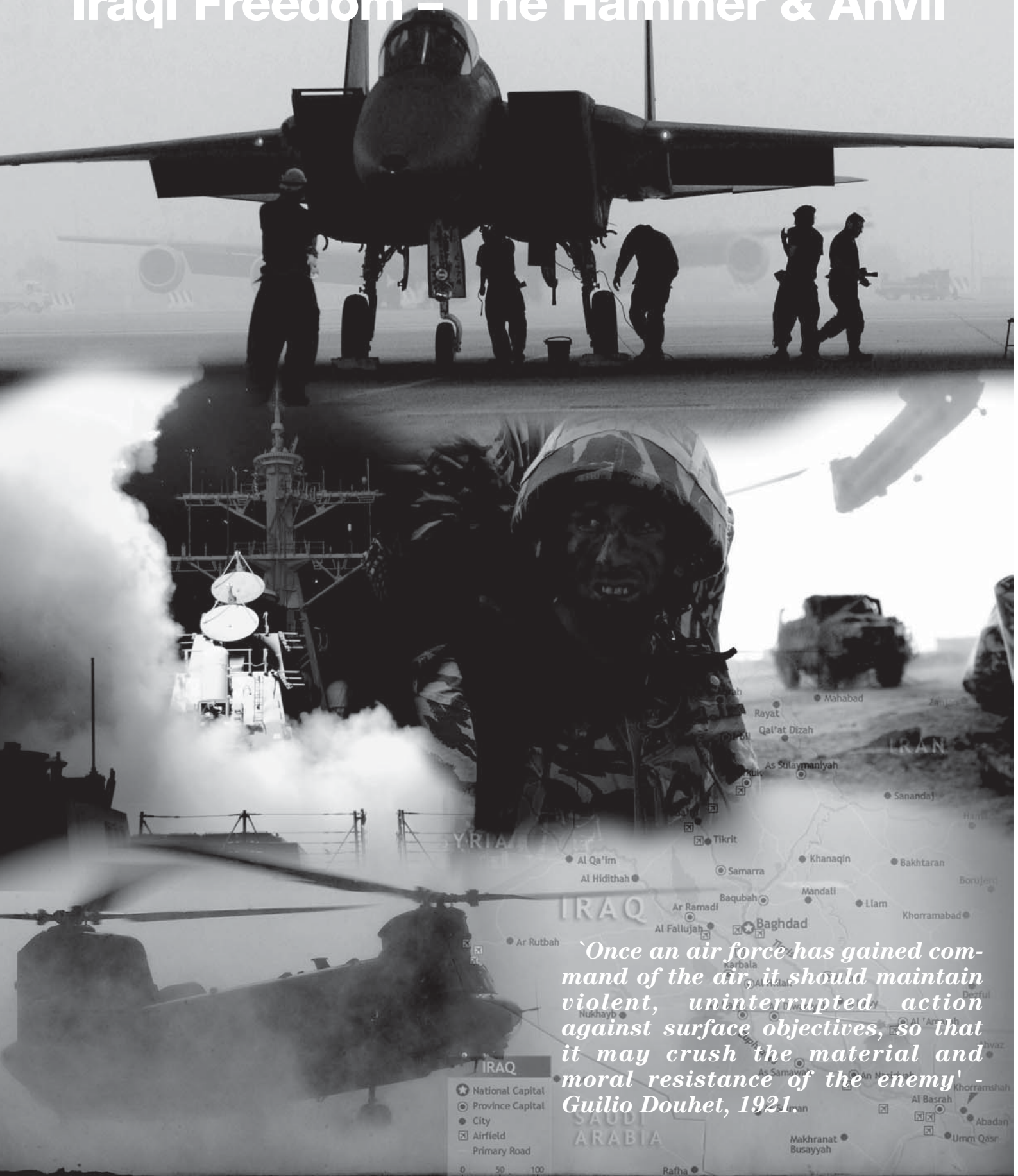


ANALYSIS

by Carlo Kopp

Iraqi Freedom – The Hammer & Anvil



'Once an air force has gained command of the air, it should maintain violent, uninterrupted action against surface objectives, so that it may crush the material and moral resistance of the enemy' - Giulio Douhet, 1921.

- ★ National Capital
 - ⊙ Province Capital
 - City
 - ☒ Airfield
 - Primary Road
- 0 50 100



The long expected opening round of Operation Iraqi Freedom started early on the morning of March 20, 2003, when multiple BGM-109 Tomahawks and a pair of F-117A Nighthawks struck at a bunker in suburban Baghdad, believed to contain Saddam Hussein and a number of other leadership targets.

The day preceding the strike saw the US Air Force strike at a number of artillery pieces in southern Iraq, considered to be close enough to deliver chemical munitions against coalition ground forces in Kuwait. In preceding days, the ongoing effort to degrade IADS assets in the No Fly Zones escalated, with a pair of B-1Bs destroying a Soviet built P-15 Flat Face radar near the H3 air base, and an Italian built Selenia Pluto low altitude surveillance radar at Ruwayshid, near the Saudi and Jordanian borders.

The deceptively quiet build up, and surprise bunker strike, were the precursors to the largest western offensive land force operation since the Inchon landings in Korea, followed by a deep thrusting Blitzkrieg operation which has eclipsed in every respect the historical benchmark for this type of land operation – Nazi Germany's 1940 invasion of the Low Countries and France. As the penetrating land force speared through Iraqi defences, coalition aircraft and warships commenced a massive bombardment of regime targets in Baghdad using only guided munitions.

Our discussion will aim to clarify many of the underlying realities of this campaign, largely buried in the cacophony of mostly ill-informed mass media speculation. What we have observed in the first weeks of the campaign was neither surprising nor unexpected in the air power community.

(Above) A key milestone in the campaign was a B-52H sortie dropping six of the new CBU-105 Sensor Fused Weapons against Republican Guard armour. The CBU-105 combines the inertially guided Wind Corrected Munitions dispenser, based on the SUU-65 TMD, and the CBU-97/B Skeet submunition, each of which uses an IR/laser seeker to initiate the warhead charge and shoot a shaped projectile into a target. Devised during the early 1980s Assault Breaker program, each CBU-105 bomb carries 40 skeets. This GBU-31 2000lb JDAM armed B-52 is tanking up from a KC-135 over the Indian Ocean before heading into Iraq. (US Air Force)

Baathist Iraq – an Archetypal Fascist State

One of the key aims of the Iraqi Freedom campaign was the removal of Saddam Hussein's Baathist regime in Iraq, a necessary prerequisite for the disarmament of Iraq. This regime presented us with a remarkable case study of a state apparatus of power built up using proven techniques and structures pioneered by the Soviets and Nazis in 20th century Europe.

Iraq is a nation with a multiplicity of internal faultlines, which in some respects bears comparison to the defunct Yugoslavia. Ethnically Iraq is divided between Arabs and northern Kurds (~20%), with small minorities of Turkish, Assyrian, Azerbaijani, Bajelan, Persian, Armenian and Chaldean background – linguists recognise 23 languages and dialects in Iraq. Iraq's small minority of Sephardic Jews, who settled after the Roman diaspora, was driven out during the 1960s and 1970s. The nationalistic but fractious Kurdish minority was the cause of much grief to the Ottoman colonisers, and continued to be such for Saddam – and remains so for modern Turkey.

