Naval Firepower and its Role in Land Battles

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> "The air force alone cannot do it any longer...Israel's navy must make the sea a part of its strategic depth." [1]

Out of the Box

Inside the crowded geo-strategic box that is Israel's domain, the western sector is the only open border and is thus both the Achilles' heel of Israel enemies and a great opportunity for the IDF. At the same time, technological improvements on the enemy's side and its growing arsenal of a wide range of rockets and missiles are a severe threat to Israel in every land battle. In the sea domain the navy enjoys many advantages: it is a constant presence in the arena, it is difficult to track, its activity is possible in almost every weather condition, the sea medium affords ways to avoid detection, it operates beyond range of enemy's weapons (which is not the case for most air force and ground troops bases), and it allows a large scope of armaments on a single naval platform.

The IDF must build its naval force to take advantage of this situation. Indeed, other militaries have already acted on this insight. The American navy, for example, is making ever-growing use of sea-to-surface missiles (such as the Tomahawk and similar weapons), complementing the activity of its land and air forces. By contrast, the IDF has yet to realize the full potential of incorporating naval force as an integral part of land battles using accurate long range missiles fired in salvoes from the sea.

Over the last decade, several dramatic changes in the nature of war have taken place in the Middle East, requiring thought, analysis, and

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lesson-learning – i.e., a different implementation of operational action. First, precision ordnance technology has become more available and relatively affordable. Second, technological advances allow excellent fire control and spotting. Third, the enemy, equipped with unprecedented numbers and types of missiles and rockets, threatens the depth of Israel. Fourth, naval platforms have the potential to launch hundreds of guided missiles into the depth of enemy territory. In addition, in recent years broader questions regarding a significant change in the navy's role in Israel's security structure have been discussed.[2] An in-depth examination of the subject is beyond the scope of this essay.

The Threat

In the past, the IDF readiness was for a scenario of attack against Israel by enemy forces maneuvering in order to conquer territory. Currently, rocket and missile fire are a core component of the enemy's threat equations. Consequently, Israel cannot continue to defend itself in the same way in its current borders, especially given that technological advances narrow the edge the IDF has always enjoyed, and given the reference scenarios with regard to the next war. The State of Israel, with its locales, bases, and infrastructures, is all within enemy range. The trend suggests that the enemy's weapon ranges will only continue to grow, their accuracy will improve, and their destructiveness will increase.

The Sea as Strategic Depth

In a lecture dealing with Israel's strategic depth, Dr. Yuval Steinitz[3] claimed that for the first time since 1967 technological developments have allowed Arab militaries to circumvent their aerial inferiority and harm Israel's military infrastructures and strategic junctures (via guerilla and missile fire). Naval platforms, which are mobile, carry large numbers of cruise missiles (and other precision arms), and supported by satellite capabilities, can play a central role in offense missions. In terms of the capacity to carry weapons, the naval platform is equal to many fighter jets. While naval platforms too are vulnerable, the naval battlefield has become sophisticated and endowed with technology in ways that strengthen Israel's superior capabilities. The solution proposed herein lies not in transferring offense capabilities from the air force to the navy, rather in using the two in a complementary, successful fashion.

The Shore Cannot Be Sunk: An Historical Overview

Historically, what typifies the duel between naval attack vessels and costal defenses is the inherently inferior position of the naval force. Unlike a ship, the coast as a platform cannot be sunk, and its firepower, stamina, and land-based arms, quantitatively and in terms of precision, could outstrip anything found on ships. This force ratio was true in the past when both sides had access only to cannons. The introduction of long range, high precision weapon systems, however, has greatly altered this equation.

Until recently, the utility of attacking ground targets from the sea was limited, primarily because of the limited weight of the projectile in the shell. Such utility is certainly less valuable than attacking the same targets from the air or land, especially when taking into account the risk involved in vessels making their way to an appropriate spot where to launch an attack.

During the World Wars, classic naval fire assistance was that of battleships and large cruisers spitting heavy fire and wreaking massive destruction on shore. Today, because of changes in the vessel structure, there is a need for alternative weapons to the heavy cannons. The trend is towards armament based on high precision missiles and rockets, and a reduced need for great fire volume. Technological developments in rockets and missiles and the changes in military vessel structure on the one hand, and changes in surface defenses on the other, require a reexamination of the question of attacking enemy targets on the shore and farther inland using naval forces.

