

Global Liberal Governance: Biopolitics, Security and War

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For capitalist society biopolitics is what is most important, the biological, the somatic, the corporeal.¹

[U]ltimately what presides over all these mechanisms is not the unitary functioning of an apparatus or an institution, but the necessity of combat and the rules of strategy...In this central and centralised humanity...we must hear the distant roar of battle.²

Intimately allied with the globalisation of capital, but not entirely to be conflated with it, has emerged a new and diverse ensemble of power known as global liberal governance. This term of art refers to a varied and complex regime of power, whose founding principle lies in the administration and production of life, rather than in threatening death. Global liberal governance is substantially comprised of techniques that examine the detailed properties and dynamics of populations so that they can be better managed with respect to their many needs and life chances. In this great plural and complex enterprise, global liberal governance marks a considerable intensification and extension, via liberal forms of power, of what Michel Foucault called the 'great economy of power' whose principles of formation were sought from the eighteenth century onwards, once 'the problem of the accumulation and useful administration of men first emerged'.³ Foucault called this kind of power—the kind of power/knowledge that seeks to foster and promote life rather than the juridical sovereign kind of power that threatens death—biopower, and its politics biopolitics. This paper forms part of our continuing exploration of the diverse character of global liberal governance as a form of global biopolitics.⁴

We are concerned, like Foucault, to draw attention to the peculiar ways in which biopower deploys force and violence, not least because biopower hides its violent

1. Michel Foucault, 'La Naissance de la Médecine Sociale', in *Dits et Ecrits* (Paris: Gallimard, 1994), 36.

2. Michel Foucault, *Discipline and Punish* (Harmondsworth: Penguin Books, 1982), 308.

3. *Ibid.*, 303.

4. See also Michael Dillon and Julian Reid, 'Global Governance, Liberal Peace and Complex Emergency', *Alternatives* 25, no. 1 (2000): 115-43.

face and, ‘gives to the power to inflict legal punishment a context in which it appears to be free of all excess and violence’.⁵ Second, we draw attention, as Foucault consistently does, to the ways in which global biopolitics operates as a strategic game in which the principle of war is assimilated into the very weft and warp of the socio-economic and cultural networks of biopolitical relations. Here Foucault reverses the old Clausewitzian adage concerning the relation between politics and war. Biopolitics is the pursuit of war by other means. We are also concerned, however, to note how the conceptualisation and practice of war itself changes via the very process of its assimilation into, and dialogical relation with, the heart of biopolitical order; and we concentrate on that point in this essay. There is, in addition, a further way in which we seek to extend Foucault’s project.

Foucault’s account of the ways in which reform of penal systems in the late eighteenth century transformed punitive procedures into a generic disciplinary technique also described how, ‘the carceral archipelago transported this technique from the penal institution to the entire social body’.⁶ With its widespread dissemination in Europe throughout the nineteenth and twentieth centuries, via the processes of normalisation, Foucault announced the advent of disciplinary society. However, as Gilles Deleuze noted, disciplinary society is itself evolving through cybernetic networks into a form of control society.⁷ Our account in what follows, of the newly emergent biopolitical strategic discourse of the Revolution in Military Affairs (RMA) initiated by the information revolution, similarly emphasises the digital rather than the carceral. For it is the former that is now operating as the generic technique or principle of formation, governing the new biopolitics of global liberal governance. Biopower is, moreover, also in the process of moving from the carceral to the molecular via the digital. We therefore also observe how a common biophilosophical strategic interest in the initiation, as well as the manipulation of life, governing through the laws of connectivity network forms of organisation and reproduction, has been engendered by the confluence of the digital and the molecular revolutions. Once more, we trace this development through noting its impact on the biopolitical strategic discourse characteristic of the RMA.

The Discursive Conditions of Emergence of Biopolitical Strategic Discourse

Throughout this paper, we emphasise how contemporary biopolitics, both national and global, has become informed by a new biophilosophical discourse that often refers to itself as a new form of science, ‘the complexity sciences’. Here ‘order’ is understood to be ‘complex’, mutable and dynamic rather than merely complicated. Evolutionary processes of natural selection are said to play a role in the reproduction of such order but since natural selection does not address itself to the

5. Foucault, *Discipline and Punish*, 302.

6. *Ibid.*, 298.

7. See Gilles Deleuze, ‘Postscript on Control Societies’, in *Negotiations*, eds. Gilles Deleuze and Claire Parnet (New York: Columbia University Press, 1995).

origin of order itself, complexity thinkers focus first on the question of what concatenation of circumstances gives rise to systems capable of reproducing themselves, as well as to the non-linear ways in which such systems evolve.

According to influential complexity thinkers like Stuart Kauffman, the origin of self-reproducing order is a function of spontaneous self-emergence that arises out of prebiotic ingredients capable of initiating self-reproducing systems once the ingredients have attained a critical threshold of connectivity.⁸ Order is not the stable attribute of pre-formed bodies, endowed *ab initio* with immutable properties and features. Neither is it merely reproduced through genetic templating. It is instead a function of complex processes that critically depend upon the logics and dynamics of connectivity. These give rise to organisms, bodies and populations that display non-linear forms of change as they combine and recombine co-evolving with their changing environments. Kauffman maintains, there are underlying laws at work here. 'A theory of emergence would account for the creation of the stunning order out of our windows as a natural expression of some underlying laws'.⁹ These laws are yet to be discovered but their locus and general character can be identified.

In classical evolutionary accounts, populations are assumed to evolve by mutation, mating and recombination, which give birth to the well-marked varieties that Darwin called 'new species'. Central to this process are the concepts of 'fitness' and of 'fitness landscapes'.

Evolution is a story of organisms adapting by genetic changes, seeking to improve their fitness. Biologists have long harboured images of fitness landscapes, where the peaks represent high fitness, and populations wander under the drives of mutation, selection and random drift across the landscapes seeking peaks, but perhaps never achieving them. The idea of fitness peaks applies at many levels...We will find in this book that whether we are talking about organisms or economies, surprisingly general laws govern adaptive processes on multi-peaked landscapes.¹⁰

Although it remains a highly problematic term even within evolutionary biology, the concept of fitness is premised upon the idea that the propagation of genes from one generation to the next depends upon the survival of the organism until it reaches a stage, when it can reproduce a reasonable number of off-spring that, in turn, survive to reproduce a new generation.¹¹ Fitness landscapes are thus the multidimensional terrains on which organisms are said to operate, or the ecologies

8. See Stuart Kauffman, *At Home in the Universe: The Search for the Laws of Complexity* (London: Penguin, 1995).

9. *Ibid.*, 23.

10. *Ibid.*, 27.

11. Murray Gell-Mann, *The Quark and the Jaguar: Adventures in the Simple and the Complex* (New York: Freeman, 1994), 248.

within which they function.¹² But, how you define a landscape also has the effect of defining a 'population'. For a population is that set of organisms which is a 'set' precisely because it is located on or within and is seen to respond to the defining features of a specified landscape.¹³ Thus, the specification of the multi-dimensional attributes of the landscape compound the problem of arriving at a fitness criterion or measure precisely because they complicate what one means by a discrete autonomous organism.

For thinkers like Kauffman, 'fitness' becomes measured less in terms of simple 'survival' than in terms of the capacity to achieve a 'poised state' near the boundary between order and chaos, a state which optimises the complexity of tasks systems can perform and simultaneously optimises 'evolvability'.¹⁴ This idea has been carried over into organisation theory and economics and has also become influential among some international relations thinkers and in particular among some contemporary strategists. Such conceptual transfer is directly encouraged by complexity thinkers:

The origin of life at a threshold of chemical diversity follows the same logic as a theory of economic takeoff at a threshold of diversity of goods and services...The edge of chaos may even provide a deep new understanding of the logic of democracy...Thus we will see hints of an apology for a pluralistic society as the natural design for adaptive compromise.¹⁵

We call the biopolitics that is emerging out of this biophilosophical discourse of complexity 'recombinant biopolitics'. Here, the power of recombination is said to be the means by which life, conceived to be comprised of open complex adaptive systems, exploits connectivity to evolve recombinant forms of organisation capable of meeting the changing demands of rugged fitness landscapes.

