

Book Reviews

Cyburbia: The Dangerous Idea that's Changing How We Live and Who We Are

James Harkin

London, Little, Brown, 2009, x+274 pp., UK£17.99, ISBN 978-1-408-70114-0 hbk

We-think: Mass Innovation, not Mass Production

Charles Leadbeater

London, Profile, 2008, xiv+290 pp., UK£12.99, ISBN 978-1-86197-892-9 pbk

It is April 1945, Berlin is falling and an anonymous female diarist observes that someone has tacked two cardboard placards to a neighbourhood tree. The names Hitler and Goebbels are written on them, and they threaten hanging and shooting to anyone who surrenders to the invading forces. No one, the diarist notes, takes any notice; the handwriting 'looks pathetic and inconsequential, like something whispered'. She writes: 'we've been spoiled by technology. We can't accept doing without loudspeakers or rotary presses. Technology has devalued the impact of our own speech and writing'.¹ In a few sentences, she summarises the phenomenon that James Harkin describes in *Cyburbia*, 'cyburbia' being the 'place where we go when we spend too much time hooked up to other people via a continuous loop of electronic information' (p. xiii). Harkin appears to be saying that digital information technology has now become so embedded, and so ubiquitous, that it is being over-used; and it is this very over-use that is in danger of rendering much of what we say and do online meaningless. He discerns that one of the reasons why the Internet is 'such a Disneyland of escapist metaphors' (p. x) is because our electronic activity, reduced to its most basic level, 'of using a mouse to manoeuvre a cursor across a computer screen, or of jousting with the buttons of a mobile phone to reply to a text, seems so utterly dull' (p. x). We have been drawn further and further into the digital ether, and in order to remain aloft, more and more of our time is occupied by 'ceaselessly pressing buttons in an effort to engage with strangers' (p. x) across online networks. How have we come to this? Harkin observes that 'somehow we have developed a pressing need for

regular electronic communication with other people' (p. 17), and that we have come to accept 'the idea of ourselves as messengers navigating an endless loop of information'—called 'cybernetics'—and his book aims to be 'the unauthorised biography of that idea' (p. xi).

Harkin begins by tracing the development of networks in information contexts back to work by Norbert Wiener and Julian Bigelow on improving the success rate of anti-aircraft fire during the Second World War. The problem Wiener and Bigelow were primarily concerned with was how to improve and 'modify the operation of [the anti-aircraft] heavy machinery in response to a continuous loop of information about the [...] flight path of the [enemy] plane and the system's performance' (p. 20). Wiener began to equate the feeding of a continuous stream of information about the flight path and the anti-aircraft gun's performance back into the targeting apparatus (p. 21) with the action of feedback loops in engineering systems. He was later to develop this feedback concept into the field of social theory with publications on *cybernetics*, 'adapted from the Greek word *kybernetes*—meaning helmsman or pilot' (p. 24). Wiener eventually came to believe that sociologists had overlooked the extent to which 'society is based around the communication of information' (p. 24). He was convinced that:

just like machines, human actions of any kind could be modelled as a never-ending information feedback in which the actor, like a puppet on a series of strings, would continually adjust himself to messages fed back to him about both his environment and his effect on that environment (p. 27).

Harkin says that in understanding what the 'new digital gizmos have made of us, and the intensity of our involvement in them' (p. xi) it is possible to see that we too, are very much like the anti-aircraft gunner, 'continually adjusting our aim in response to a stream of messages' (p. xi). Even more than this, we have become frenetic human nodes in the information network, feeling an almost 'gravitational pull' (p. 10) which brings us back 'again and again into Cyburbia' and which is why we 'begin to feel twitchy when [we] haven't logged on' (p. 10). We think we are connecting with people, but in fact, 'as nodes on a network [...] personal characteristics are left behind. What matters to the network is only that [we] have forged a connection' (p. 11). As Manuel Castells maintains, it is a place where 'the power of flows takes precedence over the flows of power' and where 'presence or absence in the network and the dynamics of each network vis-à-vis others are critical sources of domination and change'.² Certainly, much social networking seems not to be overly concerned with the quality or durability of the messages transmitted, rather, the messages themselves are a conduit for flows: they draw attention to, and help to proliferate networks; and they point people towards other information hubs and networks via universal resource locator (URL) links to celebrities, news events and strange trivia. The micro-blogging site Twitter may—depending on the company one keeps there—give every appearance of being a place where a lot of people who perhaps do not have very much to say to one another, gather in order to point to stories and links, and where marketers trawl through keywords, picking up 'hay fever' and 'chocolate' in order to spread a kind of digital bubonic plague of advertising and publicity. The positive aspects of social networking—ease of communication with friends and colleagues; the quick sharing of news and photographs between distant family members; and the sense of belonging which it provides—may indeed

outweigh the negatives, but there are many negatives to contend with all the same.

One of these negative aspects is that, in our haste to be a part of the network, we neither reflect on the veracity of the information that gets shared online nor the motives of the information sharers. The paradox of the network is that, while increasing the number of links increases the overall strength of the network, more links militate against the significance of each individual link. We may think much less about what it is we are actually saying to one another when we post at random, often in haste. As Harkin says, 'very few of us had been in the habit of phoning up numbers from the telephone book at random to impart information', yet now we are happy to pass on all sorts of details via 'our network of weak electronic ties'. We have gone well beyond McLuhan's aphorism of medium as message. In fact, we have come full circle to a world 'in which messages are rapidly becoming the medium' (p. xiii), which sustains the 'global information loop' (p. 256). Harkin warns that the effort spent keeping these myriad information loops flowing and stable 'leaves no time for anything more ambitious' (p. 254). We have become so 'mesmerised by the medium' (p. 256) that we have lost sight of the message. The true potential of our digital information world will remain unharnessed until we can find 'new ways of working, exciting new kinds of art and culture, new ways of organising ourselves and getting things done' (p. 256).

