

COMPLEMENTARY AND ALTERNATIVE MEDICINE

KNOWLEDGE PRODUCTION AND
SOCIAL TRANSFORMATION

EDITED BY CARAGH BROSNAN,
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Health, Technology and Society

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Medicine, health care, and the wider social meaning and management of health are undergoing major changes. In part this reflects developments in science and technology, which enable new forms of diagnosis, treatment and delivery of health care. It also reflects changes in the locus of care and the social management of health. Locating technical developments in wider socio-economic and political processes, each book in the series discusses and critiques recent developments in health technologies in specific areas, drawing on a range of analyses provided by the social sciences. Some have a more theoretical focus, some a more applied focus but all draw on recent research by the authors. The series also looks toward the medium term in anticipating the likely configurations of health in advanced industrial society and does so comparatively, through exploring the globalization and internationalization of health.

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Caragh Brosnan • Pia Vuolanto
Jenny-Ann Brodin Danell
Editors

Complementary and Alternative Medicine

Knowledge Production
and Social Transformation

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macmillan

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Series Editors' Preface

Medicine, healthcare, and the wider social meaning and management of health are undergoing major changes. In part, this reflects developments in science and technology, which enable new forms of diagnosis, treatment, and the delivery of healthcare. It also reflects changes in the locus of care and burden of responsibility for health. Today, genetics, informatics, imaging, and integrative technologies, such as nanotechnology, are redefining our understanding of the body, health, and disease; at the same time, health is no longer simply the domain of conventional medicine, nor the clinic. The 'birth of the clinic' heralded the process through which health and illness became increasingly subject to the surveillance of medicine. Although such surveillance is more complex, sophisticated, and precise as seen in the search for 'predictive medicine', it is also more provisional, uncertain, and risk laden.

At the same time, the social management of health itself is losing its anchorage in collective social relations and shared knowledge and practice, whether at the level of the local community or through state-funded socialised medicine. This individualisation of health is both culturally driven and state sponsored, as the promotion of 'self-care' demonstrates. The very technologies that redefine health are also the means through which this individualisation can occur—through 'e-health', diagnostic tests, and the commodification of restorative tissue, such as stem cells, cloned embryos, and so on.

This series explores these processes within and beyond the conventional domain of 'the clinic' and asks whether they amount to a qualitative shift in the social ordering and value of medicine and health. Locating technical developments in wider socio-economic and political processes, each book discusses and critiques recent developments within health technologies in specific areas, drawing on a range of analyses provided by the social sciences.

The series has already published 20 books that have explored many of these issues, drawing on novel, critical, and deeply informed research undertaken by their authors. In doing so, the books have shown how the boundaries between the three core dimensions that underpin the whole series—health, technology, and society—are changing in fundamental ways.

This new book, with its focus on complementary and alternative medicine (CAM), contributes to furthering understanding of the series' themes in multiple ways. Instead of focusing, as is often the case in this area, on the struggles that CAM practitioners have faced as they seek professional recognition by the traditional biomedical community, contributors to this volume analyse CAM as a set of practices shaped by, and implicated in, epistemic and social transformations. By drawing on approaches from science and technology studies, including actor network theory and theories of boundary work, social worlds, co-production and epistemic cultures, this book calls attention to CAM's contingency, situatedness, materiality, and co-production within various spheres of governance and knowledge production. Contributors examine a variety of complementary and alternative medicines in different countries, ranging from traditional and indigenous medicines to herbal supplements, therapeutic touch, and homeopathy. The theoretical and empirical richness offers fruitful ways of comprehending what CAM is and how and why it is evolving.

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Introduction: Reconceptualising Complementary and Alternative Medicine as Knowledge Production and Social Transformation

Caragh Brosnan, Pia Vuolanto,
and Jenny-Ann Brodin Danell

Introduction

CAM is a controversial topic. In the media, in the doctor's office, in comedy routines, and around dinner party tables, CAM frequently provokes debate, mirth, and even anger. Discussions are often polarised (Gale and McHale 2015): CAM is dismissed as 'quackery' by some, while others ardently defend it based on their own experiences of use. CAM has

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become a staple research area in the sociology of health and illness, as sociologists have sought to understand CAM's status and the appeal to patients that underpins its widespread uptake. It is not clear whether CAM use has actually risen, but it has certainly garnered widespread attention in clinical, public health policy, and academic circles since the turn of the century (Chatwin and Tovey 2006; Gale 2014). Its new prominence is understood as reflecting wider changes in healthcare and society, including shifts in the locus of healthcare, increased scepticism towards scientific expertise and the mobilisation of lay health consumer groups, the commodification of techniques and technologies of well-being (such as yoga, vitamin supplements, and massage), and a new focus on personal responsibility for health, along with the globalisation of plural healing modalities.