Standoff Fire Using High Precision Arms

Standoff fire[4] is a method of using arms to realize control of the operational area from a distance; it involves the identification of solutions for maximal damage to the enemy from a distance, using advanced weapons and technology. This approach has a substantive advantage in everything linked to the ability to operate in areas where it is difficult to carry out large scale ground maneuver.

Attrition ratios on the battlefield of the future and the drive to maximize the potential of current weapon systems have prompted the IDF to adopt a fighting doctrine based on weapons that are able to address the attrition problems of the future battleground. These arms,

including precision weapons, are supposed to damage the enemy's weapon systems located deep in its territory. The technologies available in the field of precision armaments enable the development of weapon systems capable of attaining these operational goals.

Precision Fire from the Sea: The American Navy

Non-classified data about developments in the American navy present a similar picture to the one in the IDF of emerging needs of fire assistance from the sea. Surveys of American journals highlight the navy's transition from its historical function of controlling the sea to one of much greater support for and impact on battles on land. Owen Cote[5] stresses that the technological improvements in long range precision armaments are occurring rapidly. The bulk of the mission of damaging enemy targets deep in enemy territory is borne by the air force. Yet because of the density and improvements in surface-to-air missiles, this is becoming increasingly difficult, requires more resources, and is liable to cause substantial damage to the air force. Today, the surface-to-air missile threat is handled with massive use of the Tomahawk cruise missiles. The American navy has come to the conclusion that there is a demand for long range precision weapons from naval platforms, especially in light of technological developments in the fields relevant to that type of weapon.

In another essay, Todd Morgan also claims that long range precision arms on naval platforms can generate valuable support to land forces.[6] The mobility of naval vessels and their ability to fire from the sea at any time of day or night and in virtually any kind of weather, either in planned operations or in response to immediate calls by ground forces, are highly significant components in managing a land campaign. Firepower from the sea could in many cases cancel or reduce the need for complex operations of air and ground forces.

Israeli Fire from the Sea: An Overview

Sea-to-surface shelling operations have played an important role in naval history, and widespread use of naval artillery to bombard shore targets has occurred throughout the world. Noteworthy in the Middle East context are the use of the Egyptian destroyer *Ibrahim al-Awal* in the Sinai Campaign; the shelling of the Egyptian and Syrian shores by Israeli naval vessels during the Yom Kippur War; the shelling of terrorist targets in

Lebanon during Operation Litani and Operation Peace for the Galilee; the shelling of terrorist targets in Beirut by the *USS New Jersey*; and most recently, the shelling by the Israeli navy of Hamas targets in the Gaza Strip during Operation Cast Lead.

In the Yom Kippur War, Israeli navy missile boats shelled the Syrian shore.[7] In addition to neutralizing the Syrian navy, the Israeli navy had a twofold purpose: to damage strategic installations and to force the Syrian army into defending the coast line. Fuel storage containers were damaged, affecting fuel and electricity supply throughout Syria. Israeli missile boats forced the Syrians to allocate armored forces and artillery to strengthen shore defenses at the expense of units on the Golan Heights front. The war also saw the introduction of the Gabriel sea-to-sea missile, fired on Egyptian shore targets, as well as massive bombardments of fortifications, radar stations, and coastal batteries. The targets were located all along the Egyptian coast up to the Libyan border.

As part of the fighting against terrorist organizations on the Lebanese coast line, much use was made of naval bombardments because of the proximity of terrorist bases to the coast. This activity, which started in the mid 1970s, peaked during Operation Peace for the Galilee and continued throughout the 1980s and 1990s. Some of these shore operations involved the Gabriel missile. Missile boats usually worked alongside land forces, as relatively small 76 mm naval cannons were used for shelling. However, the rapid rate of fire compensated for the small size; Operation Litani and the siege of Beirut are good examples.