It is this very emphasis on finding new ways of working, of exploiting digital technology positively and constructively, which is at the heart of Charles Leadbeater's *We-think*. Like Harkin, he also wonders whether the web will ultimately prove to be 'a malign influence, rendering us collectively stupid by our reliance on what Google and Wikipedia tell us being true, or, worse, promoting bigotry, thoughtlessness, criminality and terror' (p. 1). At the same time, he acknowledges that thanks to the web, 'our freedoms have exploded—not just to shop for cheap, last-minute deals—but to be creative [...] through writing, making videos, composing music' (p. 1). True, the web 'expands the scope for surveillance' by the state and corporations, also by friends and colleagues (p. 2), but it also 'rewards those who are already well connected, by allowing them to network together' (p. 2). The web can 'liberate us from the control of a cultural élite' yet at the same time, the 'orgy of user-generated content the web has attracted might also rob us of high-quality journalism and literature, film and music' (pp. 2–3). There is a great deal of balance and pragmatism in much of what Leadbeater writes; and this translates the notion of '*we-think*', which initially sounds like a cliché, into an attractive and rewarding read. It is, Leadbeater tells us, about 'how we can make the most of the web's potential to spread democracy, promote freedom, alleviate inequality and allow us to be creative together, *en masse*' (pp. 5–6).

Leadbeater's main thrust is creativity: finding new ways to develop 'different skills, points of view and insight [in order to] share and develop ideas together' (p. 7). He is right when he asserts that 'at root most creativity is collaborative; it is not usually the product of a lone individual's flash of insight' (p. 7). Thus '*We-Think*'s organisational recipe rests on a balance of three ingredients: participation, recognition and collaboration' (p. 21). He insists that 'the success of *We-Think* will depend not on its being all new but on parts of it being quite old' (p. 24) as it 'speaks to a deep, old-fashioned yearning people have to be connected and to share' (p. 25). He posits that, in the twentieth century, 'we were identified by what we owned; in the 21st century we will also be defined by how we share and what we give away' (p. 26). These are high-minded, yet also quite humble ideals.

Like Harkin, Leadbeater identifies the roots of our digital age as 'a peculiar mixture of the academic, the hippie, the peasant and the geek' (p. 27). He describes this new culture as 'a potent mixture of post-industrial networks, the anti-industrial ideology of the counter-culture and the revival of pre-industrial ideas of organisation that were marginalised in the 20th century' (p. 27). Again, as with Harkin, Leadbeater discusses some early mass collaborative efforts that pre-date the digital age, for example, Stewart Brand's *Whole Earth Catalogue*. Harkin, in *Cyberbia*, describes the ethos behind the *Catalogue* as 'egalitarian' and counter-cultural, and as such, the *Catalogue* was 'an early prototype of what online social networks would go on to become' (p. 45). Now of course, networks are—or we believe them to be—much more sophisticated. And so, argues Leadbeater, we must exploit them as resources to allow and enable 'ideas to be tested from a larger, more diverse set of vantage points more quickly and with ideas continually passing between the tightly knit core' (p. 74).

But Leadbeater also readily admits that 'we-think' may not fit all applications—or that there will have to be some fairly major philosophical and organisational shifts before it can provide a useful framework for collaborative working. He argues, for example that 'thickets of patents' are warding off competition and 'intellectual property law is being distorted to the advantage of big corporations' (p. 124); that this 'massive extension of rigid definitions of private property into the intellectual and cultural arena' is disruptive to 'the delicate shared ecology of ideas on which all knowledge-creation depends' (p. 125). He targets the education system, stating that 'schools are factories for learning' where 'teaching focuses too much on cognitive skills and too little on the soft skills of sociability, teamwork and mutual respect' (p. 147). He aspires to a health service which will motivate and equip people 'to participate in their own healthcare' through, for example, greater self-management at home and in the community (p. 151). Yet this does not reckon on a government so obsessed with the minutiae of people's lives and an incessant predilection for tinkering, that it is prepared, for example, to pass laws detailing the types of food which may be purchased by children at school.³ But perhaps we too, are culturally and socially culpable for allowing this to come about.

In his conclusion, Leadbeater acknowledges that 'much will depend on whether We-Think culture can rise to the challenges that are facing us' (p. 238). But perhaps, as Harkin puts it in *Cyberbia*, the issue is really more one of whether we ourselves can rise to face the challenges of digital, networked society. We have, after all, as Leadbeater says, 'only just begun to tap the web's potential and the new ways of thinking and acting it offers us' (p. 239). Harkin believes that what is needed above all are:

new storytellers capable of awakening our interest with narratives that allow us greater freedom of movement, employers canny enough to give us tasks that absorb our divided attention, teachers clever enough to whet our appetite for making associations, guides bold enough to take us by the hand through the fog of electronic information and show us something new (p. 256).

Harkin and Leadbeater are modest writers, and neither of them makes grandiose claims in their well-written books. But the message that each conveys, in differing ways, is that the past can inform the future, and in more ways than we might at first believe. We need to ask the right questions in order to move forward. If this means that, from time to time, we have to step outside the information loop in order to think outside the box, then this may be the very means by which to come

through the fog and to start creating real order, and thus real possibilities, in our digital world.

Notes and References

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Mobile Media in the Asia-Pacific: Gender and the Art of Being Mobile

Larissa Hjorth

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 hbk

A pink mobile lies on a table, decorated with a dense collection of Hello Kitty charms. Commuters wait patiently for a train in Japan, all the while checking their *keitai*. A salesgirl dressed in a traditional kimono smiles and makes the peace sign, while dozens of the latest mobiles are arrayed on an advertising display behind her. These are all images captured by Larissa Hjorth, the author of *Mobile Media in the Asia-Pacific*, and they provide the visual accompaniment to her detailed account of mobile usage across the region. In this book, Hjorth begins by taking us deep into the library stacks of research into mobile phones, and then out on the town, in a tour of four divergent, urban locations: Tokyo, Seoul, Hong Kong and Melbourne. By the end of this substantial volume, readers will have a greater appreciation of the emerging and variegated role of mobile media in cultural production, friendship, gender and creativity in the region.

Her fieldwork, which forms the core of this book, began back in 2000 and progressed over several years. These ethnographic studies become the source of personal and direct accounts of how mobile phones have shaped and become embedded in urban cultures in the Asia-Pacific region in the early years of the century. Of course, the cultures of cities such as Tokyo and Hong Kong change very quickly, and mobiles change faster still. But rather than risking an excessive particularism in her research by focusing only on the vagaries of the present, Hjorth has delivered a rich and historically informed reading of how these different cultures have adopted and adapted the mobile phone to their own conditions.

