Global Gridlock: How the US Military-Industrial Complex Seeks to Contain and Control the Earth and Its Eco-System

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Introduction

The Argentinean writer Jorge Luis Borges once famously wrote of a great Empire that created a map that was so detailed it was as large as the Empire itself. The actual map itself grew and decayed as the Empire itself conquered or lost territory. When the Empire finally crumbled, all that remained was the map. In some sense we can say that it is the map in which we live; we occupy a location within a simulation of reality. Although semanticists say that 'the map is not the territory', within this digitised age the territory is increasingly becoming the map and the separation between the physical and the digitised rendition is blurring. In this context, to 'know the map' gives priority to intervene upon the physical. In recent years many of us have been scrambling to get 'on the Net' and thus be 'mapped'; within a few years we may find that living 'off the Net' will no longer be an option.

It is my argument that the future direction of present technological emergence is one that seeks to go *beyond networks*; rather it is towards ubiquitous technologies that offer a complete immersive (or rather 'sub-mersive') experience of a digitised environment. With networks there is always the possibility of moving into the grey and illusive areas in-between. These are the areas where the networks do not, or cannot, cover; neglected zones of poverty and risk, and insecure zones of warlord regions, and smuggling zones. With immersive technological mapping there may one day be no 'spaces in-between'; the distinction between 'in' and 'out' dissolved; boundaries melted away under the digital gaze. In this article I argue that the US military-industrial complex is attempting to gain full dominance over the complete information spectrum, including dominating the electro-magnetic spectrum and the Internet, in order to gain full total coverage for purposes of containment and control.

Moving Towards Full Spectrum Dominance

As is now well-known, in 2002 the US Pentagon's DARPA (Defense Advanced Research Project Agency) responded to the alleged lack of intelligence data after the September 11th attacks by establishing the 'Total Information Awareness' office, commandeered by John Poindexter[1]. According to Poindexter's own words,

> "We must be able to detect, classify, identify, and track...This is a high level, visionary, functional view of the world-wide system...The mission here is to take the competing hypotheses from the analytical environment and estimate a range of plausible futures. The objective is to identify common nodes,

representing situations that could occur, and to explore the probable impact of various actions or interventions that authorities might make in response to these situations." (Poindexter, 2002)

The latest program in this surveillance project is the *Space Based Infrared System* (called SBIRS High) that aims to track all global infra-red signatures as well as, what is termed, 'counterspace situational awareness' (Dinerman, 2004). The 80s 'Star Wars' missile defence project of Reaganite US security policy has been craftily converted into intercepting today's 'enemy': not necessarily rogue missiles, but information and domestic 'earth-bound' security. The US military also has in operation the IKONOS remote sensing satellite, which travels at 17, 000 mph 423 miles into space, circumnavigating the globe every 98 minutes, with a 3-foot resolution capacity. Such satellites belong to the private company Space Imaging Inc, who work for the military due to US law that restricts the US government operating upon their own soil (Brzezinski, 2004). Also, the US military RADARSAT satellite uses radar to see through clouds, smoke and dust. The US National Security Agency (NSA) utilizes top of the range KEYHOLE-11 satellites that have a 10-inch resolution, which means headlines can be read from someone sitting on a bench in Iran, although this resolution remains officially unacknowledged (Brzezinski, 2004).

As an example of more distributed and networked 'industrial/civil surveillance', many bridges within North America have acoustic sensors and underwater sonar devices anchored to the base of the bridges to check for the presence of divers, to prevent anyone from placing explosives on the riverbed. These devices are then linked to a central hub for monitoring information feedback. Such post 9-11 fears have led to the setting up of USHomeGuard, a private company established by Jay Walker (founder of Priceline.com), which utilises over a million webcams to watch over 47,000 pieces of critical infrastructure across the US, eg; pipelines, chemical plants, bridges, dams. These webcams are monitored continuously by observers working from home (Brzezinski, 2004). Crandall sees this as a part of the emerging 'contemporary regime of spectacle…machine-aided process of disciplinary attentiveness, embodied in practice, that is bound up within the demands of a new production and security regime' (Crandall, 2005). This operational practice, as Crandall sees it, confirms a 'codification of movement' and 'manoeuvres of strategic possibility', and leading to a 'resurgence in temporal and locational specificity' (Crandall, 2005). This is directly related with the US military construction towards an agenda of complete coverage: in their terms, 'full spectrum dominance'[2]. In 1997 the Chief of Staff of the US Air Force predicted that within three years 'we shall be capable of finding, tracking, and targeting virtually in real time any significant element moving on the face of the earth' (cited in Crandall, 2005).

