

A New American Way of War? C4ISR, Intelligence and Information Operations in Operation 'Iraqi Freedom': A Provisional Assessment

JOHN FERRIS

Over the past decade, the idea of a 'revolution in military affairs' (RMA) has shaped debates about military policy in the United States (US). This idea assumes that information will transform the knowledge available to armed forces, and thus their nature and the nature of war itself. Colonel John Warden, USAF planner and strategic theorist, has argued: 'Information will become a prominent, if not predominant, part of war to the extent that whole wars may well revolve around seizing or manipulating the enemy's datasphere.'¹ Strategic policy predicts the rise of forces with 'dominant battlespace awareness', better knowledge than, and 'decision superiority' over, an enemy, and unprecedented flexibility of command: the ability to combine freedom for units with power for the top'.²

Officials have also created new concepts about intelligence and command, including net-centric warfare (NCW), the idea that armed forces will adopt flat structures, working in nets on the net with data processing systems at home serving as staff for the sharp end through reachback; C4ISR (command, control, communications, computers, intelligence, surveillance and reconnaissance: loosely speaking, how armed forces gather, interpret and act on information); and 'IO' (Information Operations), the actions of secret agencies. These ideas shape American ideas about war. Command and Control Warfare (C2W), the main form of operations the US plans to fight, is a version of blitzkrieg which seeks 'to deny information to, influence, degrade, or destroy' the enemy's 'information-dependent process', so to shatter its ability to perceive and command.³ Revolutionaries advocate a higher and 'knowledge-centric' mode of war, Rapid Decisive Operations (RDO), which will open with the pursuit of a 'Superior Information Position (Fight First for Information Superiority)' and then function through 'Operational Net Assessment' (ONA), with commanders constantly gathering, analyzing and synthesizing intelligence on all aspects of an enemy in real time and from all sources.⁴

Operation 'Iraqi Freedom' provides the first serious test of these ideas, but not a simple one. The struggle was so unbalanced that one must take care in extrapolating from triumph; judgments from failure are easier to make. How many lessons useful for September 1914 could have been drawn from Omdurman? How many of those could a victor have believed? Any lessons drawn from the Iraq campaign will be intended to shape military policy in 2020, and the nature of (to use the jargon) the 'objective' force – yet it was fought by 'legacy' forces, using some elements of 'interim' C4ISR. Arguably, the keys to victory were absolute air supremacy, vehicle and body armor, the incompetence and subversion of Iraqi officers and the psychological effect on Iraqi soldiers of the power and invulnerability of Coalition artillery and tanks. A Marine Colonel noted some of his tanks survived seven RPG rounds, and 'became the unkillable beast and caused them (Iraqis) nightmares'.⁵ General Tommy Franks, head of Central Command, wrote that the Coalition solved the problem of irregular forces simply by moving armor into towns: 'the Fedayeen would sacrifice themselves by climbing up on the tanks. They had no tactics to deal with armor.'⁶

Yet any lessons learned from this campaign will be used to explain why 'legacy' forces must be transformed, and heavy tanks are bad. Again, our data on the role of intelligence are limited, though a surprising amount is available even on the most secret of matters – communication intelligence and deception; times have changed. This essay goes to press before the Pentagon releases any of its 'lessons learned' memoranda, while those of the US 3rd Infantry Division are available to military personnel but not the public. Much good official, demi-official and unofficial commentary is available, but the database is incomplete, and the assessments of observers vary dramatically, with their own experiences. Personnel from signals units and headquarters in Iraq and the US emphasize the power and reach of communications and intelligence. Colonel Dobbins, Base Commander of 392nd Air Expeditionary Group, thought the global positioning satellite (GPS) satellite constellation had provided a 'common and accurate picture' to all participants. The 1st Marine Division, conversely, praised GPS, but denied that it shared a 'common operating picture' with any outside authority. The director of C4 for the Joint Chiefs of Staff (JCS) said, 'We do not believe (the Iraqis) had any situational awareness of what we were doing or where we were...We could tell you, even in Washington, DC, down to 10 meters, where our troops were'.⁷ That may have been true of Americans in Washington, but not always in Iraq.

Any 'lessons learned' process runs the risk of over-generalizing from individual events, doubly so when military politics enters the fray. And this event will be politicized. Already, slogans like 'lazerkrieg' have been coined; in a frequently cited and almost officially sanctioned phrase, General

Richard Myers, the JCS Chairman, described Operation 'Iraqi Freedom' as demonstrating 'a new American way of war'. The issues merit consideration more than cheerleading. In a study of American operations in Afghanistan during 2001–2, Stephen Biddle argued that some aspects of warfare arguably had been transformed, others certainly had not been, and both cases had to be examined in order to learn the right lessons.⁸ So too, Iraq.

Far more than with most campaigns, Operation 'Iraqi Freedom' was intelligence-driven. American authorities attempted to apply their doctrine and concepts, to follow all historical best practices simultaneously and with sophistication, and to harness all these matters to C2W. They did not achieve all their aims, but their actions were able, matching those of the Western allies during 1944 in form, if not necessarily effect. Planning at Central Command, so said Franks, assumed 'that we would not gamble but we would accept prudent risk'. It focused on surprise and flexibility, allowing either land or air forces to open the attack, as chance or need required. Intelligence was intended to start the machine, of which IO was a major part. The plan included 'five fronts'. Conventional forces dominated just one of them, the central thrust from Kuwait. Such forces were intended to lead the second front, in Kurdistan, but ultimately deception and Special Forces did so. Special Forces dominated the third front, the west, while airpower and subversion did the fourth, working 'not only from the outside in, but from the inside out' to prevent the enemy from creating 'a fortress in their strategic center of gravity, which was the Baghdad-Tikrit area'. The 'fifth front was information' – subversion to weaken the regime, electronic warfare to destroy 'principal lines of communication for the purpose of giving orders' including pre-war attacks in the 'no-fly zones' against fiber-optic links, forcing the Iraqis to radio and cellphone circuits; 'Candidly, we knew we wanted to leave some other communications links up because there is benefit in understanding what orders are being given.' This front turned on a 'combination of two things. One was as much silence as we could get in terms of public knowledge of the things I previously described, and deception which we wanted to feed into the Iraqi regime to cause them to react in ways that we wanted them to react'.⁹