Much sociological work has positioned CAM in relation to these wider transformations. The popularity of CAM has also, typically, been interpreted as a threat to medical dominance, and numerous studies have examined the relationship between CAM and the medical profession. However, what remains relatively unexamined until now is how CAM *itself* is shaped by social processes. In existing research, the actual content of CAM is often taken for granted, and the focus is on how CAM is perceived by, experienced by, or mediates relationships between, people. Rather than problematising the polarised views of CAM, sociological studies have often taken these as starting points: CAM has been treated as a provocative entity, something that can be used to increase or undermine the power of patients and practitioners. Rather than being understood in their own right, CAM and CAM use are read as signifiers of other, broader societal shifts.

The purpose of this volume is to take sociological studies of CAM in a new direction. Our goal is to show that CAM not only reflects, but is *shaped by*, and *implicated in*, social transformations. We aim to shift the focus away from CAM as a stable entity that elicits perceptions and experiences, and towards an examination of the forms that CAM takes in different settings, how global social transformations elicit varieties of CAM, and how CAM knowledge and practices are co-produced in the context of social change. To achieve this, the volume draws strongly on Science and Technology Studies (STS)—an area that has influenced sociological and anthropological thinking in relation to other domains of health practice (Martin 2012; Webster 2002) but which is only beginning

to inform studies of CAM. STS approaches are particularly attuned to studying knowledge-making practices and to unpicking controversies. The chapters in this volume demonstrate that the combination of a sociological focus on social transformations with an STS-informed perspective can offer new understandings of the material, social, and cultural dimensions of CAM.

This introductory chapter begins to lay out these approaches to CAM. It starts by discussing the set of concerns that have dominated existing sociological studies of CAM and highlights some of the gaps that have emerged as a consequence. It then explores what it means to reconceptualise CAM as knowledge production and social transformation, introducing a range of perspectives from STS that could help us to understand CAM in new ways. Finally, the structure of the book and the chapters that comprise the three parts of the volume are outlined.

Current Sociological Understandings of CAM

CAM has been a key topic area within the sociology of health and illness for at least the past 15 years. Gale (2014) has provided a comprehensive overview of this body of work. Here, we outline some of the main trends and gaps in this area, most notably, what we see as an emphasis on the role of medical dominance at the cost of other theoretical perspectives. Additionally, empirical sociological research on CAM has most often centred on patients, practitioners, and their interrelationship, while CAM's constitution and knowledge-making practices in different contexts have been less well-studied.

Patterns of and reasons for CAM use have been a major theme. Common explanations for why people turn to CAM include dissatisfaction with biomedical interventions and the conventional doctor-patient relationship, coupled with a search for greater fulfilment offered by the longer consultations and individualised focus on holistic well-being within CAM therapies (Chatwin and Tovey 2006; Lee-Treweek and Heller 2005; Siahpush 2000). These interactional factors are often situated in the context of postmodern emphases on plurality and reflexive identity construction through consumption practices (Fries 2013; Gale 2014; Rayner and Easthope 2001).

Another key research area is CAM practitioners, with studies largely centring on professionalisation strategies (Gale 2014; Lee-Treweek and Heller 2005), such as CAM groups' attempts to gain practising rights, statutory regulation, accredited education, and public healthcare funding, typically in the face of opposition from the medical profession. Most studies have taken a neo-Weberian perspective to understanding the professionalisation process, highlighting the struggles between different occupational groups as they try to achieve social closure and protect their own scope of practice (Gale 2014; Kelner et al. 2006; Saks 1995). Studies of conventional practitioners' attitudes to, and integration of, CAM have also revealed the ongoing influence of medical dominance on which practices are legitimated within healthcare arenas (Gale 2014). Much of the emphasis in practitioner studies has therefore been on understanding inter-professional relationships and power dynamics, through the lens of CAM.

Work on professionalisation has also considered the status of CAM knowledge, sometimes including knowledge production, again largely in relation to the dominance of biomedical knowledge. In an early essay on 'deviant science'—knowledge claims or systems that contravene prevailing scientific norms—Dolby (1979) argues that because deviant medical systems must compete with orthodox medicine that models itself on science, they are more likely to succeed by establishing their scientific base. In the same volume, Webster (1979) discusses acupuncture's relationship to science as it is practised and taken up by allopathic professions and by traditional acupuncturists in the West, concluding that the higher status of the former groups had allowed them greater control over which knowledge claims were accepted or rejected. Later work by Cant and Sharma (1996) argues that the grand narrative of scientific progress has declined and asks to what extent CAM knowledge challenges the legitimacy of scientific paradigms and blurs categories of lay and expert knowledge. They attempt to problematise the CAM-biomedicine dichotomy—chiming with more recent work on CAM's hybridity (Gale 2014; Keshet 2010) (something that this volume aims to further develop)—yet still they argue that CAM and its knowledge base must be understood in relation to biomedicine (p. 7).