The Liberal Way of War

It is always profitable to recall that the ways in which states prepare and organise themselves for war, and the ways in which their societies problematise security, directly reflect the forms of life that they enact. While the advent of global liberal governance is consequently associated with claims concerning the establishment and extension of liberal peace, it is frequently overlooked that the biopolitics of global liberal governance has a martial face. If there is a changing and evolving liberal way of peace there is certainly also a changing and evolving liberal way of war.

12. Kauffman distinguishes between smooth and rugged fitness landscapes. See *The Origins of Order: Self-Organisation and Selection in Evolution* (New York: Oxford University Press, 1993).

13. A close reading of *The Origins of Order*, can make this point, not least against Kauffman himself.

14. Kauffman, *The Origins*, 173.

15. Kauffman, *At Home*, 27-28.

We do not dispute that traditional forms of geopolitical discourse remain influential among liberal states in their preparations for war and in the justifications they offer for military alliances and strategies. Neither do we dispute the importance of the powerful desire among liberal states and societies to establish global norms designed to govern military intervention in the affairs of non-liberal states on the grounds of humanitarian liberal values. What we do dispute is the naïve conception of liberal forms of power and politics that inform both these approaches to the liberal way of war, and in particular the ways in which they ignore how biopower and biopolitics work.

Since forms of war and forms of life are intimately correlated, the liberal way of war must be understood in terms of the relations of power that characterise liberal regimes of government; how they work at both the national and international levels and, indeed, how they operate so as to problematise security, peace and war in particular ways. If we have to understand the liberal way of war by reference to the liberal way of power, however, it is not possible to do so adequately on the basis of liberalism's own account of itself as a representative and accountable form of power based upon general commitment to universally acclaimed values. These accounts barely scratch the surface of how liberal regimes of power have operated in the past or of how they are now changing under the globalisation of capital and the transformations wrought by the digital and molecular revolutions. Liberal regimes of power have always been complex and plural, distinguished by their capacity to adapt and change. The liberal way of war is thus as plural and complex as the liberal way of power.

In as much as liberal regimes of power are biopolitical, becoming what we call recombinant, the liberal way of war reflects the dominant concerns and discursive character of this new biopolitics. Above all it shares a preoccupation with knowledge networks, complexity and the operation of self-adaptive organisational and social technologies that populations of every description are required to possess if they are to cope with the moral, as much as economic, fitness landscapes set by global capital and global governance. Here as knowledge and information have come to be conceived differently so also they have come to operate differently and power has changed accordingly.

Global Liberal Governance

Just as there are two faces to how liberalism has conceived the problematic of government (juridical, representative and accountable power versus biopolitical power or governance) so also there are two faces to contemporary liberal internationalism. Traditionally liberals have aspired to the ideal of world government that would replace the power and war-like rivalry of sovereign states. However their conception of political subjectivity was precisely responsible for the very system that their ideals sought to supersede in federative and other ways. Therefore the project of liberal internationalism was, and continues to be, both propelled and frustrated by discourses of juridical power, contract, rights and civil

society that were themselves developed in the course of the evolution of the sovereign state form and its associated interstate system.

However, where liberal internationalism once aspired to some ideal of world government, today global liberal governance pursues the administration of life and the management of populations through the deployment of biopolitical techniques of power. This is not to argue that one face of liberal power has overcome the other. On the contrary, there is a confluence rather than a supersession of powers here. The resultant mixture is a complex one precisely because it represents the convergence of different forms of power and increasingly also different conceptions of knowledge.¹⁶ Foucault noted that this confluence went back to the origins of the European international system, arguing that 'the reason of state, apart from the theories that formulated and justified it, takes shape in two great ensembles of political knowledge and technology'.¹⁷ The former were those that came to constitute the traditional discourses of international relations: diplomacy, statecraft, alliances and war. The latter were first formulated in terms of policy, *Polizeiwissenschaft*, or police, 'in the sense given to the word then: that is, the set of means necessary to make the forces of the state increase from within'.¹⁸

In addition, and especially in anticipation of the arguments advanced by the biopolitical strategic discourse that we examine later, it is important also to quote his observations of the long-standing historical connection between forms of economy, biopolitics and war.

At the junction point of these two great technologies, and as a shared instrument, one must place commerce and monetary circulation between the states: enrichment through commerce offers the possibility of increasing the population, the manpower, production, and export, and of endowing oneself with large, powerful armies.¹⁹

Thus, the shift from world government to global governance is not a trivial one. It marks a profound extension of the liberal figuration of government itself and of the ways in which it can be most successfully pursued at the global level in a complex world increasingly in need of management, it is said, through the understanding of complexity itself.

There is an important shift also then in the move from complication to complexity. Complicated worlds were once to be commanded by means of reduction and simplification: the rational actor, the sovereign subject, balances of power, friends and enemies, or positivist epistemologies. Complexly understood worlds, it is now maintained, have to be orchestrated rather than reduced, their

16. We make this argument in detail in Dillon and Reid, 'Global Governance'.

17. Michel Foucault, 'Security, Territory, Population', in *Michel Foucault: Essential Works of Michel Foucault*, Vol. I: *Ethics, Subjectivity and Truth*, ed. Paul Rabinow (New York: The New Press, 1997), 69.

18. Ibid.

19. Ibid.

non-linear dynamics prized and embraced and their changing networks of connectivity 'scored' into self-governing assemblages. From national development agencies and leading NGOs, to the UN and the World Bank, such self-orchestration is precisely what global governance aims to encourage.²⁰ Biopolitical governance seeks to govern without government²¹ or at least with diminished reliance on 'rule' and the domestic use of force and legislation. Its object is to effect what Deleuze might have called a politics of control. The prevailing metaphor for this kind of social organisation is currently that of 'network'.²²

Although Foucault did not use the term governance he explored similar practices under the terms governmentality and this biopower, he also noted, has its own 'biohistory'.²³ Its early modern expression arose in sixteenth and seventeenth century Europe but its antecedents were to be found in the pastoral power of the Christian Church.²⁴ In the eighteenth century, it became intimately related both to liberal opposition to 'police', or 'policy', and to the advent of a novel understanding of 'society' as a 'complex and independent reality that has its own laws and mechanisms of disturbance'.²⁵ Liberal forms of biopower thus entered early modern discourse on the problems of government in the form of a critique of rival cameralist and mercantilist solutions to the problematic of government. The Liberal problematisation of government was distinguished by its concern with striking the balance between governing too much and governing too little as well as with governing through encouraging the autonomous existence and self-regulating freedoms of populations. It was also concerned to keep its own regimes of governance under continuous and critical review.²⁶ Whereas sovereign power is distinguished by its reliance on instituting the law and threatening death, for Foucault,²⁷ governmentality or, as we will now refer to it, governance, operates on populations and seeks to promote life by commanding detailed knowledge of it. It thus establishes what he called 'the biopolitics of the population'.²⁸

20. See Boutros Boutros-Ghali, *Agenda For Peace* (New York: United Nations, 1995); Commission on Global Governance, *Our Global Neighbourhood* (New York: Oxford University Press, 1995); Leila L. Fritschak, 'Governance Capacity and Economic Reform in Developing Countries', *World Bank Technical Paper*, no. 254 (New York: World Bank, 1994); and World Bank, *Governance: The World Bank's Experience* (Washington: The World Bank, 1994).