This is Hjorth's first single-authored book, which she wrote based on the research that also become the substance of her PhD. But she is no newcomer to the mobile scholarship scene: she is already a prominent identity on the international conference circuit, and co-hosted a mobile media conference in Sydney in 2007. In addition to contributing to the developing literature about mobiles in the Asia-Pacific region, her book also reflects two important shifts that have occurred in

mobiles research. The first has been a move away from a singular focus on the social aspects of mobile communication (common in the many early studies by sociologists) towards an account of its cultural impact. This 'cultural turn' in mobile studies has been led by the likes of Bell,¹ Goggin,² and Miller and Horst³; it is a strong list to which Hjorth adds her name.

The second shift is the move away from mobile telephony being the central object of research and towards mobile media, which Hjorth describes as an evolution 'from communication to creative media' (p. 38). The contemporary mobile phone incorporates technologies that span across text, video, photography, sound and gaming. While a person on the train may still make calls and send text messages from a mobile, they are just as likely to be listening to a podcast, updating Twitter, watching a YouTube video or playing a round of XPlane. This has meant that mobile scholars are giving greater attention to the points of convergence in media technologies, the role of users as 'co-creators',⁴ and the fluctuating atmospheres of personalisation and intimacy. Hjorth's book touches on all these issues, to which she adds a crucial point of focus: gender.

For a book already possessing a wide scope—covering the existing research of mobile media cultures, and then observing these cultures in various cities of the Asia-Pacific region—adding gender as another locus of analysis might seem courageous at best. However, Hjorth weaves her analysis of gender subtly throughout the book, emphasising the gendered practices of consumption and production. For example, she builds upon McVeigh's work on Japanese gendered cultures—including the 'technocute' obsessions of *kawaii*⁵—to better understand the 'feminised' phone customisations of cute icons and phone charms. She also deploys the idea of hyperfemininity, which was first articulated by L. H. M. Ling, to consider the gendered forms of labour, care-work and inequality that are reinforced or challenged in mobile media use.

Hjorth truly comes into her own when she is sharing her findings from respondents. Through interviews with 20–40 people per city, she touches on a wide range of practices: from ring tone choices in Melbourne, to camera phone usage in Seoul, to mobile wallpaper selection in Hong Kong. These activities may seem minor or trivial to the casual observer, but Hjorth connects them to broader cultural and economic histories. She paints vivid pictures of cultures in flux, where mobiles can express social anxieties, hopes and desires. Many of her respondents were willing to share their camera phone images in the book, and we are given glimpses into images that are at once delightful and banal: home interiors, cute animals, and paparazzi-styled shots of friends.

While the author is careful to underscore the differences between each city she visits, this reader was struck by the remarkable familiarity of the camera phone photos across the cultures. They are striking precisely because they are not: these frozen images of cats, babies and cityscapes recall the millions of similar images that have already been taken around the world, and will be taken countless times again. Each respondent has a personal story to tell about the significance of a particular scene, but when taken together it invokes the story by novelist Don DeLillo of the most photographed barn in America:

We're not here to capture an image, we're here to maintain one. Every photograph reinforces the aura. Can you feel it Jack? An accumulation of nameless energies ... They are taking pictures of taking pictures.⁶

Yet there are many subtleties brought to bear on which images are kept, how they are shared and who makes such decisions. Hjorth invites us to a better understanding of these processes. For example, she finds that in Seoul 'male partners surrender their phones to the female partners' who then customise its appearance, while in Melbourne 'the phone is very much an extension of one's personal identity and is less likely to be shared' (p. 175). Hong Kong, we learn, falls somewhere in the middle of these. These symbolic and material cultural differences are densely packed through the book, but they are leavened by Hjorth's own observations of these cities that she has come to know well.

Weaknesses of the book, which are few, can most likely be tied to its close connection to the PhD process. This can sometimes result in chapters that cling a little close to the published literature, rather than allowing the author's own valuable insights and characterisations to take the lead. Another suggestion might have been to broaden the attention on urban centres to include an account of regional areas, smaller towns and villages. One of the author's goals is to more adequately capture the ways in which the region, and its varied mobile cultures, have 'evolved unevenly' (p. 32), yet there is little to represent the uneven development between the centres and the peripheries within countries. The four cities featured in the book have much in common, in fact, as examples of large international centres of capital as well as being part of the shifting conglomerate that is the Asia-Pacific. However, given the already impressive scope of the book, I think Hjorth justifies her sample selection given the book's emphasis on globalised modernity and the cities themselves acting as potent symbols of different kinds of imagined hybrid communities.

Hjorth is also a hybrid of sorts, being both a scholar and an artist. While she does not draw attention to her multiple perspectives, it shines through in her fascinating accounts of various mobile-related art projects, and also in her wider claim in this that there is an 'art of being mobile' (p. 264). This idea marks the book's concluding chapters, and it also points to a fascinating trajectory of research that Hjorth would be singularly well placed to pursue further. In her 2009 video piece, 'C U: The presents of co-presence', she employs similar ethnographic approaches to those used in her scholarly work, collating SMS messages and images and interspersing them with the emotional meanings for the recipients. Her video is an example of both the everydayness of mobile technologies, and their potential emotional resonance as sources of art. While this work does not accompany *Mobile Media in the Asia-Pacific* directly, it serves as a captivating companion piece on YouTube for those who seek it out.

Overall, Hjorth's book is a terrific contribution to the rapidly growing field of mobile media research in Asia, and one that brings with it a much-needed analysis of gender. One would be hard pressed to find a better-informed or more engaging tour guide into this complex field.

Notes and References

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The Implementation Game: The TRIPS Agreement and the Global Politics of Intellectual Property Reform in Developing Countries

Carolyn Deere

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The Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS) is an integral part of the set of treaties which emerged out of the Uruguay Round of free trade negotiations and created the World Trade Organization (WTO). It is not now possible to belong to the international 'free' trade community without also signing up to TRIPS. TRIPS requires governments to provide legislatively backed monopolies for a range of intellectual assets. Most recent knowledge, or its expression in artefacts or various communication media, are thus governed by the provisions of this treaty. The TRIPS Treaty significantly impacts on decisions as to what part of knowledge and its use are available in the public domain, and what part is allocated as private proprietary 'rights'.

While the content of the TRIPS Treaty was widely contested—particularly when the wider public first learned of its provisions—less attention has been paid to contestation in its implementation. This book aims both to fill that gap, and to develop a broad political explanation of variations in how TRIPS has been implemented in lower income countries. This is a very ambitious goal. As Deere notes, the implementation of a set of rules about knowledge and its artefacts can vary significantly depending not simply on the laws promulgated, but also on complementary administrative and judicial arrangements. Indeed identifying means to summarise the variations in legal instruments alone would be a major undertaking. Deere largely restricts her analysis to variations in timing, use of TRIPS flexibilities (especially in regard to patents), and administrative arrangements. Even so, to go beyond case studies to attempt to develop an analytical framework for explaining implementation variations in some 106 countries is no mean undertaking.