An overriding concern in the sociology of CAM has therefore been CAM's status relative to biomedicine. As Gale (2014: 806) points out, the very name 'complementary and alternative medicine'—CAM¹—invokes the 'absent presence' of biomedicine. There is, of course, a long history of very active processes of exclusion and subordination of CAM by the medical profession, and sociologists have played a key role in documenting their effects (Gale 2014; Willis 1983). Many efforts to define CAM do so in reference to its marginalisation within mainstream medical practice, medical education and healthcare systems (Saks 1995; Gale and McHale 2015; Wieland et al. 2011). Sociologists have studied these representations and debates over terminology, and the underlying power relations that shape them (Gale 2014; Saks 1996). At the same time, sociology has often relied on these frameworks to direct its inquiries: 'Sociological accounts of contemporary society tend to use the terms "complementary", "alternative", "heterodox" or "holistic", to contrast with "conventional", "orthodox" or "biomedicine"' (Gale 2014: 806). However, drawing on these binaries can produce inaccuracies, blind spots, and simplistic representations of both CAM and biomedicine (Gale 2014: 806–7; Ning 2013). Although sociology's focus to date on CAM representations, users, practitioners, and professional power struggles has produced rich insights and been used to challenge CAM's marginalisation (e.g. see Myers et al. 2012), there are a number of reasons why we believe the field would be strengthened by new approaches.

Firstly, the strong reliance on medical dominance and neo-Weberian perspectives means that CAM is often interpreted through pre-existing categories and defined by its marginalisation from mainstream healthcare. This can produce a black-boxing effect where the content of CAM is rarely treated as an object of analysis. Attention to the actual constitution of CAM, including in a material sense, is, we argue, necessary for sociology to contribute to answering what Gale (2014) calls 'the big question': understanding how and whether CAM therapies work. Social scientists and CAM scholars have identified the limited scientific evidence base for CAM's efficacy and effectiveness as the most pressing problem CAM faces (Chatwin and Tovey 2006; Gale 2014; Fischer et al. 2014). The push for systematic evidence has intensified in recent years and has accompanied the rise of research programmes—sponsored by public funding, CAM

product manufacturers, or pharmaceutical companies—that study CAM’s biological mechanisms and clinical effects. Within CAM communities, however, there is a wide variety of views on whether CAM therapies require a scientific underpinning and how to go about developing one (Barry 2006; Brosnan 2016; Lee-Treweek and Heller 2005). Major disciplines with an established place in higher education systems around the world—particularly, chiropractic, osteopathy, naturopathy, and Chinese medicine—have been pursuing scientific validation for some time; other therapies remain on the margins, and across CAM the validity and applicability of the hierarchy of evidence within evidence-based medicine (EBM) is strongly contested (Barry 2006; Flatt 2012; Jackson and Scambler 2007). Rather than sidestepping these debates, there are calls for sociology to tackle questions such as, ‘how [in a CAM context] can we value diversity of knowledge and different perspectives, while also working towards high quality and safe practice?’ (Gale and McHale 2015: 8; see also Gale 2014; Keshet 2010). Gale (2014) identifies an emerging, yet nascent, interest within sociology in these issues and notes the influence of STS, anthropology, and other fields on a turn towards studying processes of scientific knowledge production in relation to CAM. This volume seeks to develop this body of work further and suggestions of how to do so are discussed in the next section.

Another related issue arises from the tendency in existing research to ascribe characteristics such as ‘holism’, ‘vitalism’, and ‘experientialism’ to the CAM field (Cant and Sharma 1996; Ning 2013; Zhan 2014). This can lead to the ontology of CAM practices being taken for granted and depicted as homogenous and unchanging. In fact, CAM practices and technologies are increasingly hybridised in a similar but perhaps even more significant way to other emerging health technologies which often draw from different scientific domains (Webster 2006). Rather than being ‘timeless’ traditions, various CAM therapies and techniques merge ancient philosophy with cutting-edge bioscience, vitalistic with biomechanical ontologies, or Eastern with Western customs. Some CAM modalities date back thousands of years, and others are newly invented (Lee-Treweek and Heller 2005). Hybridisation is facilitated by processes of globalisation which have seen knowledge and practices flow from their original settings to new locations. There is therefore a need to problematise dominant views of CAM and the prevailing juxtaposition between

CAM and biomedicine and to explore the new forms that CAM takes as it shifts and resurfaces in different cultural contexts.