In religious terms Iraq is also not monolithic. The south and centre of the nation are largely Shia Muslim, and many historically important Shiite shrines and sites exist throughout central and southern Iraq. The north of Iraq is predominantly Sunni Muslim, but a small Christian minority also lives in Iraq – Tariq Aziz being the best known member of this historically important community. The Shia majority in Iraq has been one of the principal victims of Saddam's regime, yet also has been subjected to incessant propaganda from the Shiite theocracy running Iran, since 1979. Brutally



punished by Saddam after the 1991 uprising, the southern Shiites are deeply mistrustful of outsiders.

Iraq is a nation held together by force alone, as like Yugoslavia it has the inherent potential to fracture along ethnic and religious faultlines. With the nation's wealth generating oilfields situated in the Shiite south and Kurdish north, the nation's economy is wholly dependent on these two assets. Iraq's oil deposits are often claimed to be the second largest in the world after Saudi Arabia – although some sources dispute this, seeing the newly discovered Central Asian reserves as larger.

Iraq was by far one of the wealthiest, best educated, most urbanised and industrialised nations in the Arab world. Unlike its sparsely populated oil rich neighbours to the south, Iraq has a population large enough to achieve critical mass in economic and military capabilities. With fertile agricultural land in the Tigris and Euphrates river regions, Iraq has a large rural farming community, unlike most of the Arab world. In many respects Iraq was the jewel in the crown of the Arab world, and by the time Saddam Hussein gained power, considered to be the backbone of Arab nationalism in the region.

When the Baath party gained power in a 1968 coup led by Gen al Bakr and planned by Saddam Hussein, Iraq fell under the control of an Arab nationalist and socialist party ideologically not unlike Europe's fascist parties of the 1930s. Saddam displaced his seniors in an internal coup in 1979, and quickly set about going to war with Iran over the disputed Shaat al Arab waterway.

Saddam's regime has modelled itself on the Nazi and Soviet paradigms to a level of detail which is remarkable by any measure, and certainly lacking originality despite the frequent assertions of many media 'experts' on the matter.

The structure and composition of the regime's apparatus of power is of pivotal importance in a military campaign intended to achieve 'regime change', as it determines which components of the state are likely to resist, and thus which need to be prioritised in physical and propaganda targeting.

This apparatus structurally resembled the models devised by Stalin and Hitler, and indeed represents a late 20th century fusion of Nazi and Communist techniques for maintaining power.

The Baath Party occupied the roles of the former CPSU (Soviet Communist Party) and NSDAP (German Nazi Party), and is responsible for political ideology, propaganda and maintenance of public support. It controlled all government entities and ensured that Iraq's citizens are suitably indoctrinated with ideologically sound thinking. Key positions in the party were occupied by loyal Tikritis, drawn from families in Saddam's home town, to ensure loyalty.

The second key element of power is the Special Services Organisation (SSO or 'Mukhabarat') and Special Republican Guard, providing secret police functions, foreign intelligence functions, personal security for the leadership group, and miscellaneous tasks such as hiding WMD stocks or importing prohibited technology. The Special Republican Guard was often credited with 13 battalions, the SSO with around 4000 personnel. These entities have their closest historical analogies in the Soviet KGB and MVD divisions, and the Nazi Gestapo, SicherheitDienst (SD) and Liebstandarte SS division – a small, elite, brutal, loyal and ideologically committed security force. Key positions are often held by Tikritis.

The third key element of power was the Republican Guard. The Republican Guard divisions, while ostensibly part of the army, were commanded separately and received the best training, best equipment (eg T-72 tanks vs T-54/55 or BMP-1, 2 vs BTR-60) and special privileges, for which



The RAF's Tornado GR.4 fleet operationally deployed two new weapons. Reports indicate that 30 Storm Shadow cruise missiles (pictured) were fired, and the new Enhanced Paveway II 1000lb variant, with GPS/inertial guidance added, was used. The Tornados fired in excess of 50 MBDA ALARM anti-radiation missiles. The most radical weapon deployed by the Tornado is the simplest – Paveways fitted with inert warheads. (UK MoD)

they were expected to demonstrate exceptional loyalty and do unusually difficult tasks – they are the regime's shock troops and primary means of suppressing large scale civilian rebellions and mutinies in the Iraqi Army. The best historical analogy are Soviet Guard Divisions and the Nazi Waffen SS (Schutz Staffeln translating to 'Guard Squadrons').

The Republican Guard was usually credited with a Northern Corps comprising the 2nd 'Medina' armoured division (one armoured and 1 mechanised brigades), the 5th 'Baghdad' mechanised division (three mechanised brigades), the 7th 'Adnan' mechanised division (one armoured and two mechanised brigades), and a Southern Corps comprising the 1st 'Hammurabi' armoured division (one armoured and two mechanised brigades), the 6th 'Nabuchadnezzar' mechanised division (three mechanised brigades), and the 'Al-Nida' armoured division (three armoured brigades). All divisions suffered significant losses during the 1999 Desert Fox raids.

These three entities were the 'three pillars of power' in Iraq, using Suvorov's model describing the Soviet apparatus of power. They were designed to mutually compete, mistrust each other, and provide in effect checks and balances in the loyalty game. If any falters, the other can respond

F-14Bs and GBU-31 JDAMs on USS Harry S Truman in the Med. (USN)





Managing up to 2000 sorties per 24 cycle is an incredibly difficult task. The US Air Force's E-3C AWACS and RAF's E-3D AWACS are assets which are critical to the ability to control air space and direct strikes to where they are needed. The RAAF's F/A-18As have been involved in escorting the AWACS, when not occupied with 'plinking' battlefield targets. (USAF)

instead. As loyalty to Saddam was the only commodity of value in Iraq's apparatus of power, this model yielded incessant mutual competition over who best reflects Saddam's whims.

A recent addition to Saddam's apparatus of power were the paramilitary 'Fedayeen Saddam' (Saddam's Martyrs), founded by Saddam's son Uday in 1995 and now led by his brother Qusay. The Fedayeen were modelled in part on SovBloc paramilitary 'People's Militia' formations, and in part on the Nazi Sturm Abteilung (SA) militia, and were often recruited from rural areas considered loyal to Saddam. The Fedayeen supplanted the largely disbanded Baath Party 'People's Army' militia, which lacked the required brutality.

Cited at a strength of 18,000 to 40,000 troops, the Fedayeen were intended to provide the Baath Party with a tool for direct enforcement of ideological purity in the population, but also with the ability to balance the power held by the Republican Guard and SSO/Special Republican Guard elements. The Fedayeen have been implicated in a running campaign of public beheading of women belonging to families considered to be disloyal, and other atrocities committed against the Iraqi populace. A recently adopted role was as 'stay behind' forces to harass any opposing land force on Iraqi terrain, a role analogous to that of defunct SovBloc militia forces, and Nazi VolksSturm militias in 1945.

To feed the security apparatus and military machine with new recruits, the regime enrolls children in the 'Saddam Cubs' organisation to provide Baathist indoctrination. This is a direct equivalent to the Nazi HitlerJugend and Soviet

Pionier/Komsomolets youth organisations, but with a stronger paramilitary focus.