In Operation 'Iraqi Freedom', the success of C4ISR and IO was mixed at strategic-political levels, and overwhelming at operational ones, better at action than calculation. Authorities got Iraqi politics wrong. They overestimated their ability to topple Saddam Hussein's regime through subversion without having to smash it, and the ease of occupation. Probably these failures stemmed from policy-makers rather than specialists, but that is a condition of life; C4ISR has changed the nature neither of net assessment, nor of the politicization of intelligence.¹⁰

The failure of subversion weakened the American ability to stop the most dangerous strategy open to Iraq, the creation of a fortress Baghdad; fortunately, Iraqi incompetence and the USAF blocked this threat. Again, Anglo-American assessments of Iraqi weapons of mass destruction (WMD) were wrong, and their use of intelligence for public relations incompetent; their dossiers of February 2003 are classic bad examples in that genre. Even more, fears that the enemy had and would use biological or chemical weapons or Scud missiles caused Coalition forces to take counter-productive steps at all levels of war, from forcing soldiers to wear Nuclear Biological Chemical (NBC) suits to creating fears about the so-called 'red line' around Baghdad and the need for a 'western' front.¹¹ These strategic problems stemmed not from the falsification of intelligence, but its normal limits. As Franks noted, material on the issue came from high-level defectors, low-level human sources and 'monumental reams of intercepted information'. Yet, 'Intelligence information is much more often imprecise than it is precise...one never knows the validity of the intelligence, much like intelligence preparation of the battlefield, which says this is what we believe, now we must go confirm the existence'.¹²

With hostilities commenced a website war, posing new problems for media influence. Here, American authorities mixed success at home with failure abroad. They did not counter al-Jazeera's influence on Arab audiences, though victory discredited it, nor manage hostile European media. This stemmed partly from IO failures: an American military newspaper conceded many American officials 'were hostile to Arab reporters in briefings and in person. And only rarely were high-level US officials offered as interview subjects.'¹³ Western media gave Saddam Hussein better intelligence than most armies in history ever have had, while a new problem emerged in the form of websites focused on strategic affairs, which gather and assess information with power, often providing archives and links to other sites. The retired General Lucian Truscott IV noted, 'the book says you've got to keep the enemy ignorant of where you are, what you're going to do. And I said to my wife one day, I opened up the *New York Times*, turned it to the back page and said, "if I was an Iraqi general I could fight the war off of this map"'.¹⁴ The problem of operational security for western military forces continues to rise. In a serious war, it might matter.

Conversely, 'embedded' journalists, attached to units so to counter Saddam, 'particularly practiced in the art of disinformation, misinformation, denial, deception, downright liar quite simply', as Deputy Assistant Secretary of State for Defense Whitman said,¹⁵ played to the fad for reality television and provided a ballast of constant good filler for home consumption. The roughly 600 'embeds' attached to American forces and 100 more with British ones, were intended to counter Iraqi disinformation,

in which their success was mixed until Baghdad fell. More significantly, the 'embeds' gave the military a chance to shape the tone of coverage; the 1st Marine Division treated them as 'an entirely winnable constituency' and told its soldiers 'media were not to be "escorted", they were to be "adopted" and made members of the Division family'. It noted that 'sharing austere living conditions, danger and loss, journalistic desires of impartiality gave way to human nature' which 'enables our story to be told in a very personal, humanistic way. To the viewers and readers, the 1st Marine Division was not an anonymous killing machine, it was an 18-year-old Marine from Anywhere, USA.¹⁶

That American doctrine about IO fuses in one category matters once treated as 'black' (psyops) and 'white' (public relations), presents problems for journalists, the public and the military itself. 'Embeds', after all, did follow their own professional instincts, their reports were honest, however impressionistic, while casualties were low and action fast. One may wonder how far this experience can be repeated. The greatest attrition suffered by 'embeds' came from those who preferred to avoid the reality after experiencing the training: 15 of 60 assigned to the 1st Marine Division bowed out when given the chance, and another 6 of the 27 assigned to one regimental combat team never showed up.¹⁷ 'Embeds' on Omaha Beach in June 1944, conversely, would have transmitted pictures like the first 20 minutes of the film *Saving Private Ryan*. Contemporaries would not have taken them for entertainment.

American strategic intelligence worked better in purely military spheres, if less so on matters of quality than quantity. Its picture of the enemy order of battle, deployments and tactical characteristics was good. It appreciated fairly well the strength needed to destroy its foe, though it assumed the war would last for 125 days, as against 25, and grossly overrated the enemy's quality and rationality. In technical terms these were major errors yet perhaps unavoidable in the circumstances, and minor in practical import (far less costly than the mistakes about WMD). The Coalition could hardly have attacked with fewer forces than it did, or earlier, or with less damage inflicted on either side. Even seasoned analysts had grounds for uncertainty about the capabilities and intentions of enemy forces – would they all be bad, or would some achieve mediocrity? Would they stand in the field, or the cities? As the British Ministry of Defence noted:

Although we knew much about the broad structure and disposition of Iraqi land and air forces, very little was known about how they planned to oppose the coalition or whether they had the will to fight. Objective analysis had to take into account Iraqi bluster and disinformation...The lack of clear information meant that the coalition

did not anticipate that Iraqi organised military resistance would collapse so quickly and completely.¹⁸

When V Corps commander, Lt. General William S. Wallace, said the Iraqis were ‘not the enemy we wargamed’, he merely expressed surprise they were foolish enough to fight in the open.¹⁹ He would have been foolish to assume they would – that the foe would be as incompetent as possible and follow the worst strategy it could. Clearly, however, there had been no revolution in military intelligence at some basic levels, where recurred old problems in assessment, especially of Western armies about non-Western foes. The 1st Marine Division noted that American forces grasped enemy capabilities well:

but we remained largely ignorant of the intentions of enemy commanders...This shortcoming was especially critical as much of the war plan was either based on or keyed to specific enemy responses. When the enemy ‘failed’ to act in accordance with common military practice, we were caught flat-footed because we failed to accurately anticipate the unconventional response. This was primarily due to a dearth of Humint on the enemy leadership. In trying to map out the opposition’s reactions we were largely relegated to our Osint sources and rank speculation based on our own perceptions of the battlefield to make our assessments ... Our technical dominance has made us overly reliant on technical and quantifiable intelligence collection means. There is institutional failure to account for the most critical dimension of the battlefield, the human one.²⁰