Finally, by framing CAM use and practice as reflective of wider trends, sociological studies have tended to overlook the potential for CAM to influence social change. The relationship between CAM and society has largely been conceptualised as one-way: CAM is an entity that is given more or less prominence according to other social transformations. Yet this relationship can be two-way. For instance, it has been noted already that CAM's ubiquity has prompted conventional medicine to pay greater attention to interactional factors in the clinical encounter which often distinguish CAM (e.g. patient-centredness) (Chatwin and Tovey 2006). This shows that CAM itself can be an agent of change, embedded in and constitutive of social transformations. A central aim of this volume is therefore to open up the black box of CAM and to trace its effects in multiple domains.

Reconceptualising CAM as Knowledge Production and Social Transformation: Engaging with STS

CAM is only beginning to emerge as an empirical research area in STS. Where it has been conceptualised in STS literature, this has sometimes been as 'an escape from medicine' or a trend that turns away from highly technological medical practice (Webster 2007: 147). This is seen as part of the development where new medical technologies have, during the past century, changed the ways in which people define the meaning of medicine (Brown and Webster 2004). In this context, CAM modalities are framed as 'alternative' health technologies. Central to CAM from the point of view of STS have been its challenges to medicine, pointing to the failure of medicine to find solutions and to address the side effects of drugs (Webster 2007: 147, 158). CAM has also been conceptualised as a health social movement that 'mounts challenges to medical knowledge' (Hess 2004: 695). One way to frame CAM in STS has thus been to focus on its tendency to resist the technologisation of medicine and to challenge the dominant modes of scientific and medical knowledge production

(Goldner 2004; Hess et al. 2008: 479). However, as discussed earlier, CAM communities have increasingly come to embrace the push for ‘scientific evidence’.

The fact that CAM has rarely been a topic of STS inquiry probably reflects the historical construction of CAM as ‘non-science’ and its relatively recent move into the sites of scientific knowledge production that have been the predominant focus of STS. This development in itself raises interesting questions both for STS and CAM scholars about what counts as ‘science’ and how scientific research methods and practices long deemed unscientific interact. STS has had, at its heart, an interest in the methods and ‘machineries’ of scientific knowledge production (Knorr Cetina 1999: 2) and how these are shaped by or co-constructed through social factors. From the sociology of scientific knowledge (Bloor 1976; Barnes 1974), to the tradition of laboratory ethnographies (Latour and Woolgar 1979; Knorr Cetina 1999), to work going beyond formal scientific settings to explore how science is taken up and challenged in everyday life (Epstein 1996; Callon 1999), scientific knowledge has been treated as something that is made collectively through social processes and deployed variously across different social terrains (Sismondo 2008). STS therefore offers a wide range of approaches that can help us to understand CAM as a set of knowledge-making practices, to follow CAM actors to their places of knowledge production, and to understand their perceptions of knowledge and science. STS is also primed to study the controversies that attend CAM use and practice (discussed further in a later section). Such controversies are often paradigmatic of wider debates over what counts as scientific knowledge and which forms of expertise are most reliable. The remainder of this section outlines three broad ways to conceptualise CAM—each of which addresses some of the gaps in existing sociological work outlined earlier—by introducing a range of theoretical approaches from within STS.

Boundary Work and Social Worlds Frameworks in the Study of CAM

The first STS approach captures CAM as a contested space where legitimate science and knowledge are negotiated and given meanings.

Controversies over CAM concern individual and public health, freedom of choice in healthcare, and value systems and worldviews related to health and illness, which make the debates most heated and active in the media, social media, and the political domain. Many different organisations such as hospitals, healthcare centres, universities, and professional associations are involved in such debates.

STS offers good tools to study the complex and controversial conflicts around CAM. The demarcation question ‘What belongs to science?’ has been at the core of STS research since the early philosophers of science (Popper 1990/1934; Kuhn 1970), continuing through to studies of controversies and conflicts in science (Bloor 1976; Nowotny 1975; Nelkin 1979; Collins 1981). Studies have concentrated on scrutinising the actors and complex interactions and negotiations of controversies, the social structures influencing conflict situations, the incompatible goals and interests of actors, the arguments of different parties in conflict, and the closure processes of controversies (Brante and Elzinga 1990; Martin and Richards 1995; Taylor 1996; Gieryn 1999). Delving into the reflexivity of the social scientist studying scientific controversies has been a significant contribution of STS. For example, focussing on debates over fluoridation and Vitamin C and cancer—which resonate and overlap with some CAM debates—Martin and Richards (1995: 514) emphasise that analysing the nuances of controversy dynamics requires a multi-perspective account in order to avoid providing ‘de facto support’ either for orthodox medicine or its opponents.