21. See James Rosenau, *Governance Without Government: Order and Change in World Politics* (Cambridge: Cambridge University Press, 1992).

22. See Manuel Castells, *The Rise of the Network Society* (London: Oxford University Press, 1996) and Dirk Messner, *Network Society* (London: Frank Cass, 1999). For the biophilosophical provenance of network, see Kauffman, *The Origins*.

23. Michel Foucault, *The Order of Things*, (London: Routledge, 1989), 143.

24. 'The shepherd's power is exercised not so much over a fixed territory as over a multitude in movement towards a goal'. Foucault, 'Security, Territory, Population', 68.

25. Foucault, *The Order of Things*, 261.

26. See Mitchell Dean, *Governmentality* (London: Sage, 1999) and Nikolas Rose, *Powers of Freedom* (Cambridge: Cambridge University Press, 1999).

27. We qualify this reading in Dillon and Reid, 'Global Governance'.

28. Michel Foucault, *The History of Sexuality: An Introduction* (Harmondsworth: Penguin Books, 1987), 139.

In the biopolitical discourse of global liberal 'governance without government', the term governance does not refer to seizing or ruling the State according to some legitimating principle, such as that of representative and accountable government. Biopolitical governance is less concerned with States and non-governmental organisations as pre-formed political subjects, than it is concerned with the detailed knowledgeable strategies and tactics that effect the constitution of life and the regulation of the affairs of populations, no matter how these are specified. It is also concerned with the discursive economies of power/knowledge through which people in their individual and collective behaviour are analysed and subject to self-regulatory freedoms and methods of control.²⁹

Although the liberal account of government is premised upon the assumption that populations have dynamics, needs, propensities and features independent of the mode of inquiry that has assembled them as subjects and objects of its knowledge, specific populations do not come pre-formed.³⁰ They arise as the populations that they are in accordance with a principle of concern or enquiry. Indeed one of the distinguishing characteristics of global liberal governance is the variety of ways in which populations are defined as the subject/objects of all kinds of global biopolitical power/knowledge concerns. Thus they are not merely defined by 'national' features, but also by markets, consumption, production or rights. More generally, biopolitical global development and aid policies constitute a complex population that one might call 'the global poor'.

Just as the 'government of governance' does not emanate from the actions of a pre-formed, individual or collective, state or non-state, subject but from a whole conglomerate set of biopolitical discourses neither is there a centre to it.

Power must be analysed as something, which circulates, or rather something, which only functions in the form of a chain. It is never localised here or there, never in anybody's hands, never appropriated as a commodity or piece wealth. Power is employed and exercised through a net like organisation.³¹

Biopolitics operates then as a pervasive, complex and heterogeneous network of practices. Structuring the desires, proprieties and possibilities that shape the operation of life, working on and through subjective freedoms, governmental rationalities typically develop around specific problematics, such as those of health, wealth, security, poverty, esteem, culture, sexuality or migration. These in turn constitute the principles of formation around which populations may be defined and networks developed.³² Extending Althusser and others, like Judith

29. Deleuze, 'Postscript'.

30. See Dean, *Governmentality* and Rose, *Powers of Freedom*.

31. Michel Foucault, 'Two Lectures', in *Michel Foucault: Power/Knowledge*, ed. Colin Gordon (Brighton: Harvester, 1988), 98.

32. See Judith Butler, *Excitable Speech: A Politics of the Performative* (London: Routledge, 1997) and *The Psychic Life of Power* (Stanford, CA: Stanford University Press, 1997).

Butler, we might say that such problematisations interpellate and mobilise people individually and collectively.

Biopower is a positive and productive form of power that conceives the task of government in terms of the management of populations by systematically assaying their needs, composition, properties and dynamics in order to promote their welfare.³³ Central to biopolitics is the intent to govern by investing life through and through, by defining, analysing, knowing and promoting it. What is at stake is not simply the normative and material production and reproduction of specific orders of social relations, but the continuous production and reproduction of life itself.³⁴ Biopolitics is less scientifically universal than it is omniversal, preoccupied with all aspects of the life process down to and including its definition and composition.

In contemporary liberal societies the net-like circulation of power locally as well as globally has generalised this concern for knowledge. Biopower has become informational. This does not simply mean that it operates through digitised and integrated computer-mediated communication and surveillance technologies.³⁵ Information is now regarded as the principle of formation of life itself. That move has been both cybernetic and molecular, a function of the way the information and the life sciences now install information at the centre of the organisation and functioning of life.

The Changing *Bios* of Biopolitics

As the life sciences went through a dramatic transformation during the course of the last century, so the *bios*, or very conception of life informing biopower, began to be conceived differently, and thereby opened up strategically to new governing technologies. These changes can be followed in Lily Kay's magisterial genealogical studies, *The Molecular Vision of Life* and *Who Wrote the Book of Life?*³⁶ Here Kay documented the detailed capillary workings of the power/knowledge nexus that led to the triumph of the molecular vision in the second half of the twentieth century and the current domination of genetic science by the metaphor of language and code.³⁷

33. In a recent paper arguing that citizenship be re-addressed as part of the overall government of population effected by the international state system, Barry Hindess argues that government of the state should now be located in a more general examination of the government of populations. Barry Hindess, 'Knowledge and Political Reason', *Critical Review of International Social and Political Philosophy* 1, no. 1 (1998): 1-20.

34. Michel Foucault, 'Les Mailles du Pouvoir', in *Dits et Ecrits*, 194.

35. See William Bogard, *The Simulation of Surveillance: Hypercontrol in Telematic Societies* (Cambridge: Cambridge University Press, 1996) and David Lyon, *Surveillance Society* (Philadelphia: Open University Press, 2001).

36. See Lily E. Kay, *The Molecular Vision of Life: Caltech, the Rockefeller Foundation and the Rise of the New Biology* (New York: Oxford University Press, 1993) and *Who Wrote the Book of Life? A History of the Genetic Code* (Stanford: Stanford University Press, 2000) See also what Jean Baudrillard has to say about the structural changes in economic power and the revisions of economic theory that took place in the 1920s. Jean Baudrillard, *The Consumer Society* (London: Sage, 1998).

37. Kay, *The Molecular Vision*.

The disciplinary power of molecular biology, especially its expanding sphere of influence through the various human genome projects, displays some deep lines of continuity with the past. Today, just as a half a century ago, there is a remarkable congruence between the cognitive and the social realms, between our technocratic social policies and the technocratic (biopolitical) approach to life, health, and disease...This dialectical process of knowing and doing, empowered by a synergy of laboratory, boardroom, and federal lobby, has sustained the rise of molecular biology into the twenty-first century.³⁸

As the very biological definition of life has changed, so also has the historical character of biopower.