American strategic intelligence was mediocre, but better by far than that of the enemy. The Iraqi regime was surprised by the time of the attack, its forces caught in normal positions, because it misread its own and the Coalition’s capabilities and plans, and perhaps because of deception. According to Franks, throughout 2002, forces for war against Iraq were deployed and strengthened in as ‘invisible’ a fashion as possible, so not to stampede Saddam into undesirable actions and ‘to achieve surprise in the event we had to go to war’. Equipment was moved secretly, in container ships, presumably to avoid detection by spies or satellites. In 2003, the Coalition very much wanted to keep the 11 regular and two Republican Guard divisions in Kurdistan from destroying the northern oilfields, attacking Kurds or moving south. Thus, the US 4th Infantry Division went to ships in the eastern Mediterranean, able to achieve that end whether it could enter Turkey or not.

You have tactical efficiency if you are able to introduce a division from the north, but you have strategic surprise simply by having the

division positioned in the eastern Mediterranean. We believed we could through intelligence means have some influence on the regime through information warfare and deception, and we wanted the regime to believe that force would be introduced in the north, and that the timing of that introduction might be discussed with the Turks. We wanted some uncertainty in the mind of Saddam Hussein about whether the Turks were planning to permit the landing of the force, so I kept the force waiting long past the point where I knew it would not be introduced in the north.²¹

Though the US preferred to send the 4th Division through Turkey, this end was subordinate to that of freezing Iraqi forces in Kurdistan, and it always pursued a second plan – using deception to pin the Iraqis, with special forces and an airborne brigade to create a skeleton front, at the price of slowing 4th Division's move to Kuwait by several days. The equation was complex. In Franks' mind, 4th Division's role was to keep Iraqi forces in Kurdistan. If they were pinned, it mattered little whether that formation was ready for other operations; thus it was not, reducing the divisions in Kuwait on 20 March by 20 per cent, a high cost for deception. However, 4th Division and 1st Armored Division would be available some weeks into the attack, which Franks thought 'took the gamble out of the equation and placed the level at what I call prudent risk'. The option of not attacking until those forces were in Kuwait, would have strengthened the blow while losing surprise. Franks thought the alternative of deploying 4th Division in Kuwait from the start, at the risk of letting Iraqi forces move from Kurdistan, would dull the Coalition's edge.

So to cover these intentions (and, later, sites for airborne assaults), says Franks, 'we initiated deception operations to pass information to the regime that would cause either uncertainty or chaos'.²² How this was done is uncertain, given the lack of data about American intelligence on, and means to deceive, Iraq. These means probably included disinformation through diplomatic and intelligence channels, but at present just one conduit can be assessed, the media.

The weeks before the attack witnessed classic signs of media-borne deception. Some American forces quietly slipped from the record (as the GlobalSecurity website noted) while others were advertised, especially the location of ships containing 4th Division and its equipment. As the Turkish front collapsed, press reports from Washington emphasized that would delay Coalition plans, and indicated the attack would begin later than it did, only after 4th Division reached Kuwait. Presumably the Americans pursued surprise through the classic means of encouraging an enemy to focus on the wrong indicators and to assume an attack would occur later than intended, which would suit their IO doctrine and sense of Iraqi

preconceptions.²³ Later, the Defense Secretary, Donald Rumsfeld, speculated Iraq:

...very likely expected Gulf War II, a long air war that would give them time to do whatever they thought they wanted to do, leave or take cover and what have you, followed at some distance by a ground war, and probably a massive ground war...they did not expect a ground war to start without an air war and they did not expect a ground war to start without the 4th Infantry Division while it was still up in the Mediterranean. I also suspect that they didn't expect the first air attack that took place the day before the ground war began.²⁴

That attack occurred late on 19 March when, after telling the media the war would not start that day, American authorities struck to kill Saddam when intelligence indicated his apparent location – an improvised and unsuccessful use of deception. Innocent embeds, too, supported deception. All of them were called up to training exercises in the days before the operation began, none went with the special forces used to clear the western desert just before the battle, others were sent with the 173rd Airborne Brigade as it flew from Italy to Kurdistan, to attract attention there. Between 22 and 30 March, Americans spread disinformation about airborne assaults (rather fewer occurred than were hinted) and their sites; they may have overplayed media accounts of their problems in the south so to lure Iraqi forces forward, while small but publicized actions occurred in Kurdistan. In particular, the 173rd Airborne Brigade began its ostentatious activities on 26 March, as Americans approached the Iraqi main line of resistance between Karbala and Kut, but was not fully deployed or conducting operations there until 1 April, almost a week later. Again, a feint covered the thrust through the Karbala gap during 1–3 April.

American deception was sophisticated and followed its doctrine and historical best practices. It aimed to affect enemy actions, not its ideas, and did so both by aiming to cause confusion and misdirection where its preconceptions could be fathomed (the deployment of so many forces in Kurdistan, for example, signaled an expectation of threat in that region). The evidence does not indicate how far deception shaped Iraqi errors. At the operational level, probably it achieved more through confusion than misdirection, which is the norm. Iraqi commanders seem to have been confused, probably in part because deception did further 'uncertainty or chaos', though it may not have mattered much to that effect, given the many factors at hand. Conversely, deception did not achieve its full end of pinning Iraqi forces in Kurdistan before or during the war – Saddam needed no encouragement to keep regular divisions there and the two Republican Guard divisions finally did move south, to annihilation by air, though in staying and going they served American plans.