The apparatus of power in Iraq existed separately from the Iraqi Army, implicated in repeated coup attempts, and civilian police forces. Iraq did not see the Nazi phenomenon of Himmler's 'state within a state' which gobbled up all security functions under a single umbrella, this reflecting the reality that Iraq is not a monolithic ethnic community with broad public support for the regime like Nazi Germany was. The Iraqi model is much closer to the Soviet structure, built upon paranoid fear of internal revolts.

The Iraqi Army had nominally five corps, with three armoured divisions, three mechanised divisions and 11 infantry divisions – no match in combat for the heavy motorised Republican Guard divisions.

Iraq as a state was held together by this apparatus of power, which is designed to crush individual and collective opposition to the regime, and also defeat coups originating within the Army and elements of the security apparatus itself. Saddam performed repeated purges of the Baath Party, Army and civil service, emulating Stalin's 'terror' to ensure no competition exists to himself and his inner circle.

It is worth noting that there are remarkable ideological similarities between Saddam's Iraq and the Nazi state destroyed in 1945. Anti-Semitism was a key platform, using many items of 60 year old Nazi propaganda, and nationalistic chauvinism was another. The regime was critically dependent upon its propaganda machinery to motivate its loyal followers, and intimidate those who were not.

Not surprisingly, one US journalist recently observed that Tariq Aziz, one of the principal founders of Saddam's propaganda machine, was Saddam's answer to Dr Josef Goebbels – Aziz has a university education in English literature, and worked as a journalist and teacher before his elevation in Baath ranks. Goebbels did a doctorate in the humanities, and worked as a journalist before eventually rising to the role of Reich propaganda minister.

We should never underestimate the potency of Baathist propaganda in Iraq – it was crafted around the provenly destructive and effective NSDAP model, finely attuned to Arab cultural values, and it was backed up with a brutality which compares only to Stalinist Russia at the peak of the 'terror' when any excuse would do to kill citizens so as to instill fear. The reluctance of many Iraqis to cheer in the streets the arriving coalition troops reflects the paralysing fear these people have of the Baathist regime.

Baathist Iraq under Saddam Hussein is the best contemporary example of a secular fascist state in existence. Finally defeating it will be not unlike the defeat of Nazi Germany, or indeed Stalinist Russia. The coalition can expect furious resistance by Iraqis embedded in the apparatus of power – if not killed in combat these individuals know they will be eventually killed by the Iraqi population. With nowhere to run, they will fight to the last.

The Southern Air/Land Battle

The Iraqi Freedom campaign strategy is a complex fusion of established and newer military strategy, designed with the intent to provide flexibility in adapting to the developing environment. The force structure assembled for the campaign reflects this intent, being heavy on air power, heavy armour, motorised infantry, commando/airborne troops and particularly special forces elements. It is a force structure designed for offensive deep penetration on land and in the air, and presents a force package without recent parallels.

The campaign strategy and plan were the subject of intense and often acrimonious public debate in the US, over a 12 month period. By the end of that period we could have



no doubt that the Iraqis were completely confused as to the shape of the coalition battle strategy.

Iraq's strategy from the outset was centred on the idea of 'urban bastions', whereby Republican Guard, Fedayeen and other loyal units would be positioned throughout urban areas, and in the approaches to urban areas, to draw the coalition force into close quarters urban house to house fighting. The model was firmly centred in the idea that urban areas provide, implicitly, human shielding which deters the use of air power. Denied the advantage of air power, the coalition would run into unacceptable losses of ground troops and no less acceptable publicity from dead civilians.

Needless to say, the Iraqis positioned as many military assets as they could into schools, mosques, hospitals, historically valuable sites, densely populated suburbs and other sites which have traditionally been considered off limits for bombing attacks. Reflecting this strategy, the Iraqis set up a layered defence around Baghdad, with defacto 'rings' of Republican Guard divisions surrounding the city – very much based on Soviet siege defence doctrine used in 1941-43.

The coalition land force component has been used primarily for the execution of a Blitzkrieg ground operation following almost classical Guderian/Tukhachevskii technique, but leveraging the enormous firepower available via the coalition air component and US Army AH-64D Apache formations. The Blitzkrieg model devised by Guderian – and first published by his Soviet understudy, Tukhachevskii – is centred on the idea of an armoured 'Schwerpunkt' which punches through an opponent's weakest defensive point and then thrusts deep seeking out the least defended areas, and 'enveloping' defending forces which are then cut off from reinforcements and supplies and pounded into surrender or oblivion. A key tenet of classical Blitzkrieg technique is the avoidance where possible of direct engagement with an opponent's strongest units, these are preferably manoeuvred around and then crippled by denial of resupply and reinforcement.

When Guderian moulded his ideas into the Wehrmacht Panzerwaffe, the best air power available were Luftwaffe Ju 87 Stuka dive bombers for 'precision' strike and He 111 bombers for area strikes. Firepower delivery was primarily by Wehrmacht Panzer and artillery units.

The Blitzkrieg observed in the first few days of the drive to Baghdad is characteristic of a different era – and paradigm. With the enormous firepower available in the coalition's precision air power, the principal means of inflicting large scale attrition on the defending land force formations is the bomber. Whether dropping laser guided Paveways, GPS aided laser guided Enhanced Paveways, electro-optically guided GBU-15 derivatives, GPS aided inertially guided JDAMs, smart submunition loaded WCMD/SFW (Wind Corrected Munitions Dispenser/Sensor Fuzed Weapon) or plain Mk.82, the coalition air fleet has to date accounted for most of the heavy damage to the Iraqi land force. Often the ground force only mops up remnants left after sustained battlefield air strikes.

In Afghanistan we observed the 'hammer and anvil' air land battle, where the Northern Alliance ground force provided the anvil and the US Air Force and Navy the aerial hammer which demolished the combined Taliban/al-Qaeda ground force inside of a few weeks. B-52Hs and B-1Bs operating from Diego Garcia where the nucleus of the hammer.

Iraq is of course a tougher nut to crack, with a much bigger defending force, many more mechanised and armoured assets to kill, and often much more experienced and clearly brighter operators. However, the strategic model in use is sound, being derived ultimately from the

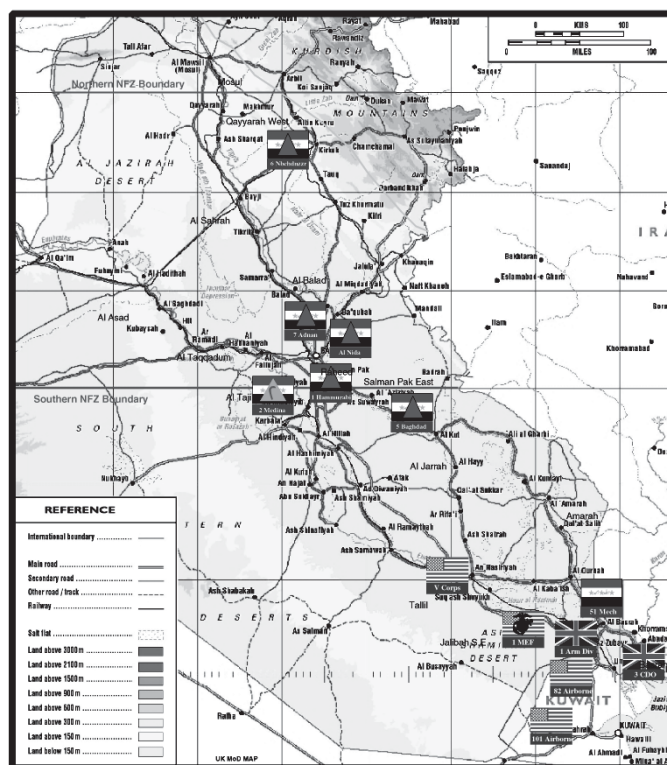


A key milestone in the campaign was a B-2A sortie flown from Whiteman AFB in Missouri against a garrison target, during which the aircraft dropped a payload of 80 GBU-38 500lb JDAMs. Using a prototype aircraft configuration and preproduction bombs, the sortie demonstrated what will become a fearsome strategic weapon. (USAF)

influential 1980s work of Richard Simpkin in the UK – which later evolved into the US Air Land Battle 2000 model.