Perhaps a little premature yet it appears that the US military-industrial machine is attempting to enclose the global open system; to transform it and enmesh it within a closed system of total information awareness; to cover, track, and gaze omnisciently over all flows, mobilities, and transactions. It is a move towards a *total system*, an attempt to gain some degree of mastery over the unpredictability of global flows through the core component of dominating informational flows. As part of this project the US military are currently establishing a linkage of satellites into what has been dubbed the military 'Internet in the sky', which will form part of their secure informational network named as the Global Information Grid, or GIG (Weiner, 2004). First conceived in 1998, and now in construction, $200 billion has already been estimated as a cost for both the hardware and software (Weiner, 2004). This war-net, as the military also term it, forms the core of the US military's

move towards appropriating network-centric warfare (Arquilla and Ronfeldt, 2001a; Arquilla and Ronfeldt, 2001b; Dickey, 2004; Weiner, 2004). The chief information officer at the US Defense Department was noted for saying that 'net-centric principles were becoming "the centre of gravity" for war planners' (Weiner, 2004). Some of the names of the military contractors involved in this project include Boeing; Cisco Systems, Hewlett-Packard; IBM; Lockheed Martin; Microsoft; Raytheon; and Sun Microsystems (Weiner, 2004). As part of this complete coverage – or 'full spectrum dominance' – the US military hopes to be able to communicate and control an increasing arsenal of unmanned air vehicles (UAVs) and unmanned ground vehicles (UGVs), integrated into what they are calling the 'Multimedia Intelligent Network of Unattended Mobile Agents' (Minuteman). This in turn is part of a larger military project on Intelligent Autonomous Agent Systems (Science-Daily, 2002).

Recently, a document entitled *Information Operation Roadmap* was declassified by the Pentagon and made public by the National Security Archive on January 26, 2006. According to this document the term 'information operations' includes

The integrated employment of the core capabilities of Electronic Warfare, Computer Network Operations, Psychological Operations, Military Deception and Operations Security, in concert with specified supporting and related capabilities, to influence, disrupt, corrupt or usurp adversarial human and automated decisions-making while protecting our own. (DoD, 2003: 22)

The document continues by outlining how the US military needs to secure a future electromagnetic capability 'sufficient to provide maximum control of the entire electromagnetic spectrum, denying, degrading, disrupting, or destroying the full spectrum of globally emerging communication systems, sensors, and weapons systems dependant on the electromagnetic spectrum' (DoD, 2003: 61). Clearly, the recommendation here is for developing, and extending, current capabilities in order to have full and complete dominance over all globally emerging telecommunications and their hardware.

This shift in military affairs involves re-strategizing informational systems toward what the military see as a 'transformational communications architecture' to 'help create a nimbler, more lethal military force to which information is as vital as water and ammunition' (Dickey, 2004). Brig. Gen. Robert Lennox, deputy chief of the Army Space and Missile Defense Command, describes the military vision as 'one seamless battlefield, which is linked without the bounds of time or space, to knowledge centres, and deployment bases throughout the world' (Dickey, 2004). Beginning in 2008 the US Navy plans to replace its Ultra High Frequency Follow-On satellite network with a Mobile User Objective System which will provide voice and data communications through wireless hand-held receivers as part of the Global Information Grid (GIG). The 'Internet in the Sky' that will form part of the GIG will consist of both AEHF and TSAT satellite programs (Dickey, 2004). Each AEHF satellite has the capacity to serve as many as 4,000 networks and 6,000 users at once; and the proposed TSAT satellites are claimed to be ten times more powerful than the AEHF. These proposals are currently underway as part of the US's 'revolution in military affairs' to develop not only a superior battlefield information network but also to 'extend the information grid to deploy mobile users around the globe, creating a new capability for combat communications on the move' (Dickey, 2004). As for the new generation of surveillance satellites launched since 2005, when these systems are fully operational the elite military complex will be able to gain precise information not only upon alleged 'enemies' but also upon the movements of almost any individual upon the planet, at almost any time, anywhere. The complexity of security communications and sensitive information is being targeted within military strategy

in an effort to enclose all; to survey the full spectrum of an open system in a bid to collect and contain. In short, to transform the unknown into a known closed system: the containment of the complex global system. This also can be seen within the security of complexity, circulation, and contingency.