However, given the fact Coalition forces in Kuwait were small, with big reinforcements on the way, the deceptions of 2002–3 probably contributed to Iraq being taken by surprise about the timing of the attack (and also foreign states to which it listened, multiplying the problem), and thus to shaping the politics of the outbreak of war. Some governments doubted the US was ready to attack while Saddam routinely walked to the edge of a precipice before signaling a willingness to back down. If he or they misunderstood when the attack would start, they would not have seen the immediate need to avoid it through diplomacy, and thus not have taken the slim chances to avoid catastrophe. Perhaps deception mattered more through its unintended effects than the intended ones, not for the first time. American authorities played other sorts of mind games – what the Pentagon Director of Force Transformation, Admiral Cebrowski, termed ‘direct movement(s) into the cognitive domain’.²⁵ This approach was not novel. Political warfare is among the oldest forms of covert action or information operations, espoused by Sun Tzu and the Artashastra, practiced ably by Philip II of Macedon and more recently by Britain in two world wars. Advocates of transformation, however, regard these matters as being more central to warfare than ever before. In the 1990s one pioneer of the RMA, Colonel Richard Szafranski, argued that information warfare aimed at ‘targeting epistemology’.²⁶

The American practice of these principles in Iraq was among the most sophisticated and thorough on record, with some original features. Through radio and television broadcasts and 50 million leaflets, psyops was conducted against Iraqi civilians and soldiers, without apparent impact. It never reached soldiers in some units, perhaps most of them, lacking personal radios and surrounded by Ba’athist security; while the Coalition entirely failed in a key area of political warfare, to make civilians affect the war. More significantly, the Coalition launched a ‘fused’ IO attack on enemy epistemology, so to cripple its communication and corrupt its information. Cebrowski claimed that, knowing ‘a dictator can’t trust his information’ and Saddam would have to ‘script the whats and whens’ of his war even though ‘he doesn’t know if people will carry them out’, the US aimed to wreck his ‘feedback loop’, his ability to know what was happening on the battlefield.²⁷

This approach involved the physical destruction of command and communication targets, and more. The air attacks on Saddam, and the claims they rested on reports from agents in Baghdad, were highly publicized, to shock his subordinates. His trust in his officers, and their mutual confidence, was sapped by announcements Americans were subverting Iraqi officers, and systematically contacting via email those with access to computers. This effort, combining psyops, bribery, deception and

a human form of cyberwar, manipulated the characteristics of a Stalinist regime and a paranoid political culture, seemingly with effect. After the war, one Iraqi officer stationed on the southern Iran-Iraq frontier, Colonel Sa'ad, held psyops had little effect on his men whereas emails to officers had a 'big impact'. 'Even if officers immediately reported all such contacts to a superior, "Imagine him thinking: If the Americans are able to get into the mind of a senior commander this way, how can I protect a whole division?"'.²⁸

At the operational level, the story is mixed. Military planners pursue a 'Common Operating Picture' (COP) for commanders and a 'Common Relevant Operating Picture' (CROP) for soldiers, to give everyone in any decision-making loop the same, good information. Meanwhile, the intelligence agencies seek to maximize their ability to support the operations of expeditionary force. The National Security Agency (NSA) seeks to 'anticipate warfighter intelligence needs – on time, anywhere, at the lowest possible classification' and 'expand "pull" dissemination capabilities to enable customers to initiate real time requests to improve crisis support'.²⁹

The National Imagery and Mapping Agency (NIMA) aims to give 'customers direct access to targeting support and navigation data from the NIMA precise point database'.³⁰ NIMA and NSA exchange personnel and combine imagery, geospatial and signals intelligence at the point of first production, before it is sent to consumers.³¹ These ambitions seem to have been realized tolerably well at the theater level, including component commands down to corps level, which is fairly common in the historical record, but not at lower levels. The 1st Marine Division held:

After crossing the Line of departure, the Division received very little actionable intelligence from external intelligence organizations. The Division had to assemble a coherent picture from what it could collect with organic and DS assets alone.

The nature of the battlefield, the extreme distances, high operational tempo and lack of a coherent response from a conventional enemy all made it difficult for an external agency to know what was tactically relevant and required by the GCE commander. The byzantine collections process inhibited our ability to get timely responses to combat requirements with the exception of assets organic to or DS to the Division. This made the Division almost exclusively reliant on organic or DS collection assets. The Division found the enemy by running into them, much as forces have done since the beginning of warfare...

On a fluid, high tempo battlefield, a highly centralized collections bureaucracy is too slow and cumbersome to be tactically relevant. The

best possible employment option is to push more assets in DS to the lowest tactical level and increase available organic collections....

Operation 'Iraqi Freedom' presented the intelligence community with unprecedented robust collection architecture to support combat operations. Unfortunately it also presented the community and more specifically the tactical user with the equally unprecedented cumbersome collection bureaucracy.

The existing hierarchical collections architecture, particularly for imagery requirements, is wildly impractical and does not lend itself to providing timely support to combat operations.

This division confronted every standard problem of bottlenecks and overload in information, and the failure of almost every 'push' and 'pull' technique touted to manage them. National intelligence sources were 'great for developing deep targets, subject to the prioritization of high headquarters (Division and higher). Navigating the labyrinth of collection tasking processes proved too difficult in most cases to get reporting on Division targets, and certainly for Battalion-level collections'. Communications within intelligence sections were better, but 'at all levels (they) were inundated with information and data that had little bearing on their mission or Intelligence requirements'. The only exceptions to these strictures were systems organic to the division. Thus, JSTARS (the Joint Surveillance Target Attack Radar System) provided excellent intelligence on the movement and location of hostile vehicles. 'Because they were close to the point of decision, those JSTARS operators shared the sense of urgency and "can-do" attitude. They worked aggressively to find ways to answer questions instead of deflect them.'³²

Granted, Marine technology for communication and intelligence is less sophisticated than that of the Army, while no digitalized forces fought in Iraq. Still, in 2003, divisions seem to have had no better intelligence in battle than during 1944, though that available was useful. For example, units made good and fast use of prisoners, psyops and Iraqi cellphone traffic.³³

