The Revolution in Military Affairs and the Middle East:
If this is a Revolution, then we are the Counterrevolutionists

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1. Introduction

The Middle East was the first region to experience the Revolution in Military Affairs (RMA) in action. It is also the first region that has demonstrated some of the shortcomings and limitations of this revolution. Elements of the RMA—for example, the use of Unmanned Aerial Vehicles (UAVs)—were deployed in the late 1980s in Israeli anti-guerrilla warfare in Southern Lebanon. But the first application of the full array of technologies that are part of the RMA was during the 1991 Gulf War. Five weeks of aerial bombing and missile attacks on Iraqi targets, followed by a five-day ground campaign, featured most of the key elements of RMA.

A decade of significant technological innovations later, the United States unleashed again RMA technologies in Afghanistan and in its war against Iraq in 2003. Israel has used a number of RMA elements in its fight against the Palestinians during the Al Aqsa Intifada since September 2000. Both the increased U.S. presence in the region and the fact that the Israeli Defense Forces (IDF) possesses many of the key elements of the RMA have forced significant processes of reassessment of technology, strategy, and operational force design and force deployment in the main Arab states.

This paper attempts to address the various approaches that the major Arab states and nonstate actors (in particular the Palestinians and the Hizballah) have adopted to deal with this emerging reality in the Middle East. The paper is designed as follows.

- First, I present the key elements of the RMA. I discuss the way in which these elements have been employed in the four principal arenas of conflict in the Middle East since 1990: the Gulf War of 1991; the guerrilla war in Southern Lebanon, 1990-2000; the AI Aqsa Intifada, 2000-2004; and the Iraq War of 2003.

- Second, I examine the implication of these processes on three groups of actors in the region.
  - The first group consists of the "modernizing" military forces of some states in the region—e.g., Turkey, Egypt, Saudi Arabia, and some Gulf states.
  - The second group concerns "traditional" military forces in states such as Syria, Iran, and Algeria.
  - The third group concerns paramilitary forces of prestate actors such as the Palestinians and substate actors such as the Hizballah.

- Finally, in light of this analysis, I discuss various scenarios for the evolution of military forces and structures in the region.

2. The RMA in Middle East Conflicts

The revolution in military affairs consists of an array of technological innovations in a number of areas that induce significant changes in the conduct of military operations. These changes include: (1) over-the-horizon targeting and fire; (2) the use of unmanned vehicles for reconnaissance, targeting, and combat operations; (3) the use of Precision Guided Munitions (PGMs) in both strategic and tactical environments; and (4) the use of space and the employment of a "system of systems" for combat-related command and control activity (Cohen, 1996: 40; Owens, 2003), and (5) information warfare (Berkowitz, 2000a).

As noted, Israel employed elements of these technologies in the late 1980s in Lebanon, especially the use of UAVs for reconnaissance purposes, and throughout the 1990s in its struggle against the Hizballah in Southern Lebanon. It used PGMs to assassinate Hizballah leader Abbas Mussawi in February 1992, and employed both air and ground PGM technologies during the two major bombing campaigns—"Operation Accountability" of July 1993, and "Operation Grapes of Wrath" of April 1996. The sophisticated deployment of PGM and UAVs had little or on effect on the outcome of this encounter. Israel withdrew from Lebanon with its tail between its legs (Van Creveld, 2000: 305-306; Maoz, 2005: Chs. 6, 7).

The United States demonstrated the full effect of applied RMA technologies in Iraq in three operations—Desert Storm in 1991, Desert Shield in 1998, and the Iraq War of 2003 (Cordesman, 2003). The first application of RMA technologies in the Gulf War was also the most impressive one—despite severe criticisms of the accuracy of the bombing campaign of January 18--February 24, 1991. The Iraqi army, by far the largest in the Middle East was both completely blinded and completely paralyzed during this campaign.

3. Arab Lessons from the RMA in the Middle East

There are three types of reactions to the deployment of modern technologies of warfare in the Middle East. The modernizing armies in the Arab world attempt to absorb and these capabilities into their systems. The traditional armies are aware of the advantages of RMA technologies. Yet, both financial and technological constraints and limitations on the supply of RMA technologies prevented them from adopting most of these technologies.