Dillon considers that this 'global security problematic' is concerned with the circulation of everything as in 'a systemically interdependent world everything is connected or, in principle, is able to be connected, to everything else' (Dillon, 2005). For Dillon, circulation shifts the new global security problematic 'from a "geo-strategic" into an "ecological" problem characterised by the escalatory dynamics of complex interdependencies' (Dillon, 2005). The challenge of global security in this context lies in the contingency between calculability and doubt. Dillon further sees this as being behind the trend in US military affairs towards the complexity sciences: 'the fascination of military-strategic science in the United States especially with complexity, chaos, nonlinearity and the new science of life introduced by the digital and molecular revolutions has proclaimed as much since the early 1990s' (Dillon, 2003).

Security and power relations now clearly transcend traditional geo-political boundaries. Security is both socio-technical and biometric, with the security problematic becoming increasingly virtual and codified, ordered with attempted control of disorder (Dillon, 2003). The militarization of complex global open systems has serious implications for issues of civil liberty, and notions of the surveillance state.

Such domains of complex interdependencies are radicalising, in a militaristic sense, information, communication, command, control, and surveillance. The internal/external circulation and flows characteristic of open systems (whether informational or physical) are under interrogation from Western hegemonic, specifically US, military strategies in an attempt to close them down, plug-up the pores of flows and to blanket-coverage all potential contingencies. These are the operations of clandestine strategies that seek to contain the unpredictable and to map all physical-digital movements and traces.

Emerging technologies that 'locate' and 'trace' present a world where 'every object and human is tagged with information specifications including history and position – a world of information overlays that is no longer virtual but wedded to objects, places, and positions' (Crandall, 2005). Such meshing of the physical and the digital through the medium of sentient communicators is what is foreseen here as steering towards a digitally-rendered global system vulnerable to control via a technical-military elite. This scenario is exactly that as envisioned by ex-US National Security Advisor Zbigniew Brzezinski. Brzezinski, in his '*Between Two Ages : America's Role in the Technetronic Era'* (1970), put forward the concept of a future 'technotronic era' whereby a more controlled society would gradually emerge, dominated by an elite unrestrained by traditional values. Brzezinski wrote that 'Power will gravitate into the hands of those who control information' (Brzezinski, 1970: 1), adding that surveillance and data mining will encourage 'tendencies through the next several decades toward a technocratic era, a dictatorship leaving even less room for political procedures as we know them' (Brzezinski, 1970: 12). By gaining control over informational technological communications Brzezinski outlined how this could help achieve control and order over the public:

> "Unhindered by the restraints of traditional liberal values, this elite would not hesitate to achieve its political ends by the latest modern techniques for

influencing public behavior and keeping society under close surveillance and control." (Brzezinski, 1970: 252)

Also important to consider is that many military technologies become appropriated and absorbed into civil technologies. For example, by 2003 a quarter of all rental vehicles at US agencies used some form of GPS tracking: not only for driver-location but also for the rental agency to know where the car has travelled, and its speed. Also, cars with speakerphones can be enabled from remote devices in order to listen in and eavesdrop on occupants in a car under surveillance, as has been utilized by police forces in the US (Brzezinski, 2004). This type of digitalised surveillance at-a-distance can have serious implications upon increasingly surveyed, tracked, and mapped social practices. It also suggests that technically-based northern 'societies' are being manoeuvred towards a surveyed and sensored, or *synchronic* society

Sensoring the Ecosphere: The Coming of a Synchronic Society?