She uses 'striking examples' to illustrate specific points, presenting 'mini' case studies, or brief illustrations. Given that the data cannot easily be presented in a broader systematic manner this approach is reasonable. However, with the exception of a detailed chapter on francophone Africa, the result is unsatisfying. The methodological approach does not allow clear substantiation of generalisations and insights. Nor does it provide substantial new data on implementation status. Perhaps this approach would work better if there were more, more substantial, country or regional case studies for the author to draw on. Alternatively if the author had selected countries to typify various outcomes and focused largely on these, the argument might have been more persuasive.

The failure of this general approach is in stark contrast to the excellent African case study (Chapter 7), which illustrates just how irrelevant the TRIPS and post-TRIPS negotiations were to both communities and leaders in these very poor nations. Deere shows how this irrelevance was exploited, principally by the World Intellectual Property Organization (WIPO), to channel a particular perspective about TRIPS through the mechanism of 'technical' assistance. She documents how inappropriate the advice provided was, given the flexibilities inherent in TRIPS and the economic and social circumstances of francophone Africa. A sorry tale. She also shows how the leaders of these nations were brought to believe that by implementing TRIPS-plus agreements they might gain urgently needed social and economic benefits for their nations.

The explanatory factors on which Deere draws are international economic and political pressures, variations in national circumstances and institutional capacity and changing global debates (through their role in increasing the understanding of the possible impacts of the TRIPS Treaty).

Deere's discussion of the changing global debate naturally focuses on the views that emerged after the WTO treaties had been signed (Chapter 4). She presents this as a kind of pendulum with industry players pushing for stronger rights and civil society and lower income countries pushing to consolidate and enlarge the flexibilities in TRIPS. The discussion includes a useful consideration of the quite different roles played by various international organisations, the challenges of member state control of such organisations, and the possibilities of organisational capture by specific interests or cultures. She notes the much better resources of those agencies representing business/developed country interests. However, because this chapter is largely scene-setting it does not take us beyond what is already well-known.

In clarifying the international economic and political pressures (Chapter 5), Deere points out that economic power is often accompanied by *ideational* pressure, most often exerted through technical assistance and the development of 'national' organisations. She notes the manner in which the WTO consistently adopted a rigid view of TRIPS obligations, and the way in which WTO processes were used to foster a compliance-plus environment. The use by the USA and European Union of trade access privileges to negotiate TRIPS-plus compliance has been well documented and is briefly reviewed, as is the role of major multi-national companies in exerting particular pressure in some countries. Deere suggests that these international pressures fell more heavily on some countries than on others, but presents no systematic data to show which (or what kind of) countries escaped such pressure, and which were particularly targeted. As some countries were better able to resist these pressures than others, this lack of clear information about variations in pressure is unfortunate.

A major explainer of the ability to resist international economic and political pressures is clearly domestic capacity, and Deere discusses a number of aspects of this. She considers public engagement, government decision-making capacity and government co-ordination. Government decision-making capacity is considered in terms of technical expertise, institutional strength and control of national intellectual property IP offices, an issue closely related to government co-ordination. She draws our attention to the fact that in very poor countries, especially those subject to civil unrest or other crises, intellectual property—a concept often having no meaning in traditional law and culture—was hardly a priority. It was thus easy for governments to be persuaded to treat it as a 'technical' matter with little bearing

on any aspect of national policy. Where overseas patent offices stepped in with technical assistance, staff in IP offices also imbibed developed country attitudes to the value of TRIPS. These values were then reflected in their advice to their governments. It is clear that developed countries, and their agents, exploited these weaknesses to ensure changes in national legislation to extract from the poorer nations of the world significant royalty payments for a small number of companies.

Deere concludes by suggesting some political strategies to assist developing countries to resist these pressures. None of these focus on the possibility that civil society in richer countries should rein in their governments, though it was exactly this strategy which worked when global pharmaceutical companies tried to pressure South Africa over its access to medicines legislation, a case she considers in some detail.

The thesis that the best explanation of variations in TRIPS implementation lies in the *interplay* of international and domestic economic and political pressures is persuasive at the theoretical level. It cannot, however, be argued that the data presented here form an empirical demonstration of that thesis. The approach of using 'striking examples' fails to provide any solid sense of where countries were well able to resist international pressures and where they were not subjected to them. Nor does it persuade in relation to why countries undertook actions that appear to be against their own interests, except in regard to the excellent case study on francophone Africa. In regard to this more in-depth analysis, it remains to be seen whether the benefits promised for TRIPS-plus compliance ever eventuate.

The book contains far too many typographical errors, including errors in bibliographic references. Should there be a re-print these errors should be fixed, together with missing references and reference details.

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Liberating Voices: A Pattern Language for Communication Revolution

Douglas Schuler

Cambridge, MA, MIT Press, 2008, xiv+604 pp., US\$35.00, ISBN 978-0-262-69366-0 pbk

This large book envisages a better world and endeavors to provide some direction signs. The approach can best be indicated by a few quotes from the Preface:

Individually and collectively, we are all locked into systems of interpretation that make it difficult to change our mental and other habits, even when our very existence is threatened (p. vii).

Human existence does not have to mean an eternal treadmill of futility. Nor does exploitation of nature and other people have to be the defining characteristic of our species (p. viii).

We have witnessed the unveiling and adoption of an amazing and unprecedented communication system that can theoretically connect not only all

inhabitants on earth, but also the world's culture and knowledge, including an immense amount of scientific data on our planet and beyond that presumably could be put to good use (p. viii).

Without conscious intervention, the Internet will likely reflect and succumb to the power structures that currently exist outside it, a complex of resources and institutional inertia that supports the desires of the few over the needs of the many (p. ix).