At a higher level, intelligence was handled well, as planned and with rare efficiency. It set the machine in motion. On 19 March, American authorities had intelligence on Saddam's location for several hours before the ultimatum ended, but did not act on it until that period ended, when they did so immediately. On 20 March, they opened the land attack 24 hours earlier than intended, when intelligence indicated Iraqi forces were moving on the southern oilfields. Over subsequent days, intelligence provided clear indications of the movement south of the Republican Guard, and guided airstrikes on them. Franks noted commanders had 'much more precise

technology-based information'; at his headquarters, before receiving any reports from below, he detected the 'thunder run' (armored thrusts with close air support) from the Karbala Gap to the Saddam Hussein International Airport via GPS and channel-surfing through to the reports of a CNN 'embed' with the 3/7th Cavalry. 'The combination of these technologies was very, very powerful, and at the same time as we had this advantage, we knew for a certain fact the regime was unable to communicate with its subordinate Republican Guard forces to give them instructions to respond, to react.'³⁴ Franks' Deputy Commander, John Abizaid, held:

Never before have we had such a complete picture of enemy tactical dispositions and intentions. I think largely the speed of the campaign was incredibly enabled by the complete picture we had of the enemy on the battlefield.' Intelligence was the most accurate I've ever seen on the tactical level, probably the best I've ever seen on the operational level and perplexingly incomplete on the tactical level in regards to weapons of mass destruction...Operationally we came up with a remarkably clear picture. We expected to fight the main battle between the line of Karbala, Kut and Baghdad, we expected it to be fought against the four Iraqi Republican Guard divisions and we expected their exact positions on the battlefield.

Both C4ISR and IO had worked well and with unprecedented quality, though we found it difficult at times to assess and measure (IO's) effects during the operation while our ability to strike rapidly sometimes exceeded our ability to sense and assess the effects as quickly as we would have liked.³⁵

At the operational level, Special Forces and agents with cellphones provided news and stopped demolitions of oil wells or dams which might have flooded the approaches to Baghdad, or the possibility of Iraqi Scud attacks against Israel. The Coalition appears to have gained little from agents about strategic matters before the war, but more on tactical issues during it. How, how far and how usefully, cryptanalysis or traffic analysis was conducted remains unclear. Apparently, however, plain language traffic often was intercepted in real time and used effectively at operational and tactical levels, implying the presence of interpreters (probably defectors) at formation staffs and units down to battalion levels, able quickly and accurately to translate colloquial Arabic to usable English. Other reports suggest that lack of interrogators was a critical problem for interrogation of prisoners, one reason why Iraqi soldiers were left to melt back into the population (which magnified subsequent security problems). The American military had just 70 qualified Arabic translators in its ranks, many of whose

knowledge of Arabic or Arabs was sketchy. According to one American interrogator, 'British interrogators are hands-down better than we are...First, they are officers, and the only thing they do is study interrogation and study language. Most of the guys can speak the target language at a nearly native level. You cannot say that about U.S. military or DIA [Defense Intelligence Agency] linguists.'³⁶

The Coalition used imagery, from satellites and Predators, and GPS with unprecedented power; for the first time, GPS was the leading source of tactical intelligence. Information surged across the system without swamping it, carried, one journalist wrote, by 'an unsung corps of geeks improvising as they went, cobbling together a remarkable system from a hodgepodge of military-built networking technology, off-the-shelf gear, miles of Ethernet cable, and commercial software', and Microsoft Premier online help for trouble-shooting.³⁷ Reachback, push and pull techniques and a 'Warfighting Web' linked national intelligence agencies to theater commands and rear headquarters, like Air Force Space Command, to ground forces, equipped with 100,000 portable GPS receivers, one each to most squads of nine soldiers or five Marines.

Commands shared a common picture of operations, as did the members of any unit, though little of this passed either way through the interface of divisional and corps headquarters, while national boundaries also proved problematical. Perhaps 3,000 commanders from corps to section level shared a tactical intranet with a map overlay, which always let everyone know where everybody was, and one text-messaging system, which allowed instant contact with some others at adjacent levels of command (anyone whose screen name one knew). Chat rooms on SIPRnet (the classified military intranet system) joined Tactical Operations Centers (TOC) at brigade level to the world – by sending a question to a TOC; in theory a soldier on the front was one interface from an expert, though the number of chat rooms (perhaps 50 for the Army and 500 for the Navy) and people yearning to participate threatened information overload.³⁸

This danger and those of micromanagement and the pursuit of certainty seem to have been avoided, but others were not. It is unclear whether chat rooms gave front line soldiers much useful advice, or created problems. One observer noted: 'Rumour spreading was rife in particular over the most secure means the SIPRNET. People were using it as a chat room and making unsubstantiated allegations and claims on this means. Commanders lost faith in the SIPR and chose direct voice comms as the best means. It also created confusion and fear amongst Marines that was unnecessary.'³⁹

The greatest change appears to have come in airpower. Traditionally, in air warfare, the need to build and distribute daily Air Tasking Orders (ATOs), sometimes the size of a telephone book, caused strangulation and

overload in information, and confusion and friction for command. In Iraq during 2003, conversely, web-based ATOs let commanders change many missions at will; carrier-borne aircraft striking Baghdad received their target orders just as they got to the city's edge. Fleeting news or chances which once would have been lost in the shuffle led to precise strikes – in Iraq, as in Afghanistan and Yemen, American forces could bomb a ten by ten foot box within 20 minutes of its detection by any source. A soldier using a laser rangefinder linked to GPS could send via satellite the coordinates of a target to a command site hundreds of miles away, which fed those coordinates onto the GPS-enabled bombs of an aircraft in another locale – and even change them in flight. Much of this success stemmed, however, not from transformation but, as one senior officer said, from 'having lots of airplanes in the air constantly with numerous types of munitions' – what others called 'racked and stacked' aircraft in a 'racetrack' pattern.⁴⁰ As with the 'cab rank' system of 1944 for air support, the flexibility, speed and range of air strike expanded not simply because of improvements in command and intelligence, but also because of the presence of large numbers of aircraft and the absence of air opposition.