Information theory, cybernetics, systems analyses, electronic computers, and simulation technologies fundamentally altered the representation of animate and inanimate phenomena. These new communication sciences began to reorient molecular biology (as they did, to various degrees, other life and social sciences) even before it underwent a paradigm shift (1953) from protein—to DNA—based explanations of hereditary.³⁹

Code, then, appears to mark a new phase in biohistory. It forms a direct link, a common conceptual bond, between the information and the molecular sciences and is the foundation of the new biophilosophical discourse that they share. 'New biology', the name given to the life sciences of the 1920s, before the triumph of the molecular revolution, stressed the unity of phenomena common to all organisms, rather than their diversity. This commonality soon centred on the gene. In the 1940's Erwin Schrodinger suggested a code script for the gene. The idea crystallised during the summer of 1953 and by 1965 the representation of heterocatalysis in terms of a genetic code had been completed.⁴⁰ However, it is in the convergence of digital and the molecular revolutions that the scope of the commonality between these sciences has been extended to encompass all matter as informational. As a consequence, 'bodies' and 'populations' are becoming today something altogether different. While genetic science makes it possible to have trans-species exchanges and life-forms, third order cybernetics conceives of living systems in terms of machinic assemblages comprised of both organic and inorganic matter.⁴¹

It is this conjunction of the digital and the molecular revolutions that has given such impetus to the advance of the so-called complexity sciences. As the essential constituent components of life, indeed of all material reality, began to be conceived

38. Ibid., 282.

39. Kay, *Who Wrote the Book of Life?*, 5.

40. Kay, *The Molecular Vision*, 272-73.

41. See, for example, N. Katherine Hayles, *How We Became Posthuman: Virtual Bodies in Cybernetics, Literature and Informatics* (Chicago: University of Chicago Press, 1999) and Steven Levy, *Artificial Life: The Quest for a New Creation* (New York: Pantheon, 1992).

in terms of information, successive orders of cybernetics have provide conceptual and operational architecture for the 'strategisation of information', upon which the operations of network societies have become increasingly dependent. The problematics here become those concerned with identifying and manipulating the generative principles of formation and the codified ways in which self-orchestrating informationally ordered networks come into existence and operate. Architecture, in the form of the design of networked information systems, becomes a strategic science. It comes as little surprise, therefore, to discover that key aspects of the US strategic doctrine have recently come to be formulated in terms of network-centric warfare.⁴² Before exploring these developments, we will outline the problematisation of security that we use to analyse them.

Re-problematising Security

The history of security is not the pursuit of a universal value by pre-formed subjects, individual or collective.⁴³ Given the foundational significance of security to all established formulations of politics, throughout the political tradition of the West, the history of security is a history of the changing problematisation of what it is to be a political subject and to be politically subject. Thus it is always deeply implicated in the ways in which the task of government itself is problematised and political order conceived.⁴⁴ Although the security problematic is ordinarily examined in terms of state sovereignty, it has in fact always been a biopolitical as much as a geopolitical problematic.⁴⁵ Thus conceived security analysis takes the form of the genealogy of dynasties of power relations and the critical analysis of the discursive conditions of emergence of contemporary security regimes.

Furthermore, the changing problematisations of security have always been comprised of complex terrains of practices involving deeply embedded discourses of danger said to be foundational to individual welfare, social formation and political order. Said to be foundational to life, individual welfare, social formation and political order, these problematisations of danger, together with their allied discourses of fear are, however, the very means by which specific programmes of life, individual, welfare, social formation and political order are introduced, circulated, reproduced and enacted. The project of securitising, to steal but refashion a term coined elsewhere, is concerned with making life accessible to different social technologies: where technology refers broadly to complex techniques and relations of power established in the course of conceiving

42. Arthur K. Cebrowski and John J. Gartska, 'Network-Centric Warfare: Its Origin and Future' *US Naval Institute Proceedings*, 124, no.1/1 (1998):1-24 and David S. Alberts, John J. Garstka and Fred Stein, *Network Centric Warfare* (Washington, DC: CCRP, 1999).

43. See Michael Dillon, *Politics of Security* (London: Routledge, 1996).

44. See David Campbell and Michael Dillon, *The Political Subject of Violence* (Manchester: Manchester University Press, 1993); David Campbell, *Writing Security* (Manchester: Manchester University Press, 1995); and Dillon, *Politics of Security*.

45. See Michael Dillon, 'Sovereignty and Governmentality: From the Problematics of the New World Order to the Ethical Problematic of the World Order' *Alternatives* 20, no. 3 (1995): 323-67.

government as the administration and ordering of life rather than the politics of free peoples. Thus understood, technology is the process by which life is rendered into some kind of determinate material, raw life, in need of being secured from the threats and fears to which discourses of danger say it is prey.⁴⁶

The emergence of a new, politically valent, security problematic is necessarily a complex phenomenon. It is not simply determined by the recognition of new needs by established political subjects whose structures and attributes are presumed to pre-exist the relations of force, knowledge and power that constitute them as the very specific subjects of power/knowledge that they are. Given the intimacy of the correlation of power and knowledge, the emergence of new problematisations is profoundly influenced by the complex interplay of epistemic invention and technological innovation, and by the relations of force, knowledge and power that define life and delimit populations.

In the process of exploring this mutually disclosive relation between power and knowledge, Foucault deliberately sidestepped the epistemological question of whether or not the truth claims of the life sciences, biology and then human, social and increasingly now also psychological and cultural sciences, were correct. He focused instead on what might be called, the ‘collateral’ political and governmental effects of their epistemically driven projects.⁴⁷ In doing so he made the disturbing point that ways of knowing also have the effect of operating as hitherto unexamined relations of power. He noted also that knowledge not only has powerful ‘collateral’ effects, it may also effect significant ‘collateral’ damage by perpetrating its own subtle cruelties and by insidiously limiting the horizons of possibility; of what it is, for example, to be free, ethical, political, and just.⁴⁸ Following this logic, we too are less concerned with truth claims. Since distinguished scholars of international relations, as well as influential strategists have embraced the discourses of complexity, networks and information that distinguish the digital and molecular revolutions, what we want to know is how the world of security, peace and war starts to get re-figured as a consequence.⁴⁹ We do

46. See Giorgio Agamben, *Homo Sacer: Sovereign Power and Bare Life* (Stanford, CA: Stanford University Press, 1998).

47. This is not to say as many of his detractors do that Foucault conflated knowledge and power. Neither is it to say that Foucault was a ‘relativist’ with respect to truth. ‘Foucault was interested in the role of knowledges as useful and necessary to the exercise of power because they were practically serviceable, not because they were false’. Colin Gordon, ‘Introduction’, in *Michel Foucault: The Essential Works*, Vol. 3: *Power*, ed. James D. Faubion (London: Allen Lane, 2001), xvi. Foucault himself insisted: ‘The function of “truth telling” is not made to take the form of law...The task of truth telling is an endless work: respecting it in its complexity is an obligation no power can dispense with. Unless to impose the silence of servitude’. *Ibid.*, xi.

48. See Jacques Derrida, ‘Force of Law: The Mystical Foundations of Authority’, in *Deconstruction and the Possibility of Justice*, eds. Drucilla Cornwall, Michel Rosenfeld and David Gray Carlson (London: Routledge, 1992) and Michael Dillon, ‘Another Justice’, *Political Theory* 27, no. 2 (1999): 155-75.

49. See Rosenau, *Governance*; Robert Jervis, *System Effects: Complexity in Political and Social Life* (Princeton, NJ: Princeton University Press, 1999); Hayward J. Alker, ‘Ontological Reflections on Peace and War’, *Santa Fe Institute Working Paper* 99, no. 2 (Santa Fe: Santa Fe Institute, 1999); John

not claim by any means to provide an exhaustive account of these issues. Our task is to broach them.

Biopower Goes Digital and Molecular

Two of the most prominent sites from which complexity has been emerging have been the networks surrounding Ilya Prigogine's Brussels School and the Santa Fé Institute in the United States.⁵⁰ Both are involved in creating a portfolio of concepts as well as a generic vocabulary of complexity. Despite their significant differences, despite the hyperbole of those evidently seeking to effect a hegemonic account of complexity science, and despite the diversity that characterises their different approaches, there is nonetheless a shared commitment to two key intimately related perspectival shifts. The epistemic outcome of these changes powerfully inflects the military and political assimilation and usage of the discourse of complexity.