Fire at Land Targets from the Sea

Should the IDF act to give the navy the capabilities to use precision weapons from the sea as an integral part of the land campaign? The subject invites the following questions: What can be learned from the navy's experience to date in the field of naval fire support? What technical options are available or expected in this field that could possibly be integrated into the navy's existing naval platforms? Would the provision of naval support fire be consonant with the force's overall purpose and missions? Finally, does the IDF have a requirement for significant naval surface fire capabilities, in addition to standoff fire capabilities from the air and ground?

Today, in order to damage targets deep in enemy territory it is necessary in most cases to use the air force. But is that, in fact, the most efficient way to operate? Could a long range ballistic missile not provide a faster, more efficient, and more economical response at a much lower risk, given that Israel's airfields would likely be under enemy missile and rocket threat, while high quality enemy targets would be defended by dense surface-to-air missile systems? The enemy's widespread use of rockets and missiles creates a new situation for the ground crews at air force bases.

Some argue the need[8] to internalize at the earliest possible opportunity the significance of improved precision long range missiles, used either intelligently by the IDF or by the enemy. It is assumed that the enemy rather than the IDF begins hostilities, and then the first hours and days require the air force to make preventive steps a priority instead of diverting resources to attacking targets deep in enemy territory. With today's technology, the missiles in many cases can substitute for planes, and thus it is necessary to plan and operate the order of battle accordingly.

When hostilities break out − whether initiated by Israel or its enemies − the air force will likely be burdened with missions to ensure aerial superiority and neutralize immediate threats to IDF troops and the civilian rear. At the same time, the navy is likely to find itself in a convenient position for operating effective fire at selected targets along the shore and deep in enemy territory. The enemy will presumably have capabilities of firing salvoes of rockets and missiles liable to paralyze the ground systems, airfields, and logistical systems for certain periods of time.

Attacking ground targets from the sea[9] is important given that Israel's stationary systems are all within rage of enemy rockets and missiles. This new reality requires the IDF's firebases to be decentralized, and it is likewise important to create another firebase operating outside the enemy's weapon range. Here the navy can assume a significant role. The naval force would enhance the inventory of weapons that would be possible to operate at any given time against targets in enemy territory. In addition, the technology available in Israel and elsewhere allows the arming of the navy's platforms with appropriate weapon systems. This was not the case in the past.

The sea zone enables operating[10] from it with more freedom, as it is less threatened in comparison to the air force and allows the launching of precision weapons at long ranges. In general, naval platforms can carry more weapons, are harder to locate, and can serve to launch special operations in order to hit targets, such as command and control centers and surface-to-surface missiles. The sea theater has advantages in long range operations,[11] in changing weather conditions, and in conditions of political uncertainty. It provides access to valuable targets (strategic and tactical), civilian targets (national, economic, and government infrastructures), and military targets, including those difficult for the air and ground forces to reach. The decisive advantage lies in range, the amount of time the naval vessels can remain in the area, the size of force that can be employed, the flexibility in orchestrating the action, and the ability to remain concealed.

Discussions in the IDF[12] have stressed the need to prepare standoff fire in tackling enemy fire at airfields that would interfere with aerial activity. In addition, in the winter months aerial activity would likely be curtailed for prolonged periods because of weather conditions (though the Israeli air force might question this conclusion). Therefore, it is necessary to consider standoff fire in three dimensions: in the air, on land, and at sea. The assessment is that Hizbollah is preparing to launch some thousand rockets per day. In light of this threat, the IDF must prepare to use fire, both statistical and precision in tandem, depending on the type of targets and their surroundings. There are even individuals in the operations division at the General Staff[13] who see the inherent advantages in the navy acquiring the ability to operate fire from the sea as a component of land battles. There is an advantage to ships already at sea that are ready to operate, without having to launch them for specific missions, while these ships are themselves not under threat, unlike troops stationed on land. In addition, the naval force is in a position to arrive in low signature at the location of attack. However, the incorporation of the air force in land battles is well established, works effectively with tried and tested procedures, and therefore the IDF does not naturally seek alternative or additional ways to operate. The stance of the air force is that it is capable of handling the problem of high trajectory fire aimed at its bases, and that the force is obligated to meet all its missions despite the threats to its bases. Today in military confrontations most of the fire volume is in the

form of standoff fire.[14] The relevant battle takes place on the ground, and the sea medium should be viewed as a continuation of the same battle on the ground.