The coalition land force provides an anvil which cannot be challenged by the Iraqi motorised, infantry and armoured divisions, which must fight if they are not to be demolished by this juggernaut in the approaches to Baghdad. Yet every time an Iraqi formation engages the land force, it becomes exposed to withering aerial attack around the clock. The plains of the Euphrates and Tigris south of Baghdad are an enormous 'kill zone' for an ongoing aerial 'turkey shoot' unsewn since 1991.

There has been a considerable amount of public criticism



Iraqi Freedom Day 1



A Tornado F.3 banks away from a tanker. F.3s and F-15Cs flew CAPs but had no trade courtesy of the Iraqi air force's non appearance. (UK MoD)

of the land campaign by a wide range of 'defence analysts' in the US, UK and Australian media. Three main criticisms have been aimed at the US/UK war planners.

The first is that the Blitzkrieg was a failure because it 'could not take Basra, Nazariyah and other key towns along the supply line'. Proponents of this argument have evidently not understood Guderian's Blitzkrieg model properly – if indeed they have ever bothered to read *Achtung Panzer* – the aim of a Blitzkrieg is to manoeuvre around strong points, not to engage and take them.

The second criticism is that the Blitzkrieg was a failure because it did not see a continuous armoured thrust straight to Baghdad, despite the reality that it has thrust deeper and faster into defended territory than any other Blitzkrieg force in history. Proponents of this argument have most likely not bothered reading Simpkin, or indeed exploring carefully how the coalition force attrited the Taliban/al-Qaeda land force in Afghanistan just 18 months ago. The coalition land force could have sat on the Karbala-Al-Kut line for weeks if need be, while coalition air power inflicted cumulative attrition on the formations defending Baghdad.

The Iraqi defenders could not disperse their armoured and mechanised elements for fear of being engaged by raiding M-1A1/2 Abrams tanks and AH-64 Apache helicopters – numbers are the only defence they have against the armour/helicopter force. Yet the very concentration of force they required to protect themselves against the US, UK and US Marine Corps armour and helicopter elements is what made them into lucrative targets for orbiting strike aircraft above. Indeed, was there any point in attempting an early deep

The General Atomics RQ-1A Predator, and its armed MQ-1A variant, have been used extensively. While this UAV has been used mostly for surveillance, reconnaissance and kill assessment, the armed MQ-1A has been used to engage targets of opportunity. Four of the much larger and more capable Northrop Grumman RQ-4A Global Hawks have been used extensively, supplementing the manned U-2S. This Predator is pictured at an undisclosed Middle East airfield, but there appears to be a retired Jordanian air force F-104 Starfighter to the left of the Predator in the photo. (US Air Force)



thrust into Baghdad exposing the flanks of the armoured spearhead to in situ Iraqi mechanised and armoured force elements?

With air dominance and information dominance, the latter provided by E-8C JSTARS, RQ-1/MQ-1 Predators, RQ-4 Global Hawks, RC-135V/W Rivet Joint and other assets, the Iraqi ground force elements became like the proverbial fish in a giant barrel, pinned in the Karbala-Baghdad-Al Kut triangle.

What the coalition campaign strategists set up was a giant three dimensional combined arms meat grinder – the grandest application of Simpkin's 'hammer and anvil' seen to date. It is an elegant piece of combined arms strategy which in a matter of four days placed the Iraqi defenders into an immediate no win situation in which they haemorrhaged irreplaceable land force assets by the hour.

The Blitzkrieg force comprising the US Army V Corps element, the US Marine Corps 1st MEF element and the UK 1 Armoured Division element performed admirably, with the UK element rapidly enveloping Basra, while the V Corps element seized the Nazariyah bridge and then thrust north swinging around densely populated areas to punch through defences in the approaches to Karbala, where the Medina Republican Guard division remained dug in. The 1 MEF element thrust north in the direction of Al Kut, leaving a large contingent in Nazariyah to deal with the Iraqi militia and other irregular elements trying to close the supply lines. After a week of sustained aerial bombardment of the opposing Medina and Baghdad divisions, the 'Panthers' rolled through the remnants with little resistance.

The third criticism levelled at the land force campaign is that it has required excessive amounts of ground force personnel to secure the supply lines, especially around the cities along the supply line. This is yet again a most curious interpretation of Blitzkrieg technique, since the 'classical' model is built around the idea that formations are left along the advancing thrust to secure the flanks of the supply line. A Blitzkrieg in which the flanks are not being secured by troops along the route is not a Blitzkrieg.

That Baathists, Fedayeen and remnants of loyal combat units would try to cause mayhem along supply lines, especially where opportunities exist to hide, such as in urban areas, was to be expected. It is standard Soviet/Nazi doctrine, with good historical case studies from Barbarossa in 1941, and the fall of Germany in early 1945. Baathist Iraq's infatuation with Soviet and Nazi doctrine and technique made this a certainty – the only uncertainty being in how many loyalists might be trapped in particular pockets as the Schwerpunkt advanced forward, and how hard and long they might resist.

By any historical or contemporary metric, we have observed a superb effort in both strategic thinking and execution, one which will become the new benchmark for an offensive land campaign. Was everything executed flawlessly, was every assumption made apriori exactly proven in execution? Clearly many commanders and observers may have had other expectations – but these expectations are peripheral to the main game, which was to put an armoured anvil to within 50 miles of Baghdad's suburbs and cause disruption across southern Iraq on a monumental scale.

The arrival of coalition armoured ground forces in the suburbs of Baghdad a mere two weeks after the campaign launch is irrefutable proof that the campaign strategy was sound, and sets a benchmark which will be hard to beat.

Other Air/Land Operations

From the outset of the campaign, coalition special forces (SF) have been operating across much of Iraq, performing reconnaissance, hit and run raids, and supporting the air



effort with targeting information – the latter role replicating the Afghan effort. The SF contingent includes British and Australian SAS, and various US SF units.

Deployment of the SF units has been primarily by air, with the US Air Force's specialised MC-130H, HH-60G and MH-53J used, and US Army MH-47E and British Army CH-47s used also for this role.