Newtonian science, to use a term that grossly conflates a large and diverse field, formulates laws for pre-formed bodies in mechanical relations and processes of exchange. In such processes, time is a parameter rather than an operator. It is taken to be unaffected by the transformations that it describes.⁵¹ Newtonian science is also based upon a naïve realism that assumes that the properties of matter are 'there' independent of the experimental devices by which they are observed and recorded as existing.⁵² This assumption is the key link between the Newtonianism of traditional epistemic structures and their reliance upon secure taxonomic schemas. It is the function of taxonomic science, of species and genus, to reliably assign natural bodies to appropriate categories and classifications, assuming that the world is pre-inscribed with the natural order mapped by taxonomy.

The complexity sciences, however, appear to insist fundamentally upon the 'anteriority of radical relationality'.⁵³ Radical qualifies 'relationality' in the

Arquilla and David Ronfeldt, *Cyberwar is Coming: RAND Report* (New York: Taylor and Francis, 1993); John Arquilla and David Ronfeldt, 'Information, Power and Grand Strategy: In Athena's Camp', in *The Information Revolution and National Security: Dimensions and Directions*, ed. Stuart Schwartzstein (Washington, DC: The Centre for Strategic and International Studies, 1996); John Arquilla and David Ronfeldt, *In Athena's Camp: Preparing for Conflict in the Information Age: RAND Report* (New York: Taylor and Francis, 1998); David S. Alberts and Thomas J. Czerwinski, *Complexity, Global Politics and National Security* (Washington, DC: INSS and NDU, 1997); and Martin Libicki, 'The Mesh and the Net: Speculations on Armed Conflict in a Time of Free Silicon', *McNair Paper*, no. 28 (Washington, DC: INSS and NDU, 1994).

50. The history of the emergence of complexity theory and science does not need to be rehearsed in detail here. We seek only to highlight what we think the key epistemic shift is, because we see it as contributing to the re-problematisation of security in general. There are by now many excellent professional as well as popular summaries of chaos theory and complexity. See Stephen H. Kellert, *In The Wake of Chaos* (Chicago: Chicago University Press, 1993) and James Gleick, *Making a New Science* (New York: Viking, 1987).

51. Ilya Prigogine, *From Being to Becoming* (San Francisco: Freeman, 1980), 3.

52. *Ibid.*, 215.

53. For that reason there is a debate about its proximity to poststructural thought. See Michael Dillon, 'Poststructuralism, Complexity and Poetics', *Theory, Culture and Society* 17, no. 5 (2000): 1-26.

following manner: nothing is without being in relation, and everything is conceived, in its very being, in terms and in virtue of relationality. In prioritising the mode of relating, accepting that temporality is an operator rather than a mere parameter, and conceiving of 'bodies' in terms of contingent assemblages and ensembles (systems), the complexity sciences claim to radically subvert the epistemic structures upon which Newtonian science and the great scientific taxonomic enterprises of the last several hundred years have proceeded. Stable taxonomy and mechanical predictability are, thus, displaced by what is best described as 'being-in-formation', where code, information and network are increasingly becoming the prevailing terms of art and non-linearity is regarded as the norm. It is in short the mode of relating and the effecting of different principles of formation, not the mechanical transaction of inter-subjective modes of exchange, that come to prominence here.

These arguments seem to be supported by developments in biology. Molecular science in particular not only offers ways of conceiving of modes of relation (infiltration, distribution, infection, contamination, mutation, colonisation, symbiosis), in which temporality is an effective operator rather than a mere parameter. It also offers accounts of bodies that defy secure taxonomic classification, since, as a function of the mode of relation, such bodies are contingent assemblages, bodies-in-formation, rather than pre-formed bodies. Biology, in particular at the microscopic rather than the macroscopic level, but with genetic engineering even there also, offers a description of astonishing fecundity, mutability, motility, and sheer creative transformation that defies the macroscopic entropy and exhaustive taxonomies.⁵⁴ Bacteria, for example, are said to trade information in the form of variable quantities of genes with virtually no regard for species barriers, while new forms and modalities are propagated across species boundaries with almost indecent speed. Morphogenesis cannot be described or explained within the terms of the linear paradigm of pre-formed bodies in the predictable entropic motion of a logic of strategically determined succession.

Nonetheless, as one exponent put it, 'it has to be understood that what is not deterministic need not be random. The solution is the existence of a new type of causality'.⁵⁵ How to understand this relation and its allied notions of prediction is a key issue closely connected to the ways in which the complexity sciences not only understand processes of formation and change but also of creativity; how things happen, how they can be made to happen, and how matter can be construed so that certain kinds of happenings are encouraged or discouraged. That 'new type of causality' is the philosopher's stone for biopolitical strategic discourse.

What is more, however, such biological forms of understanding and description seem best suited also to comprehending the transformations occurring with the

54. See Kauffman, *At Home*.

55. George Kampis, *Self-Modifying Systems in Biology and Cognitive Sciences* (Oxford: Pergamon, 1991), 257.

global digitalisation of information and communication and the vast powers of biopolitical propagation that characterise these developments as well. As Stuart Kauffman observed, there is a point at which a growing network of interconnected information nodes becomes conceived as a 'living' organic whole.⁵⁶ According to another observer 'the Web is an organism with more chips than people'.⁵⁷ Also the life-like behaviour of complex adaptive information systems, is assumed to be

the result of simple rules, unfolding from the bottom up...more akin to the growth of a plant from a tiny seed or the unfolding of a computer program from a few lines of code, or the self-organising behaviour of a flock of birds.⁵⁸

What the molecular and digital revolutions fundamentally share, then, is a shift from a preoccupation with physical and isolated entities, whose relations are described largely in terms of interactive exchange, to beings-in-relation, whose structures, decisively influenced by patterns of connectivity, display autonomous powers of adaptation, organisation and spontaneous emergence. These are commonly referred to as complex adaptive systems.

Going beyond the twin traditional arguments either that organisms are only more perfect machines, or that machines are never more than mere extensions of the organism, we arrive at the threshold of the sciences of dynamic living assemblages, in which the traditional ways of distinguishing human and non-human, organic and non-organic, break-down. As does the related way of privileging components over the modes and intensities of relation in which they are found. These sciences insist that having to relate (openness to intervention) is invariant for all life forms. Indeed this relationality is constitutive of them and so is also the information or code that comprises its very fabric. What is relational is the circulation and exchange of information or code.

The connectivity of the system is said to be a measure of its very effectiveness.⁵⁹ In the pure, informationally instrumental, world of network-centric warfare it has been argued, 'no node can be worth more than the connectivity it provides'.⁶⁰ Sustaining diverse kinds of alterior relations, complex adaptive systems manifest bifurcations, singularities and transitions in phase space. Here we have to draw a distinction between Euclidean geometry, where space is a homogeneous plane to be overcome, divided up and apportioned by calculation and the fitness landscapes

56. See Kauffman, *At Home*.

57. Larry Seaquist, 'The Ten-Foot Tall Electron: Finding Security in the Web', in *The Information Revolution*, 73.

58. M. Mitchell Waldrop, *Complexity: The Emerging Science at the Edge of Order and Chaos* (New York: Simon Schuster, 1993), 329.

59. Indeed this has been formulated in the form of Metcalfe's law, which states that the power of a network is proportional to the square root of the number of nodes it contains. Bob Metcalfe was the inventor of Ethernet, a pioneer of Arpanet and is known as the founding father of the networking era. See George Gilder, 'Metcalfe's Law and Legacy', *Forbes ASAP* 13 (1993): 72.

60. Thomas Barnett, 'The Seven Deadly Sins of Network-Centric Warfare', *US Naval Institute Proceedings* 125, no. 1/1 (1999): 151.

of network topology, which deal with the mobile distribution of points in plural and complex spatial arrangements.⁶¹ Complex adaptive behaviour is thus marked by 'non-linearity'. Opposed to this view is the ideal of systems implacably closed in on themselves striving to maintain an illusory autonomy, equilibrium or 'survival' by expending vast resources on specifying everything that is foreign to the system so that it can be expelled or kept from it. The price of such 'autonomy' in contemporary liberal governance is paid by a self-destructive diminution of the liminal capacity of system connectivity.