Central to CAM controversies is the contested knowledge base underpinning CAM practice and education. In recent years, there have been active campaigns against CAM by individuals and groups loosely identified as ‘sceptics’, often with key spokespeople holding high-ranking positions in academic science or medicine. Similar movements are evident in the UK (Givati and Hatton 2015; Caldwell 2017), Australia (Brosnan 2015), Canada (Villanueva-Russell 2009; Derkatch 2016), the Czech Republic (Stöckelová and Klepal, this volume), and Sweden (Forstorp 2005). These sceptics typically use a mix of social media, news media, and political lobbying to call for CAM to be de-funded, de-registered, and removed from public education systems, arguing that it is ‘non-science’, ‘pseudoscience’ or ‘anti-science’.

STS-oriented studies on CAM have shown that CAM experts and other allies have countered this by pointing to the growing evidence base supporting CAM use and to the significant levels of basic science within CAM education programmes (Brosnan 2015). CAM activists have been lobbying for CAM modalities and practices to be integrated into, or applied within, conventional medicine (Goldner 2004). These developments might be thought of as social movements that ‘address disease, disability or illness experience by challenging science on etiology, diagnosis, treatment and prevention’ (Brown et al. 2004: 52).

STS research on social movements highlights the political nature of attempts to professionalise and regulate CAM, similar to experiences of inequality based on race, ethnicity, gender, class, and/or sexuality, regarding freedom of choice of patients and professional rights (Hess et al. 2008; Brown et al. 2004). However, there is a need to see CAM as not just one movement but several movements with different societal goals. Some of these movements aim at integrating CAM into biomedicine (Goldner 2000); others might more directly resist biomedical knowledge, like anti-vaccinationism (Blume 2006). Lumping these together as one movement would not do justice to the variety of movements involved and threatens to stabilise the juxtaposition between CAM and biomedicine instead of opening it up to scrutiny.

The boundary work approach (Gieryn 1999; Amsterdamska 2005) has been deployed to study the debates and juxtapositions between CAM and biomedicine (Danell and Danell 2009; Derkatch 2008, 2012; Goldner 2000; Mizrachi and Shuval 2005; Mizrachi et al. 2005; Shuval et al. 2012; Polich et al. 2010) or what Derkatch (2016) terms ‘biomedical boundary work’, meaning how medical practitioners and researchers separate CAM from medicine. While more studies on biomedical boundary work are required to understand it in different contexts, there is a need to also make visible the other actors involved in the debates besides medicine, for example, nursing and midwifery (Adams and Tovey 2008; Vuolanto 2015), sceptics (Forstorp 2005; Brosnan 2015), researchers in different disciplines, and varied CAM communities including practitioners of different therapies (see Vuolanto, this volume).

With regard to CAM, it is important to unveil different parties' understandings of the role of knowledge and science in society, in order to understand better the reasons why people are committed to boundary work that reproduces and continues the societal debates and juxtapositions around CAM. There is also potential in this approach to study not only conflict situations that tend to dichotomise the issue but to extend even further to the boundary work that takes place in writing research articles or in meetings between patients and healthcare professionals—'routine boundary work' (Mellor 2003) that CAM practitioners, activists, and researchers are committed to in their everyday lives and workplaces. This could open up new research questions about subtle hierarchies between different ways of knowing that are hidden in everyday actions.

The social worlds framework within STS (Clarke and Star 2008) offers some useful starting points for exploring the 'multiplicities of perspective' (Clarke and Montini 1993: 45) around CAM issues (see both Vuolanto and Winiger, this volume). Studies to explore the complex whole of the CAM debates are needed to understand how different social worlds centre on different expectations around healthcare and thus emphasise different goals and aims for CAM. In situations where there is no consensus around a mutual concern, the concept 'boundary object' (Star and Griesemer 1989; Star 2010) could be used to trace the factors that unite the social worlds (see Ijaz and Boon, this volume).