Given these constraints, the strategic efforts of these states is on finding "poor man's substitutes" for these technologies, mostly by aspiring to develop or acquire different types of Weapons of Mass Destruction (WMD). The nonstate actors try to subvert the

effects of these weapons by resorting to guerrilla warfare and terrorism. In these areas, RMA technologies have had so far little or no effect on the outcomes of protracted confrontations.

In order to facilitate the discussion of the strategies adopted by various states and nonstate actors in the Middle East vis-a-vis the revolution in military affairs, Table 1 below presents a comparison of the main military indicators of the states discussed in this paper.[1]

Table 1: Balance of Forces in Selected Middle East States

Variable	Egypt	Saudi Arabia	Turkey	Iran	Syria	Israel
Defense Expenditures						
Total Def. Exp. (millions $US)	2,750	21,330	9,220	4,070	1,360	9,840
Def. Exp/GDP	0.034	0.115	0.046	0.048	0.067	0.100
WMD Technologies						
Chemical Warheads	Possible	No	No	Possible	Yes	Possible
Biological Warheads	Unknown	No	No	Possible	Possible	Possible
Nuclear Warheads	No	No	No	No	No	~150
No. of medium and long range SSM	~100	~40	77	~450	~300	~100
Air Power						
No of Combat Planes	518	345	407	342	490	518
West HQ Combat Planes/other CP	0.721	1.005	1.176	0.000	0.000	1.977
Attack Helicopters	125	27	53	193	105	140
UAVs	100	N/A	60	~20	N/A	~150
Intel. Satellites	Procurement	3	1[1]	None	1[2]	2
Armor						
Western MBTs High Quality	655	315	0	0	0	1,400
Western MBTs Medium Quality	1,550	400	4,255	0	0	2,530
Russian MBTs High/Medium Quality	600	0	0	730	2,600	0
Total	3,605	1,015	4,255	1,700	4,900	3,930
Western HQ MBTs/Others	0.222	0.450	0.000	0.000	0.000	0.553
Wireless Anti-Tank Missile Launchers (ATMLs)	0	0	0	~50	~50	~2,500
Wired ATMLs	2,110	2,150	943	~400	390	~1,000

[1] Use of Israel's Ofeq 5 Intel. satellite.
[2] Use of Russian imagery satellites.

1. Source: Kam and Shapir (2003); IISS (2003), Cordesman (2003, 1999). Table 1 lists Israeli capabilities as reference. Israel will be discussed in this paper only in terms of its attempt to deal with the challenges of guerrillas and terrorism.

3.1. Modernizing Armed Forces

The process of modernizing the armed forces of several key states in the Middle East started in the late 1970s and continues to the present. This process entails increased reliance on arms imports from the West—particularly the United States—, joint maneuvers with U.S. and other Western armies, and the training of senior officers in military schools in the West. This modernization process of Egyptian, Saudi, Turkish, armed forces and—to a much lesser extent—the armed forces of Kuwait and the other Gulf states—is driven by three principal incentives.

- First, U.S. influence in the region and the growing dependence of those states on the United States for both equipment and strategic support in times of major crisis created opportunities for modernization of the armies of the states friendly with the U.S.

- Second, the development of Israeli capabilities and strategy creates both potential threats and a competitive incentive for modernization in some Arab armies.

- Third, internal pressures from the armed forces and the domestic political role of the military in these societies put pressure on leaders to modernize.

Yet, these incentives for modernization there are constrained and often balanced by economic pressures, basic manpower deficiencies, and political considerations. I discuss briefly each of the other key states in this group and the trends of their process of modernization.

Egypt's shift to a Western orientation following the 1973 Yom Kippur War, and increasingly so since the 1979 Israeli-Egyptian peace treaty, was accompanied by significant economic and military aid from the United States. Since the late 1970s, Egypt gradually transformed its principal source of weapons procurement, shifting to American main weapons systems, in particular combat aircraft, attack helicopters, and main battle tanks.

