office, March 30, 2006.

24. "Iran Tests Flying Boat, Another Missile," *Pakistan News*, April 5, 2006. But also see "West Doubts Iran Missile Claims," *Jane's Defence Weekly*, April 12, 2006.

25. *British Maritime Doctrine: Third Edition*, BR 1806, London: The Stationery Office, 2004, pp. 28-34.

26. Interestingly, this claim was made for the old Soviet Navy back in the 1970s. S. Gorshkov, *The Seapower of the State*, London: Pergamon, 1979, pp. 219ff.

27. For British discussion of the topic, see Chapter 5, "Maritime Logistics and Support," BR1806, pp. 93-103; and Admiral Sir Alan West, "Joint Sea-basing and the Royal Navy," *RUSI Defence Systems*, Autumn 2005, pp. 26-27.

28. National Research Council (NRC} Report of Committee on Sea-basing: Sea-basing: Ensuring Joint Force Access from the Sea, Washington DC: National Academies Press, 2005, p. x.

29. *Ibid*., p. 1.

30. Sea-basing Joint Integrating Concept, Washington, DC: U.S. Department of Defense, 2005, p. 5.

31. West, pp. 26-27. It also will be seen that even the word is subect to varied interpretation—should sea-basing be one word or two, hyphenated or not? In general, American conventions are adopted in this paper.

32. Major General Gordon C. Nash, Director, Expeditionary Warfare Division (OPNAV), *Naval Amphibious Warfare Plan: Sea-basing Speed, Access, Persistence*, Washington DC, October 2005, p. i.

33. *Ibid*.

34. NRC Sea-basing Report, p. 11.

35. Jim Strock, then Director of the Sea-basing Integration Division at Capabilities Development Directorate at the Marine Corps Combat Development Command, Quantico, Virginia, cited in Scott Truver, "Briefing: U.S. Sea-basing," *Jane's Defence Weekly*, March 29, 2006, pp. 25-29.

36. NRC Sea-basing Report, p. 11.

37. Admiral Ernest J. King, "Third Report to the Secretary of the Navy," 1946, p. 176.

38. Lloyd Thomas O'Kelly, "Shipboard Diary," quoted in Benjamin Franklin Cooling, *USS Oylmpia: Herald of the Empire*, Annapolis, MD: Naval Institute Press, 2000, p. 190; and cited in James C. Bradford, "Expeditionary Logistics: The Missing Link," *Naval History*, February 2006, pp. 54-61.

39. Russell A. Hart, *Clash of Arms: How the Allies Won in Normandy*, Normany: University of Oklahoma Press, 2001 p. 287.

40. Charles Kirkwood, "The Build Up," in *D-Day: Operation Overlord: From its Planning to the Liberation of Paris*, London: Salamander, 1993 p. 115.

41. Steve R. Waddell, *United States Army Logistics: The Normandy Campaign, 1944*, Westport: CT: Greenwood Press, 1994, pp. 163-165.

42. Waddell quotes General Patton's view that the Army, being like a piece of spaghetti, is something one must pull, not try to push. *Ibid*., p. 164.

43. As described in British doctrine on littoral manuever.

44. The Allies' failure to appreciate the tactical significance of the *bocage* when U.S. forces stationed in southwest England were surrounded by exactly the same kind of countryside is one of the great mysteries of the war, illustrating the fundamental importance of accurate intelligence.

45. King, "Second Report to Secretary of the Navy," 1946, p. 146.

46. Till, p. 261.

47. Thompson, p. 278. This is a good introduction to logistics as a major policy driver in the Falklands campaign.

48. Charles E. Callwell, *Small Wars: Their Principles and Practice*, London: The University of Brunswick Press, reprint, 1996, p. 65.

49. Alberto Bin, Richard Hill, and Arthur Jones, *Desert Storm: A Forgotten War*, London: Praeger, 1998, p. 71.

50. *Joint Vision 2000*, Washington, DC: U.S. Government Printing Office, 2000, pp. 29-32.

51. Colonel G. A. Furse, *Military Expeditions Beyond the Seas*, 2 vols, Vol. I, London: William Clowes, 1897, p. 97.

52. Callwell, p. 43.

53. Furse, p. 98.

54. Interview with Lieutenant General Claude V. Christianson, *Military Logistics International*, March/April 2006.

55. Quoted in Scott Truver, "Military Sealift Command," *Jane's Navy International*, January 2002.

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57. Marvin Pokrant, *Desert Storm: What the Navy Really Did*, Westpoint CT: Greenwood, 1999, p. 231.

58. Interview with Rear Admiral David Snelson, Commander, Royal Navy Contingent, Operation Telic, in Paul Moorcraft, *et al*., *Axis of Evil: The War on Terror*, Barnsley: Pen and Sword, 2005, pp. 86-93.