Airborne and SF units seized the cluster of airfields in western Iraq within the first days of the campaign – the H1, H2 and H3 airfields were the operating hub for mobile Scud units deployed to bombard Israel in 1991, and securing the area was seen to be vital to deny Iraq the opportunity to launch WMD loaded Scuds into Israel, while permitting control of road traffic to and from Syria and Jordan.

A large paratroop insertion into Harir in Kurdish territory several days into the campaign was in preparation for a much larger force deployment in the north of the country, opening a second front. This was initiated by an SF deployment to secure the field, followed by the 173rd Airborne dropping in.

US SF elements jointly with the Kurdish guerilla force engaged and sanitised a large training and operational base used by al-Qaeda aligned guerilla forces in the Kurdish zone – supported by direct air strikes.

The SF effort across the whole of Iraq has been critically dependent upon air assets to provide not only deployment, recovery and resupply, but also firepower where the SF discover high value targets, or are confronted with an opposing ground force which they might not be able to evade.

The Strategic Air Campaign

The coalition air campaign is divided between support of the ground force and strategic attack on the core apparatus of regime power – where the two can be separated. Support of the ground force is being provided both with close air support of coalition troops in contact with Iraqi forces, and with battlefield air interdiction which amounts to 'battlefield shaping'.

This results in a two pronged 'parallel' air campaign strategy. The BAI/CAS component is 'traditional' in the sense that it reflects targeting and execution techniques which are well established. Its clearly apparent aim was to inflict attrition against Republican Guard divisions, and all other Iraqi ground elements which display an interest in supporting the regime. This amounts to a larger scale replay of Afghanistan or Desert Storm executed over a much larger geographical footprint. As discussed previously, the ground force and air power are used synergistically to expose and annihilate opposing ground force elements.

The CAS/BAI effort has seen the use of B-52Hs and B-1Bs against Republican Guard formations using JDAMs, Mk.82 and the new CBU-105 Sensor Fused Weapon, and strikes by almost all tactical types in theatre, including Tornados, F-15E Beagles, F-14B/D Bombrats, F/A-18s of all models in theatre, F-16Cs, A-10A Warthogs, Harriers and AC-130U gunships. The US Army's AH-64D Longbow Apaches have been used for direct fire support, but also on deep penetration raids, which arguably qualify more as BAI than 'classical' land force element engagements.

With a large fraction of up to 2000 daily sorties flown under the CAS/BAI effort, it is clear that the Republican Guard divisions and other battlefield elements were sustaining attrition on a scale and at a rate much greater than seen in 1991 – with 90% of the dropped munitions precision guided, we have been observing a 'turkey shoot' of historical stature.

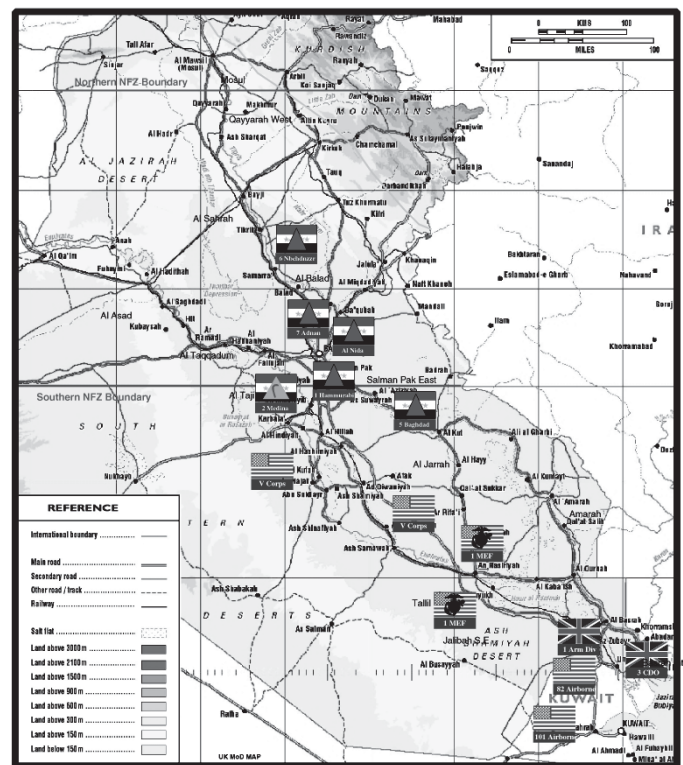
The battlefield shaping effort extended into the suburbs of Baghdad, as coalition aircraft worked through Republican Guard positions and land warfare assets positioned around the suburbs. Multiple rocket launchers, tanks, artil-



The backbone of the coalition campaign are the US Air Force's tankers, especially the veteran KC-135Rs (pictured), built 45 years ago. Supplemented by RAF VC10s and TriStars and US Air Force KC-10A Extenders, the KC-135Rs carry the lion's share of over 6 million litres of kerosene transferred in flight daily – critical for extended duration sorties. A US Air Force F-15E WSO in a recent interview described sorties of up 10 hours duration – much spent orbiting in Iraq waiting to strike at 'emerging targets'. (US Navy)

lery pieces, AAA pieces and SAM sites have all been attacked. The clear aim was to gut the Republican Guard force in situ, before the coalition Schwerpunkt even got close to the suburbs. A priority in the bombardment were artillery pieces and multiple rocket launchers as both are the primary means of deploying tactical chemical and biological payloads.

The effort across the battlefield was paralleled by a concurrent and ongoing strategic bombardment of regime power apparatus targets inside the Baghdad perimeter, and elsewhere. This bombardment started with the two days of 'shock and awe' raids mounted by B-2As, F-117As and F-15E



Iraqi Freedom Day 5



A dust storm in the campaign's early days slowed operations. These are HARM armed USAF F-16Cs. (USAF)

Beagles and supplemented by several hundred Tomahawk cruise missiles fired by warships. These raids demolished a large number of Baath Party targets, Saddam's palaces, SSO, Special Republican Guard, Republican Guard and related targets in Baghdad, and involved exclusively precision munition deliveries to minimise civilian casualties.

These strikes did not include basic infrastructure such as electrical power and water, and the sight of Baghdad lit up at night while Saddam's palaces and other key facilities disappeared in a deluge of JDAMs and Tomahawks presented imagery without historical precedent.

Perhaps the most bizarre happening in this phase of the air campaign was the repeated gathering of Baghdadis on the opposite bank of the Tigris river – watching the mesmerising sound and light show through the night. Clearly the message that coalition bombing was precise did get across – standing in the open hundreds of metres from a major bombardment shows remarkable trust in the precision of the targeting and the bombs dropped.

The aim of the initial raids was to convey a powerful psychological message to the populace and regime, but also to degrade the regime's ability to do its daily business. Oper-

The humble GBU-12 500lb laser guided bomb, fitted with an inert warhead, is likely to be critical tool in the final urban combat endgame. Capable of destroying urban targets such as tanks and artillery with kinetic energy alone, this weapon permits urban interdiction without the spall and shrapnel footprint of an explosive Mk.82 warhead. The use of inert warheads was pioneered by the US Air Force during Operation Northern Watch, and demonstrates that guided weapons and supporting systems precision is now good enough to kill targets by 'dropping concrete on them'. (US Navy)



ating from a basement or bunker is not the same as operating from a comfortable office – relocation and dispersion to avoid air attack is highly disruptive.