The social worlds perspective could also be applied to understand the legitimisation processes (Gerson 1983) through which the boundaries between science and different knowledge systems such as CAM are established and enforced. One possible future direction of social worlds research is to use it to tackle the multiplicity within the CAM social world or rather to make known the intersections but also incompatibilities between the different social worlds within CAM, for example, homeopathy, anthroposophy, or Chinese medicine. Owens (2015) has made inroads here through her comparison of acupuncture and Christian Science's differential success in mobilising boundary objects to advance their mainstream integration. Further work would help to understand the different traditions of knowledge production and the different perceptions about knowledge and science behind the category of CAM.

CAM and Actor-Network Theory: Exploring Materiality and Relationality

A less explored STS approach to CAM is actor-network theory (ANT). This approach is known for the provocative inclusion of non-human agency in sociological analysis and its critique of established concepts and dichotomies, such as society–nature, body–mind, human–non-human, micro–macro, or truth–falsehood. According to ANT there are no hidden agendas, external powers, or invisible structures (Latour 2005). Instead, reality is analysed in terms of actors, interlinked in heterogeneous networks within a ‘flat’ ontology. Actors appear, as John Law (1992) puts it, in any shape or material. What constitutes them is their relation to other entities (Law 1999) and the capacity to cause difference or change (Latour 2005). Some networks, such as relations between CAM and conventional medicine in Western societies, are relatively stable and taken for granted. Others are weak, fluid, contested, and short-lived. The focus in ANT analysis is usually on the processes—on how networks assemble and on what is mobilised and enrolled to stabilise or weaken them (e.g. Callon 1986). A key notion is generalised symmetry and openness towards what or whom to include in the analysis (Latour 2005).

Anne L. Scott (1998) has conducted a pioneering analysis of CAM from an ANT perspective. She challenges the taken-for-granted biomedical perspective, and argues that it is not fruitful to ask how CAM can work within conventional medicine, or a modernistic ontology. Rather, we should turn the questions around. What is needed is an ontology ‘in which the natural body can be both subject, the ground of perception, and object, a thing-in-itself’ (p. 26). Scott also shows how some CAM therapies, such as homeopathy, can serve as good examples of how heterogeneous networks operate and that we might not need the sharp divisions between the natural–social and body–mind. In her study, homeopathic substances emerge as actors, with their own capacities, within complex networks of metaphors, dreams, myths, plants, practitioners, and many other objects.

Another good example of using an inclusive ANT approach is the work of Andrews, Evans, and McAlister (2013). Coming from human

geography, the authors have a special focus on space and place, but, as they point out, instead of thinking of these as discrete or fixed locations, “relational thinking” conjures an image of spaces and places as produced through their connections with other spaces and places’ (p. 100). Using mixed methods, they explore holistic medical settings in Canada. By focussing on relations between all sorts of objects, such as bodies, gestures, emotions, therapists, physical settings, and different kind of devices, they unpack what happens in specific therapeutic moments. As a consequence, they also expand the understanding of taken-for-granted concepts, such as holism and healthcare.

In addition to relationality, ANT is centrally concerned with materiality (Sismondo 2004). The role of bodies and physical experiences in CAM has been explored by a number of authors. These studies show how ANT can be a fruitful approach to investigate the material dimensions of individual and lived experiences of CAM, by expanding the analysis to non-human objects. For example, Johannessen (2007) has studied experiences of body and self, among Danish CAM users and practitioners. She shows how individual bodies, emotions, and practices are interlinked with devices, technology, and healthcare systems. A similar approach to the body in CAM—as existing in constant translations and negotiations in shifting networks—is proposed by Meurk et al. (2012) and Danell (forthcoming). In both of these examples, bodily experiences and physical sensations are linked to how CAM users form knowledge.

Questions on knowledge production and scientific boundaries are also clear themes among ANT studies on CAM. For example, Yael Keshet (2009) asks how we can know if CAM treatments are beneficial or not. By following debates and scientific controversies, she identifies a number of rhetorical strategies to establish evidence, as well as the untenable boundaries and ambiguity of conventional medicine. This work is a good example of how ANT can be combined with boundary work. Another example is a study by Brossard (2009), which follows the debate on homeopathy and reveals the non-linear processes of scientific communication. It also highlights the variety of actors (such as scientists, academic journals, mass media, intellectuals, and the general public), and the complex relations between them, involved in the processes of stabilising truths and facts on CAM (see also Danell, this volume).

The ANT approach clearly moves away from taken-for-granted concepts and distinctions that have underpinned many prior sociological CAM studies—not only in relation to medical dominance but also CAM itself. By rejecting analyses that rely on predefined notions of power, it allows the ontology of CAM to emerge through studying what actually happens in practice. Through close empirical analysis, ANT has been shown to be fruitful for unpacking everyday practices, interactions, and material aspects of CAM, but there is certainly much more to explore.

