

Maps, Metaphors and Myths: Beyond Impoverished Imagination about Peace, Development and the Future

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Abstract

This paper is a companion piece to "Mapping and imagined futures: beyond colonising cartography". It extends the earlier argument about rethinking the way we map our world and the future. Wide dialogue is invited.

From a peace education and futures education perspective, many critical issues are raised. These issues include whether our children are given enough opportunities to build better understanding of other people and places, as well as learning relevant image literacy skills in the non-violent transformation of conflicts and alternative cultural mapping.

...Conceptual schemes provide us with ways of mapping both the natural and social world. They enable us to find our way in ethical and epistemic terrains, in ways not dissimilar to how maps guide us through physical terrains... (Baghramaian 2004: 314)

...Assertions about the proper course of the mind and the actual constitution of physical space were dependent on a state-endorsed understanding of what was 'real'. To this end, scientific proofs – such as the cartographic ordering of

space-were important weapons in the battle against the excesses of the imagination... (Thomas 2003: 134).

Restrictive Imaginative Landscapes in Popular Futurist Thinking

Popular futurist works, such as Ian Pearson's *The Atlas of the Future* (1998), Jack Challoner's *Equinox Space* (2000) and David Christian's *Maps of Time* (2004), adopt largely technological determinist standpoints whilst giving scarce consideration to possible ethical dilemmas, issues of economic interests served, and social futures. "Space exploration", readers are advised

in Pearson's atlas, "holds the key to the origin of the universe, the fundamental workings of nature, and ultimately the survival of our species." (Pearson 1998: 88) In both *Equinox Space* and *Maps of Time*, this theme is strongly continued, with an entrepreneurial eye on the future. Mars is projected as an important new frontier. We learn about emergent technologies that might enable the retrofitting of the Martian environment and establishing space colonies, scientific outposts and even hotels. We are advised of the value adding of such an enterprise, especially if Earth's environment continues to deteriorate.

Even in the case of some futuristic thinking that seeks to be less linear mode, there is a major tendency to focus on imaginative technological landscapes, as distinct from imaginative cultural landscapes. This is particularly so in a large body of science fiction. There is often considerable ambivalence towards the heroic view of science and technology but with technological determinist themes powerfully asserted in cartographies of technological hell and spatially expanded empires at war with more efficient technologies for killing. (Aldiss & Harrison 1976) Both the push of the past and the pull of conquering new technological frontiers imaginary are strong:

...If science fiction is any guide, the dimensions of the possible, although not the particular mixture they come in, has already been revealed in history. That is, late-humans and post-humans will still be organised into societies, which, once the technological props are stripped away, will be analogues of social systems the world has already seen, such as democracies, dictatorships and oligarchies. When not confronting environmental or psychological challenges, distant societies will still be engaging in war; trade and material production to ensure survival while diverting economic surpluses into population growth, education, science, art, sport, entertainment and religion... (Cocks 2003: 119)

"Brain mappers", we learn in another recent popular science work, are engaged in a venture that should make "everyone enthralled".

This venture, we are told, uses the latest techniques for multi-modal imaging to probe and systematically scan the inner space of the human brain. It will yield we are further told, invaluable secrets and untold benefits:

...The challenge of mapping this world-locating the precise brain activity that creates specific experiences and behavioural responses-is currently engaging some of the finest scientists in the world...The knowledge that brain mapping is delivering is not only enlightening, it is of immense practical and social importance... it paves the way for us to recreate ourselves mentally in a way that has previously been described only in science fiction. (Carter 2000: 1-2)

Within this popular futurist genre, there is very little critical introspection or an imaginative play of ideas about possibly less colonizing routes that might be taken. Even if there is passing acknowledgement that such ventures might run the risks of "gold rush" mentalities, no serious critical consideration is given as to whether, for example, transnational pharmaceutical companies might be the ones standing to gain the most from this kind of inner-space research. Moreover, there is no in-depth scrutiny of why such research is receiving priority over researching, for instance, the health needs of the world's poor in areas such as malaria prevention and provision of clean drinking water. Similarly, there is a lack of critical comments in this genre on how the brain-mappers' guiding images might foreclose on the future by combining biological reductionism with technocratic dreaming. Instead, we are asked to be reassured about the expertise involved and the scanning protocols being currently introduced. Unlike Franz Gall, father of classical phrenology, and his followers, these New Phrenologists, Carter states, "are determined that their discoveries- will stand the test of time..." (Carter 2000: 37)

Maps, Cultural Editing and War Culture

Such reductionist imagination is evident

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too in many contemporary governmental, corporate and military discourses. It is shown, for example, in key recommendations of the *9/11 Commission Report* (2004). These recommendations stress enhanced technological means, including the biometric screening program, US VISIT (the United States Visitor and Immigration Status Indicator Technology program), as central to a global strategy of what to do in making the world more secure. (National Commission on Terrorist Attacks 2004: 383-89)

From a futures education and a peace education perspective, critical questions are raised in such contexts as to whether our current cartographic technologies and techniques are really neutral or whether they might be in some ways complicit in war culture both in what they prioritise and what they erase or leave off the map. To put it somewhat differently, is the powerful gun lobby in the USA right when it argues that people, not guns kill? Or is the situation much more complex than such attempted absolving of weapon systems might suggest? Does the gun lobby's claim ignore the political, cultural and economic contexts of the manufacture, trade and prime uses of such technologies? Is there in such discourses an editing-out of violence-condoning socialisation? Rather than technologies themselves being simply neutral or innocent entities that may be used wisely or unwisely, are they likely to be deeply embedded in the rationalisations or ideological alibis of dominant knowledge-power interests of particular periods of human history, civilisation and culture?