The development of increasingly sentient 'smart' environments will go some way towards creating a more systemic relationship of interconnections and interdependencies between humans, objects/machines, and locality. This possibility has led some commentators to speak of an emerging cybernomadic landscape (Saveri, 2004). Here, the emphasis is on an embedded sensory world that will influence and fundamentally alter social practices. Such a cybernomadic landscape has been defined, in a recent IFTF report, by three primary forces of physical-digital fusion; the augmented self; and digitally catalysed masses (Saveri, 2004: 2). Similarly, De Rosnay sees this future as a form of symbiotic humanity: 'each person functions as a node in this hypernetwork. Symbiotic humanity is both the totality of the network and one of its elements; it exists through the network and the network exists only through it' (de Rosnay, 2000: 143). In all cases it involves networking with, utilizing, and interacting with objects, something which futurist and author Bruce Sterling refers to as a 'synchronic society':

A synchronic society generates trillions of catalogable, searchable, trackable trajectories...Embedded in a monitored space and time and wrapped in a haze of process, no object stands alone; it is not a static thing, but a shaping-thing. (Sterling, 2005: 50)

And a 'shaped-thing' may in the future rely upon more efficient and ubiquitous radio frequency identification (RFID) tags, now often euphemistically termed as *arphids*. These RFID tags can be networked into a global system of positioning and identification:

Your arphid monitors are hooked into the satellite based Global Positioning System. Then your network becomes a mobile system of interlinked objects that are traceable across the planet's surface, from outer space, with one-meter accuracy, around the clock, from pole to pole. (Sterling, 2005: 92)

A physical-digital augmented environment interlinked with objects is, as Sterling states, based upon identification. Objects, as well as individuals, need to be identified, both in their object-self identity as well as in their positions. And yet this shift is not limited towards individuals or objects; it also extends into Nature and the ecosystem.

The US Defense Advanced Research Projects Agency (DARPA) recently announced that it considered today's computer maps of the Earth to be inaccurate. Investment has been put into producing better computer generated terrain maps of the Earth using both radar and

laser scanning (Piquepaille, 2005), with a future view for placing radio-towers on the moon or Mars[3]. These updated moves towards securing a military full spectrum dominance incorporate the latest known developments in smart sensors whereby complex computerised devices at the miniature, or even nano level, will be able to 24/7 monitor ecological, social, and/or biological environments and people:

These new computers would take the form of networks of sensors with data-processing and transmission facilities built in. Millions or billions of tiny computers — called 'motes', 'nodes' or 'pods' — would be embedded into the fabric of the real world. They would act in concert, sharing the data that each of them gathers so as to process them into meaningful digital representations of the world. Researchers could tap into these 'sensor webs' to ask new questions or test hypotheses. Even when the scientists were busy elsewhere, the webs would go on analysing events autonomously, modifying their behaviour to suit their changing experience of the world. (Butler, 2006a)

Such a scenario, if realised, would drastically alter the material and social fabric of the living world.

Deborah Estrin, director of the Center for Embedded Networked Sensing in Los Angeles, California, sees 'the sensor-web revolution as an important thread in a grander tapestry of global monitoring, which involves billions of dollars being poured into projects to monitor the continents and oceans' (Butler, 2006a). For example, upcoming projects include:

- The $200 million EarthScope project from the NSF: 3,000 stations are to be erected that will 'track faint tremors, measure crustal deformation and make three-dimensional maps of the earth's interior from crust to core. Some 2,000 more instruments are to be mobile – wireless and sun- or wind-powered – and 400 devices are to move east in a wave from California across the nation over the course of a decade' (Broad, 2005)

- The National Ecological Observatory Network (NEON) is to be established at an estimated cost of $500 million. The plan is for a coast-to-coast NEON to 'involve perhaps 15 circular areas 250 miles in diameter, each including urban, suburban, agricultural, managed and wild lands. Each observatory would have radar for tracking birds and weather as well as many layers of motes and robots and sensors, including some on cranes in forest canopies' (Broad, 2005)

- The 'Interagency Working Group on Earth Observations', backed by the National Science & Technology Council within the Executive Office of the President, US, has recently published their *Strategic Plan for the U.S. Integrated Earth Observation System* (IWGEO, 2005). Their vision is to discover, access, collect, manage, archive, process, and model earth geological data in order to better forecast such flows as weather, energy resources, natural resources, pre and post-disasters, as well as a host of other integrated processes. In their words: 'The Earth is an integrated system. Therefore, all the processes that influence conditions on the Earth are linked and impact one another. A subtle change in one process can produce an important effect in another. A full understanding of these processes and the linkages between them require an integrated approach, including observation systems and their data streams' (IWGEO, 2005: 47)

The report *Strategic Plan for the U.S. Integrated Earth Observation System* (IWGEO, 2005) discusses a vast range of geological integrated monitoring systems. However, a caveat here is necessary, for the above projects towards environmental mapping contain shades of a western geographical imagination.