Technological Feasibility of Naval Fire Support

While ordnance technology allows the operation of some existing standoff fire systems currently used on land to be used from the sea as well, the sea is clearly an environment that poses fewer risks. Although all the ordnance already in service in the IDF and those in various stages of development in the defense industry cannot be listed, there is a set of missiles and drones that could be modified for effective use from the decks of various naval platforms of varying sizes – from small boats and light ships used by naval commandos and small coastal patrol boats to missile boats and ships used by the navy. The decks of naval vessels can serve as platforms for takeoff of various remote controlled vehicles, drones, and different "loiter" type as well as "shoot and forget" missiles.

The navy has the technical capability[15] to install launching infrastructures both on missile boats and auxiliary vessels. Installation on auxiliary vessels is simpler, requires fewer resources, and can be effective with relatively little warning. To ensure that the naval force has an impact on a land battle, it must prepare an infrastructure on naval platforms with the capability of launching 200-300 guided precision weapons every 24 hours aimed at planned as well as random targets in enemy territory. Such scope of ready-to-fire missiles requires coordination with auxiliary vessels having appropriate deck space in addition to special installations on the missile boats themselves.

In contrast to installations on missile boats, which would be permanent fixtures, installations on auxiliary vessels would be based on kits (containers) that could be loaded onto ships and transported fairly simply and quickly, and at relatively low cost. The kit would include the weapon system container with command and control equipment and a firing console (for communicating with the missile until its launch). The other containers would contain the missiles in launchers. The vessel's infrastructure would allow repeated loading of missiles on launchers according to need. A vessel that has launched all of its missiles would return to port or to an anchorage for reloading.

The Development of Long Range Precision Armaments

When the objective is the destruction of specific targets, precision is the most important component. The dimensions of the missile are a function of the weight of the warheads and the cruising range. The more that precision of the hit is improved, the more it will be possible to reduce the weight of the warhead. Precision weapon systems[16] may greatly reduce the need for massive shelling in order to achieve the desired effect on land. The reduction in a massive fire volume hinges on the ability to achieve the required result by launching one or two precision missiles. In addition, by increasing launch range, it is possible to increase both the numbers and the types of naval platforms likely to provide bases for the launch of precision weapons.

Long range precision weapons development is in its early phase and is far from being fully mature. Thus, this type of ordnance will likely continue to develop and in time its costs will also drop. This obligates decision makers already to adopt and direct the capabilities inherent in the technology and to incorporate naval launch capabilities to destroy targets deep in enemy territory from a distance. The investment at this early stage of incorporating the technology will increase the return relative to investment with the development of various types of long range precision ordnance. The cost of investment in improving ordnance is measured relative to the precision achieved: as precision improves the cost drops. The most significant component in improving precision is the GPS. The precision of impact within a radius of 2-3 meters is a reasonable assessment.

The price of a missile is relatively higher than an artillery salvo. Therefore this type of fighting is suitable for high quality pinpoint targets rather than for covering large areas with fire. Missile fire can be more effective against pinpoint targets; impact is usually precise, compensating for the relatively small warhead. Launching of the newly developed missiles can be carried out from long distances. At present, missiles and rockets play a larger role, thanks to both improved precision and range and because they are more adaptable to the types of naval platforms in service.

The American navy is testing types of missiles to find a substitute for cannons and provide the response for the need to attack targets on land with fire from the sea. Among other missiles, the navy is looking at

MLRS and HIMARS rockets, systems capable of engaging the enemy at ranges of up to 85 km. It seems that the following systems are the leading contenders: the Tomahawk (SLAM), the Standard missile (sea-to-air), and the ATACM (Army Tactical Missile) rocket to be fitted with GPS systems for improved precision. The navy has repeatedly postponed making a decision about the type of weapons intended to provide sea-to-shore fire because of the ongoing debates on the type of vessels to use for littoral activity.

In May 1999 the commander of the US navy[17] decided to modify the missiles in navy inventory – in terms of range, precision, and damage effect – to attack targets on land. He preferred this approach to attempting to modify the army's weapons for use at sea. Technology available in the world and in Israel allows arming the navy ORBAT with appropriate systems, which was impossible in the past.[18] The Israeli navy notes that there are no technological difficulties in retrofitting ground rocket and missile systems for use on naval platforms.

