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**Understanding the New “Effects-based”
Air War in Iraq**

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The US and Britain will fight a new kind of air war in Iraq. It will be designed to paralyze enemy forces, rather than destroy them. It will seek to bypass or avoid all targets that are not time-sensitive military assets to a regime that will be gone in days or weeks.

It will emphasize precision. US commanders have said it will use roughly 90% precision weapons in the first day, 90% precision in populated and sensitive areas, and 70% precision in the entire mix of air strikes.

The air and missile war will seek to avoid economic and infrastructure targets wherever possible, as well as targets with historical, religious, and cultural value. It will choose targets extremely carefully to avoid or minimize civilian casualties and collateral damage. It will select the smallest and most accurate munitions necessary to destroy the function of that target, and it will select aim points designed to destroy only the key part of buildings or facilities with minimal collateral damage.

There are, however, limits to what the US and Britain can do, and the bombing campaign involves a wide range of complex new issues. The following ten points may help explain what is happening and how to evaluate it:

1. The Main Difference is Targeting, Aim Point Selection, and Munitions Selection:

The key to American and British success, and their ability to limit collateral damage and civilian casualties, will be their ability to use new intelligence assets and targeting planning to severely limit the number of targets we strike, and then carefully match precision and the size and effect of the weapon, to the right aim point to destroy the function of a target without imposing unnecessary destruction or risk to the target and target area.

Even on day one, this will be an art form and not a science. Some of those involved in BDA in Desert Fox in 1998, feel the US found that at least 20-30% of strikes hit largely empty buildings or facilities or ones where we could never confirm exactly what effect the strikes had had on the Iraqis. The Iraqis have learned a lot from Serbia and Kosovo, and have had months to quietly prepare. Precision bombing and targeting is not a "cakewalk" even on day or night one.

Targeting and the analysis of the effects of air and missile strikes will have to be based on less and less certain information as the situation goes dynamic. The moment the bombing starts, the Iraqis will move and change and the US and Britain will have to react with rapid retargeting and bombing with less information and time.

They will probably have the air superiority to have a high degree of freedom of action in using UAVs like Predator and Global Hawk, aircraft like the U-2, Special Forces on the ground, helicopters, to back up American and British satellites. They will have unprecedented intelligence assets, communications, and computer speed in acquiring, reviewing and allocating targets. The fog of war will remain, however, and the ability to target with full knowledge of the consequences will steadily decline after day one.

2. New Weapons and Tactics Will Still Emerge: While new targeting concepts are the key to effects-based airpower, the US is probably understating changes in the full range of new weapons effect that will be used, while deliberately playing up the MOAB and "e-bomb" for Psyops purposes.

3. The Bombing Plan Will Evolve Very Rapidly and Become Fluid by Day Two: Current reporting tends to exaggerate the impact of the precision bombing plan for the campaign in the first two nights. In practice, the US targeting will become dynamic and alter to hit at newly discovered or dispersed targets probably by the second day. It will then stay fluid and be shaped by the changing tactical situation, the discovery of new patterns in Iraqi military activity and dispersal, and the concentration of the enemy near American and British forces. Events will increasingly dictate targeting from Day One on.

4. The US and Britain Will Learn Major Lessons About American and Effectiveness That Change Bombing and Targeting Patterns by the Day: In this war, even small problems or advantages in the efficiency of American and British bombing and targeting techniques will lead to rapid changes in the way we fight. We are using a vast range of near combinations of strike platforms, weapons, and intelligence and other targeting systems. The US and Britain will learn during the first two days that some work according to plan, some work better, and some fail. They will also have to carry out extensive restrikes with the same or alternative weapons.

5. Battle Damage Assessment (BDA) will again be a major problem. So will reporting on it. The world may again see all kinds of footage about success, but there aren't going to be many reporter embedded at Iraqi targets, and there may be exaggerated US and British claims or -- much more of the time -- ones based on uncertainty.

With all of the advances in technology, there still is no way to instantly measure or verify lethality, or civilian casualties and collateral damage. Much of American and British analysis is based on whether we destroy the desired part of the building or hit the right area. They can't be sure who is in the building or shelter, how much their strikes have hurt the functional capabilities of Iraqi forces.

This is going to be a really hard reporting job, particularly because most US and UK reporting will be necessarily vague for security and psyops reasons, and there will be a flood of Iraqi and Arab exaggerated claims about how many military survive and how many civilians are killed.