There are some significant related questions that emerge about contemporary knowledge-power interests, cultural preparation for war and foreclosure on peaceful futures. From a peace education or futures education perspective, critical questions are raised about such impoverished forms of mapping and how they relate they might relate to cultural preparation for war. Why is it, for example, that technologies for killing are often presented as "the solution" in many Hollywood movies? (Pollard 2003) Why is there a gendered division of play in toyland? Why is there a permeation of violent images in our children's play space, with further

"naturalisation" of weaponry in many computer games? (Hutchinson 1996; Sardar & Davies 2004)

The US military, for instance, is now working in close collaboration with a number of corporate computer games designers, such as the Institute for Creative Technologies (ICT), Navy Modelling, Virtual Environments and Simulation Institute (MVEST) and Forterra Systems. Military-fixes are being propagated in recently released Iraq war and anti-terrorist simulations produced by these military-corporate collaborative ventures. Widely disseminated games, such as *America's Army* and *Full Spectrum Warrior*, are designed for entertainment, training and promotional purposes. For their target youth market, they repeatedly seek to inscribe images of the potency of new weapons systems for "solving" conflicts and getting results. (Grossman 1996, Thomson 2004)

Also raised are considerations of how image literate we might possibly become about mapping not only in a narrow sense but also in a broader, critically engaged and imaginative sense. How might we begin to get beyond both fatalism about violent, feared futures? Technocratic dreaming about deliverance from insecurities through scientific breakthroughs and technical fixes, such as "new and improved weapons systems" or "enhanced technologies for surveillance", might actually compound existing problems.

After all, many problems on a variety of scales and levels from the local to the global are not so easily fixed whether in relation to the institution of war, the structural violence of poverty or the ecological violence of global warming. Socially complex, deeply systemic and conflict-entrenched political situations do not lend themselves easily to simple technical fixes. In some cases, technical fixes may even compound rather than resolve. This is demonstrably so whether the claimed "fix" is through advances in military hardware (eg for "winning the war against terrorism") or "breakthroughs" in civilian science to deal with poverty-related, community- health and environmental problems.

As part of the conventional military

response in the aftermath of 9/11, there have been associated trends in reductionist thinking. These trends demonstrate how much a tendency exists for imaginative foreclosure. There is prevalence and arguably a major over-reliance on technological fixes in responding to fear-laden, imagined landscapes of the future. The surveillance industry, for instance, has received powers recalling the heights of the Cold War but now with much enhanced means of electronic mapping. (Etzioni 2005; Kalukin 2005) How might foreclosed images of times to come be better resisted? How might alternative images be encouraged? How might dissenting cultural mapping about non-violent options be facilitated?

Questioning Foreclosed Mapping and Fear-laden Futures

The remainder of this article looks critically at related issues on conventional and alternative forms of imaging or mapping the world and the future. A range of historical and contemporary case-study material is introduced to highlight the challenges and opportunities, especially within in schools and the media, for important critical and creative engagement.

It is argued, that especially from a peace education and futures education perspective, these varying challenges and opportunities include the negotiation of pedagogical approaches that combine the languages of critique with the language of hope. Both critical cartography and image literacy of social alternatives are important for peaceful pedagogical practice and action learning. In addition to critiquing dominant or fatalistic maps about "the nature of things", it is important to invite, in both formal and informal educational contexts, an imaginative play of ideas and dialogue on diverse images or maps of alternative futures. (Hutchinson 1996; Freire 1999; Hooks 2003)

Early sections of this article focus on several important themes and sub-themes of concern to critical cartographic approaches to teaching and learning. They relate to impoverished social imagination and restricted metaphorical expres-

sion about alternatives to violence. These themes include mechanistic philosophy and disenchantment of the world, together with Western-centric images of development or progress. Particular sub-themes are explored relating to developmentalist assumptions and gendered geographies, colonised cartographies of childhood, frontier mentalities, and commodified space-time. New electronic forms of mapping and militarised imaginative landscapes of the future are discussed. With each of these, pertinent genealogical case-study material is introduced that argues the need for more critical forms of mapping. This is likely to be especially so, for example, if we are to more deeply understand how to avert or lessen the risks and trauma of destructive conflicts. What potentials might exist for transcending such conflicts non-violently rather than through habitual mind-sets?

The final sections of this article turn to the difficult yet important questions of enriched alternative mappings and decolonised imagination. Particular attention is given to exploring the diverse and potentially highly creative spaces for peace pedagogies and image literacy. Similarly, the potential for strengthening interrelations between futures education and the cultural politics of hope are considered. As commented by feminist futurist and peace researcher, Elise Boulding:

We need images [or cultural maps] of the peoples of the planet living gently but adventurously on the earth, walking the ways of peace in a future still filled with challenges. It is as essential to spend time dreaming the possible shapes of that future as it is to learn the skills of peace building to maintain it... (Boulding 1993, quoted in Hutchinson 1996: 253)

To begin to acknowledge the need for an enriched poetics of peaceful futures is an important starting point if fatalistic or habitual mind-sets about "the inevitability" of war or other major damaging or disabling institutional frames are to be questioned. Entailed in these processes of developing image literacy, Boulding suggests, is a need for both unsettling or getting beneath the surface of taken-for-

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granted cultures-of-war imagery, as well as to creatively explore alternative spaces for building cultures of peace.

Guiding Metaphors and Deep Culture

Guiding metaphors and myths about "the nature of things" whether in business, schools, society or international relations, are deeply embedded features of worldviews or socially sanctioned paradigms. Metaphors can have both generative and normalising features. Study of them may offer some critical insights about organisational, societal and civilisational contexts, as well of potential sites for creative change and the non-violent transformation of conflict. Whilst new metaphors are likely to be important in encouraging fresh activity or creativity, they also may, in some ways, obscure. The latter happens as our metaphorical accounts necessarily entail some selectivity over what constitutes "good" or appropriate imagery. There is particular framing of the world that may or may not contribute constructively over the long-term. Over time, too, they may become clichéd or dead metaphors. (Gibbs 1994; Game & Metcalfe 1996; Lakoff, Johnson & Dacey 2001)

Some seemingly dead metaphors, however, may gain considerable power at a subconscious or deep cultural level. Those metaphors that have become deeply linked with dominant myths are likely to be so ingrained as to be taken for granted. Associated assumptions constrain the generation of new insights. They may substantially foreclose on thinking outside the gridlines of what is "normal" or "natural".