How far this situation reflects a permanent transformation of C4ISR in airpower is uncertain. Perhaps this operation occurred somewhere above a margin for the optimum use of airpower, below which performance rapidly begins to spiral down. In the Kosovo campaign, against an enemy with good camouflage and useful air defenses, and a high degree of influence from political factors, over-centralization, bureaucracy, confusion between levels of command and the fruitless search for certainty crippled the use of airpower. Similarly, during March 2002 in Afghanistan, officers in superior headquarters at home and abroad bombarded operational commanders with questions and advice based on live pictures transmitted from Predators in flight during operations.⁴¹ In one case of friendly fire in Afghanistan, information overload, friction between layers of command and inexperienced personnel, swamped exactly those air forces and commands which fought in Iraq a year later. Data was so plentiful that USAF squadron commanders could not or did not circulate much of it from ATOs to their pilots, while staff officers would not change their procedures, thus ensuring confusion between all layers of command.⁴²

The system processed and circulated far more information faster than ever before, but in this high tempo environment, the need to spend just 30 seconds in checking or retrieving data could produce error or tragedy. This system is so fast moving, fragile and complex that system errors are inevitable even in the absence of an enemy; the only questions are how often and at what cost, and how much the presence of an enemy will multiply them.

C4ISR seems to have changed little below the corps level in land warfare. Within 3rd Infantry and 1st Marine Divisions, the speed of reaction between calls for fire support to the moment batteries received their orders was 180 to 200 seconds – if anything, the system was less speedy and sophisticated than that for Allied artillery in the Battle of Normandy, though the guns themselves could deliver a more accurate and devastating weight of fire (an improvement much less marked than with airpower). Personnel in both divisions criticized their inability to call for or receive tactical air support.⁴³

C4ISR increased the powers of aircraft in interdiction, but not close support. Much communication equipment was incompatible or clumsy, producing unexpected failures in significant links of the chain which might have mattered against a real foe; planning cycles within Marine (and probably Army) corps and divisions were so slow that formations could not really coordinate and control their forces – the performance of 2003 fell well below the absolute standard of 1944. Below the corps level, the officially promoted COP failed; there was no ONA – indeed, there seems to have been little operational intelligence in the classic sense. Though advocates of the RMA often claim that the operational level of war will vanish, one doubts they had this in mind!

One also may question the assumption that ground operations in Iraq were a matter of transformed command, inspired leadership and the conscious use of 'swarm' tactics. The real picture seems to be one of a big country with few enemy forces, which attackers entered in a dispersed fashion and continued forward, propelled by their own momentum, determined junior leaders and the principle of 'point me toward the enemy'. This war could be won by divisional or regimental commanders, and precisely they took the key operational decisions – the 'thunder runs' from Karbala to Saddam Hussein International Airport, and from there into Baghdad – without access to intelligence. This in part was for a good reason – Franks' 'experience in Vietnam was that we did not want the guy we used to call Snowball 6 orbiting overhead and telling our platoons what to do. I made sure I never did that.' He avoided over-centralization at the price of dividing intelligence from operations. Intelligence was good, it guided the use of airpower and gave senior commanders a good grip on events, but it did not influence the key actions on the ground.⁴⁴

Franks' instincts were sound, and should be remembered by his successors, but this approach could not have worked so well against a better enemy. In that case, command might have had to be more centralized, initiative curtailed and intelligence perhaps more useful. What journalists call swarms look rather like the use of columns in nineteenth-century imperial warfare, less an innovation than a standard procedure. Again, in

2003 signals were not necessarily better than in 1944, nor were all improvements in communications good for command. Major General James Mattis led 1st Marine Division as though in the Western Desert during 1941, through plain language radio transmissions and a personal vehicle that let him easily and quickly visit his forces in action. One grizzled Marine sergeant noted, 'NCOs run the fight no matter how much you get on the radio. Sit back and listen to them. You might just learn something from them.'⁴⁵

Operation 'Iraqi Freedom' demonstrates a new standard for conventional war. Cebrowski proclaimed 'the discovery of a new "sweet-spot" in the relationship between land and air warfare and a tighter integration of the two. The things that compel are good sensors networked with good intelligence disseminated through a robust networking system, which then yields speed. Speed turns out to be a very, very important factor.'⁴⁶

C2W, C4ISR, IO and NCW worked as planned, because Coalition forces had the initiative and followed their plan, while the enemy was passive, overwhelmed, unable to strike their forces or C4ISR, or even to take the obvious step of forcing the enemy to fight hard in urban areas. Had the Iraqis jammed GPS or tactical communication, they would have broken most of the Coalition's enhanced power in intelligence and precision of attack; had they harmed satellites, strategic signals or computers, they would have crippled the enemy's command; American satellite communications capacity came close to the limit even in this easy campaign, especially for forces 'on the move'.⁴⁷

The sources of one's strength are one's vulnerability. How far this success can be repeated is uncertain – NCW, C4ISR and IO worked less well in Kosovo; turkey shoots offer few lessons in tactics. C2W worked here, as it sometimes has in the past; but sometimes it has not. So one-sided was this war that intelligence served primarily for target acquisition rather than ONA. Insofar as ONA was attempted, it failed, which raises serious questions about the concept of RDO. Dust and heat in rooms housing SIPRnet servers and routers endangered C4ISR more than did the Iraqis. Sometimes, the tactical intranet broke down, or signals went in plain language via civilian cellphones.⁴⁸

Once again, as in the Gulf War of 1991, American soldiers preferred to buy commercial GPS and radio sets rather than rely on those officially issued. Could this near-NCW system work in complex operations against an able and aggressive enemy? In Afghanistan and Iraq, precise strikes often have failed, showing they work only when the machine performs without friction. Any friction yields failure; no system can always be perfect. An enemy which fights by its own rules, like light infantry willing to die, or else silently to steal away, has caught American forces at a disadvantage. One

enemy can learn from another's successes and failures, or the nature of American tactics. They follow their playbook; they do what their doctrine says, and they test the ideas they are discussing. They are more formulaic than they think. Uncertainty remained.