The book is very largely a manual for those wishing to raise the liberating voices: over 70% of the pages are devoted to patterns or guides for those wishing to join in the big venture. These range widely and have been selected from a pool of over 400 submitted patterns. They are categorized from the most general (theory) to the most specific (tactics) and are so ordered:

- Theory
- Organizing principles
- Enabling systems
- Policy
- Collaboration
- Community and organizational building
- Self-representation
- Projects
- Tactics

Theory patterns, we are told, express in a broad way the assumptions to be made about the world and how to engage in the world. Organizing principles ensure work is purposeful. Enabling systems are concrete expressions of objectives, often integrating institutions and technological systems. Policy, largely invisible, is a set of public rules, guidelines and programs which create and demolish barriers. Collaboration occurs through informal and formal groups, ranging from purely cooperative to openly combative. Community and organizational building requires groups to integrate the insights, knowledge, skills, interests, and resources of members. Self-representation celebrates and strengthens diversity while reducing conflict and encouraging dialogue and understanding. Tangible projects (e.g. community telecentres) can be initiated in any community. Tactics patterns draw on particularly effective activities. Faced with problem situations, the socially minded citizen is exhorted to use the pattern guide in seeking a balance between social and technological activity.

The author is afraid that 'Without conscious intervention, the Internet will likely reflect and succumb to the power structures that currently exist outside it, a complex of resources and institutional inertia that supports the desires of the few over the needs of the many' (p. ix).

Liberating Voices is an extremely difficult read. A better balance between exposition and clarification, on the one hand, and a user manual approach was needed. Many years ago we had debates about the emergence of the information or knowledge economy and in the intervening years a better appreciation of the economic role of knowledge has emerged. Much of the economics of 2009 is far removed from neoclassical or perfect knowledge modeling. Schuler fears the corporate colonizing of the Internet (p. ix). In light of the information economics literature,¹

changing patterns of profits and wages do matter. To that extent his fears that 'the Internet will likely reflect and succumb to the power structures that currently exist outside it, a complex of resources and institutional inertia that supports the desires of the few over the needs of the many' (p. ix) would seem the most likely outcome. Creating venues is laudable but the responses and outcomes are the more likely to be lasting if there are perceived benefits.

Notes and References

1. For example, Fritz Machlup, *Knowledge: Its Creation, Distribution, and Economic Significance, Vol. III, The Economics of Information and Human Capital*, Princeton University Press, 1984; D. M. Lambertson (ed.), *Economics of Information and Knowledge*, Penguin Books, 1971; 'The Information Revolution', *The Annals of the American Academy of Political and Social Science*, 412, March 1974. More recently, there has been recognition that an economics of language is a necessary complement to the economics of information and knowledge. See D. M. Lambertson (ed.), *The Economics of Language*, Elgar, 2002.

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Sufficient Reason: Volitional Pragmatism and the Meaning of Economic Institutions

Daniel W. Bromley

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Daniel Bromley is Anderson Bascom Professor of Applied Economics at the University of Wisconsin, Madison. He explains in the preface to *Sufficient Reason* that this book is the logical precursor to his earlier book published in 1989 entitled *Economic Interests and Institutions: The Conceptual Foundations of Public Policy*. Bromley notes that in this earlier book he rejected the traditional dichotomy that institutional change was either in the interest of efficiency or merely redistributive. Rather he argued that societies undertake many institutional changes with the specific intent of reallocating economic opportunity. As he explains, readers of his earlier book were troubled by the idea of how to tell when institutional change was really for the purpose of reallocating economic opportunity and when institutional change was really mere rent seeking. In reflecting on this problem, Bromley came to the conclusion that he had indeed invoked two categories that recapitulated by another name the flawed dichotomy between achieving efficiency and effecting a redistribution of income. In other words, he presumed, evidently incorrectly, that there was a way to be sure about the 'really' part (p. x). The search for an answer to how economists 'really' know led Bromley to the work of pragmatist scholars Charles Sanders Pierce, William James and John Dewey, among others. As Bromley concludes in the Preface: 'I have now reconsidered my earlier ideas about economic institutions and institutional change. What follows is pragmatism all the way down' (p. x).

Underpinning Bromley's approach to institutions is the assertion that one of the most fundamental human needs is not food, water and staying warm. Rather it is the attribution of value to the future that renders survival a conceptual rather than a physical matter (p. 1). The future drives actions in the present and believing becomes the predicate for all action. Socialization provides the basis for the stabilized beliefs that underpin the social arrangements—the institutions—that define our very being as social creatures. This is the foundation on which Bromley develops 'volitional pragmatism' as a plausible way of thinking about the evolution of economic institutions. 'Volitional pragmatism' is about finding reasons for individual and collective action and consequently, reasons for economic outcomes. In other words, it concerns the asking for and giving of reasons (p. 155). The process of decision is about working out not only the best means but also the best ends (p. 144). Bromley works with the notion of abduction—a way of reasoning from effect to cause. It can be understood as a form of diagnosis, such as that which doctors undertake when assessing a patient's illness. An abductive argument is of the form:

The surprising fact, C, is observed:
But if A were true, C would be a matter of course,
Hence, there is reason to suspect A is true (p. 23).

Bromley argues that the standard approach to economics is embedded in the hypothetico-deductive method. In this approach, axioms or laws inform the search for assumptions and postulates that suggest hypotheses which can be tested against data from the 'real' world (p. 87). Several generations of economists have been taught that the only way to the truth is through the deductive method. However, there is more than one way of knowing and this is where abduction plays a key role, especially when economic theory and public policy are linked. As public policy gives rise to new institutions, it is abduction that produces more convincing reasons for change than deduction. It is into this context that economics should play a role.

Needless to say, Bromley is critical of theoretical approaches that seem to provide causes but do not search for reasons. In the area of public policy, Bromley is critical of public choice theory. In economics, not surprisingly, conventional welfare economics—the science of allocating scarce resources among competing and limitless ends—is seen as giving rise to 'prescriptive consequentialism'. This latter process is where noneconomic problems are subject to economic truth rules. This gives rise to notions of 'regulatory interference' and naturalistic beliefs in the market, to name but a few of the more prominent lines of thought. Bromley does not spare the new institutional economics, with its reliance on endogenous factors, which Bromley relates to 'nothing left to choose'. It is interesting to note Bromley's supportive references and central place given to the work of G. L. S. Shackle which he claims is entirely consistent with the volitional pragmatism developed in *Sufficient Reason*. Shackle's observation that choice is choice amongst thoughts and thoughts are not given but created from impressions and imaginings is critical to Bromley's case. In economic public policy, the correct decision becomes not an external truth rule but rather a searching for what seems a better thing to do in the current settings and circumstances (p. 146). For Bromley, this explains the evolution of economic institutions much more convincingly.