59. Callwell, p. 23.

60. Cited in Keith B. Bickel, "Mars Learning: The Marine Corps," *Development of Small Wars Doctrine 1915-1940*, Oxford: Westview, 2001, p. 1.

61. Christianson, p. 18.

62. "Peacekeepers Arrive to Calm Mutiny Violence," *The Times*, May 26, 2006.

63. "Fighting Future Wars," Field Manual 3-0, *Operations*, Washington DC: HQ Department of the Army, 1993, pp. 1-3.

64. Richard H. Shultz, Jr., *In the Aftermath of War: U.S. Support for Reconstruction and Nation-Building Following Just Cause*, Maxwell Air Force Base, AL: Air University Press, 1993, p. 67.

65. TWC(46) 3 (Revise) "Matters of Fact Relating to Atomic Energy—Note by Joint Secretaries," January 30, 1946 (DEFE 2/1251) TNA, Kew, London. I am grateful to Christian Liles for this reference.

66. For various British views on this, see interviews in Moorcraft, pp. 79-110.

67. Furse, p. 300.

68. Defence Science Board Task Force on Sea-basing, August 2003, cited in *JIC on Sea-basing*, p. 11.

69. West, p. 27.

70. Jane G. Dalton, "Future Navies: Present Issues," *Naval War College Review*, Winter 2006, pp. 17-39.

71. West, p. 26.

72. NRC, *Sea-basing Report*, p. 37.

73. Richard Scott, "MARS Mission," *Jane's Defence Weekly*, April 5, 2006.

74. "Budget 2006-7," Dr. Greg Gilbert presentation at the Royal United Services Institute, May 26, 2006, Canberra, Department of Defence.

75. Batiment de Projection et de Commandement.

76. "New Danish Combat Support Ships Offer Greater Flexibility for NATO Operations," J*ane's International Defence Review*," June 2006; "Oman signs with Austal for Dual Role Vessels," *Jane's Defence Weekly*, May 24, 2006. Material on other navies may be found in the proceedings of the Defence IQ London Conference, May 23-24, 2006, "Future Naval Plans and Requirements 2006," accessible at *ftp://mienke:upld17@ftp.iqpc-files.co.uk/2670*.

77. These are summarized conveniently by Jonathan Kaskin, Director of Strategic Mobility and Combat Logistics, Office of the Chief of Naval Operations, in "High Speed Strategic Sealift: Enabling Future Sea-base Closure and Rapid Force Deployment," IID Conference on Sea-basing, October 4-6, 2005, Washington, DC, October 4-6, 2005, accessible at *www.iirusa.com/sea-basing*.

78. "U.S. Navy Explores Joint High-speed Cargo Ship," *Jane's Defence Weekly*, August 10, 2005.

79. Truver, p. 25; Nash has a convenient listing of all these ships, pp. 31-32, and Annex A.

80. NRC, *Sea-basing Report*, pp. 45-47.

81. Formation flying might provide a partial solution since a large aircraft flying in front can increase the flying capacity of those in close formation behind. Skeins of geese operate on this hitch-hiking principle. *Ibid*., p. 27.

82. *Ibid*., p. 23.

83. King, "Third Report to Sectretary of Navy," p. 198.

84. Thompson, pp. 263-264.

85. West, p. 26.

86. Brigadier Graham Binns interview in Moorcraft, p. 77.

87. Interview with Lieutenantt General Claude Christianson, Chief of Logistics, U.S. Army, in Moorcraft, p. 115.

88. NRC, *Sea-basing Report*, p. 12.

89. Kaskin.

90. The mixed nature of the crew of the British Naval *Lynx* helicopter which tragically crashed in Basrah on May 6, 2006, and which comprised two people from the RAF, one from the Royal Navy, one Royal Marine, and one Army Captain, shows just how joint British operations can be. "Helicopter Attack Claims Life of

First UK Woman to Die in Action for 22 Years," *The Guardian*, May 9, 2006.

91. Thompson, p. 280.

92. Clark, p. 37.

93. Major General Gordon C. Nash, "Sea-basing: An International Aspect," *Jane's Defence Weekly*, March 29, 2006.

94. David Dickens, "The United Nations in East Timor: Intervention at the Military Operational Level," *Contemporary Southeast Asia,* Vol. 32, No. 2, August 2001.

95. $5.9 billion per month on Iraq, $1 billion on Afghanistan. GWOT expenditure since 9/11 is estimated at $191 billion. These figures exclude reconstruction costs of $361 billion. *New York Times*, October 6, 2005.

96. See, for instance, the CSBA report described in "Before Buying Hugely Expensive, Untested Sea-base, Think First: Analyst," *Defense Today*, March 24, 2006. Also, "DOD 'must weigh costs of high speed transport,'" *Jane's Defence Weekly*, November 23, 2005.