C4ISR multiplied some forms of combat power more than others. The gains were most notable and remarkable in links between theater and component commands, in their ability to direct centralized firepower, and for aircraft to learn of targets of opportunity and to conduct interdiction missions. On occasion, airpower was directed with unprecedented speed, power, precision and reach. Yet one should not take the most spectacular rises in performance for their norm, nor over-generalize from particulars – by assuming Iraq in 2003 represents the future for war as a whole, or that land forces suddenly can behave as if they have wings.

Since 1933, air forces have been able to apply NCW to some aspects of air combat, as have navies since 1955, while armies have not. Technology enables transformation; the fact that in 2003 it multiplied the interdiction power of aircraft far more than it did land tactics is suggestive. It points to one of the key factors in any attempt to learn lessons – the difference between problems and conditions. Problems can be solved; conditions must be endured. If the aim simply is for national intelligence services to meet quickly and effectively the intelligence needs of each of five divisions in an expeditionary force, this can be done. One cannot eliminate uncertainty forever from war as a whole. Judgments are even harder to make because one needs so many of them. One can easily say that the enthusiasts for RMA are wrong, because their system would fail against a serious enemy or a real war. Yet if the latter cannot occur in the next 20 years, why does that objection matter? The real point is less the transformation of forces, or of their quality, than of their quantity, of one's power relative to one's enemy. When Americans draw lessons from Iraq, they can apply them to a special case of conflict, of giant against dwarf, rather than to war as a whole. Any other states drawing lessons from this conflict must adopt a broader perspective.

Advocates of transformation appreciate the limits to C4ISR and NCW in Operation 'Iraqi Freedom'. John Osterholtz, of the DOD's chief information officer's office, notes 'there were pockets of net-centric operations, but it was not a general operating paradigm'. Cebrowski held: 'what we're seeing is essentially net-centric warfare for the joint task force commander. The next step is network-centric warfare for the warfighter – reflecting increased "jointness" at the tactical level of war'.⁴⁹ How far can their hopes be realized?

C4ISR and NCW will most affect tactics and operations where, all too often, friction at the systematic level has reduced the value of intelligence;

one actor had information another could have used but did not have in time to act, knowledge available in time could not be used with effect; failures by any one cog prevented the whole machine from working well, or at all. In conventional war, NCW and C4ISR may ensure that every cog of the machine works well at the same time, reducing friction to the lowest level possible. All national intelligence assets will focus on giving every unit every chance to exploit every fleeting opportunity; one's forces will be used to asking for or receiving such information and using it instantly, and well; and often they will be able to do so.

C4ISR and NCW will raise the bar on the best use of intelligence, and the frequency of optimum uses, in conventional war. In particular, the US owns airpower; this will cripple any conventional enemy, unless the latter can find a means to degrade or evade that strength – as did Serbia in Kosovo. Little, however, will change where equals engage, or the weaker side evades one's strength or strikes one's C4ISR, or against guerrillas. A force strong enough to crush an army may be too weak to control a people. The RMA has done many things, not everything. It has multiplied American strengths without reducing its weaknesses. It has increased the value of high technology and firepower in conventional war, but for little else; where these things matter, they do more than ever; where they do not, nothing has changed. Iraq shows that the US will aim to practice intelligence, command and war at a higher level than ever achieved before. When it can play to its strengths, it will succeed.

NOTES

1. Colonel John A. Warden III, 'Air Theory for the Twenty-first Century', *Aerospace Power Chronicles*, "Battlefield of the Future: 21st Century Warfare Issues", 1995.
2. 'Joint Vision 2010' and 'Joint Vision 2020', <www.dtic.mil/doctrine>.
3. Joint Pub 3-13.1, *Joint Doctrine for Command and Control Warfare (C2W)*, Joint Chiefs of Staff, 7 Feb. 1996.
4. Department of Defense, *Transformation Planning Guidance*, April 2003, APP 4, 'Joint Concept Guidance', <www.oft.osd.mil/>; US Joint Forces Command, *A Concept for Rapid Decisive Operations*, *RDO White Paper*, J9 Joint Futures Lab, 2.3, 4.1, 4.3.1.3.
5. Marine Corps Colonel and First Sergeant, Task Force Tarawa, April 2003, <www.urbanoperations.com/ifaar2.ht>.
6. Joseph L. Galloway, 'General Tommy Franks Discusses Conducting the War in Iraq', 19 June 2003, Knight Ridder Washington Bureau, <www.realcities.com/mld/krrwashington/6124738.h>.
7. 'What Went Right?', *Jane's Defence Weekly*, 30 April 2003; 'Operation Iraqi Freedom, 1st Marine Division, Lessons Learned, 28 May 2003'; accessible from the website of The Urban Operations Journal, Operation Iraq Freedom, AARs, Observations, Analyses and Comments; for one interview with rear area personnel, see Dan Caterinicchia, 'Command Keeps Troops Connected', *Federal Computer Weekly*, 1 April 2003; and Dawn S. Olney, 'Network-centric Operations Score Big in Iraq, DOD's Frankel Says', *Government Computer News*, 26 May 2003.