Following the Soviet invasion of Afghanistan, Egyptian and American units have engaged in joint ground and naval maneuvers. The exposure of the Egyptian armed forces to Western weapons systems and to Western doctrine, and the opening of US weapons markets to Egyptian requests generated a slow but consistent shift of Egyptian military capability to a Western orientation. Financial constraints have prevented a complete revamping of the Egyptian military to a strictly Western-type armed force and have forced the preservation of some significant quantities of Soviet/Russian-made weapon systems. But the trend of Westemization of the Egyptian armed forces has continued at a fairly steady pace.

In the Gulf War of 1991, Egypt contributed some 40,000 ground troops to the war effort. These troops did not participate in actual battle, but the close contact with the realities of the war impressed Egyptian commanders. Both the Egyptian general staff and the political elite understood the importance of the advanced weapons technology in the modern battlefield and the need to import some of these systems to the Egyptian armed forces (Kechichian and Nazimek, 1997: 135).

The Egyptian armed forces invested heavily in modernization of main platforms:

- The air force was shifted from Soviet MIGs to American F-16s (roughly 210 jets) and some Mirage 2000s (18-20). The Egyptian air force also has a substantial fleet of Apache and Gazelle attack helicopters. These platforms are equipped with Sparrow, Sidewinder, and R530D air-to-air missiles and with Maverick and Hellfire air-to-ground missiles.

- The ground forces rely heavily on M1A1 battle tanks that account for roughly 22 percent of the entire Egyptian tank force. The anti-tank weapons that indicate the level of sophistication of ground PGMs, however, are old generation TOW, Milan, Swingfire, and Sagger missiles, all wire-guided.

- Egypt has a well-developed chemical weapons program and there might be some biological weapon capabilities, but no nuclear weapons potential. Egypt has roughly 100 Scud-B and Scud-C Surface to Surface Missiles (SSMs) with a range of up to 500km and a payload of up to 1,000kg.

The Egyptian defense effort is moderate, however. Egypt spends only 3.4% of its GDP on defense. This budget constraint limits the ability of the armed forces to modernize and forces the Egyptian armed forces to maintain an arsenal of obsolete weapon systems side-by-side with fairly modern ones.

In contrast, Saudi Arabia has by far the largest defense budget in the region in both absolute and relative terms. It spends over $21 billion (11 % of its GDP) on defense. This is more than twice Israel's and Turkey's defense spending and more than five times that of Iran. The key question here is, as Cordesman (2003: 78-79) points out, is how the Saudi defense budget is spent. Cordesman suggests considerable inefficiencies in defense spending. But at the same time a comparison of the number and quality of Saudi weapon systems with the magnitude of spending does not add up.

Since the 1991 Gulf War, Saudi Arabia has increased its defense spending and its weapon imports programs. For example, only 315 out of Saudi Arabia's estimated 1,015 tanks are MIA1/ A2 advanced tanks. These tanks are equipped with highly sophisticated guidance and night vision systems, but they are still only a third of the Saudi armored force. Saudi Arabia possesses also a high number of Anti-Tank Missile Launchers (ATMLs), but virtually all of them are obsolete wire-guided missiles.

Clearly, the greatest financial and strategic effort of Saudi Arabia spending goes to the air force. The Saudi air force's top-of-the-line jet fighters are F-15/C/D Eagles, British Tornados, and F-15S multirole aircraft. The Saudi armed forces also possess a small but growing fleet of attack helicopters. Although the size of the Saudi air force is not as large as that of Egypt, Turkey, Israel, or Syria, it is by far the more advanced in terms of

weapon and support systems compared to all other states in this study, with the notable exception of Israel.

The Saudi air combat fleet is supported by five AWACS for long range intelligence, three space satellites, a ground receiving station, and additional ground-based C4I systems for ground force support (Cordesman, 2003: 235). Saudi jets are equipped by Maverick, Alarm, Sea Eagle, and Exocet air-to-ground missiles and by Sparrow, Sidewinder, and AMRAAM air-to-air missiles.