CAM as Epistemic Object

A third conceptual move is to understand CAM as constituted through, and implicated in, technologies, modes, and communities of knowledge production. To a large extent, it is CAM's resistance to biomedical ways of knowing and its historical exclusion from biomedical sites of knowledge-making and knowledge transmission (e.g. hospitals and universities) that has defined it as CAM. Such epistemological boundaries have begun to erode with the rise of integrative medicine and the professionalisation of many CAM types, including their move into tertiary education settings. These developments have seen CAM increasingly evaluated against the evidence hierarchy of EBM, and in research centres around the world, CAM therapies and technologies are now the subject of clinical and basic scientific research, with all the infrastructure, personnel, and funding that this implies. That is, CAM is undergoing a transformation from healing practice to 'epistemic object' (Knorr Cetina 2005)—a shift for which the social science of CAM must account.

Critical reflections on the characteristics of scientific objects may offer new perspectives on CAM that help to move beyond current impasses in CAM knowledge production. Attempts to bring bioscientific methods to bear on CAM therapies have not been straightforward. There is a large literature within CAM and social science on the problems of trying to study what are typically 'holistic', relational, multi-faceted, and individualised therapeutic interventions through randomised control trials (RCTs) or laboratory research (e.g. Barry 2006; Flatt 2012; Lee-Treweek and Heller 2005; Kim 2007; Verhoef et al. 2005). Some see these problems of

epistemology and ontology as explanations for why CAM still lacks a strong ‘evidence base’. One of the challenges faced includes controlling for the placebo effect: if interaction with the practitioner is part of the therapy, as claimed in many CAM modalities (Chatwin and Tovey 2006), how can this be controlled, even when a sham intervention is provided?

Research on CAM has tended to reveal its complexity rather than enable it to be more clearly defined; however, this is not unusual in science, where objects of inquiry—‘epistemic objects’ for Knorr Cetina (2005)—typically begin to unfold and multiply in the very act of being studied. Knorr Cetina explains that:

Objects of knowledge are characteristically open, question-generating and complex. They are processes and projections rather than definitive things. ... Since epistemic objects are always in the process of being materially defined, they continually acquire new properties and change the ones they have. (2005: 190)

Such characteristics seem to apply very well to CAM therapies, whose slipperiness in the face of scientific scrutiny reflects their multidimensionality and context dependence. Like other epistemic objects, CAM therapies can be understood as multiple, taking different forms and meanings in different places (Knorr Cetina 2005; see also Mol 2002; Zhan 2009).

An understanding of the various epistemic cultures that comprise science and how ontological and epistemological challenges are dealt with differently across different knowledge-making communities (Knorr Cetina 1999) may also benefit CAM research. Brosnan (2016) has highlighted contrasting epistemic cultures within Chinese medicine and osteopathic research, showing that, far from being a homogenous field, CAM is characterised by ‘epistemic disunity’ (Knorr Cetina 1999: 4). A small number of other studies have emerged in recent years, exploring the knowledge-making beliefs and practices of specific CAM practitioner and academic communities (Heirs 2015; Kim 2007; Lin 2017; Polich et al. 2010; Vuolanto 2015). Further work on the epistemic cultures that comprise CAM would result in a more nuanced understanding of this broad-ranging research field (Brosnan 2016: 184).

Another perspective that could enhance CAM studies is Jasanoff's (2004) concept of co-production, which encapsulates the idea that knowledge creation is both driven by, and constitutive of, social life. In the context of CAM research, this approach would draw attention to how CAM knowledge is not just influenced by, but *made through*, the apparatuses of scientific research within universities and industry. For instance, when CAM is tested through clinical trials, CAM practices often take on particular forms that can be studied through trial methodologies (Sagli 2010; Verhoef et al. 2005). Rather than viewing this as a top-down 'subjugation' or 'colonisation' of authentic CAM practice (cf Flatt 2012; Hollenberg and Muzzin 2010), co-production prompts us to study instead the new forms that CAM actually takes in these settings. Equally, it encourages consideration of how CAM is implicated in the production of new kinds of knowledge.² CAM in fact has the potential to drive the development of new kinds of science because of the problems it poses for RCT methodologies (MacPherson et al. 2016). Indeed, alternative study designs, such as pragmatic trials and whole systems research, have emerged in no small part from efforts in CAM research to better capture CAM's holistic aspects (MacPherson 2004; MacPherson et al. 2016; Verhoef et al. 2005). CAM studies have also led to new clinical interest in the placebo effect, while specific techniques and mechanobiological insights derived from CAM research are now being applied in biomedicine (MacPherson et al. 2016). Through the lens of co-production, we can study how science and CAM interact: scientific knowledge shapes CAM, and processes of scientific knowledge-making are *transformed by* CAM.