Sufficient Reason is a scholarly work written from a philosophical approach. There are 14 chapters in this book. The first two chapters are devoted to setting the

scene and Bromley actually puts the abductive method to work at the outset by inviting the reader to contemplate surprising policy events such as the Swedish government's decision to change the side of the road on which cars were driven from midnight 2 September 1967. Part One, titled 'On Economic Institutions' develops three comprehensive chapters on institutions and institutional change. The work of John R. Commons figures prominently in this part as the legal basis for institutions. Part Two develops a set of four chapters on 'Volitional Pragmatism'. This is the most philosophical section of the book addressing ideas that pragmatist thinkers will be familiar with such as fixing belief, explaining, prescribing and predicting. Part Three is titled 'Volitional Pragmatism at Work' and consists of five chapters. Each of the chapters in Part Three is aimed at providing a convincing argument to the reader about the plausibility of what has gone before. Bromley commences by considering the more general cases such as smoking in public places, 'mad cow' disease in Britain and genetically modified organisms, to set the scene for thinking like a pragmatist. He follows this with a convincing way of looking at tropical deforestation (Chapter 11), contested property relations (Chapter 12) and economic regulation (Chapter 13). These chapters are useful for understanding how 'fixed beliefs' come about. Anyone interested in the tenacity of arguments such as technological determinism will find this line of thought instructive. Bromley concludes the book with the observation that in our daily lives the democratic market economy is not about contingent wants. Rather, it is about coping with doubt and surprise. It is about asking '... what is better than we now have? What would move us in an agreeable direction? What will it take to move us? Is it worth it? What will others seek?' (p. 224).

Sufficient Reason is a book that challenges the conventional wisdom about the relationship between economics and public policy. For this reviewer, a non-economist, the arguments are certainly plausible and convincing. Anyone working in policy, as a practitioner or not, will acknowledge that conventional economics plays a central role. This book clarifies that role and makes sense of what seems to be many surprising facts. *Sufficient Reason* is a scholarly work and careful reading will be necessary. Unfortunately, while I feel *Sufficient Reason* should be a mandatory text for the broader education of economists, its potential to threaten vested interests would make many uncomfortable. Notwithstanding this, anyone interested in the study of public policy would benefit from reading this book.

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Your Money or Your Life: Strong Medicine for America's Healthcare System

David M. Cutler

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The 1950s were characterised, in part, by various economists pointing to the existence of dual economies in third world, or undeveloped, countries. The most important dimension of economic dualism is the co-existence (in one geographical entity, say a country) of a relatively advanced sector and a relatively backward sector. The

sectors have been variously described as traditional *vs* modern, agriculture *vs* industry, rural *vs* urban, subsistence *vs* capitalist, informal *vs* formal, low-wage *vs* high-wage, and primary *vs* secondary. The early economists who were pointing to the importance of economic dualism were Julius Boeke (who wrote on the, then, Dutch East Indies), and two Nobel Prize winners, W. Arthur Lewis and Simon Kuznets.

It can be argued that the health sector, particularly in high-income countries, is also subject to a different form of dualism: good news *vs* bad news. The 'good news story' is that scientific knowledge, technological change, innovations etc., have brought about 'a mortality revolution' (particularly in the twentieth century) that rivals the industrial revolution of a previous era.¹ One need only recall the knowledge acquired about water-borne diseases, the germ theory of diseases (more generally), the importance of dietary supplements in certain contexts (iodine, thiamine, folate etc.), public health measures on personal and public hygiene, and the discovery of the therapeutic value of penicillin, and antibiotics in general.² More recently, there have been other important advances such as tissue transplants (kidneys, hearts, etc.) as well as open-heart surgery and so on.

But the 'bad news' story has been the rising expenditures (both public and private) associated with the health sector. Since the early 1960s, when the World Health Organization adopted a conceptual framework for the recording of health expenditures on a consistent basis (comparable to national accounting aggregates), it has been clear that health expenditures have been rising, both absolutely, and relative to other sectors of the economy.³ This process has been at work irrespective of whether the health sector is predominantly market-based (as in the United States) or predominantly zero-priced and controlled in large part by government, such as the publicly funded National Health Service in the United Kingdom.

Cutler begins his book with statements (from various sources) about the problem of rising health expenditures, i.e. the 'bad news' story. Some examples are as follows: 'Rising Health Costs Signal Ominous Emerging Trend', furthermore, rising health expenditures are an 'ominous warning for the rest of the nation' and 'a dangerous omen for all employers and all consumers' (p. x). Essentially, his book is concerned with arguing that this emphasis on rising health expenditures is misplaced. The 'bad news' story assumes that controlling health expenditures is the appropriate public policy objective. But is it? Cutler suggests that the objective of consuming health services is 'to improve our health' (p. xii). If this is the objective, then it is relevant to ask two questions: 'What is the output of the health system?' and 'What is the cost of running the health system?' We are now in a position to ask a new question, *viz.* 'Is the health system improving health sufficiently to justify the expenditure?' In this context, controlling or reducing expenditure is appropriate if we are 'overspending', i.e. if the marginal expenditures exceed the marginal values of improving health. But controlling or reducing expenditures is inappropriate if the valuation of the marginal health gains is more than the marginal health expenditures. In other words, Cutler is arguing that the goal or objective of the 'bad news' story is inappropriate: a concern for expenditures is but one side of the coin. The other side of the coin (health outcome) cannot be ignored (let us call this the 'balance question'). His conclusion is as follows:

The evidence shows clearly that spending more has been good; we get a lot more out of the medical system than we put in. Further, because so many people do not get care when they need it, we could spend more on those

people with excellent results. We worry far too much about wasting money on medicine (p. xii).

This is a strong rejection of the 'bad news' story. The objective of his book is to emphasise the 'good news' story, and ask the 'balance question'.

Cutler's book is actually a 'popularising' exercise of some quite advanced economic research which has been underway since 1997, the first empirical study being by Cutler and Richardson.⁴ Other studies include those by Nordhaus,⁵ Murphy and Topel,⁶ Becker *et al.*⁷ and Cutler *et al.*⁸ All these studies are of the American experience: however there is one study relating to Sweden.⁹ Let us refer to these works as the 'health reappraisal' literature.