The initial high intensity raids were followed by a sustained campaign of attacks at other regime targets throughout the city, day and night. These raids overlapped with the battlefield preparation effort in the Baghdad area. Targets such as satellite uplinks, the Information Ministry, various Baath party and militia facilities, and air defences and Republican Guard units in the Baghdad area were the subject of repeated and ongoing strikes. These were conducted without let up, and resulted in enormous degradation in the regime's capacity to organise and sustain its defence of the capital, once the ground force moved in. Weapons used include laser guided Paveways and large numbers of GPS aided inertially guided JDAMs. The bombardment was so intense as to cause the ground to tremble and buildings to sway even kilometres away.

The strategic air campaign is historically unique in that it has avoided targeting key facilities required to sustain the civilian population, such as the water supply, the electricity supply, the bridges and government buildings not part of the core apparatus of power. Ultimately the Iraqi regime shut off the power and water in Baghdad.

Iraq's remaining air defences played almost no role in this campaign. There has not been even a single report of an Iraqi combat aircraft challenging the attack. SAM and AAA firings declined in frequency day after day, as munitions were expended with no effect. If the Iraqi SAM force made any contribution, it is most likely in the killing of civilians in suburban weapon impacts. Two devastating explosions in suburban markets, two days apart, followed by a third explosion, did not appear to be the result of coalition munitions going astray. All strikes produced enormous publicity worldwide, and might prove in the end to be S-125/SA-3 or 9M9/SA-6 rounds.

The much publicised burning of oil trenches in Baghdad to obscure targets has achieved little more than poison the air for the civilian populace and create spectacular propaganda footage. The synthetic aperture radars used by the coalition saw through most of the soot, while the GPS aided bombs flew through it unimpaired. While the smoke might impair some optical reconnaissance tools, it was largely irrelevant in terms of slowing the bombardment. An Iraqi attempt to defeat JDAMs using six illegally acquired Russian GPS jammers failed, the last of the six was killed using a GPS aided JDAM.

Time was not on the side of Baghdad's defenders in this game. Cumulative attrition of regime power base targets and Republican Guard assets in the Baghdad area was mounting over time. At some point, critical mass in damage will occur and the units under attack were losing their cohesion and capacity to function, as observed during the April 1 push against the Medina and Baghdad divisions. At that point, desertions may start occurring, and even minimal land force pressure will cause immediate and rapid collapse. How long it took before this point was reached depended on a range of factors, but it is primarily bounded by the achievable sortie rates of the striking air armada. The resistance offered by the defending militias in Basra and Nazariyeh may not be seen in Baghdad, which had more than two weeks of sustained bombardment before a ground assault, unlike the southern bastions.

While the media focus of the Baghdad bombardment has been mostly on the impact of munitions at ground level, much aerial activity has been taking place to support the strike fleet. The RC-135V/W Rivet Joints of the Offut based 55th Wing have been very actively gathering vital electronic



intelligence on Iraqi air defence, ground force and other defensive activities. Their siblings, the E-3 AWACS and E-8C JSTARS have been equally busy, the AWACS coordinating and managing the incredible flow of striking aircraft in and out of Iraqi airspace, while the JSTARS, flown by the 93rd Air Control Wing, has used its powerful X-band APY-3 radar system to track Iraqi land forces over large areas of interest. JSTARS was first trailed in 1991, and in this campaign it is the pivotal asset used to ferret out Iraqi armoured and motorised forces.

While the media has given considerable attention to the role of UAVs, these provide typically local area spot coverage ie a 'drinking straw' view of the battlefield, whereas the JSTARS provides AWACS-like long range wide area coverage. Against moving ground targets at long range, an X-band radar with large power-aperture performance is needed and this requires a large aircraft – hence the 707 based E-8C JSTARS.

The US Navy's EA-6B Prowlers have been very active from the outset of the campaign, ensuring that any Iraqi radars are jammed as soon as they light up, but almost certainly providing jamming support against Iraqi ground force radio communications, their primary role in Afghanistan 18 months ago. The US Air Force's EC-130H Compass Call communications jammers of the 1st ECS and 43rd ECS, 355th Wing, have been active from the very first hours of the campaign. Lethal SAM suppression has been performed by HTS equipped F-16Cs of the US Air Force, and by RAF Tornado GR.4s, the latter expending around 50 ALARM anti-radiation missiles in the first 10 days of the campaign.

A vital asset which has received only modest attention in the media are the six EC-130E Commando Solo psyops aircraft of the 193rd Special Operations Wing (Pennsylvania ANG), equipped as airborne television and radio transmitter stations. Broadcasting in Arabic and other dialects, the aircraft have been targeting civilian and military radio frequencies in the AM, HF, and FM bands across Iraq. The broadcast effort has been supplemented by leaflet drops on an unprecedented scale, with a US Navy carrier becoming a 'floating print shop'.

While the main game in the bombing campaign has been Baghdad and the battlefield preparation outside and south of the city, the coalition has not confined itself from other strikes. Iraqi positions in the north, around Mosul and Kirkuk, have been repeatedly struck. Air power has been applied with ruthless effectiveness across the breadth and depth of Iraq.

Summary

With V Corps armour in the Baghdad suburbs at the time of writing, the campaign has entered its endgame. It is clear that the coalition made an exceptional effort in the opening phase of the campaign, setting up an environment where rapid and large scale attrition could be inflicted on the key power structures of the regime, and the Republican Guard which is the regime's most potent tool for imposing its will on the populace and the Iraqi Army.

While remnants of the Republican Guard divisions remained alive, much of the coalition's air power and armour force was occupied with the process of destroying them, once these forces are attritted down to irrelevance, the coalition's air power and armour can be focused on the residual light forces resulting in rapid annihilation. Light forces in urban terrain are no match for a modern infantry force supported by heavy armour and massive numbers in precision air power.

The only remaining uncertainties in this campaign lay in the timelines, which are limited by the rate at which critical



Baghdad. (US DoD/NIMA)

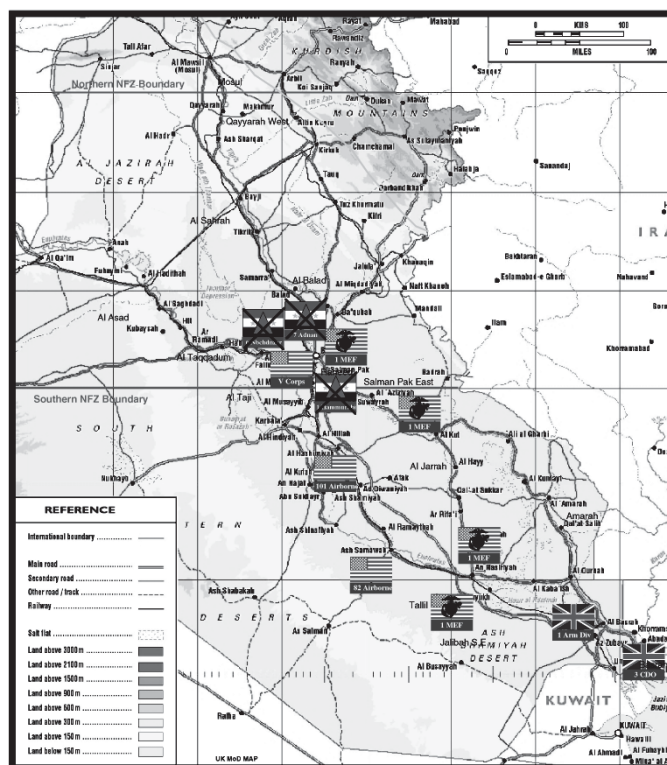
attrition can be inflicted on the Republican Guard and the Baath loyalists. The outcome is now very certain, with V Corps armour launching raids into the inner suburbs it is now only a matter of time.