Hypersecurity: Becoming-Dangerous

As the *bios* is reinterpreted scientifically so there is a change in the character of biopower and biopolitics. Code is the common denominator of the digital and the molecular revolutions. So, too, the material with which contemporary recombinant biopower deals is beginning to be conceived very largely as a code, circulating and operating through networks themselves understood in informational or coded terms. Life here is thus informatted, emergent or becoming being via the mode of code.⁶² With the advent of the mode of code consequent upon the digitalisation and molecularisation of biopower, information as code is elevated from a valuable commodity or medium of communication into a new object of knowledge and a new organising principle for ordering and administering the social, economic, epistemic, political and military relations of power that constitute life. Under the ontological and epistemic commonplaces of the mode of code, information is not merely an asset. It is the constituent element of all matter, organic as well as inorganic, 'an ontological entity, a cosmological principle'.⁶³ The contemporary candidate for Aristotle's prime mover: code is raw life, raw life is code. Biopolitics thus, acquires a new ontology as it simultaneously assimilates cybernetic and molecular knowledge for the administering of individuals and populations in their relations with one another and their material environments. In this respect, biohistory seems to have very much extended Foucault's concern with bodies and with the social, since the life sciences, delving deep into the structure of the *soma* itself, are reconstituting what it means to be 'embodied'.

Being-in-relation productive of bodies-in-information also radically subverts security's traditional problematisation of pre-formed bodies operating in mechanical processes of inter-subjective exchange classically formulated in terms of the friend-enemy distinction by Carl Schmitt. According to Schmitt, a political entity comes into being when the distinction between friend and enemy is drawn.⁶⁴

61. See Michel Serres, *Hermes: Literature, Science, Philosophy* (Baltimore: John Hopkins University Press, 1982).

62. See Bogard, *The Simulation of Surveillance* and Shosana Zuboff, *In the Age of the Smart Machine* (New York: Basic Books, 1988).

63. Kay, *Who Wrote the Book of Life?*, 38.

64. Carl Schmitt, *The Concept of the Political* (New Brunswick, NJ: Rutgers University Press, 1976), 26.

The entity drawing this distinction is the political entity, thus disclosing once again the foundational character of all problematisations of security.⁶⁵

From the perspective of recombinant biopolitical reproblematising of security, however, something very different is taking place. Being-in-relation is a form of becoming that is necessarily also a becoming-dangerous. It is that shift which we identify as marking a novel development in the problematisation of fear and danger, inducing an emergent new biopolitics of security. As information understood in terms of code, matter—human or otherwise—no longer provides a stable referent. The forms that it takes are a function of its networked codification. Here no simple calculus of friend and enemy can be derived from reading-off the stable properties of pre-formed bodies. Informational bodies-in-relation, bodies-in-information, do not come pre-formed but pre-coded. Once you have cracked the operation of code, the formation of bodies becomes a function of the informational strategies required for devising networks of a preferred sort. Prospectively it is not a question of the bodies we have, individual or collective, but of the bodies we may prefer to have. These are precisely the kinds of questions with which the ethical and legal discussions associated with the genetic revolution are wrestling. Neither friend nor enemy can be treated as givens beforehand since the emergence of living assemblages is fluid and contingent upon the strategic dynamics of changing modes of codification. Strategising information in respect of the dynamics of biopolitical bodies-in-information threatens to supersede traditional threat analysis based upon supposedly pre-formed geopolitical bodies.

What Foucault had already noted in respect of the advent of disciplinary power/knowledge, '[t]he idea of dangerousness mean[s] that the individual must be considered by society at the level of his potentialities and not at the level of his actions; not at the level of the actual violations of an actual law, but at the level of the behavioural potentialities they represented',⁶⁶ becomes radically intensified and extended here. Thus bodies-in-information tend to become subject to the logics of becoming-dangerous such as symptomatology of pathology or epidemiologies of danger. Here we detect a new dynamic by means of which security goes hyperbolic, since any assemblage, organisation or population, however differentiated and specified, may become acerbic. Security goes hyperbolic in as much as unlimited knowledge of infinitely definable assemblages, populations and networks is a necessary concomitant of the problematic of becoming-dangerous. And as we conclude, the domain of strategy expands and changes accordingly.

65. See Dillon, *Politics of Security*.

66. Foucault, 'Truth and Juridical Forms', in *Michel Foucault: The Essential Works*, Vol. 3: *Power*, 57.

Biopolitical Strategic Discourse: Omnidirectional, Omnisensorial, Omniversal

There is as yet no equivalent to Carl Von Clausewitz's *On War* for this second revolution—but we can gain some insight through the general observation that nations make war the same way they make wealth.⁶⁷

In order to avoid confusion with other enframings of the RMA, information warfare and network-centric warfare, we are not primarily concerned here with whether or not the digital revolution in information and communication technology is instituting a 'genuine' revolution in military affairs. Nor are we taking sides in the argument about whether or not—if there can be said to be a revolution—that revolution is largely American.⁶⁸ Suffice it to say that the RMA is as much an exclusively American way of making war, as global capital is an exclusively American way of making a living. That said, US strategic thinkers are giving the lead in the formulation of this discourse and the establishment of new information based national security strategies. These are hotly debated as well as emulated by allied powers. Enunciation of a new national strategy does not, of course, emerge fully articulated out of the heads of the Joint Chiefs of Staff. An extensive discursive network preceded and continues to refine and debate it. In addition to the military services and their staff colleges, the National Defence University and the RAND Corporation are two other key centres for the formulation of such a discourse in the United States.

Furthermore, although it is possible to argue that the biopolitical strategic discourse was a response to a concatenation of circumstances brought on by the dissolution of the cold war, fuelled by a large amount of hyperbole, the RMA that prompted it was underway well before 1989. Also it was by no means driven exclusively by military dynamics. Strictly speaking the RMA is the military aspect of a generic revolution that is taking place in social and economic affairs initiated by a whole complex of factors, including the globalisation of capital, the transformation of corporate organisation, the capitalisation of digital and molecular technology, and the move towards knowledge-based economies and network societies.

67. Cebrowski and Gartska, 'Network-Centric', 2.

68. These and other issues are debated in the following: Lawrence Freedman, 'Britain and the RMA', *Defense Analysis* 14, no. 4 (1998): 55-66; Brian Sullivan, 'The Future Nature of Conflict: A Critique of "The American RMA in the Era of Jointery"', *Defense Analysis* 14, no. 2 (1998): 91-100; Jacob W. Kipp, 'The Revolution in Military Affairs and its Interpreters: Implications for National and International Security Policy' (paper presented at Foreign Military Studies Office and the Academy of State Management of President of the Russian Federation, September 1995); Stephen Blank, 'Preparing for the Next War: Reflections on the RMA' *Strategic Review* 24, no. 2 (1996): 17-25 and Mackubin T. Owens, 'Technology, RMA and the Future of War', *Strategic Review* 27, no. 2 (1999): 63-70. However, for a much more sophisticated analysis, and one that reminds us of the need to locate the RMA in the context of the intimate relation established in the second half of the twentieth century between science, security and government, especially in respect of cybernetics and molecular biology, see Kay, *Who Wrote the Book of Life?*

The co-evolution of military affairs with the biopolitical transformation of liberal societies wrought by these changes is fully recognised by two of the most influential and eloquent exponents of network-centric warfare. 'These changes have been dominated', they note, 'by the co-evolution of economics, information technology, and business processes and organisations'.⁶⁹ That co-evolution of civil and military affairs is engendering a new strategic imaginary and a new strategic discourse alongside the biopolitical re-problematisation of security and war that characterises the global biopolitics of liberal governance.