Cartography, as a pioneering navigational science and art, has long been used for validating colonial expansion, Imperial incursions, and for designating western territorial trophies. The geographical imagination is continually formed as residues of knowledge build one upon the other as images become re-appropriated for geo-political agendas. The western global imagination has participated in the de-centring of global geographies in past centuries, and may again be party to later digital formations of knowledge gathering and geo-strategies of dominance and power. As with the *Plan for the U.S. Integrated Earth Observation System* which aims to monitor, track, catalogue, and forecast global processes and movements, geographical spaces will be subjected to a US-centric digital gaze. Denis Cosgrove views such a gaze as 'implicitly imperial, encompassing a geometric surface to be explored and mapped, inscribed with content, knowledge and authority' (2001: 15).

Emerging technologies in information-sensing indicate an authoritarian, predominantly military, strategy for Earth monitoring. Increasingly, relationships between humans/devices/environments are being merged, or steered, towards a new construction of social life – one that embeds the individual, as a digitally-rendered identity, within a global informational 'grid-lock'.

If such an irreversible shift is made towards digitally-rendered societies this would arguably 'lock-in' a form of monitored control society. With such predictions of an increasingly sensored and enmeshed global system it is difficult to see how living 'off the Net' will be a choice in the near future.

Conclusion

As this article has argued there are both overt and covert strategies within the US military-industrial complex towards securing *full spectrum dominance* over global information flows, which include [dominating the electro-magnetic spectrum](#) and the Internet. Increasingly western technological societies are moving towards developing sensored environments whereby information is processed on individuals as well as securing geographical data. This suggests a future whereby in order to move legitimately an individual will be subjected to a complex network of informational tracking and verification. This will undoubtedly see an increased militarisation of the civil sphere. Such a re-configuration of the social, through increased dependency upon physical-digital systems, will inevitably involve various structural relations of power. For example, individuals not deemed 'worthy' will be denied the right of movement through digitally-controlled spaces. This is not to imply that all acts of social passage will necessarily be uncomfortably noticed by the general legitimised user. It is likely that in-built strategies of marginalisation will be increasingly 'normalised' as part of shifting social practices: a regular state of affairs within a twenty-first century beset by manipulated terror in-securities.

Further, there are indications that these entwined and embedded information flows will seek to incorporate not only the physical and digital, but also the biological. In other words, each unit of information will be sought to be coded and therefore 'secured' under a full spectrum dominance agenda. Goonatilake (1999) sees this as moving towards a meta-communications environment that will merge human/genetic, cultural, machine as

information codes and which will serve as information carriers:

The future will thus result in intense communications not only between machines and humans, but also with genetic systems so that information in the three realms of genes, culture and machines will result in one interacting whole. The three for all purposes would be interacting as one communicating system. (Goonatilake, 1999: 197)

We may soon be moving towards a momentous shift, perhaps the most important paradigmatic shift our current civilization has ever witnessed: a transformation into a digitally contained and controlled global environment.

This leaves the future vulnerable to extreme possibilities. Already there has been much Internet 'chatter' about the potential this offers for 'exotic' containment and control practices, including the possibility that a space-based, armed communications network is capable of beaming electromagnetic pulse technology upon virtually any chosen spot on the Earth. The potential here for mass mind control strategies is severely worrying and unnerving.

As we move towards the second decade of the twenty-first century we come increasingly close to a crossroads. One path indicates a move towards a deep and entrenched militarisation of the civil sphere where control and containment are the order of the day; the other path leads towards increased civil participation, engagement, and empowerment. It is perhaps a choice between global emancipation or complete **global grid-lock**.

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NOTES

1 Poindexter is an ex-retired Navy Admiral, and one-time National Security Advisor to President Reagan

2 'Full Spectrum Dominance' is a key term used in the Joint Vision 2020 report – a document outlining future visions for the US Department of Defense. See http://www.defenselink.mil/news/Jun2000/n06022000_20006025.html

3 Even Google has attempted to get a slice of the action by releasing Google Mars. See: http://www.google.com/mars/

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