They may include, for example, "natural" assumptions and related guiding metaphorical expressions such as "if we are to safeguard peace, we need to prepare for war", "life is a threat-filled, competitive jungle", "evolutionary development occurs through the competitive mechanisms of natural selection", and "the underlying components of human biology are aggressive gene-machines". Such assumptions are strongly evidenced in major strands of con-

temporary media culture, as well as in conventional disciplinary traditions within fields such as political science, strategic studies, neo-classical economics and the biological sciences. What difficulties such restricted habits of thought and ways of framing the world make for alternative futures thinking, including in building cultures of peace, have been pointed out in a growing number of critical peace studies works. (Groom 1990; Satha-Anand 1991; Hutchinson 1996; Galtung, Jacobson & Brand-Jacobsen 2002; Francis 2004; Watson 2004)

A Disenchanted World: Mechanistic Maps

Metaphors interact strongly with the ways in which we "map" the world, including our experiences and representations of spatial and temporal relations. Western science, especially in its more positivistic expressions, has been at pains to stress its avowed freedom from metaphorical assumptions and guiding metaphors. Whilst in many ways powerfully illuminating, the Western scientific project has been both atomistic and mechanistic in its assumptions about the constituents of reality and potential reality. (Matson 1964; Berman 1981)

The writings of Thomas Hobbes (1588-1679) are illustrative of how machine metaphors were becoming in the sixteenth and seventeenth centuries increasingly 'natural' components in theorising about and explaining the world. Like Descartes and Newton, Hobbes championed the mechanical worldview. This "founding father" of modern political science sought to dismiss in his most influential work, *Leviathan* (1651) older traditions that enchanted nature and the world:

...Why may we not say, that all automata (engines that move themselves by springs and wheels as doth a watch) have an artificial life? For what is heart, but a spring...and the joints, but wheels, giving motion to the whole body. (quoted in Matthews 2000: 218)

As commented by the radical Christian theologian, Jurgen Moltmann on such guiding imagery:

...The metaphysical precondition for the development of the mechanistic world picture was to strip the world of a soul. The old notion about a world soul, an "anima mundi", was condemned as superstitious and animistic. The soul-less world was viewed as a machine ordered by God the Lord according to natural laws. The male concept of rule displaced the old female image of the organically ensouled world.... (Moltmann 2003: 168)

Having lived through the thirty years war in Europe, Hobbes found nature nasty, brutish and short. He craved security and predictability, like many of his contemporaries for the political landscape of Europe and for the new frontiers beyond. He found much that was reassuring in the metaphors of a clockwork universe. There was civilisational promise of a more disciplined and orderly future in such imagery that sort to control or tame 'the unruliness' of nature.

Developmentalism and Gendered Maps

Guiding cultural maps of this kind as argued by the feminist critic, Carolyn Merchant, are deeply gendered in their metaphorical assumptions and define progress narrowly:

...Whereas the nurturing earth image can be viewed as a cultural constraint restricting the types of socially and morally sanctioned human actions allowable with respect to the earth, the new images of mastery and domination functioned as cultural sanctions for the denudation of nature.... The idea of dominion over the earth existed in Greek philosophy and Christian religion...But, as the economy became modernized and the Scientific Revolution proceeded, the dominion metaphor spread beyond the religious sphere and assumed ascendancy in the social and political spheres as well... (Merchant, 1990: 2-3)

In the disenchanting representations of the

world in the mechanical mindscape, what lay off "the map", such as the cultural violence of gendered geographies, received no critical acknowledgement from Hobbes or other mechanists. Any such violence was not seen as being violent. Rather it was taken-for-granted as a "normal" part of the contours of the cultural and political landscape. There was an assumed "natural" gradient of gender, social class and other power relations. (Glendinning 1999; Katz 2001)

Gillian Rose has put forward a feminist critique of how such assumptions came to constitute some destructive disciplinary tendencies in the claimed transparencies of Western cartographic science:

...The penetrating gaze, the strong claim to knowledge, and transparent space are deeply bound together in geographical knowledges... The claim to see all and therefore to know all depends on assuming a vantage point far removed from the embodied world...[Such a claim is indicative of] hegemonic masculinity. Only white heterosexual men usually enjoy...a feeling of spatial freedom. Women know that spaces are not necessarily without constraint; sexual attacks warn them that their bodies are not meant to be in public spaces, and racist and homophobic violence delimits the spaces of black and lesbian and gay communities. Transparent space then mimics the public space of Western empowered men, its violence repressed...In an act of epistemic violence, this space claims transparency and universality, and represses any difference from itself... (Rose 1993: 70-6)

Developmentalism and Linear Time

The Cartesian-Newtonian worldview was infused with metaphors of clockwork mechanisms and of the motion and collision of inert atoms. Descartes, Newton, Boyle and the other major natural philosophers of the scientific revolution rejected the Aristotelian metaphysical categories of substance, nature, form, and potency. Instead they drew upon and extended

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the mechanical and atomistic ideas of Aristotle's opponents in ancient Greece such as Democritus and Epicurus. Whilst for Aristotle change or growth was the unfolding of "the form within", such teleological assumptions were rejected in the new mechanistic philosophy. Whether in experimental or everyday contexts, phenomena were considered explainable in terms of linear systems- analysis and clockwork mechanisms.