Metaphysics

Information is the prime mover.⁷⁰

Amongst the most interesting and prolific authors engaged in the comprehensive revision of the Western strategic imaginary, John Arquilla and David Ronfeldt from the RAND Corporation provide a paradigmatic account of how information, complexity and non-linearity are becoming dominant.

Information is about much more than message and medium (or content and conduit). It is said that information is as basic to physical reality as are matter and energy—all material objects are said to embody not only matter and energy but also 'information'...Information, then, is an embedded physical property of all objects that exhibit organisation and structure. This applies to dirt clods as well as DNA.⁷¹

This treatment of information does not simply open-up new fields of business for the military and for the economy, information warfare and digitised battle spaces for the military, e-commerce and so on for the civilian sector. It initiates a whole-scale 're-thinking of the very basis of military organisation, doctrine and strategy',⁷² introducing also a new calculus of force requirements and of military-technical investment and procurement strategies. It similarly calls for new operational concepts and doctrines as well as for new training. 'Information', Arquilla and Ronfeldt argue, 'should be treated as a basic and overarching dynamic of all theory and practice about warfare in the information age'.⁷³

Information thus becomes the new metaphysic of power, from which the biopolitical strategic discourse takes its inspiration and licence as it pursues a revision of military organisation and war. This marks a shift in the framework of military-strategic thought every bit as important as the transformation that took

69. Cebrowski and Gartska, 'Network-centric Warfare', 2.

70. Arquilla and Ronfeldt, 'Information', 144.

71. *Ibid.*, 138.

72. *Ibid.*, 145.

73. *Ibid.*, 144.

place in the eighteenth and nineteenth centuries.⁷⁴ Assuming the generic schema of production, military-strategists of that period reinvented the art of military organisation by adapting concepts drawn from the order of political economy.⁷⁵ This made possible the complex spatial orderings of men in modern battle, the transformation of battle space into Euclidean disciplinary space, and the regulation of troop movements in a spirit akin to the newly established regulated movement of wealth.⁷⁶ All was dedicated to the construction of military force as productive force whose effect would be superior to the sum of elementary forces composing it.⁷⁷ Today, as the mode of production mutates into the mode of code, the metaphysics of military strategy is following suit, shifting from classical economics to informatics. The *telos* of military organisation is no longer simply the extraction of a surplus value from the productive forces, but to the simulation of a permanent general mobilisation in ways that match and co-evolve with the order of the new economy. Such a military body no longer belongs simply to the traditional order of production, it becomes a body-in-formaion governed by, and strategising according to the operations of the mode of code.

Hypersecurity

Adversaries will try to attack the Grid by feeding it junk, lies and viruses...A semantic security model may be needed.⁷⁸

Amongst the other features of recombinant biopolitics is the dissemination rather than the concentration of power. Thus network societies are resilient precisely because dissemination is a principle of formation and operation that allows such astonishing virtuosity in the management of national and international complexity. But network societies are not invulnerable. Security and insecurity are correlated. 'Openness creates vulnerability along with strength'.⁷⁹ Hypersecurity stalks the system precisely because vulnerability is a direct function of its very resilient design. Dissemination poses problems and dilemmas, such as the question of how open its open complex adaptive systems should be.⁸⁰

74. Foucault, *The History of Sexuality*, 140.

75. See Carl von Clausewitz, *On War* (Princeton, NJ: Princeton University Press, 1976), 149.

76. Michel Foucault, *Language, Counter-Memory, Practice* (Ithaca, NY: Cornell University Press, 1977), 148-49.

77. *Ibid.*, 163.

78. Martin Libicki, 'Illuminating Tomorrow's War', *McNair Paper*, no. 61 (Washington, DC: INSS and NDU, 1999), 9.

79. David C. Gompert, 'Right Makes Might: Freedom and Power in the Information Age', *McNair Paper*, no. 59 (Washington, DC: INSS and NDU, 1998), 6.

80. Andrew Rathmel, 'The IW Threat from Sub-State Groups: An Interdisciplinary Perspective', (paper presented at the Third International Symposium on Command and Control Research and Technology, Institute for National Strategic Studies, National Defence University, 17-20 June 1997); Andrew Rathmel, 'Cyber-Terrorism: The Shape of Future Conflict' *Royal United Services Institute Journal*, no. 3 (1997): 40-46; and Libicki, 'Illuminating'.

It is the dissemination of power that makes resistance to recombinant biopolitical power so disseminated as well. In an observation that could have been taken directly from Foucault's *Discipline and Punish*, one biopolitical strategic thinker remarked:

If the Grid (information system of systems) were open to new data, new uses and new users, the United States might be able to illuminate the world not just for its own forces but for all. Everyone may profit from knowing that everyone else is being watched...With the complicity of those being watched, much more may be visible.⁸¹

There is no centre of power to seize, no single instrument of power to wrest, no merely repressive effect of power to contest and, currently, no counter ideology successfully challenging its hegemony. In consequence this new strategic discourse is preoccupied with asymmetric threats, namely those that do not match the overall power of the system but threaten it in its particularities, especially by probing and exploiting its very weaknesses. Resistance is interpreted as more or less pathological because the information Grid is animated by a totalising semantic security model.

Digitality

Digitisation of the battlefield is producing a revolution in military affairs.⁸²

Under the 1986 Goldwater-Nichols Department of Defense Re-organisation Act, a roles and missions commission must present a report to the Secretary of Defense every three years. The report issued by the commission in 1996 argued that a central mission to guide the US armed services was missing and urgently required to provide overall strategic cohesion and direction for the twenty-first century. The outcome was a document entitled *Joint Vision 2010*. This advocated a strategy of network-centric warfare, moving to more lethal military capabilities not simply by adopting information technology more extensively and more intensively than hitherto, but by systematically utilising information as the generative principle of formation for military organisation: where organisation are thought to evolve 'according to the information that can be embedded in and by them'.⁸³ A revised *Joint Vision 2020*, issued in May 2000, extended and embraced network-centric warfare as the principle of formation for overall national strategy and broached its implications for alliance relationships.

81. Libicki, 'Illuminating', 14.

82. Thomas K. Adams, 'The Real Military Revolution', *Parameters* Autumn (2000): 54.

83. John Arquilla and David Ronfeldt, *Swarming and the Future of Conflict* (Santa Monica, CA: RAND, 2001), 7.

Speed, self-synchronisation and flexibility are at a premium and network-centric operations, 'drawing their power from the fundamental changes in American society',⁸⁴ are claimed to deliver to the US military, 'the same powerful dynamics as they produced in American business'.⁸⁵ The strategy of network-centric warfare is characterised by three themes. The first is the shift in focus from the weapons platform to the network. The second is the shift to radical relationality, 'from viewing actors as independent to viewing them as part of a continuously adapting ecosystem'.⁸⁶ The third is the tendency towards biophilosophical modes of discourse: 'the importance of making strategic choices to adapt or even survive in such changing ecosystems'.⁸⁷

Military operations are enormously complex, and complexity theory tells us such enterprises organise best from the bottom-up...This is not just a matter of introducing new technology; this is a matter of the co-evolution of that technology with operational concepts, doctrine, and organisation...This is not theory—it is happening now. For example, new classes of threats have acquired increased defensive combat power for joint forces. The combat power that has emerged—the co-operative engagement capability (CEC)—was enabled by a shift to network-centric operations.⁸⁸

It would be a mistake then to conflate network-centric with information warfare. The former is a strategic design based on digital and molecular thinking rather than a sub-domain of military conflict.