The Saudi armed forces had gained significant combat experience in the 1991 Gulf War, with both air force and armored units playing limited roles in battle operations. What is most important in terms of the Saudi efforts of modernization is the close contact with U.S. military forces in the Gulf. The contact between Saudi and American military officers is perhaps the closest between any Arab states and the United States. The U.S. is involved in training and logistical and operational planning of the Saudi armed forces. Paradoxically, the Iraq War of 2003 has decreased Saudi dependence on the United States and there is growing Saudi pressure on the United States to phase out its military bases in Saudi Arabia [editor's note: the U.S. has closed its operating bases, and only training teams are left in the country].

Since Turkey is a member of NATO, the entire Western weapons market is available to its armed forces. The relations between Turkey and Israel since the early 1990s were both motivated and improved by a number of important weapons deals and upgrade programs. Turkey's defense burden is moderate, accounting for 4.6% of its GDP. The Turkish army places relatively little emphasis on strategic capabilities such as SSMs and weapons of mass destruction.

Compared to the overall size of the state and the potential strategic challenges it may face, the Turkish air force is also of a moderate size. Yet it is highly sophisticated in terms of its weapons systems. Its top-of-the-line jets include F-16 C/Ds, and even its less advanced jets (Mirage 2000 and the F-4E) are relatively advanced compared to the air

forces of some of the potential adversaries. On the other hand, the Turkish fleet of attack helicopters is relatively small, composed of only 37 AH-1 Cobras. The Turkish air force has also entered the UAV market, deploying both reconnaissance UAVs and Israeli Harpy attack UAVs. The munitions of the Turkish air force include AMRAAM, Sidewinder, and Sparrow air-to-air missiles, as well as Maverick, Hellfire, and Israeli Popeye air-to-ground missiles. Turkey is also making use of Israel's Ofeq satellites.

On the other hand, the Turkish ground forces are still equipped with largely obsolete weapons systems. Turkey's substantial armored force is equipped with second-line main battle tanks. These include the German Leopard tanks and the American M60-A1/A3 (currently upgraded by the Israeli military industry), and the older generation M48 and M47 tanks. The ATMLs in the Turkish armed forces include MILAN, TOW, and Cobras, all wire-guided older generation systems.

Common to all three "modernizing" armed forces is the fact that they serve as important legitimizers, in countries wherein the regimes—although phenomenally stable—face constant internal threats to their stability (Bill and Springborg, 2000: 142-143, 175, 191-195; Hinnebusch, 2003: 105-108;Jacoby, 2003). As such they receive a great deal of attention and considerable funding from the regime. This, however, is qualified by the fact that two out of the three states have been in poor economic shape throughout the period. This imposes some constraints on military acquisitions.

There are two additional factors that slow down the modernization of the armed forces of Egypt and Turkey. The first factor concerns the limitations imposed on RMA-related modernization by the kind of human and technological infrastructure that may support such a process of large-scale transformation. The second factor concerns the fact that the United States—the major supplier of RMA technologies—is reluctant to allow for overly-rapid modernization, because such a process may heighten the threat perception of other important U.S. allies such as Israel (in the case of Egypt), and Greece (in the case of Turkey).

The third modernizing state—Saudi Arabia—has re-entered an era of economic growth during the 1990s and the first three years of the third millennium. This, as well as its increased threat perception vis-a-vis Iraq and Iran following the 1991 Gulf War (Cordesman, 2003: 3-32; Kechichian, 1999), have prompted a great expansion of the Saudi armed forces. This said, however, it is unclear how the huge amounts of money have been spent. There is a major discrepancy between the size and sophistication of Saudi armed forces and the amount of money spent on defense. The structure of command in the Saudi armed forces and National Guard is based on family and loyalty to the ruling Saud family (Cordesman, 2003: 45-51; Bill and Springborg, 2000: 191), which creates a limited pool of human resources for the officer corps. The manpower of the armed forces and of the National Guard is of relatively poor quality in terms of educational and technological competencies, which is also a factor that limits growth and modernization.

In sum, the modernizing states have been making consistent efforts in overhauling their armed forces and equip them with modern weapons systems. These efforts, however, have not been matched by comparable advances in the quality of manpower and command and control elements. There is still no significant combat experience to suggest that these modern weapons system have been adapted properly in terms of doctrine and combat effectiveness. In fact, it is plausible to suggest that there are sharp gaps between available technology and the ability to use such technologies in an efficient and effective manner in battlefield conditions.