The technological challenges in adjusting launchers for use at sea lie in the firing equation of the launchers platforms (to handle the problem of the ships' rolling); good continuous communication with the missile (of the hovering type); and inter-force command and control systems. The ranges of existing missiles are sufficient so that air force involvement is not a condition of operation to extend the IDF's reach into the depth of enemy formations. There is an availability of guided precision weapon systems of ranges suitable to operational requirements. It is important to stress that the physical dimensions allow installation on platforms already in service in the Israeli navy.

Command and Control

Standoff fire in general and from the sea in particular requires the use of ground forces, the air force, and the navy, in locations sometimes quite distant from one another, with the need for complete coordination and reference to a joint and fully updated database. Command and control systems have become more centralized. In order to create a relative advantage it is necessary to maximize the capabilities of fighting systems. Doing so requires coordination and synchronization among all the bodies operating in the campaign and allocation of resources based on the battlefield status.

Technological developments grant the capability of operating effective weapon systems and the ability to cooperate[19] with systems of different bodies by using advanced planning and coordination systems at different fire support bases. Adopting multi-force integrated systems would allow the force at sea to operate smoothly in tandem with the ground troops and assist with fire immediately upon request. A necessary condition is that the naval force be thoroughly networked in intelligence and command and control systems with the ground forces and the air force.

The ability to operate precision fire and launch precision ordnance from the sea at short notice should be attained. The assumption is that in many cases there will be vessels in locations capable of reaching selected targets at a given time that are preferable operationally to the locations offered by the fire support bases on land or from the air. The units of the naval force must be networked (computerized) with the battlefield on land. The communications systems must provide a reliable solution for the required ranges among the various bodies operating on the battlefield, on land, in the air, and at sea. The naval force must be equipped with the required planning and coordinating means that will insure it the ability to operate the missile systems effectively against the selected land targets. Inter-system coordination and the creation of a joint tactical picture are crucial to efficient support by naval surface fire. In future operations, fire support from the sea will involve a range of weapon systems and planning and guidance systems that will be integrated in the systemic fire-support coordination system. The objective is to provide the naval force the capabilities required for close fire support, preventive fire, and depth fire in the integrated land battle. The naval force would be incorporated into an integrated system of planning and coordinating fire support. The development of such an integrated system would ensure the capabilities required to provide fire support to units fighting on the battlefield on land in the twenty-first century.

The IDF's fire support effort must be based on a combination of the capabilities scattered among the various forces and outfits. The effort will derive from the objective of each entity. This requires a common language, coordination, command, control, communication, timing, and data accessibility. The navy must be prepared to be incorporated into fire support centers used at various levels – General Staff, regional command, and division. The requirements of the naval attack forces are:

a. Maintaining weapon launching means suited to the various types of targets
b. Adjusting ordnance to types of targets
c. Ability to operate in every kind of weather
d. Ability to operate with a minimum of preconditions
e. Ability to operate soon after identification of a target

Regarding command and control:

a. Determining attack plan – method and timing
b. Receiving the information required by the naval force
c. Receiving results of attack and its analysis

Integrating Naval Participation in Land Battles

Utilizing the naval force embodies the power to influence the land operations. The weapon systems on the decks of the naval platforms must have the capability to apply fire towards targets on land at long ranges and with great precision. A naval force is built to remain in place for extended periods. It must be an efficient center for continuous and current intelligence gathering and be prepared to apply fire on short notice. The navy must be built to win the naval campaign and must be prepared to be integrated into the operations on the ground, to affect events on shore and deep in enemy territory. This means that the navy must understand the doctrines of the ground forces. The operational philosophy must be adapted to technological developments, to systems developments, and their introduction into service. The navy must thus promote inter-force cooperation that leads to expanding its missions to include the participation in ground battles. Therefore, the navy must work to adapt missiles and other guided precision arms in various stages of development and integration in the IDF for the employment at sea.