What is also certain is that the Iraqi Freedom campaign sets a new benchmark in the effectiveness of air power in battlefield and strategic strikes, and a further refinement in the difficult domain of targeting technique.

Campaign Chronology

Operations – March 19: A pair of F-117As of the 8th FS, supported by USN EA-6Bs, strike at the Republican Guard compound bunker in which Saddam and his sons are hiding, using four EGBU-27 2000lb LGBs. The strike is shortly followed by 40 Tomahawk cruise missiles fired from the USS *Donald Cook*, *Milius*, *Bunker Hill*, and *Couper*, and the submarines USS *Cheyenne* and *Montpelier*.

US and UK SF elements are reported in firefights in the vicinity of Basra, while an MH-53J Pave Low is reported to



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A Royal Navy/Royal Marines Sea King at Umm Qasr. (UK MoD)

have been damaged in a landing accident inside Iraq.

Coalition aircraft attack C3 sites around Ash Shuaybah, Mudaysis and Ruwayshid and artillery sites in the vicinity of Az Zubayr and the Al Faw peninsula. These include long range Austrian built Voest-Alpine GHN-45 155mm guns capable of firing chemical munitions. The Iraqis launch three, possibly four missiles into Kuwait at coalition staging areas, these are engaged by Patriot PAC-3 SAM batteries.

Operations - 'G-Day' - March 20: During the night, the 3rd Commando Royal Marines and elements of the 1 MEF, jointly with SF, assault the deep water port of Umm Qasr to secure supply lines but also to deny the use of oil terminals capable of flooding the Gulf with crude oil.

The 15,000 strong motorised 1st Marine Division and UK 1st Armoured Division pushed toward Basra, while the US Army V Corps (3rd Division) pushed into the desert driving toward the strategic bridge at Nasariyeh.

With 1 MEF securing the critical Rumaylah oil fields and enveloping Basra, the UK Marine Commando and 1 MEF elements continue the process of securing Umm Qasr, where Baathist loyalists continue to resist.

1 MEF and the UK 1 AD engage the 51st Mechanized Division of the Iraqi regular Army and leading to a surrender by the divisional commander the following day, and several thousand POWs being secured.

Operations - Day 1 - March 21: Elements of V Corps capture the strategic Tallil airfield near Nasariyeh, and the airfield at Jalibeh. Tallil later becomes an FOB for coalition CAS/BAI fighters.

At this point the coalition strategic bombardment of Baghdad ramps to full effort with the declaration of 'A-day', with waves of B-2A, B-1B, B-52H heavies and F-117A, F-15E, F-14B/D, F/A-18 and Tornado GR.4 strike fighters attacking the capital with a deluge of JDAMs and Paveways. These are supple-

A British Harrier prepares to depart on a mission. (UK MoD)



mented by Tomahawks fired by the destroyer USS *John S McCain* and submarines USS *Columbia* and *Providence*. Over a thousand PGMs are delivered against presidential palaces, Baath Party buildings, Republican Guard and Special Republican Guard sites - the apparatus of power in the capital is being systematically destroyed.

A USMC CH-46E crashes, with the loss of 12 British and four US personnel.

Operations - Day 2 - March 22: Elements of V Corps captures the strategic bridge at Nasariyeh, while the UK 1 AD secures positions around Basra, and the 1 MEF pushes north to Nasariyeh. Iraq fires several Ababil-100 ballistic missiles.

The 'shock and awe' bombardment of Baghdad continues. An MQ-1 Predator destroys a ZSU-23-4P SPAAG near Al Amarah, using a Hellfire and marking a milestone for the UAV community. The cumulative sortie count of the coalition air armada reaches 6000 sorties.

Two 849 Sqn Royal Navy AEW Sea King Mk.7s collide, with the loss of seven crew.

Operations - Day 3 - March 23: A Patriot battery mistakenly shoots down an RAF Tornado GR.4. The 1 MEF relieves V Corps at Nasariyeh, and secures two bridges east of the city. V Corps pushes northwest in a drive toward the Karbala gap, where the 2 Medina division is dug in, and engages sporadically with militia units near Najaf. US Marine Corps AV-8Bs and F/A-18s, together with US Air Force A-10As, support the advancing ground force. UK 1 AD consolidates its position around Basra. Mopping up in Umm Qasr continues.

The strategic bombardment of Baghdad and Republican Guard units in surrounding positions continues. A US Air Force F-16C engages a Patriot battery near Najaf with a HARM missile.

Operations - Day 4 - March 24: The scale of the BAI bombardment increases, with 1500 sorties flown, of which 800 are strikes against 'emerging targets' (of opportunity) and 200 are against prebriefed aimpoints. Raids continued against Baghdad and also Mosul in the north.

Two US Army AH-64D Apache crew are held as POWs.

Operations - Day 5 - March 25: The coalition flies 1400 sorties, despite sandstorms in central Iraq which bring ground operations to a near standstill. The bombardment of Baghdad and surrounding Republican Guard Medina and Baghdad divisions continues. On the ground, 1 MEF crosses the Euphrates near Nasiriyah, while V Corps elements cross near As Samawah. Lead elements of V Corps stop south of Karbala, around 40nm (75km) from Baghdad. US Navy F/A-18Cs and S-3B Vikings attack three Iraqi shipping targets with laser guided AGM-65E missiles, a first for the S-3B.

Operations - Day 6 - March 26: Sandstorms continue, hampering helicopter and ground operations. V Corps elements envelope the strategically important town of Najaf, while BAI and strategic bombardment in the Baghdad area also continue. Baghdad TV and radio transmission sites are attacked, putting them off the air for several hours. Close to 1000 paratroops of the 173rd Airborne Brigade are air dropped into Kurdish territory to secure the airfield at Irbil.

Operations - Day 7 - March 27: Improving weather sees an escalation in the air campaign, and a B-2A strikes a communications facility in Baghdad. Iraqi forces in the south launch a ballistic missile which is intercepted by a Patriot battery, reports suggest the missile launcher was soon after destroyed by A-10A aircraft. V Corps lead elements approach Karbala, 1 MEF continues operations near Al Kut.

Operations - Day 8 - March 28: Air operations continue across Iraq. Two F-15E Beagles of the 335th Expeditionary Fighter Squadron attack a Baath party site in Basra with 2000lb LGBs, killing an estimated 200 paramilitaries and Baath activists. Three Al Samoud SSM launchers are destroyed by a pair of US Navy F/A-18Cs.

Both V Corps and 1 MEF continue their operations in the



approaches to Baghdad.