3.2. Traditional Military Forces

Following the demise of the Iraqi military in the 2003 Iraq War, Syria and Iran provide the prime examples of traditional military forces in the region. As was the case in the modernizing armies, the military in both Iran and Syria is an important component of the regime's tenure (Cann and Danopoulou, 1997; Talhami, 2001). The domestic constraints—both social and economic—that are faced by such states as Egypt and

Turkey are also fundamentally similar to the constraints of the traditional military organizations in Iran and Syria.

More importantly, however, both Iran and Syria face significant military threats. Iran's principal threats come from the U.S. presence in Iraq and the Persian Gulf, and—to a lesser extent—from Turkey and Israel (Cordesman, 1999: 24-29; Kam, 2004). United States' military presence in the Middle East is also an important challenge to Syria, but more importantly, Syria is threatened by the overwhelming Israeli military power.

There is little doubt that these two states may have wanted—under ideal circumstances—to take full part in the RMA in the Middle East, at least to the extent that states such as Egypt and Turkey have done in the last decade. The key problem, however, is the limited access of these states to RMA technologies, due to their strained relations with the United States. The major weapons supplier of those states is Russia, whose RMA capabilities have been both obsolete and limited. Moreover, repeated pressure from the United States on Russia and Western European states has limited both the number and the types of systems these suppliers were willing to provide Syria and Iran. Consequently, these states have had significant problems in modernizing their armed forces. As Table 1 suggests, the Iranian and Syrian armed forces are laden with obsolete weapons systems and have barely entered the modern era in terms of their major conventional weapons systems (Cordesman, 1999: 141; Zisser, 2002). Both states rely on traditional force structures; rely heavily on Soviet military doctrine, and take fairly traditional approaches to conventional warfare (Eisenstadt and Pollack, 2001).

The Iranian military force had fairly extensive combat experience in the 1980s, but the Syrian armed forces have not been engaged in theater operations since 1973.[2] The Iranian air force is based on American F-14A Tomcats and F4E Phantoms and Russian Mig-29s. All except the Mig-29s are older-generation jets. These are supported by a helicopter

2. In the 1982 Lebanon War, there were only limited armored engagements between the Syrian and the Israeli forces. The aerial battles, which were fairly extensive, resulted in a total defeat of the Syrian air force, and it has not appreciably modernized since then.

attack fleet of limited size and reach. These planes are equipped with Phoenix and Sidewinder air-to-air and Sparrow missiles and with Maverick and Russian Fajr a-Darya air-to-surface missiles. Iran possesses a very small fleet of reconnaissance UAVs, but is clearly behind all the modernizing armies in the Middle East in terms of such aircraft.

The Iranian main battle tanks are the Russian T-72 tanks, of which Iran possesses roughly 400. These constitute roughly 25% of the armored force of the Iranian military. Iran possesses an unknown number of anti-tank weapons (Cordesman, 1999: 114), as well as a number of wire-guided ATMLs (TOWs, Saggers), all old generation weapons.

Over 50% of Syria's large tank force is in storage and its operational readiness is questionable at best. Its main battle tanks are the Russian T-72 (some of them upgraded with relatively modern guidance systems), but most of them dating from the late 1970s to the early 1990s. Its Sagger missiles account for most of its ATML arsenal, and, although it possesses more modern Komet laser-guided missiles, its large ATML arsenal is getting increasingly obsolete and of questionable operational readiness.

Syria's air force is in dire need of upgrade and improvement. Only about 30% of its interceptor jets are high-quality Mig-29s and Mig-25s. The remainder are Mig-21s produced in the 1960s and 1970s. Its attack helicopter fleet is largely made up of Gazelle and Mi-25 Hinds that were produced in the 1970s and 1980s. The air-to-air and air-to-ground missiles on these planes are also old generation missiles.

Syria does not possess any space surveillance capabilities, but it does use the services of Russian satellites for aerial surveillance.