How CAM-related knowledge and technologies are understood and deployed is also influenced by the different 'civic epistemologies' found in different nation-states, that is, national cultures around the status of experts and expertise, knowledge-making, and public engagement (Jasanoff 2005). Homeopathy provides a case in point here: it is widely accepted in India, where it is used in a highly pluralistic healthcare context alongside a range of modalities with religious origins (Broom and Doron 2013); it is marginalised and largely discredited in Australia, particularly following a major review by the National Health and Medical Research Council (NHMRC 2015), whilst, in the UK, support from the

royal family has probably helped to protect homeopathy's position as one of few CAM types included in the National Health Service (NHS) (Heirs 2015).

CAM can be involved in shaping civic epistemologies and the relationships between nations. For example, the state support of traditional Chinese medicine (TCM) in China is strongly bound to the project of nation-building. Under Mao Zedong, TCM was given official state recognition and promoted as a cultural export, explicitly framed as a vehicle for bringing Chinese expertise and healthcare to an 'international proletariat' (Zhan 2009: 36–40). In more recent times, now as part of the global flow of capital, TCM is deployed as a means of developing economic co-operation between China and other countries, for instance, through cross-national funding of education and research programmes or through inclusion in free-trade agreements (see Brosnan et al. 2016; Stöckelová and Klepal, this volume).

What these developments highlight is that, while CAM can be understood as paradigmatic of challenges to the authority of bioscientific frameworks, it is also increasingly *part of* the apparatus of contemporary bioscientific research. It is transformed by—and intervenes in—dominant modes of knowledge production, as well as other political and cultural domains. These complex epistemological configurations are explored in a range of empirical contexts in this volume.

Overview of the Volume

The volume is structured around three interrelated themes, each representing different dimensions of CAM's ongoing configuration. Part I, 'Defining CAM', explores how and why boundaries within CAM, and between CAM and other health practices, are being constructed, challenged, and changed and how such boundary work is implicated in wider social transformations. Stöckelová and Klepal's ethnographic study (Chapter 2) explores three different versions of Chinese medicine currently discernible in the Czech Republic, revealing how each reflects different eras and forms of engagement between Chinese and Western medicine and between China and the Central and Eastern European region. Not

only is Chinese medicine a cosmopolitan modality that takes on local forms, the authors show that it is also cosmopolitical, transforming local settings and medical cultures.

In Chapter 3, Vuolanto focusses on a public controversy over research conducted in a Finnish university nursing department on therapeutic touch, examining how the therapy, nursing and nursing science, and patients—and the boundaries of science and technology more broadly—were constructed within various social worlds that responded to the debate. Also drawing on social worlds theory, Winiger looks at the discursive meanings given to *qigong* within the worlds of Chinese *qigong* practitioners, social science, and biomedical science. The gulfs between their different understandings of what *qigong* ‘is’, Winiger argues, may impede research on this modality’s applications.

Part II, ‘Doing CAM in different contexts’, asks how CAM as material practice is shaped by politics and regulation in a range of different national settings. Comparing and contrasting the development and regulation of CAM in Portugal and Brazil, Almeida, Siegal, and Barros draw attention to CAM’s ‘glocalisation’: modalities travel the globe and are shaped by local contexts. Their study is one of few to compare different CAM types, documenting the fates of homeopathy, acupuncture, and TCM in the two countries. Continuing with the glocalisation theme, in Chapter 6, Penkala-Gawęcka provides an ethnographic insight into the place of CAM in the Kyrgyz capital Bishkek, where popular therapies include a special bed and other technologies produced by a South Korean company. As she points out, while the globalisation of biotechnology has been well-studied, this is not true of CAM technology. Penkala-Gawęcka’s chapter makes an important contribution to this area (as do Stöckelová and Klepal), drawing on ANT to trace the networks that coalesce around the ‘miracle bed’.

Also taking an ANT approach, in a rather different context, Danell’s chapter analyses CAM-related motions raised in the Swedish parliament over the past several decades, documenting how CAM understandings are translated in the political arena and how networks stabilise around certain issues. Ijaz and Boon also explore historical policy debates over CAM in Chapter 8, focussing on the regulation of acupuncture in Ontario. They show that ‘safety’ operated as a boundary object in the debates and was used ultimately to restrict Chinese-language-based practitioners and