Operations – Day 9 – March 29: The air campaign continues with repeated strikes in the Baghdad area. AH-64 Apaches of the 101st Airborne Air Assault Division fly a deep strike sortie against elements of the Medina division, with no Apaches lost.

Operations – Day 10 – March 30: Air attacks on Baghdad continue, including JDAM strikes on two ‘SAM complexes’ in the city perimeter. C3 facilities at the Abu Garayb Presidential Palace and two facilities at the Karada Intelligence Complex were hit with JDAMs. The Ar Rustamiyah training and command facility of the Fedayeen is hit with JDAMs, and the Ministry of Information is hit with multiple Tomahawks. The Baghdad strikes include a historic bomber package strike with targets concurrently engaged by multiple B-52H, B-1B and B-2A bombers arriving from separate bases.

Operations – Day 11 – March 31: Sortie count for the day approaches 2000, of which 800 are strike missions and 400 are tanking sorties – the cumulative total of kerosene transferred in aerial refuelling reaches around 75 million litres. CAW 8 on the USS *Theodore Roosevelt* flies 50 sorties into northern Iraq. An AV-8B and S-3B are lost in landing accidents. The Baghdad Exchange Maidan communications site in downtown Baghdad is hit with 2000lb bunker busting bombs, and an office complex in eastern Baghdad, used for command and control, is hit with guided munitions.

While V Corps and 1 MEF forward elements are resupplied and rest, the 101st Airborne Division takes the An Najaf airfield, and the 82nd Airborne Division continues to engage ‘stay behind’ forces near As Samawah.

Operations – Day 12 – April 1: Air strikes are continuing across Iraq, with heavy activity in the vicinity of Baghdad, as the Medina, Baghdad and reinforcing elements of the Nabuchadnezzar divisions are reduced along the ‘Al Kut-Karbala line’. Over 1000 sorties are flown over Iraq, the cumulative total of expended precision-guided munitions reaches 12,000, of which 725 are Tomahawks. The RAF has expended 30 Storm Shadows and 50 ALARM missiles.

Operations – Day 13 – April 2: V Corps launches a major land push through the Medina division, reinforced with elements of the Nabuchadnezzar division in the Karbala gap and capture a bridge across the Euphrates, while 1 MEF engages the Baghdad division north of Al Kut. Both defensive lines, gutted by BAI strikes in preceding days, collapse rapidly under pressure and are declared ‘combat ineffective’. V Corps elements engage paramilitaries in Al Kut. UK 1 AD capture several ground launched Styx SSMs on the Al Faw peninsula, while continuing to envelope Basra and engage paramilitary and remaining military defenders.

The bombardment of the Baghdad area continues unabated, including Republican Guard reserve forces as V Corps elements are reported to be ‘30 miles from Baghdad’. A C3 site at Radwaniyah is struck with JDAMs, and a secure storage site at Al Karkh near Baghdad/Muthenna airfield is struck with JDAMs, reports suggesting as many as 40 rounds.

Operations – Day 14 – April 3: While the air campaign continues, coalition SF elements raid the Tharthar Palace, on the outskirts of Baghdad. V Corps and 1 MEF continue their drive on to Baghdad, with lead elements of V Corps armour reaching Saddam Intl airport in the southwest of the suburban Najaf. Elements of the 101st AD complete envelopment of Najaf.

A US Navy F/A-18 is lost to a SAM, and reports surface suggesting it was engaged by a Patriot battery inside Iraq. A US Army Black Hawk is lost in an accident. The Iraqi Air Force HQ at Baghdad/Muthenna airfield is hit with JDAMs.

Operations – Day 15 – April 4: With the air campaign shifting primarily to battlefield strikes, V Corps elements take Saddam Intl airport establishing a foothold in the suburbs, with the 101st AD securing the site. An attempted counterat-

tack is crushed by air attacks. 1 MEF engages reinforcements from the Al Nida division east of Baghdad.

A Marine Corps AH-1W Cobra is lost in an accident with the crew KIA.

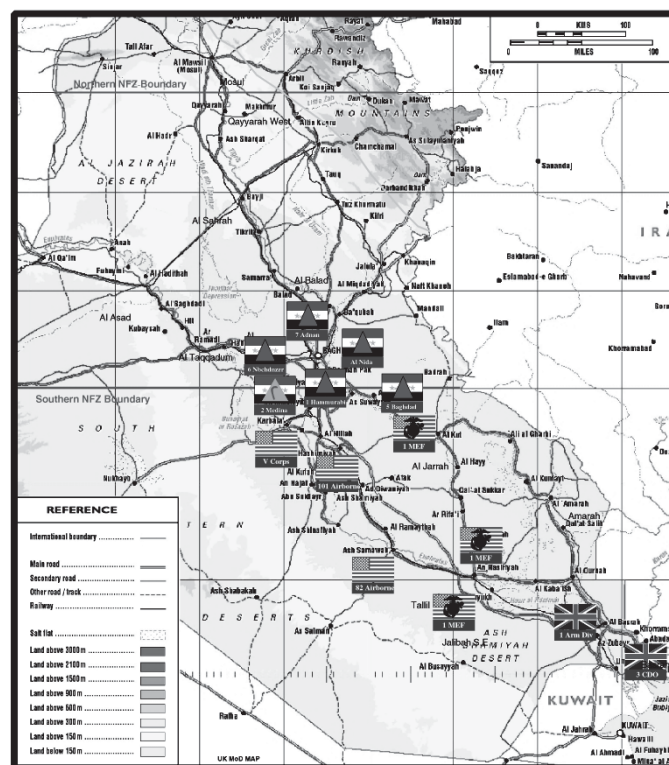
Operations – Day 16 – April 5: M-1A2 tanks of V Corps launch a reconnaissance raid into the southern suburbs of Baghdad destroying a number of Iraqi tanks, while 1 MEF continued to fight its way through the eastern defences of the city, reaching to within 20km of the city centre. The 101st Airborne Division launches an operation to sweep Karbala clean of paramilitaries and loyalists, supported by JDAM strikes, F/A-18Cs firing laser guided AGM-65E Mavericks, and artillery firing laser guided LM Copperhead artillery rounds.

Aerial bombardment of battlefield and strategic targets continues. The RAF and USAF announced plans to drop laser guided bombs with BDU-50 inert ‘concrete’ warheads on Iraqi armour, artillery pieces and other military equipment situated in urban areas – this technique was introduced by the former US Air Force commander of Operation Northern Watch and proved to be highly effective in limiting collateral damage. The residence of the infamous Ali Hassan al-Majid (‘Chemical Ali’) in Basrah is struck by two aircraft using laser guided weapons.

Operations – Day 17 – April 6: The ongoing bombardment of targets inside and near Baghdad continues, with the coalition commencing ‘Urban Close Air Support’ operations over Baghdad – with up to a dozen strike aircraft orbiting in the area to provide immediate support to the ground force 24 hours a day, using ‘persistent bombardment’ techniques. A second raid into the city is executed by V Corps armoured units.

In northern Iraq, coalition SF and Kurdish Peshmerga guerrillas receive direct CAS from F-15Es and B-52Hs, which bombard Iraqi entrenchments and positions.

Sources: US Central Command, US DoD DefenseLink and a wide range of open sources. While all attempts have been made to ensure accuracy, many sources cannot be validated and readers should exercise caution.



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