Yet, even as the basic ideas of mechanical philosophy became increasingly assimilated with developmentalist assumptions of linear time and unitary progress on a Western model, claims about the teleologically- free status of Western science were repeatedly made. (Shiva 1988; Joshi 1992; Alvares 1994; Zerubavel 2003) Although the Christian god had been relegated to first- cause in a clockwork universe, the everyday causal mechanisms at the heart of existence were widely assumed to have direction. The mechanical philosophers found it hard to shake off entirely teleological and eschatological ideas about "the shape of history" and predictions about times to come.

The push of such assumptions is evidenced in the nineteenth century, for example, in classical Marxist theory. Socialism as an avowed science could reveal what would emerge ultimately from the material dialectics of history. The imaged lines of progression in classical Marxist eschatology were to be "the inevitable" transition to a classless society.

In Benthamite utilitarianism and Smithian economics, there were also optimistic images of times to come but the unfolding was towards a capitalist utopia and not a transcending of capitalism. The engine of free trade and the mechanical, impersonal hand of the free market, in this major discourse, will lead to the promised consumer and technological cornucopia. Within this perceptual frame, the imaged basic destination relates to more precisely calibrating the pleasures or consumer wants of "economic man" within free-market mechanisms and thereby extending global order and peace on a capitalist model. In the early twenty-first century, these kinds of images clearly retain much power. This is demonstrat-

ed in neo-classical economics and dominant discourses on modernisation/globalisation.

Developmentalism and Cartographies of Childhood

Childhood in the Western cartographic gaze has been concerned not so much with learning about or from children, as with drawing analogies and constructing images that bear a strong imprint of power-relations, ageist and gendered ideology, and projected adult society dreams, fears and guiding cultural assumptions. (Hutchinson 2002) In the period of major Western imperial expansionism, developmentalist analogies for societies, cultures and civilisations were "discovered" in the perceived stages of child development from infancy to adulthood. Newly "discovered" lands and people, according to the dominant assumptions of the time, were inscribed with major meaning as belonging to "the childhood of mankind", as a *tabula rasa*, unformed and primitive, awaiting the benefits of civilisation:

...Just as "childhood" began in European culture with the task of learning how to read, so education and literacy [became] crucial in the imperial expansion of Europe, establishing ideological supremacy, inculcating the values of the colonizer; and separating the "adult" colonizing races from the "childish" colonized... (Ashcroft 2001: 39)

Cultural alibis, such as "terra nullius" (claimed land-without-people or land not utilised in accord with Western development practices) and a "timeless land" (a claimed land-without -time or before Western mercantile or industrial time), were used by the colonisers to legitimate their invasion, violence and dispossession of the lands of colonised peoples. This was very much the dominant pattern in Australia in the relations between Indigenous and non-Indigenous Australians. Developmentalist assumptions meant that Indigenous Australians were claimed to be at a developmental stage before appropriate competencies for exploiting the land had been learnt, had only a "primitive" and undeveloped time-sense, and

lacked the necessary skills associated with higher-civilisation interactions, as evidenced by a perceived lack of basic literacy and map-reading abilities.

Other richly diverse ways of relating to the land, interpreting history and temporal relations, and forms of literacy other than print-based and ocular centric forms were marginalised or not seen for what they were. Viewed through a Western-centric frame, there was little appreciation of the possibility that, for example, Western forms of literacy and mapping were deeply reductionist, despite their truth claims to universal applicability. There was little comprehension of why there might be "recalcitrance" or resistance to the "civilising" work of those already modelling a more developed, "adult" stage of civilisational progress.

Developmentalism and Exhibition Spaces

Such developmentalist assumptions had found early expression in the formal cartographies of the Western colonising powers. They also found expression increasingly in other important institutional forms that were important for the cultural politics of empire. Among these was the establishment of a range of exhibition spaces to convey images of national history, glory and sacrifice in war, imperial grandeur, heroic science and technology, and progress on a western model.

The nineteenth century and early twentieth century witnessed in the west a great upsurge in the growth of, for example, ethnographic museums, natural history museums, geological museums, and science and technology museums, and as a late addition, movie houses. Within leading Western art galleries, too, there was a major racialising turn during this period. Curators increasingly mapped acquisitions of so-called "primitive" art in ways that distinguished them from those exhibited artistic products of an "advanced civilisation". A triumphalist story of the history of Western art emerged in much the same way as with conventional accounts of the progress in cartography.

These narratives included landmarks of achievement, such as the introduction of linear perspective. Filippo Brunelleschi, the Renaissance artist and architect in the fifteenth century, first used it. Linear perspective was to achieve iconic status, given its perceived capacity to represent reality much more accurately than other art traditions. (Honour & Fleming 1999)

In a sense, these exhibition spaces served as a taken-for-granted cultural map. This map was constituted by the boundaries around inclusion and exclusion exercised in displaying artefacts. There were also knowledge-power interests that reinforced strongly hierarchies of widely accepted curatorial organization. (Forgan 1999; King 1999)

Donald Horne (1992) expands on how such "normalising" processes worked, to reinforce conventional interpretive frames about reality and potential reality. He suggests these were, in some ways, deeply culturally violent:

...Not only were museums categorised into patterns that could be more demanding on the attention than the exhibits themselves: all these patterns could seem drawn together by a straight line. Museums could be linear; leading the visitor inexorably from rotative steam engine to spaceship from amoeba to Man, from archaic to classical, from Stone Age to Iron Age, from entrance to exit... (Horne 1992: 130-31)

Mapping and Space-time Coordination

The absolutes of Newtonian time and space were profoundly unsettled in the late nineteenth and early twentieth centuries. Newtonian concepts of time and space, coupled with the guiding image of the force of gravity acting upon the pendulum clock mechanisms, inert atoms or fundamental "its" of being, had dramatically reframed earlier "natural" assumptions.