6. The US and Britain Are Bombing a Regime and Time-Sensitive Targets in the Form of Active Enemy Resistance and Not a Country: On the other hand, the US and Britain are seeking to paralyze and destroy a regime, not bomb a country. They have no reason to attack most urban and populated areas unless there are time urgent regime targets or Iraqi forces that actively threaten American and British forces.

This issue of "time urgency" for a regime they only expect to survive for weeks at most, and to lose most of the country in days, is a critical one. No one needs to bomb liberated or passive areas or even Iraq forces, They have no reason to hit at economic targets unless there are Iraqi forces in them or there is a time-urgent risk they could provide WMD or missiles (largely negligible in a short war). They won't have the phased attacks on air defenses, leadership targets, etc., that try to destroy the entire mix of critical targets in the country.

7. There Will Still Be Kill Boxes, Close Support and Interdiction, and Unguided Weapons: Yet, the allies still have to protect American, Australian, and British soldiers, their rear areas, and their flanks. Senior US military officers have said that the US and Britain will hit whatever is necessary to do this, and that we still plan to use a total of 30% unguided weapons -- although this total will be around 10% in populated or sensitive areas.

Force protection will generally override targeting constraints. There will be areas where the pilots of fixed wing and rotary wing aircraft do their own targeting on a target of opportunity basis, supported by their individual formation.

8. Iraqi WMD and Missiles are a "Wild Card." No one likes to talk about it, but targeting restraints have to be different in the case of known or suspected locations with CBW or key delivery systems. The US and Britain still can be precise. They think we have weapons that can take out most CBW systems and burn them or limit their effects, but they know very well they largely failed to successfully hit such targets in the last war and how dangerous they are. A successful Iraqi use of such weapons on American, British and Australian troops could also lead to sudden massive changes in targeting and the allocation of strike assets.

9. Iraqi Dispersal, Deception, Decoys, Human Shields, and Exaggerated Claims of Civilian Casualties, Cultural or Religious Importance, and Economic Importance will Be the Rule and Not the Exception: Iraq has every reason to try to disperse, use decoys, shelter in civilian areas and facilities, use sensitive buildings and areas to limit American and British effectiveness. It has equal reason to exaggerate military and civilian casualties, religious and cultural destruction, and economic and infrastructure destruction for political purposes. What went on in Serbia and Kosovo is likely to be only a humble prelude to what will be the "liars' contest of all liars' contests."

10. Urban Warfare Can Still Be a Mess: US intelligence and targeting experts point out that most urban areas are still open areas, most regime facilities are surrounded by compounds and wide areas that allow fight to avoid densely populated areas, and civilians flee most areas or successfully take cover. There also is the general feeling that the Iraqi people as a whole will not fight for the regime, and much of the area of most towns and even most of Baghdad will probably not be a war zone.

Nevertheless, close-in urban fighting is likely to happen -- particularly from Baghdad's outer defenses to the last core center of the regime -- and one senior US military targeting expert called this kind of targeting "trying have a fist fight in a really dark room."

The US, Britain, and Australia cannot let soldiers die in such fighting because of targeting and rules of engagement constraints. There can still be at least local "Jenins." This is difficult to cover because the level of physical destruction often appears much greater than it is and it is always a judgment call as to what level is necessary. At the same time, there can be a tactical necessity and a sudden shift in targeting rules and bombing methods needs to be kept in perspective.

US Airpower in Recent Regional Conflicts

	<u>Desert Storm</u>	<u>Serbia/ Kosovo</u>	<u>Afghanistan</u>
Area of Operations in Square Miles	176,000	39,500	250,000
Length of War in Days	43	78	?
Total Sorties During Period Reported	118,700	37,500-38,000	29,000-38,000*
Percentage of Total Sorties Flown by US*	85	60	92
Offensive Strike Sorties	41,300	10,808-14,006 ¹	17,500
Sorties per Day	2,800	200, climbing to 2,000	25, climbing to 200
Total Bombs Delivered*	265,000	23,000	22,000
Precision-Guided Bombs Delivered*	20,450	8,050	12,500
Percentage of Total Munitions that are Precision-Guided	7-8%	35%	56%
Percentage of Precision-Guided Weapons Delivered by US	89	80	99
Combat Losses	38	2	0

* Data based on Michael O'Hanlon and an estimate of 38,000 total sorties flown

Note: Significant definitional problems exist in making such counts and historical sources differ. This count is based on the work of Thomas Keaney at Johns Hopkins University and on an article authored by Michael E. O'Hanlon entitled "A Flawed Masterpiece" (*Foreign Affairs*, Vol. 81, No. 3, March/April 2002, p. 52). O'Hanlon evidently reports on a longer period than Keaney does.