Both Iran and Syria are aware of the significant qualitative gaps that have opened up between their conventional capabilities and those of their principal adversaries over the last fifteen years. While for Iran a major adversary (Iraq) was removed from the scene in 2003, a more potent one has become increasingly involved in regional politics (the United States). Syria found itself increasingly isolated in the Arab world following the

Israeli-Jordanian peace treaty of 1994. Its efforts to reach a peace treaty with Israel have proved futile thus far.

The principal strategy of both Iran and Syria for dealing with the growing gap in the balance of capabilities in the region were concentrated efforts to develop weapons of mass destruction and their delivery systems. Iran has placed significant emphasis on its nuclear program and is pursuing it amid significant objections from the IAEA, the United States, and Israel (Kam, 2004). There are divergent estimates in the West as to the length of time it would take Iran to reach operational nuclear capability, but there are repeated indications that the crossing of the nuclear threshold in terms of enrichment capacity may come sooner than was originally anticipated.

In addition, Iran has developed a significant SSM force, much of it based on indigenous production. Iran's Shehab long range SSMs have a range of 1,300km (Shehab-3) and up to 2,000km (Shehab-4) and are capable of reaching as far as Israel in the West and as far as Russia in the north. They can carry a payload of up to 1,000 kg and may be equipped with nuclear warheads once these become available. In addition, Iran possesses over 400 Scud-B and C missiles with a significantly shorter range. Western analysts believe that Iran is capable of indigenous production of Scud B missiles and possibly of Scud C missiles as well (Cordesman, 1999: 232-245; Kam, 2004). Iran is also said to have significant chemical potential, although it is difficult to assess the actual capabilities it possesses in this area.

Syria does not have a nuclear potential, but it possesses significant chemical and biological capabilities. It is said to have significant stockpiles of Sarin, Mustard gas, and VX. Its SSMs are capable of carrying chemical warheads. Syrian officials have not denied allegations of possession of chemical capability. Rather, they have justified this on grounds of the need to deter Israel's nuclear weapons. Information regarding Syria's biological capabilities is quite tenuous, but it is believed that it possesses some quantities of Anthrax and Smallpox agents. Again, it is alleged that Syria possesses a capacity to launch biological warheads on its Scud B and C missiles.

The Syrian missile force is formidable. Syria possesses over 45 missile launchers and over 300 missiles of strategic range (Scud B and C) and tactical range (SS-21), all capable of carrying chemical and biological warheads. It is said to engage in indigenous production of these missiles in cooperation with North Korea (Kam and Shapir, 2003; Zisser, 2003; Shoham, 2000, 2001).

Iran and Syria may have different reasons for developing their WMD arsenals. They may operate also under a different set of constraints. Iran's search for regional hegemony and status may have fueled the Shah's investment in the nuclear program in the mid 1970s (Kam, 2004). However, under the Islamic republic, and especially since the Iran-Iraq and Gulf wars, the threat-related motivations for the development of its nuclear and SSM capabilities may have taken precedence over the prestige-related ones (Kam, 2004; Cordesman, 1999: 267-270). Significant financial constraints—especially in Syria—seem to suggest that the development of "the poor man's WMDs" is a substitute for the possession of nuclear weapons by Israel (Maoz, 2005: ch. 9). Finally, the cooperative possibilities in the area of WMDs with states such as North Korea, China, and—to some extent—Russia, appear to be more realistic than the purchase of high-end RMA technologies from the West.

What is unclear about these systems, however, is their incorporation in the strategic doctrines of those states. Although official spokesmen of both Syria and Iran address these weapons as strategic deterrents, chemical weapons are ineffective as second strike weapons, especially against a well-defended population. Biological agents such as smallpox are also largely ineffective against an inoculated population (Maoz, 2005: Ch. 9). The destructive capacity of SSMs carrying conventional warheads is also relatively limited. In the light of significant development of anti-ballistic missiles in the United States and Israel, these weapons are also likely to become obsolete. These attributes may suggest a significant possibility of developing a first-strike conception within the context of a surprise attack. But there are no clear verbal or physical indications that this kind of doctrine is in operation.