The objective of the naval battle lies on land**.** The naval battle does not exist for its own sake. The primary goal of navies is to achieve superiority at sea in order to support ground troops, by providing fire support from the sea and by executing naval outflanking maneuvers. History shows that the great naval battles were linked to events on land, often directly. In our time, the direct effect of the naval force is manifested by sea-to-surface fire via the launching of various rockets; aerial attacks from naval carriers and naval gunnery; and landing forces of varying sizes.

The primary requirement of a navy has always been to ensure the control of the sea (in the relevant arena). Today, emphasis lies in the tactical coordination between the navy and the activity of the ground troops. The answers to the question of how the naval force can overpower the shore fort (i.e., the enemy's gunnery and shore-to-sea missiles) is to attack from a direction or a range that lies outside the scope of the shore fort's capability. It is preferable to neutralize the power center of the fort early on by attacking and neutralizing the detection and control systems. The mobility of naval vessels, in addition to the capability to fire from the sea at any hour of the day or night and in virtually every kind of weather, either as preplanned or on request by ground forces, is a highly significant component in managing the ground campaign.

The existence of firepower from the sea often cancels or reduces the need to carry out complex air and ground operations. When a naval force acts independently it has the capability of damaging concentrations of enemy forces, logistical centers, and control facilities. Precision fire from the sea can greatly reduce the cost of operational patterns in use today, which consist almost entirely of attacking from the air. Precision fire from the sea should not be viewed as a replacement of air force activity, but the navy does have the capability of providing a continuous solution for all times of the day when the air force is engaged in other activities or with regard to targets densely protected by surface-to-air missile systems.

The tension[20] between the need to maintain a navy that is capable of achieving and maintaining control of the naval arena and a navy with capabilities of influencing ground battles does not require a concession of either goal. Adopting long range precision ordnance systems to be used against targets on land will altogether prevent a conflict between the two goals. The new capabilities can be applied in two different ways: one, expanding the contribution of the naval force as part of the effort of the ground campaign; two, reducing the number of vessels to participate in the ground effort – thanks to the new weapons – in order to steer more resources towards controlling the naval arena. The navy must maintain continuous naval presence to ensure its control of the arena. By virtue of this presence it has the potential ability to operate and influence the ground campaign in its operational environment.

There are those in the IDF who claim that the navy must retain its primary function – obtaining naval superiority in order to defend the

country from the sea and to ensure commerce to and from the state – and that it has no business extending its purview to include the land operations. The counterargument is that the navy must promote inter-force cooperation that expands its missions related to the ground campaign and that the force must act vigorously to adapt guided precision ordnance in stages of development and integration into the IDF to be employed from the sea.

The fighting philosophy of the navy is offensive.[21] Gaining sea-to-land fire capability serves this philosophy and expands the current deterrence that the naval force creates. The navy must strive for a situation whereby as soon as hostilities break out, it will be able to destroy enemy systems affecting its operations, including radar stations, coastal batteries, and shore-to-sea missiles.

Conclusion

The IDF's major opportunity on Israel's western border is also a major threat. Unless the IDF succeeds in capitalizing on its naval superiority and the open border on the west, it will have to handle more difficult conditions in the arena where it will not enjoy the advantages it once had. The geo-strategic box in which Israel is located will in all probability grow more constraining, and the IDF will have to look at the future prospects and act accordingly. The trends of the future are clear:

a. Israel's space will only grow smaller and the Arab urban sprawl will grow and consolidate.
b. Technological improvements in anti-aircraft systems and their density are liable to decrease the air force's room to act.
c. The Arabs have identified Israel's weakness (the rear and infrastructures) and will increase their numbers of missiles and rockets.
d. Bases and strategic sites will be increasingly exposed to high trajectory precision weapons.
e. Technology will allow easier, more accurate control of lethal guided ordnance.
f. Technology and naval platforms allow massive launching of precision ordnance with ever-growing effectiveness.

This reality requires decision makers to adopt and steer the abilities inherent in the technology and already integrate sea launching

capabilities to destroy targets deep in enemy territory. The investment at this early stage of integrating the technology will increase the return relative to investment with the development of various types of long range precision ordnance. The naval medium enjoys many advantages and Israeli technological superiority, and it must therefore be integrated with the other fighting forces. The stress is on integration rather than on replacement of aerial and ground capabilities. Using the potential of naval fire support capabilities would allow ground forces and the air force to operate more freely in the first critical hours and days of the next campaign. Ignoring this insight is liable to result in a future catastrophic blunder in the country's national security doctrine.