The approach taken by all these economists is to adopt a societal perspective, and measure the age-specific decreases in mortality that have taken place through time. Attention is then directed, not to the mortality rate *per se* but to the increases in longevity that have occurred: the improvement in expected length of life is the measure that is used to undertake empirical work. Another important component of this work is the method of valuation of the increased longevity. In general, there are three ways of proceeding: following the theoretical work of Schelling and Mishan in the late 1960s, the dominant method is the 'value of a statistical life' approach. The other two methods (the price-risk approach and the contingent valuation technique) are invoked less often.

Many of the 'nuts and bolts' issues of doing such research are given little, or no, attention in Cutler's 'popularising' text. This is not meant as a criticism: it is an observation, indicating that those interested in detailed procedures will need to look elsewhere. Cutler divides his text into 10 chapters, the first being one of a (necessarily) brief 'History' of America's health experience. The second chapter ('Pricing the Priceless') is a non-technical account of the valuation of life. The next three chapters are concerned with describing a number of actual cases. The first example (Chapter 3) describes the striking advances in neo-natal care. However, the care of low birth-weight infants is not the only focus: attention is also directed to preventing prematurity. Chapter 4 is concerned with advances in pharmaceuticals for the treatment of mental disorders. The next chapter, Chapter 5, is concerned with describing the recent history of medical management of cardiovascular disease. It is this area of medicine that has brought about the most striking decreases in mortality in high-income countries; the content of this chapter deserves the reader's close attention. Chapter 6, *inter alia*, addresses the issue of the generalisability of the results of the case studies considered in the previous three chapters.

The next few chapters discuss some unique American issues, e.g. the role of insurance and its non-universal coverage, managed care, and 'Paying for Health'. The last chapter, 'Universal Benefits', considers some reform proposals for health insurance in America. The central message of this book is located in Chapters 2–6. Cutler's work is directed to overturning the policy focus of cost-containment. However, other contributors have different motivations. However, it needs to be said that they are but variations on the same theme.

Murphy and Topel are concerned with determining the return on health-related research expenditures. On the other hand Burstöm *et al.* estimated the change in health capital in Sweden: their objective was to measure health status at the community level, so as to be able to evaluate alternative strategies of health policy. For Nordhaus the objective is to measure 'the output of the health care sector and to

value the output correctly'. Nordhaus has a general concern that 'standard economic measures' (such as national accounting concepts, e.g. GDP) take no account of improvements in health status. His empirical results indicate that

the economic value of increases in longevity ... is about as large as the value of measured growth in non-health goods and services ... Over the last half-century, health care expenditures appear to have contributed as much to overall economic welfare as the rest of consumption expenditures.¹⁰

Similarly, Becker *et al.* have been concerned with the inadequacy of national accounting measures as a proxy for welfare: their view is that 'overall economic welfare depends on both the quality and quantity of life: yearly income and the number of years over which this income is enjoyed'.¹¹ This focus on the implication of longevity for measures of human welfare is given no emphasis in Cutler's book. This is unfortunate as the welfare measurement issue of the 'health reappraisal' literature may be more important (in the long run) than the 'cost containment problem' in the health sector, which is Cutler's focus.

At this point it is useful to note that the first paper in this 'health reappraisal' literature was by Dan Usher.¹² His paper appeared in the same volume as the much-quoted Nordhaus and Tobin paper on re-working national accounting measures to take account of externalities, leisure, etc.¹³ This paper, which introduced the Measure of Economic Welfare (MEW) to the economics profession, and beloved by environmentalists, has spawned many alternative measures of human welfare. Unlike the Nordhaus–Tobin work, Usher's re-working of national accounting measures has been ignored, until this recent 'health reappraisal' literature in the mid-1990s. This is unfortunate. Usher's path-breaking work is little recognised, and the Cutler book has done nothing to acknowledge our theoretical debt to Usher.

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Material Markets: How Economic Agents are Constructed

Donald MacKenzie

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What do these years have in common: 1987, 1990, 1994, 1997, 1998, 1999, 2000, 2001, 2005, 2007 and 2008? They are years when the financial or stock markets, or in some instances, whole countries (Mexico, Russia, Argentina, Iceland) and regions (Asia) collapsed. Note the increasing frequency. Now consider this: in 1970 there was no financial derivatives trade in the world. In 2006 there was \$84.4 trillion in outstanding contracts (\$13,000 for every person on the planet). Yet, despite the pioneering work of Wayne Baker's 1984 study of the Chicago Board of Trade, sociology has been slow to show much interest in a social phenomenon that has the same capacity to destroy our social world as global warming has to destroy our physical world. More recently, sociological literature about the finance industry, led in particular by Karin Knorr Cetina, Michael Pryke and Caitlin Zaloom, is becoming almost prolific. Other researchers such as Karel Williams, Julie Froud, Sukhdev Johal and Adam Leaver at the ESRC Centre for Research on Socio-Cultural Change have also been seriously focusing on the processes involved in financialisation. MacKenzie's book adds to this sociological tradition and builds on his journal publications¹ and his 2006 book, *An Engine, Not a Camera*,² which shows how finance theory impacts on the actions of financial markets. Thus he has already established an excellent body of scholarship on the finance industry. This book is based on 189 interviews in the financial and emissions markets.

The derivatives market emerged from the hedging of agricultural product prices. Indeed, the Chicago Board of Trade was begun in 1848 for this purpose. For about 120 years, this hedge trade ultimately had an end point in some product—pork bellies or soy beans, for example—and a contract was completed when it was cash settled or the products delivered. However, this changed dramatically in recent years, so that essentially much derivatives trade is based on artefacts that need never exist. An unsuccessful attempt was made in New York in 1970, but in 1972 the Chicago Mercantile Exchange set up a currency futures market. In 1978, the London Stock Exchange set up a Traded Options Market—which later became the London International Financial Futures Exchange or 'LIFFE'. From

this emerged the non-bank financial markets. An important characteristic of these markets is 'the strangely imaginary ... or virtual character of derivatives' (Arnoldi, quoted on p. 64). What MacKenzie does is to research the material production of finance by comparing financial and technological innovation, considering the role of place in cultural geographies (contrary to the claims of a virtually linked world, MacKenzie maintains that place really does matter in financial derivatives markets), and determining facticity.

While this is, without doubt, a superb contribution to the sociology of finance, there is, nonetheless, an overall perception that there needs to be some synthesis of the theoretical framework and the concepts explored. The major concepts in the book are *agencement*, the impact of economic models, facticity and distributed cognition.