What had been previously imaged as differential, underlying rules or laws in the Earthly natural and physical kingdom and the Heavenly

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Kingdom now came under serious challenged. Within the Newtonian paradigm, the cosmos was ascribed unitary status, even if there remained the not completely purged business of "the ghost in the machine". Analogous to and reflective of clockwork mechanisms, the Newtonian synthesis discerned the same basic laws governing the terrestrial and celestial spheres. Such a scientific synthesis was, in many ways, congenial to the early modern phase of European colonial expansion and absolutist forms of governance.

By the late nineteenth century and early twentieth century, however, such assumptions were beginning to be increasingly questioned. In some ways, this was tied to changing images of time. Such altered imagery accorded with a growing sense of a speeding-up of temporal relations in rapidly industrialising societies. The industrially -disciplined time metaphors and proverbs spoke of time as money, time as a precious commodity, of procrastination as the thief of time, and of punctuality as the soul of business. Old solidities seemed to be fast melting.

It was also a time of heightened Western imperialism, with the grab for colonies as Western imperial powers extended their global reach. With these rival imperialisms, the conditions were being created for the horrors of global war (1914-18). In the years before world war, there had been "natural" assumptions about the function of schools, in their formal and formal curriculum, to train the children of empire in time- discipline, cartographic appreciation of "the civilising mission" of Western powers, and the imagined communities of patriotic duty and sacrifice. (Davidson 1993)

In such a globalising, yet in many ways chaotic and uncertain, world the problem of this score from several important and overlapping knowledge-power interests to find order was to restate itself in the minds of many. There was an increasing concern on what was to be later called in the metaphors of hyperindustrialism or postmodernity, "order in chaos". There was a growing advocacy on such matters by a substantial number of manufacturing and exporting companies, politicians, empire builders, military strategists, media barons,

lawyers and railway network entrepreneurs. There was much frustration about the relative lack of predictability, for example, among those engaged in international trade or in managing the new railway systems. Maps with differing longitudinal grids and imprecise time zones often aggrieved them:

...Turn-of-the-century Europe and North America were criss-crossed with lines of coordination: webs of train tracks, telegraph lines, meteorological networks, and longitude surveys all under the watchful, increasingly universal clock system. In this context, the clock coordination system introduced by... Einstein [and others] was a world machine: a vast, at first only imagined, network of synchronised clocks that by the turn of the next century had metamorphosed from networks of submarine cables hauled by schooners to a microwave grid broadcast from satellites. There is a sense in which Einstein's special theory of relativity has always been a machine, an imaginative one to be sure, but one suspended by a constantly evolving real skein of wires and pulses that synchronized time by the exchange of electromagnetic signals.... (Galison 2004: 290)

Mapping, Systems Theory and Network Society Metaphors

In important ways, the assumptions of a clockwork universe have been overturned by the Einsteinian radical reconfiguration of time and space. Images, for example, of a distorted and melting clock face in the surrealist art works of Salvador Dali point to aspects of the broader cultural context of uncertainty into which such a post-Newtonian reconfiguration was received. Yet, in another sense, the mechanistic universe has been reasserted. The post-Newtonian matrix has provided a context of ideas, values and assumptions suited to profoundly up-dated forms of mechanical philosophy. This may be illustrated in influential contemporary academic works in the physical sciences, such as Lowman's *Exploring Space: new*

understanding of the Earth from space research (2000) and Barrow, Davies and Harper's edited volume, *Science and Ultimate Reality* (2004), but also much more broadly. (De Mey 1982; Kosslyn 1983; Brown 1999)

The Einsteinian synthesis culturally foreshadowed, in important respects, higher-order, network-machine metaphors. Such forms of symbolic or metaphoric expression point to ambivalent expectations about science, technology and development. Among these expectations and emergent themes are "the networked society", greater efficiencies or rationalisations in time-space coordination, synchronous interactivity between order and change, of cybernetic human-machine interdependencies, and of inevitable future landscapes of nanotechnology-equipped soldiers and cyber-war:

...The battle space is now visualised as a three dimensional information environment where "sensors" (surveillance and reconnaissance assets) and "shooters" (soldiers, aircrews and sailors) act as part of a unified and complex networked entity. This reliance on networks for organisation as well as tools by which force is applied in an interactive fashion is the core of the military's new doctrines on war fighting... (Yanacopulos, Jordan & Rohozinski 2004: 473-4)

The revolution in digital communications technologies in the second half of the twentieth century and early twenty-first century has enormously reinforced "natural" assumptions of these kinds about higher-order mechanisms and times to come. Relatedly, it might be observed:

...Emerging out of World War II developments in radar...developments, cybernetics [became] a cross-disciplinary science of information and communications systems contributing to a host of theoretical and technical advances in computerization, telephonics, and guided missile systems. It is also... a science of control, with applications in biological, mechanical, and social fields... (Orr 2000: 154)

Mattellart (1999: 170, 184-5) puts a similar critical point as to genealogy and the assumed

redemptive powers of new communication techniques and networks:

The image of the communications net is the paradigmatic representation of those interactions and transactions... now reorganising the world...

...The Second World War...mobilised the totality of communications technologies. It witnessed the birth of the great electronic calculators which themselves anticipated computerised networks and the mathematical science of cybernetics...The Cold War, the moonlandings and the arms race as well as war in Asia mapped out the field of technical innovation and prioritized its application.

Electronic Maps, Conflict and Imagined Future Landscapes of Consumption

Rather than meaningful dialogues, much in evidence historically, with the older projects of occupied spaces in formal empire, are the arrogances of "civilising missions", economic expediency and military might. To what extent are the electronic mapping initiatives at the beginning of the twenty-first century indicative of the push of the past? To what extent are they influenced by those selective traditions associated with "preparing for peace by preparing for war" and forms of development based on the myths of endless consumption?

