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Research article

Enchanting Narratives: A Historical Ethnography of Contemplative Science

Mareike Smolka (✉)
RWTH Aachen University, Human Technology Center, Theaterplatz 14, 52062 Aachen, Germany,
mareike.smolka@humtec.rwth-aachen.de

Abstract

In modernity, narratives seem to have lost their magical power to effect changes in the world. Language is generally considered as a system of arbitrary symbols coordinated with aspects of reality. Yet, research in the social studies of science and technology indicates that modern aspirations to exorcise magic co-exist with oppositional pulls towards re-enchantment: feelings of awe and wonder, practices akin to sorcery, searches for moral values, transcendental meaning, and magic words. This study on contemplative science, the neuroscientific, psychological, and clinical study of contemplative practices like mindfulness meditation, sheds light on the enchanting power of historical narratives. Historical narratives are revealed to play an important, but as yet unacknowledged role, in the re-enchantment of brain research. Drawing on historical ethnography, this study analyzes how the contemplative science community narrates history at conferences, commemorative events, and in published textual accounts to valorize this field of research as a project of re-enchantment without destabilizing its scientific legitimacy. First, the folk history of contemplative science is shown to endow the field with enchanting qualities by combining Weberian ideal types of charismatic and rational authority. Second, alternative histories of meditation research are reconstructed and their absence from the official narrative is explained in relation to the charismatic-rational Janus face of contemplative science. Third, contemplative scientists are found to take recourse to history in mobilizing regimes of valuation that help justify their work in light of socio-ethical critiques. The analysis contributes to scholarly discussions on the thesis that language can be considered as technology, having practical effects in the world. In support of this thesis, the argument presented indicates that historical narratives can serve to defend science against critics, attract novice researchers, and build a research community around the allure of modern enchantment.

Keywords: Enchantment; Contemplative science; Mindfulness; Historical narratives; Charisma; Regimes of valuation; Justification work

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Научная статья

Чарующие нарративы: Историческая этнография контемплативных исследований

Марейке Смолка (✉)
Рейнско-Вестфальский технический университет Ахена, Центр Гуманитарных Технологий,
Театрплац 14, 52062 Ахен, Германия
mareike.smolka@humtec.rwth-aachen.de

Аннотация

Сегодня кажется, что нарративы потеряли свою магическую силу. Язык считается системой произвольных символов, согласованных с аспектами реальности. Несмотря на это, социальное исследование в области науки и техники показывает, что современные стремления изгнать магию сосуществуют с противоположным – к повторному очарованию: благоговение и чудо; практики, сходные с колдовством; поиск моральных ценностей, трансцендентного понимания мира; заклинания. Статья, посвященная контемплативной науке – нейро, психологические и клинические исследования созерцательных практик, таких как осознанная медитация – проливает свет на чарующую силу исторических нарративов. Исторические нарративы играют еще не признанную, но важную роль в повторном очаровании в исследованиях мозга. Опираясь на историческую этнографию, анализируется, как контемплативное научное сообщество преподносит историю на конференциях, выпускает текстовые отчеты для придания этой сфере исследований дополнительной ценности как проекта повторного очарования, не нарушающего научную законность. Во-первых, народная история контемплативной науки наделяет область чарующими качествами, совмещая Веберовские идеальные типы харизматичной и рациональной власти. Во-вторых, альтернативные истории исследования медитации реконструируются, и их отсутствие в официальной версии объясняется рационально-харизматичным лицом Януса – лицом контемплативной науки. В-третьих, ученые обращаются к истории для мобилизации режимов оценки, которая помогает оправдать их работу в свете социально-этической критики. Анализ способствует научным дискуссиям, посвященных тезису: “Может ли язык считаться технологией, учитывая его практическое влияние на мир?”. Аргумент в поддержку данного тезиса – исторические нарративы могут служить для защиты науки от критики, привлечения новых исследователей, создания исследовательского сообщества вокруг обаяния современной магии.