Below is a paragraph from Alfred Mahan's book, which seems particularly apt in the context of this essay:

> The seaman who carefully studies the causes of success or failure...will observe also that changes of tactics have not only taken place *after* changes in weapons, which necessarily is the case, but that the interval between such changes has been unduly long...Changes in tactics have to overcome the inertia of a conservative class; but it is a great evil. It can be remedied only by a candid recognition of each change... History shows that it is vain to hope that military men generally will be at the pains to do this, but that the one who does will go into battle with a great advantage — a lesson in itself of no mean value.[22]

In addition to the main task of the naval force – ensuring the nation's sovereignty at sea – the navy must be ready to integrate at a moment's notice in any land campaign. Such use of the naval force means applying fire from the sea and outflanking the enemy and landing troops, and otherwise assisting ground forces from the sea. It appears that the Israeli navy[23] intends to adopt this approach and adapt the missiles and precision ordnance that the IDF is integrating in naval platforms. These platforms are versatile and missiles boats are capable of carrying certain missiles in sufficient quantities for specific missions. In addition, it is possible to adapt large vessels to this task and outfit them with large amounts of guided precision ordnance of various types.

At this stage let us return to the question of whether there is any point in discussing naval fire at enemy targets on land. It is necessary to take into account the answers to the following questions:

a. What can be learned from the navy's experience of fire support? We know that since the introduction of missile boats into service in the 1970s, the navy demonstrated its capability in the 1973 Yom Kippur War and in fighting against terrorists of applying effective naval surface fire against enemy targets on shore, taking into account the limitations of the weapon systems available at the time.
b. What are the existing technical options and those we can expect to see in the future? We know that every type of naval platform in service today, as well as those planned for the future, can be outfitted without any particular technical difficulty with the range of missiles and guided precision ordnance currently in IDF use and due for introduction in the future.
c. Would fire from the sea be in line with the general purpose and missions of the navy? The answer is unequivocal: the mission of the navy is to control the naval arena in order to operate from it towards the land arena, in coordination with the air and ground forces, demonstrating its advantage at the sea arena.
d. Does the IDF need significant capabilities in naval surface fire in addition to its existing standoff fire capabilities from the air and on land? The answer to this question too is clear: the naval medium is the only one that is not under threat or within range of enemy ordnance, and it is possible to operate from it against enemy targets – whether previously selected or occasional – along the coast and deep in enemy territory with greater freedom.

On the basis of existing and anticipated data, the IDF and the defense establishment should engage in focused efforts at the staff level to examine the option of using fire from the sea, run the required simulations, tests, and exercises, and at a later stage include the navy in the command and control systems of fire support centers at the various levels. There is no reason to postpone this discussion.[24] The solution, which is in fact already in existence in the form of loading launching vehicles onto the decks of naval vessels, should be adopted now.

Notes

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3 Ibid.

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5 Owen R. Cote, Jr., "Precision Strike from the Sea: New Missions for a New Navy," M.I.T. Security Studies Program's Second Annual Levering Smith Conference, December 8, 1997.
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14 Author's interview with Maj. Gen. (ret.) Yedidya Yaari, former Israeli navy commander, March 17, 2010.
15 Author's interview with Col. Sasi Hodeda of the Israel Navy, March 9, 2010.
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17 U.S. General Office Report, "Naval Surface Fire Support Plans and Costs," 1999.
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21 Author's interview with Col. Sasi Hodeda of the Israel Navy, March 9, 2010.
22 Alfred Thayer Mahan, *The Influence of Sea Power Upon History, 19660-1783* (Boston: Little Brown, 1890), pp. 9-10. See http://www.gutenberg.org/files/13529/13529-h/13529-h.htm#Page_35.
23 Author's interview with Maj. Gen. Eliezer ("Cheney") Marom, Israel Navy commander, February 18, 2010.
24 "Naval Rockets Again," *Jane's International Defence Review*, July 1995.