What knowledge interests underpin, for example, the new maps of terrestrial space? The latter include new technologies for surveillance, biometric scanning for terrorist suspects at airports, meteorological prediction, geological surveys for oil and gas reserves, oceanographic surveys, and Geographical Information systems (GIS). They also include improved guidance systems for weapons used in "precision bombing", GPS (Global Positioning System), and electronic eavesdropping through so-called "joint military facilities" such as Pine Gap in Australia.

Similarly, whose interests are extraterrestrial-space initiatives likely to serve most? Are

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there opportunity costs in terms of unmet need on Earth from moon-landings, Martian probes, and space-station projects? What knowledge interests are involved in the current generation of projects for exploring and mapping inner space (human-genome, nano-technology, scanning the brain with positron emission topography)?

Derek Gregory in his work, *Geographical Imaginations*, gives an insightful look at the possible interrelationships among such new developments in spatial science with both emergent and strengthening trends in neoclassical economics and commodification processes. He argues:

...many of the assumptions and concepts of neo-classical economic calculus have entered popular discourse and shaped public policy... through its teaching, research and publishing, [it] has naturalized and universalised a particular conception of economic progress. This ideological function- a market triumphalism-has been immensely influential...It has effectively endorsed the commodification of successive spheres of social life... (Gregory 1994: 62-3)

Integrally related to commodification and economic globalisation processes, Gregory maintains, are the new developments in spatial science. The emergence of Geographical Information Systems (GIS) and still more radical innovations in virtual reality and cyberspace, Gregory argues, risk further commodification of the lifeworld. The performative power to display complex data-sets using the latest computer technology and satellite communications systems is vastly different in its embedded interests in global commercial trajectories, for example, to the cosmological assumptions of the Christian pilgrimage world- maps of pre-capitalist Europe. The *mappa mundi* at Hereford Cathedral in England, for example, was intended as sacred text, with imagined geographies that included sites such as "the Earthly paradise" or Eden. (Edson 1997; Scafi 1999; Black 2003)

Whilst a desacralised and consumerist promise of Eden may be discerned in major genres of technocratic dreaming and shoppers' paradises imagery in the early twenty-first cen-

tury, GIS representations of our world often leave much off the map. There is rarely much disclosure of the major political, economic or military interests involved in many of these new electronic mapping enterprises. Evidence of this silence and colonising forms of imagination may be gleaned from the industry's annual showcase publication, *Geography and GIS-Serving the World*. Each edition is introduced with a marketing spin. The 1999 edition, for example, includes the quoted comment that defines "geography's perfection" and "master tool" as the map and, more particularly, the electronic map. Included among the exemplars in the 2003 edition are case-study items such as detailed electronic mapping by market researchers of retail environments and of ways to enhance shoppers' purchasing pursuits. (Sappington 2003: 9)

Other highlighted items include a selection of cartographic accounts of mining and energy resources. There is, for instance, a map on historic oil wells, as well as maps of "best options" in siting a new pipeline between Baku in Azerbaijan and the Mediterranean port city of Ceyhan in Turkey (Pp34-35). There are further examples of geo-political electronic cartography, such as a map of Afghanistan's rugged war-fighting terrain and "some cultural issues". Prepared in the aftermath of September 11, 2001, this map was constructed using data from the National Imagery and Mapping Agency, the US Army Topographic Engineering Center and the US Airforce Climatology Center. (Sappington 2003: 48)

Recently, there has been some growth in dissenting voices within mapping circles. These voices seek a more critically engaged and participatory use of GIS mapping by local communities. (Choucri 1999; Pickles 2004; Shuurman 2004) However, Gregory's critical comments retain much of their salience. They contain the warning that new developments in spatial science are not simply matters of a detached science, with enhanced capacities for accurate mapping or visual representation, but are in some ways deeply implicated in trends in militarisation and commodification:

...The power to display complex data-sets in

three dimensions, to rotate, manipulate, and track across their terrains, and to collapse continental and even global landscapes onto video screens was revealed with agonizing clarity during the Gulf War of 1990-91, a conflict which [has been described] as "the first full-scale GIS war"...

Much of the discussion continues to treat GIS as a detached "science" or as a response to the abstract "logic" of the market and its supposedly natural commodification of information. In doing so a rhetoric of concealment is deployed that passes over these configurations of power-knowledge in virtual silence.... (Gregory 1994: 65)

Diminished Ethical Space and Its Discontents

There is little critical reflection currently within conventional scientific discourses on the possible ethical or political issues that might be raised by such matters. Rather there has been and continues to be the relentless reformulation of mechanistic metaphors in Western science's explanations of inner and outer worlds, as well as of future worlds. The atomistic 'its' are now increasingly networked as informational "bits" or "nodes", but the imaginative landscape still remains a largely lifeless, flat land. Such images are largely taken for granted.