3.3. Nonstate Actors

The successful use of RMA technologies by the United States in Iraq stands in stark contrast to the ineffectiveness and irrelevance of most technologies in the cases of low-intensity conflict (LIC) in the region. The Israeli struggle against the Hizballah in Lebanon, the Israeli-Palestinian struggle over the nearly four years of the Al Aqsa Intifada, and the post-invasion guerrilla warfare in Iraq provide telling evidence of the tactics and logic used by nonstate actors, which have very few and very limited capabilities against highly capable and extremely sophisticated armies.

Guerrilla forces in Lebanon (Hizballah and Amal), Palestine (Fatah, Hamas, Islamic Jihad), and Iraq (Sunni and Shi'ite insurgents of various kinds) have adapted well-known guerrilla tactics that had been developed elsewhere. The use of hit-and-run operations on symbols of the state and on its logistical and supply lines have been favorite tactics of all three non-state actors. The relatively cumbersome organization and static positioning of the security forces of Israel and the United States provide ample targets for attack. Moreover, in both Palestine and Iraq, the Israeli military government, the Jewish settlements, and the American civil administration in Iraq provide convenient targets for guerrilla operations, both because they are positioned in fixed places that are difficult to defend, and because they require regular intercourse between soldiers and local civilians.

But the Lebanese, Palestinian, and Iraqi insurgents have also used suicide bombings quite extensively and have been willing (especially the latter two groups) to blur the distinction between combatants and noncombatants in the target population. This increases the destructiveness of the attacks and reduces the ability to defend against insurgents.

The fundamental ideology underlying LIC operations and suicide bombing is based on the notion that the struggle between nonstate and state actors is a battle of wills and a contest of resolve and determination, rather than a duel of capabilities. The technological and quantitative superiority of the state actors must be outmatched by the ability of

insurgents to inflict casualties that would erode the morale of the troops and the social support of the home population for the military ventures of the states. Superior RMA technologies are countered by the dispersion of the insurgents, the mingling of the insurgents with the local population, and the sporadic and unpredictable nature of their attacks. The employment of primitive weapons systems and explosives makes insurgents relatively difficult to detect and destroy.

Both the Israelis and the coalition forces in Iraq have been very successful in physical encounters with groups of insurgents. When targets were available, both the Israelis and—to a lesser extent—the coalition forces employed sophisticated PGMs to hit specific targets.

However, when Israel's policy of assassinations and American deployments of air power in Iraq and Afghanistan entailed collateral damage, these events backfired politically and caused significant public damage.

On the other hand, it was argued (Pape, 2002) that suicide terrorism (as well as suicide missions of guerrillas) have been quite effective in extracting concessions from Western democracies in the past. While the effects of suicide bombings in Iraq (and to a lesser extent in Palestine) remain to be seen, clearly they were effective in bringing about the withdrawal of American and French Marines from Lebanon in 1983, in effecting the Israeli withdrawal from central Lebanon in 1995, and in exacting heavy casualties from Israel during the Oslo process and Al Aqsa Intifada and from the coalition forces in Iraq.

The sustained guerrilla war staged by the Hizballah in Lebanon affected the unilateral Israeli withdrawal from Southern Lebanon in May 2000. The Palestinian combination of guerrilla and terrorism tactics resulted in over 900 Israeli fatalities and over 4,000 wounded in a period of less than four years. The coalition forces have lost over 750 soldiers in Iraq since the fall of the Saddam Hussein regime (in contrast to only 135 coalition soldiers killed in the war up to the fall of the Hussein regime). Israeli plans for unilateral withdrawal from, and dismantlement of settlements in the Gaza Strip and the

building of a wall in the West Bank are clear indication of the failure of Israeli offensive strategy—both large scale operations such as Defensive Shield (April, 2002) and subsequent operations (e.g., Operation Rainbow of May 2004) and specific assassination raids using PGMs.

Likewise, the erosion in the American's public support of the war in Iraq and the continued American presence in this country suggest the limitations of RMA technologies and superior military power in LICs in which the balance of resolve is clearly tilted against established democratic states. The struggle of Russia in Chechnya is another such example.