Iraq Before the Gulf War and Now

	<u>1990</u>	<u>2003</u>
Manpower		
Total Active	1,000,000	389,000
Regular	425,000	375,000
National Guard & Other	0	0
Reserve	850,000	650,000
Paramilitary	40,000	44,000+
Army and Guard		
Manpower	955,000*	350,000
Regular Army Manpower	-	375,000
Reserve	480,000(recalled)	650,000
Total Main Battle Tanks***	5,500-6,700	2,200-2,600
Active Main Battle Tanks	5,100	1,900-2,200
Active AIFV/Recce, Lt. Tanks	2,300	1,300-1,600
Total APCs	7,100	2,400
Active APCs	6,800	1,800
ATGM Launchers	1,500	900+
Self Propelled Artillery	500+	150-200
Towed Artillery	3,000+	1,900
MRLs	300+	200
Mortars	5,000	2,000+
SSM Launchers	?	56
Light SAM Launchers	1,700?	1,100
AA Guns	?	6,000
Air Force Manpower	40,000	20,000
Air Defense Manpower	10,000	17,000
Total Combat Aircraft	513	316
Bombers	20	6
Fighter/Attack	284+	130
Fighter/Interceptor	223+	180
Recce/FGA Recce	10	5
AEW C4I/BM	1	0
MR/MPA**	0	0
OCU/COIN/CCT	0	0
Other Combat Trainers	157	73
Transport Aircraft****	63	12
Tanker Aircraft	4?	2
Total Helicopters	584	375
Armed Helicopters****	160	100
Other Helicopters****	424	275
Major SAM Launchers	600+	400
Light SAM Launchers	?	450
AA Guns	-	3,000

Iraq Before the Gulf War and Now

	<u>1990</u>	<u>2003</u>
Total Naval Manpower	5,000	2,000
Regular Navy	5,000	2,000
Naval Guards	0	0
Marines	-	-
Major Surface Combatants		
Missile	4	0
Other	1	0
Patrol Craft		
Missile	8	1
Other	6	5
Submarines	0	0
Mine Vessels	8	3
Amphibious Ships	6	0
Landing Craft	9	-
Support Ships	3	2

**** Includes navy, army, national guard, and royal flights, but not paramilitary.

***** Includes in Air Defense Command

Source: Adapted by Anthony H. Cordesman from interviews, International Institute for Strategic Studies, Military Balance (IISS, London); Jane's Sentinel, Periscope; and Jaffee Center for Strategic Studies, The Military Balance in the Middle East (JCSS, Tel Aviv)

America's Involvement in Past Wars and Casualties

	<u>Population</u>	<u>Military Personnel</u>		<u>Fatalities</u>		
	Total	% of Pop	Total	% of Pop	Total	
Revolutionary War	3.5	200	5.7%	4,435	0.127%	
War of 1812	7.6	286	3.8%	2,260	0.030%	
Mexican War	21.1	79	0.4%	1,733	0.008%	
Civil War Union	26.2	2,803	10.7%	110,070	0.420%	
Confederate	8.1	1,064	13.1%	74,524	0.920%	
Combined	34.3	3,868	11.1%	184,594	0.538%	
Spanish- American War	74.6	307	0.4%	385	0.001%	
World War I	102.8	4,744	4.6%	53,513	0.052%	
World War II	133.5	16,354	12.2%	292,131	0.219%	
Korean War	151.7	5,764	3.8%	33,651	0.022%	
Vietnam War	204.9	8,744	4.3%	47,369	0.023%	
First Persian Gulf War	260.0	2750	1.1%	148	0.000%	

Source: American Academy of Arts and Scientists and Principal Wars in which the US Participated: US Military Personnel Serving and Casualties, Washington Headquarters Services, Directorate for Information Operations and Reports, U.S. Department of Defense Records, Table 2-23. Casualties are limited to U.S. military forces.

ⁱ The USAF reported a normal figure of 12,600 "shooter sorties." See Anthony H. Cordesman, The Lessons and Non-Lessons of the Air and Missile Campaign in Kosovo, Westport, Praeger, 2001, pp. 42-44.