As introduced earlier in this paper, objectivist myths in modern Western cartography and more generally Western physical and social sciences have strenuously sought to distance themselves from the "biases" or subjectivities of metaphorical language. Thomas Hobbes was among the early strong advocates of such an approach. In his writings on nature, politics and society, Hobbes stressed the importance of a disembodied eye on reality. To produce a clear account of reality, it needed to be stripped of the embellishments of metaphorical language. Instead of clarity of vision, metaphors complicated matters enormously. Unlike literal or objective language, figurative language was taken to be absurd and misleadingly emotional. "For though it be lawful to [use metaphors] in

common speech", according to Hobbes, "...in [scientific] reckoning, and seeking of truth, such speeches are not admitted" (quoted in Lakoff & Johnson 1980: 190)

For mechanists such as Hobbes, these comments are made without a slightest touch of irony, as they are today by systems theorists. Guiding images or metaphors are not admitted for what they are. Relatedly, ethical space risks being dramatically diminished or colonised with such discourses. Rather than ethical issues as intrinsic to research and learning, the so-called disinterested investigator is claimed to be "value free" and cleansed of "emotional biases" in observing the world. Within this received tradition, there is the push of positivism's dualist and objectivist assumptions about "facts" and "values". By contrast, alternative research traditions, such as critical theory, peace research and feminist epistemologies, make ethics intrinsic rather than extrinsic to the whole inquiry process. (Guba & Lincoln 1998)

For conventional economic theory, with its strong "exact" science pretensions, ethics are assumed to be largely synonymous with the values of free-market competition, resource utilisation and high profit-making levels. Orthodox indexes of progress, such as Gross National Product (GNP), do not map the real costs to people and the environment of war economies and energy-inefficient, industrial production processes. "Externalities" is among the key, economic jargon terms commonly used. These terms erect epistemological and ideological fences that hide full costs socially and environmentally. Such language and imagery obscure the need to possibly substantially rethink the place of ethical questions in economics, including the challenges of global poverty, issues in rich-world resource use and disproportionate impact on trends in global warming, and matters of intergenerational equity beyond "cowboy capitalism". Currently, for example, the world's 500 richest people have more money than the annual earnings of the poorest 3 billion people. (Monbiot 2005)

Moreover, the opportunity costs of the one trillion dollars spent each year on military budgets, including new surveillance and

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weapons technology R. and D., are enormous. The latest United Nations data reveal that 20 per cent of one year's global military budget, if used over a ten year period for peacebuilding purposes, would be sufficient to meet basic human needs in areas such as health care and education. Tens of millions of lives could be saved over these years through practical initiatives such as ending fees for essential health-care services and distributing free mosquito nets and anti-malarial medications to all children in regions where malaria is a problem. (UNICEF 2005)

Resisting Reductionist Regimes of Truth and Foreclosed Futures

Similarly, there is a lack any honest acknowledgement within dominant discourses of the possibility of impoverished social and ethical imagination in a systems-theory universe of networked 'its, 'bits' and "system nodes". This is more especially so if there is a highly selective reading of other epistemological traditions, such as the Buddhist concept of Indra's net and dependent origination. To see this complex theorising, which is filled with rich imagery of creatively interdependent life, as simply previewing Western systems theory is to miss the basic point.

Meaningful intercultural and intercivlisational dialogue aspires to avoid colonising assumptions or monological mapping. (Kung 1993; Galtung & Ikeda 1995; Ikeda & Tehranian 2003) Whilst the Newtonian mechanistic, billiard-ball universe differs greatly from Buddhist epistemology, this is not the same as saying the contemporary idea of networked interdependencies of "its" on a Western systems philosophy model is better or more advanced than both the classical Newtonian and Buddhist epistemological maps. Western systems philosophy does not necessarily represent a more scientific, "post-modern" map than the earlier Buddhist attempt. (Haywood & Varela 1992; Wilber 1997; Macy & Brown 1998; Sayadaw 1999; Clark 2002)

There are signs that such a postmodern

imagination may be just as potentially colonising as the modern Western imagination has been. Each powerfully focuses on illuminating some important aspects of the world but each reduces reality and denies others. While the "natural" images the Newtonian clockwork universe and Fordist production lines have been increasingly replaced, the newer guiding images are in many ways still impoverished in their assumptions.

At this juncture in human history, these major forms of Western imagination seriously risk denying the potential importance of an evolving global civic culture imagination. With the latter, there are emergent narratives on building solidarities or "rainbow coalitions of non-violent action" across diversity from the local to the global levels. There are important beginnings in these counter-hegemonic frames on reconceptualized notions of power, with a shift from "power over" domination to "power with" human solidarities linked with new global peace and ecological consciousness.

Such an emergent empathetic and cross-cultural imagination includes important ethico-poetic strands. Easy temptations to dichotomise the world and stereotype "the other" are resisted. There are places envisaged as possible for practical peacebuilding in our times. Whilst there are no guarantees given or claims made as to "natural" teleologies of development or social progress, such narratives are beginning to take steps beyond militarised mindscapes and neo-colonialist triangulations of truth. Being negotiated as part of contemporary cultural politics of resistance are alternative social imaginaries to, for instance, the relentlessly xenophobic and fundamentalist "clash of civilisations" assumptions on times to come.

In seeking to map, for example, the causes of the overall trendlines of plummeting support in Islamic countries for the fight against terrorism, *The 9/11 Commission Report* maintains that many of the views within these countries are at best uninformed about the United States and, at worst, informed by cartoonish stereotypes, the coarse expression of a fashionable "Occidentalism" among intellectuals who caricature U.S. values and policies....(National

Commission on Terrorist Attacks 2004: 375)

Arguably the complexity of ethical and epistemic terrains remains largely obscured in such official "maps". There is foreclosure on "excesses of the imagination" as to alternatives that might exist. Important dimensions of deep culture and deep structure tend to be ignored or taken for granted. With such narrowing of mindscape, spaces of democratic toleration, civil liberties and debate risk coming under increased nationalistic and militarist pressure even if changes are made in the name of defeating freedom and defeating tyranny.

Within dominant discourses, there is very little critical introspection or an imaginative play of ideas about possibly less violent and fear-laden routes that might be taken over coming generations. Ziauddin Sardar, in a recent critical review of Margalit and Baruma's *Occidentalism: a short history of anti-westernism* (2004), argues the importance of questioning ideological oversimplifications and cultural myopia in such matters. He invites a rethinking of the ways we map:

The very tools the west uses to study the non-west-concepts, ideas, disciplines, methodologies-are deeply implicated in the exploitation of non-western cultures...