The threat of acquisition and use of WMDs by guerrilla and terrorist groups is a growing concern in the West. There is no indication, however, that the key nonstate actors in the Middle East (with the possible exception of AI Qaeda) are actively pursuing this route. The physical contact between the nonstate actors and their state adversaries in the region is simply too close for using such weapons selectively on the target population without also causing grave damage to the insurgent's population. Given the proven willingness of the nonstate insurgent groups to inflict casualties on noncombatants (including from their own constituency population), the pursuit of WMD terrorism must be seen as an increasingly realistic prospect.

4. Conclusion

Arab states and nonstate actors have responded in a wide variety of ways to the array of technological innovations and doctrinal changes that have taken place in the West over the last two decades. The modernization of some of the major Arab armies is limited and largely incomplete, but it has taken on a sustained form. The lessons such states have learned from the various episodes of high intensity conflict in the region is that quantitative expansion of military power should be supplanted by qualitative improvement of the existing military forces. The major effort in these states went into improvement of weapons systems. Yet, the human, technological, and logistical

infrastructure is still lagging considerably behind the improved quality of weapons systems and platforms. Unless a significant social and technological revolution takes place in such states, it is not clear that the advantages gained by the qualitative improvement of weapon systems will be fully realized in combat situations against their key opponents.

Other Arab states sought to find substitutes to the growing technological gap between themselves and their technologically superior adversaries. These substitutes include chemical, biological, and—possibly—nuclear weapons and SSMs of varying ranges and payloads. As noted, the doctrines that go along with these weapons are unclear, and this adds a layer of instability to the region because it is unclear whether such weapons systems are considered to be primarily for deterrence purposes or for possible offensive ventures.

Nonstate actors have opted for primitive methods of warfare that have put significant dents in the doctrine and will of state actors and have rendered many of the technological innovations of the last two decades to be of limited relevance and effectiveness. To the extent that the perception of these actors is that these strategies compensate for the fundamental inferiority in capability, and that the inherent weaknesses of Western democracies make them vulnerable to such strategies, they may persist in these efforts.

This paper is not intended to provide ideas for dealing with LIC-related challenges to the West. Yet it is important to note that unless doctrinal—rather than technological—responses are developed to deal with these challenges, Western democracies will find themselves increasingly confronted by guerrilla warfare, terrorism, and insurgency against both their home bases, and—more likely—against their less significant strategic interests abroad.

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Table1: Balance of Forces in Selected Middle East States[3]

Variable	Egypt	Saudi Arabia	Turkey	Iran	Syria	Israel	
Defense Expenditures							
Total Def. Exp. (millions $US)	2,750	21,330	9,220	4,070	1,360	9,840	
Def. Exp/GDP	0.034	0.115	0.046	0.048	0.067	0.100	
WMD Technologies							
Chemical Warheads	Possible	No	No	Possible	Yes	Possible	
Biological Warheads	Unknown	No	No	Possible	Possible	Possible	
Nuclear Warheads	No	No	No	No	No	-150	
No. of medium and long range SSM	-100	-40	77	-450	-300	-100	
Air Power							
No of Combat Planes	518	345	407	342	490	518	
West HQ Combat Planes/other CP	0.721	1.005	1.176	0.000	0.000	1.977	
Attack Helicopters	125	27	53	193	105	140	
UAVs		100	N/A	60	-20	N/A	-150
Intel. Satellites	Procurement	3	14	None	15	2	
Armor							
Western MBTs High Quality	655	315	0	0	0	1,400	
Western MBTs Medium Quality	1,550	400	4,255	0	0	2,530	
Russian	600	0	0	730	2,600	0	

MBTs High/Medium Quality							
Total		3,605	1,015	4,255	1,700	4,900	3,930
Western HQ MBTs/Others	0.222	0.450	0.000	0.000	0.000	0.553	
Wireless Anti-Tank Missile Launchers (ATMLs)	0	0	0	-50	-50	-2,500	
Wired ATMLs	2,110	2,150	943	-400	390	-1,000	

3 Source: Kam and Shapir (2003); IISS (2003), Cordesman (2003, 1999).

Use of Israel's Ofeq Slntel satellite.
Use of Russian imagery satellites.