8. Stephen Biddle, 'Afghanistan and the Future of Warfare: Implications for Army and Defense Policy', Strategic Studies Institute, US Army War College, 11 Feb. 2002; Antony Cordesman, *The Lessons of Afghanistan, Warfighting, Intelligence, Force Transformation, Counterproliferation, and Arms Control* (Washington, DC: Center for Strategic and International Studies, 12 Aug. 2002) pp.39–71, draws similar conclusions.
9. Galloway, 'General Tommy Franks Discusses Conducting the War in Iraq' (note 6).
10. Anthony H. Cordesman, *Intelligence and Iraqi Weapons of Mass Destruction: The Lessons from the Iraq War* (Washington DC: Center for Strategic and International Studies, 1 July 2003).
11. Ibid.
12. Galloway (note 6).
13. Lisa Burgess, 'Iraq War: Swift, Lethal Battle Shot Down Many Cold War Theories', *European and Pacific Stars & Stripes*, 'Freedom in Iraq' special section, 27 May 2003.
14. Online Newshour, 'Lessons of War', 1 May 2003, <www.pbs.org/newsho..ddle_east/jan-june03/lessons_05-01/ht>.
15. Transcript, 'BBC Interview, Deputy Assistant Secretary Whitman on Media Operations During Operation Iraqi Freedom', <www.urbanoperations.com/whitman.ht>.
16. 'Operation Iraqi Freedom, 1st Marine Division, Lessons Learned, 28 May 2003' (note 7).
17. Ross W. Simpson, 'Operation Iraqi Freedom, Going to War', *Leatherneck, Magazine of the Marines*, July 2003.
18. *Operations in Iraq, 2003: First Reflections*, UK Ministry of Defence, July 2003, p.15, <www.mod.uk>.
19. Kamal Ahmed, 'Blair "Expected War to Last Four Months"', *The Observer*, 6 July 2003; 'Fifth Corps Commander, Live Briefing from Baghdad, 7 May 2003', <www.urbanoperations.com/ifaar4.ht>.
20. 'Operation Iraqi Freedom' (note 7).
21. Galloway (note 6).
22. Ibid.
23. Joint Chiefs of Staff, Joint Pub 3-58, *Joint Doctrine for Military Deception*, 31 May 1996 (under revision as of time of writing, June 2003); John Ferris, 'The Roots of Fortitude: The Evolution of British Deception in the Second World War', in T.G. Mahnken (ed.), *The Paradox of Intelligence: Essays in Honour of Michael Handel* (London & Portland, OR: Frank Cass forthcoming, 2003).
24. Anthony Cordesman, *The 'Instant Lessons' of the Iraq War, Main Report, Seventh Working Draft* (Washington, DC: Center for Strategic and International Studies, 28 April 2003) p.186.
25. Arthur Cebrowski, 'Speech to the Heritage Foundation', 13 May 2003, *Transformation Trends*, 27 May 2003, <www.oft.osd.mil/>.
26. Colonel Szafranski, 'Information Warfare', *Airpower Journal*, Spring 1995.
27. David A. Fulghum, 'The Pentagon's Force-transformation Director Takes an Early Swipe at What Worked and What Didn't in Iraq', *Aviation Week and Space Technology*, 28 April 2003, p.34.
28. Scott Peterson and Peter Ford, 'From Iraqi Officers, Three Tales of Shock and Defeat', *Christian Science Monitor*, 18 April 2003.
29. NCS-21 (*National Cryptological Strategy for the 21st Century*), <www.nsa.gov/programs/ncs21/index>.
30. Vector 21 website, *Defense Intelligence Agency Strategic Plan, 1999-2000*; NCS-21 (note 29); Director of Central Intelligence, *The 2002 Annual Report of the United States Intelligence Community*, 1 March 2003, <www.cia.gov/cia/publications/Ann_Rpt_2002/index>; 'Statement for the Record by Lieutenant General Michael V. Hayden, USAF, Director, National Security Agency/Chief, Central Security Service, Before the Joint Inquiry of the Senate Select Committee on Intelligence and the House Permanent Select Committee on Intelligence, 17 October 2002', <www.nsa.gov/releases/speeches>.
31. Dan Caterinicchia, 'NIMA, NSA Increasing Collaboration', *Federal Computer Weekly*, 30 Jan. 2003.
32. 'Operation Iraqi Freedom' (note 7).

33. Marine Corps Colonel and First Sergeant, Task Force Tarawa, April 2003', <www.urbanoperations.com/ifaar2.ht>.
34. Galloway (note 6).
35. Jim Garamone, 'Abizaid: U.S. Displaying "Offensive Spirit" in Iraq', AFIS, 25 June 2003, <www.defenselink.mil/news/Jun2003/nO6252003_200306251> ; United States Senate Armed Services Committee, 25 June 2003, 'LTG Abizaid Senate Confirmation Hearing, Questions and Answers (24 June 2003)', <www.senate.gov/armed_services/testimony/cfm?wit_id=2312&id=8>.
36. Joseph Farah and Jon Dougherty, 'Iraq Theater's Tower of Babel', *WorldNetDaily*, 18 Oct. 2002; Paul Sperry, 'U.S. Miscalculations Left Troops Vulnerable', *WorldNetDaily*, 10 July 2003.
37. Joshua Davis, 'If We Run Out of Batteries, This War is Screwed', *Wired*, 21 May 2003.
38. Ibid; for the Navy's 500 chat rooms, cf. Dan Caterinichia, 'Defence IT Leaders Outline Challenges', *Federal Computer Weekly*, 8 May 2003.
39. 'Notes Based on a Briefing by an Observer of 1st Marine Division OIF Operations', accessible from the web site of The Urban Operations Journal, Operation 'Iraq Freedom', AARs, Observations, Analyses and Comments.
40. 'What Went Right?', *Jane's Defence Weekly* (note 7).
41. Cordesman, *The Lessons of Afghanistan, Warfighting, Intelligence, Force Transformation, Counterproliferation, and Arms Control* (note 8) pp.63–4.
42. 'Verbatim Testimony of Colonel David. C. Nichols and Colonel Laurence A. Stutzreim, Tarnack Farms Enquiry', 1 March 2003, <www.barksdale.af.mil/tarnackfarms/rosenow>.
43. 'Operation Iraqi Freedom' (note 7); 'With the "Marne 500" in Iraq, U.S. Army Officer, 3rd Infantry Division, March 2003', <www.urbanoperations.com/ifaar7>.
44. Galloway (note 6).
45. 'Operation Iraqi Freedom, Quick-Look Tactical Observations, Marine Corps 1st Sergeant, 24 Marine Expeditionary Unit, "The Warlords", May 2003', <www.urbanoperations.com/ifaar5>; 'Operation Iraqi Freedom' (note 7); 'Notes Based on a Briefing by an Observer of 1st Marine Division OIF Operations' (note 39).
46. 'What Went Right?', *Jane's Defence Weekly* (note 7).
47. 'LTG Abizaid Hearing' (note 35).
48. Davis, 'If We Run Out of Batteries, This War is Screwed' (note 37).
49. Dan Caterinichia, 'Network-centric Warfare: Not There Yet', *Federal Computer Weekly*, 9 June 2003.