There is Occidentalism out there. To understand its true nature, however, we need to understand non-western societies on their own terms, within their own histories and with their own concerns and concepts. Is this really too much to ask? (Saddar 2004: 48-50)

Maps and Non-violent Transformation of Borders

Arguably from a critical futurist and conflict transformationalist perspective:

...It is not enough to provide [for example] a new cartography of our postmodern imprisonment. We need to find ways within the labyrinth which lead out of it...[We need to] explore how we might effectively engage in the transformation of our social existence... (Kearney 1994: 386-7)

To become more critically literate in the ways our own mental, cultural and civilisational maps impact on what we do or do not do in the present is an important challenge if feared futures are to be transcended rather than fatalistically accepted. We live in a far from a borderless world in spite of the mantras of neo-classical economics about free markets and free trade. There is no free movement for refugees fleeing oppression, armed conflict or tsunami disasters.

The borders in our contemporary world remain in many ways both structurally and culturally high. Notwithstanding these realities, in numerous situations usually still some contradictory spaces and opportunities for active, non-violent resistances might emerge. These include formal educational contexts, such as schools and universities, and informal educational contexts such as the electronic media and the internet. (Meikle 2002; Roy 2004; Mann 2004; Jenson 2004)

Rarely are there situations in which no signs or elements at all of cultures of peace and creativity exist. Importantly, in terms of long-term, practical peace building, this is so even at times of major war, insularity and fear-laden imagery of the future. The potentials for alternative, oppositional or dissenting pathways, even if hard or very difficult, often already exist and need to be further creatively strengthened. (Boulding 2000; Nordstrom 2002)

Along with, for example, current globalisation-from-above trend lines, there is the reflexivity and creativity of imagery and action of globalisation – from-below. The latter relates to significant dimensions of cultural change politics. The paradigm shift in imagined future spaces from the local to global levels, including the nation-state and transnational corporations, is away from "power over" or authoritarian political processes and structures. Envisaged futures place emphasis on "power with" or meaningfully partnership-politics, including a greatly democratised and enhanced United Nations system. Such envisioning finds enriched and diverse contemporary expression in organisations and movements associated with grassroots globalism. (Cohen & Kennedy 2000; Suter 2001; Eisler

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2002; Eisenstein 2004)

There is a significant range of new ideas and emergent visions linked to the cultural politics of civil society engagement and contemporary efforts at cross-cultural and intercivilisational dialogue. There are the tentative beginnings of a global civic culture. Elements of such a culture include some substantially provisional, yet potentially highly significant consideration of matters of foresight such as that of intergenerational equity and environmental futures. (Falk 2001; Vertovec & Cohen, George 2004; Held 2004; Slaughter 2004)

Alternative Mappings and Dissenting Learning Journeys

Some possible ways forward are raised in such "grassroots- globalist" discourses. Generally, these ways are strongly open to dialogical rather than monological forms of mapping. They offer considerable practical insights and some important provisional working princi-

ples. For futures educators, peace educators, environmental educators, community workers and other would-be-travellers into the coming decades of this century and perhaps beyond, there are diverse starting places and possible negotiation points such as those raised below (see Table 1).

There is a Chinese saying that a long journey begins with a single step. There are multiple possible steps and many possible choices. This is not to say we can go everywhere from here: for that would be politically naïve or optimistic in the extreme. It would be to ignore, for instance, the continuing power of racialising, gendered, ecologically violent and militarist mappings. After all, along with these maps are strongly impoverished metaphors, colonising mindscapes, violence-condoning trajectories, and fatalistic assumptions about what is and what might be.

Nonetheless, there are contradictory spaces and "resources of hope". Alternative mappings and dissenting journeys of active

Table 1 Towards dialogical mappings: some possible working principles

Image literacy	Decolonising research methods	Non-violent learning and action	Foresight and ethics
<p>Encouraging critical mapping literacies rather than just accepting dominant Western-centric, "cartographic dreamwork" as to times to come</p> <p>Play of imagination about alternatives rather than taken -for-granted metaphors of everyday realities</p> <p>Working to include enriched imagery of peaceful, socially just and ecologically sustainable futures rather than reinforcing cynical realism, extreme nihilism and impoverished imagery of trends as destiny</p>	<p>Humility rather than a culturally arrogant and narcissistic gaze</p> <p>Participatory rather than authoritarian methods</p> <p>Openness to ambiguity rather than fundamentalist dichotomies -"both-and" rather than "either-or" guides</p> <p>Globalisation-from-below, alternative mappings rather than "globalisation-from-above", linear- progress mapping</p>	<p>Learning from the songlines of diversity rather than uncritically following the gridlines of homogeneity</p> <p>Empathy rather than intolerance</p> <p>Hospitality rather than exclusion</p> <p>New pathways of active non-violence rather than violence-condoning cultural road-maps</p> <p>Journeying in active hope rather than cynicism, fatalism and despair</p>	<p>Anticipatory mappings that invite negotiation of new global ethics, emancipatory politics and applied foresight rather than reductionist, strategic planning and managerialist blue-prints</p> <p>Intergenerational-equity concerns rather than just mapping from a generational- centric perspective</p>

non-violence offer diverse ways forward. Even if they might be far from easy or certain to succeed, at least, a post-modern, labyrinth-fate is not nihilistically or despairingly assumed. With such learning journeys, whether in formal or informal educational contexts, there is not a cynical "realist" acceptance that hope-engendering movements are basically delusions. Colonising images of the future, with their fatalistic assumptions about the institution of war and "normalisation" of violent trends, are actively resisted. The cultural fallacies of trends-as-destiny are questioned. (Hutchinson 1996, 2000; Inayatullah 2002; Hicks 2004)

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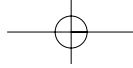
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