Molecularity

The idea of swarm behaviour may seem strange because we are used to our more-or-less linear bureaucratic models.⁸⁹

It is at this point however that the molecular inspiration at work in biopolitical strategic discourse also kicks-in. Arquilla and Ronfeldt's latest contribution to this evolving discourse does precisely this:

We have argued...for adopting a broad conception of 'information'—so that it is defined as something that refers not only to communications media and the messages transmitted, but also to the increasingly material 'informational'

84. Cebrowski and Garstka, 'Network-Centric Warfare', 1-2.

85. *Ibid.*, 5.

86. *Ibid.*, 1-2.

87. *Ibid.*

88. *Ibid.*, 7-9.

89. Adams, 'The Real Military Revolution', 65.

content of all things, including weapons and other sorts of systems...[T]he information revolution empowers the network form.⁹⁰

Drawing on the literature on swarming in artificial as well as natural and biological systems, antibodies for example, they go on to review historically how the idea—‘omnidirectional yet well-timed assault’—is pre-figured in melee, massing and other earlier forms of violent engagements.

As a strategic idea swarming emerges out of allied concepts such as that of the non-linear battle space and networking. It then becomes elaborated into an overall architecture of strategic and operational concepts including: ‘swarming-in-force’, ‘battle swarm’, ‘strategic swarming’, ‘cybotage’, ‘robust connectivity’, and ‘top sight’. Swarming itself is further refined as the

systematic pulsing of force and/or fire, by dispersed interneted units, so as to strike the adversary from all directions simultaneously...Its organizational and informational requirements are huge.⁹¹

Whereas in ‘nature, swarms are composed of independent units whose actions are largely instinctual’, swarming as mode of operations for military combat units requires a vast re-engineering of military organisation and training.⁹² Fundamentally, they argue, ‘swarming by the “small and many” will be a function of the power of their networking’.⁹³ Thus the basic challenge is strategising the complex informational networks that swarming requires. The best practitioners of swarming currently they note are ‘social swarmers’, such as those protesting the World Trade Organisation, or other ‘activist NGOs, which assemble into transnational networks and use information operations to assail government actors over policy issues’.⁹⁴ In exploring swarming Arquilla and Ronfeldt recognise a feature that becomes apparent throughout this literature, which is the disappearance of any settled distinction between inside and outside, front and rear. There may be no “front” per se’.⁹⁵ Instead they envisage a seamless, fluid, morphing and pulsating magma of conflict continuously forming and deforming according to changing impulses and instances of threat. In biopolitical strategic discourse one might say that the fitness criterion takes the form of what the literature calls ‘battle-capable full-spectrum dominance’.

90. Arquilla and Ronfeldt, *Swarming*, iii.

91. *Ibid.*, 8-9.

92. *Ibid.*, 21.

93. *Ibid.*, 57.

94. *Ibid.*, 50.

95. *Ibid.*, 46.

As the microelectronic and data networking content of military systems increases, the military as a whole is becoming a tentacle of the civilian technology market.⁹⁶

The biopolitical conflation of civilian and military network societies is expressed precisely in the complex strategic relation between capital, liberal relations of power and the liberal way of war. The power of that relationship is well appreciated by international theorists like Joseph Nye,⁹⁷ as well as military strategists, like David Gompert, whose following summary makes the point succinctly.

Free-market democracies that are integrated into the world economy have distinct advantages in inventing, making and using information technology. The strength of this technology in the civil economy, especially to meet the demands of the decentralized and globalizing private enterprises, also gives such countries an edge in military applications which utilize the same technologies...[p]ower will come more easily and be more sustainable for states whose economic and political freedoms and integration in the world economy make them competitive in information technology.⁹⁸

Traditional objects of conquest, as well as traditional measures of national capability, land or raw materials, become less important. Territorial domination and international coercion are increasingly said to be 'out of sync with globalisation's promise'.⁹⁹ US and allied forces still require customised information technology but have come to rely increasingly on the civil commercial information market.¹⁰⁰ As this conflation evolves, so the military and civilian sectors become increasingly enmeshed in a 'Defence Information Infrastructure that is tightly linked to the entire National Information Infrastructure and to the Global Information Infrastructure'. As it proceeds, 'military concern for the security of the entire system will grow apace because its information base will be no more secure than the entire system'.¹⁰¹

Whereas for Clausewitz, war was the extension of politics by other means, for these new strategists the practice of war has become the extension of that form of wealth creation, which also operates around information as a generative principle

96. Gompert, 'Right Makes', 3.

97. See Joseph Nye and William Owens, 'America's Information Edge' *Foreign Affairs* 75, no. 2 (1996): 20-54.

98. *Ibid.*, 1.

99. *Ibid.*

100. The military market now makes up to about 2% of US demand for information technology, down from 25% in 1975.

101. Jeffrey R. Cooper, 'Another View of Information Warfare', in *The Information Revolution*, 110.

and prized commodity. Successful organisation of war mimics successful organisation of profit.¹⁰² Both seek to mimic the operation of complex adaptive systems determined by negotiating diverse and challenging fitness landscapes through mutating, morphing and other means of changing their constituent elements, forms and connectivities. Just as successful organisation for profit is dependent upon the radical relationality of effective network organisation, so also is the successful use of lethal military force. Biopolitical economy is war pursued by other means.

Whereas it was once thought that military revolutions were embraced in order to afford the operational advantage of pre-formed political bodies, they are embraced here in the name of transforming political bodies into governable material conforming to the laws of connectivity and its superior creative force. That is why, aligning with the law of connectivity that seems to have incited the second revolution in industrialisation and global capitalisation, at the centre of this discourse emerges a novel strategic imperative driving the military problematisation of war. New biopolitical imperatives are not uniformly opposed to more traditional geo-political ones here. Their correlations and contradictions that obtain have yet to be thoroughly examined. Nonetheless as the controversies surrounding network-centric discourse and the RMA illustrate, they are seamlessly involved in a struggle for discursive hegemony as well as financial resources.

Conclusion: Strategy Becomes a Life Science

Just as changing epistemologies re-problematise the world and our very sense of being individual and collective subjects, they also inform the changing conceptions of strategy which seek to govern how we act. While honouring traditional geo-strategic discourse, biopolitical strategic discourse is drawn also towards a quite distinct, emergent conception of strategy. This conception is more cybernetic, concerned with the generative principles of formation, coding and de-coding, algorithms and processes which comprise and drive networks of information; and in particular those by which effects of the real can be really simulated. Here there is what Baudrillard would call a loss of 'the real' alongside persistent claims to more accurately re-present 'the real', since 'real' life, raw life, is understood to be an effect of generative principles of formation and codifying processes amenable to detailed manipulation. Such, after all, is the very scientific point, and power, of digitality and molecularity.

If global liberal governance is substantially comprised of techniques which seek power over life, then strategy can no longer be conceived as the more or less rational calculation of pre-formed subjects seeking to realise their ends in the world, as if they were life-forms not deeply in-formed by relations of power already operating within the world. What matters to power over life are the life sciences that seek to know life, omniversally in all of its material interconnections

102. See Cebrowski and Gartska, 'Network-Centric Warfare'.

and complexity, so that life itself can be made amenable to governance in the interest of promoting life, thus conceived. Through the mode of code that is so transforming the biopolitical character of biopower, what matters is not only the information and the life sciences that have disclosed the re-generative power of code. Those skilled at conceiving and designing the architectures of code required to command the recombinant genesis of form now enter the realm of the life sciences as well. Information, as the key generative principle of formation of contingent assemblages, is power. Its operation as power has opened-up a market for its strategisation that biopolitical strategic discourse seeks to capture. Biopolitically, strategy becomes a life science.

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