Agency and technology, in this book, are realised in the concept of *agencement*, which combines the notion of human actor with technical systems (particularly software systems), texts, algorithms and other artefacts. *Agencement* is drawn from Callon's Actor Network Theory (ANT) in which actants are theorised as a combination of man and machine (or as Latour,³ calls it, 'actant-rhizome ontology'). Thus, for MacKenzie, an actor is made up of bodies and prostheses, tools, equipment, technical devices, algorithms (p. 20), which have agency and the capacity for intentional action. However, given Engeström's challenge to ANT by Activity Theory,⁴ one could have expected some critical engagement before adopting this as a theoretical model as 'a potentially useful broadening of economic sociology's intellectual resources' (pp. 56–7). To his credit, MacKenzie does acknowledge some problems related to agency and singularisation where *agencement* is collective rather than singular (p. 61). It may be old-fogey antipathy towards Gallic obscurantism, but, frankly, I feel that the world would not be a worse place without *agencement* as it is understood here in its lexicon. Surely agency (the capacity to do otherwise) can be considered as a human characteristic related to power, and humans as social and intelligent (in the broadest sense) creatures who use tools and epistemic knowledge to do things. Furthermore, some of those tools affect the dynamics of the system on which the agents operate. But this no more confers agency on the tool than a faulty handbrake gives agency to a truck to roll down a hill into a building. To be honest, MacKenzie's work would have got by without this concept. For example, his ethnography with Iain Hardie of a small hedge fund operation considered the role of the actor without needing to represent technology as prostheses.

MacKenzie also investigates an issue he developed in, *An Engine, Not a Camera*, whereby economic models actually become incorporated in the very data they are analysing, and so impact on the market dynamics. The implication of the Black–Scholes–Merton model on options prices is such a case. In a sense, markets take on a life of their own operating to the logics of how trading has thus far developed. For example, in derivatives exchanges, 'business tends to flow to where existing volumes of trading are high, because volume means liquidity, ... low transaction costs, and a robust market price' (p. 71). MacKenzie develops three other useful propositions. One is that an 'economic model embodied in a system for pricing and risk management can have effects even if the users of the system don't believe the model, don't understand it, or don't even know that it exists' (p. 31). The second is that economic innovation is not linear any more than technological innovation is. He concludes that technologies are shaped to fit their contexts and contexts are often deliberately reshaped to fit technologies. The third point seems to me perhaps more important than even the author

seems to suggest. That is, in contrast to the 'irrational exuberance' claim about market behaviour, the apparent irrationality may actually be rational. MacKenzie says:

That individual traders are affected by their colleagues and managers, that their culture is reflexive, and cognition and action are distributed across people and technical systems may have the effect of making the economic actor more like the fully rational agent posited by orthodox finance theory (p. 59).

A focus of attention is technicality, by which MacKenzie means the production and circulation of facts: 'how are facts produced and what secures their facticity' (p. 8). Given the disconnection between derivative products and their original physical manifestation (houses, wheat, gold, currency), it was crucial for the financial traders to develop facticity for standards and measures. To achieve this facticity, a concept 'must be believed genuinely to express conditions in the market or process underlying the derivative' (p. 79). It must also be robust against attempts to manipulate it. Yet one is left wondering how gullible and capricious financial analysis is when one of the most significant measurement standards, the London Interbank Offered Rate (LIBOR), is developed by a consensus of bankers each day. As was seen with the introduction in June 2008 of the Euro Over-Night Index Average (EONIA) by LIFFE, such standards can be developed and generated as circumstances dictate. Long gone is the central gold standard and US dollar connection. Adopting Latour and Woolgar's notion that a fact has lost traces of authorship and is freed from the circumstances of its production is a useful start. Perhaps another line of inquiry could be an ontological one. A little confusing for this reader was that the author did not connect this notion of facticity to his earlier theorisation of finitism. While finitism and extensional semantics both assume that meanings are social conventions, finitism means that 'every application of a term to an instance is implicitly a decision' (p. 27): in other words, as David Bloor on Wittgenstein puts it, 'we create meaning as we move from case to case'. It would have been interesting if this notion of facticity was also considered in the chapter analysing the World.com debacle. Financial performance determines corporate life and death, but how does one measure this? The staid world of accounting would seem to provide clear objective evidence. However, as MacKenzie shows in his analysis of World.com's demise, so much accounting is notional and therefore open to exploitation. In fact, Bernard Ebbers' (unsuccessful) defence was that the accounting was too complicated for him to understand. Furthermore, the World.com narrative revealed the role of cosy relationships between audit, regulators, accountants and company that led to the demise of Arthur Andersen, and also technological firewalls preventing access to relevant and incriminating documents.

MacKenzie generates other interesting leads for further analysis. If any aspect of the financial market epitomises its opportunistic nature, it is arbitrage. It is different from derivative trade in the sense that, whereas derivatives are (at least notionally) linked to some good, arbitrage is built on exploiting small differences in prices, which sometimes could be due simply to international time lags. They are like the small fish that hang around larger fish to pick up the detritus. So opportunistic is it, that success in arbitrage can sometimes be decided by the speed of a mouse click. In fact, novices in the business are sometimes encouraged to play computer games to enhance their digital dexterity. Notwithstanding this, arbitrage

'requires technological resources, sustained effort, and expertise beyond the capacity of nearly all lay investors in financial markets' (p. 86). Its greatest failures were in the 1987 stock-market crash and the 1998 Long-Term Capital Management crisis. Arbitrageur, Nick Leeson's near destruction of Barings Bank is another example of the potential for arbitrage catastrophe. MacKenzie's study of arbitrage at work, co-authored with Daniel Beunza and Iain Hardie, builds on the several studies by Beunza and Stark, and identifies the significance of social relations among arbitrageurs.

Other leads for future research covered by MacKenzie include the role of distributed cognition within the workspace of trading offices and its relationship with the allocation and proximity of space. As well, the point is made that cognition is seldom separated from emotion, as Damasio⁵ claims. Interestingly, in his consideration of the non-rational factors, MacKenzie doesn't mention the role of intuition. The trader as subject is also a line of research suggested by this book given the description of the gulf between 'gentlemanly capitalism' and Chicago's rough house tactics where making money is aggressively and openly acknowledged. However, the London culture changed when the 'Essex boys' became LIFFE's shock troops.

As well as the superb academic work in revealing the black box of the financial world from a sociological perspective, MacKenzie hopes that his book will enhance public sociology. He has succeeded in these aims, and hopefully researchers will take up some of his unfinished business and offer new theoretical ways of considering this.

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