Ключевые слова: Магия; Контемплативная наука; Осознанность; Исторические нарративы; Харизма; Режимы оценки; Обоснование

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INTRODUCTION

> On the way back from my first contemplative science conference, the European Summer Research Institute (ESRI) 2017 on the island Frauenchiemsee, I was in a pensive mood. After spending a week listening to academic talks and engaging in vibrant personal exchanges interspersed with regular periods of contemplative practice, the boat ride felt like transitioning back from an esoteric place into society, but in a new state of being. I wanted to become part of this community, which had instilled in me a sense of awe and wonder. The people at the conference seemed to be passionate, hardworking, ingenious researchers, while also coming across as profoundly spiritual, reflective, and committed to making the world a more compassionate and peaceful place. At the same time, I was puzzled. Many of the scientists attending the conference were doing brain research, reducing meditative states and moral virtues to neural firing. How could they give off the impression of being engaged in adding greater meaning and transcendental significance to the world while doing materialist neuroscience? (Vignette, ESRI 2017)

In the four ensuing years, I followed the contemplative science community to investigate this question. I captured my insights in vignettes – short sketches that provide an inkling of what it was like to "hang out" (Nair, 2021) with contemplative scientists. Contemplative science is an interdisciplinary field of research, which primarily utilizes neuroscientific, psychological, and clinical approaches to study the biochemical, psychophysiological, behavioral, and subjective changes that occur in and as a result of contemplative practices. Research mainly focuses on practices and experiences of different types of meditation, including the relevance of meditation to a wide variety of undertakings, ranging beyond religious contemplation to applications in healthcare, education, and other sectors of society (Komjathy, 2018).[1] Although the field has received little attention in the anthropology, sociology, and history of science and technology, a few scholars have offered interpretations for how the paradoxical blend of neuroscience, spirituality, and ethics is achieved in practice at contemplative science conferences. For example, Tresch (2013) analyzes these conference-retreats as initiation rituals through which participants develop a contemplative-scientific identity and culture whose internal frictions require recursive negotiation of self-definitions, values, and boundaries. Kucinskas (2018) finds that leading figures in contemplative science resolve such frictions by combining several forms of legitimacy, in particular charismatic and scientific authority. Harrington (2008a) highlights how the mix of visual symbols of the 'exotic East' and the 'modern West' – the Dalai Lama in electrodes, scientists in flowing monk robes – frames contemplative science as a "project in reenchantment" (p. 3). The aesthetics transmit the sentiment that contemplative science is "something deeper, finer,

[1] This description is meant to provide readers with a broad, initial idea of what contemplative science is. As the self-definition of contemplative science is itself a subject explored in this article, the nature of this kind of science will become more evident as the argument unfolds.

and more daring" (p. 6) than just brain science, something which creates space for human values and spiritual quests.

While I assume that identity formation, legitimacy building, and visual symbols all contributed to my sense of awe at ESRI 2017, I realized later that this particular experience had yet another source: contemplative science's purported history. In 2021, numerous events were organized on the occasion of two anniversaries: the 20th anniversary of the passing of one of contemplative science's founding figures, Francisco J. Varela, and the 30th anniversary of the publication of *The Embodied Mind* (Varela et al., 1991), a landmark for the field's emergence. When attending these events, it dawned on me that the commemoration of contemplative science's history comprised various captivating or even enchanting moments, including the Dalai Lama's disclosing details about his friendship with Varela, Varela's wife reiterating her husband's values and visions, and Jean-Philippe Lachaux, his former PhD student, remembering Varela's "magical powers."

According to Nordmann and Bylieva (2021), the enchanting power of narratives plays a role in the "drama of modernity" (p. 2). Through the progressive intellectualization and disenchantment of the world in the modern period, words came to be considered as arbitrary codes coordinated with things in the world. Hence, magical prophecies and religious invocations lost their self-fulfilling powers. Yet, the productivity of language to evoke a corresponding world has resurfaced in modern science and technology (ibid.). For example, MacKenzie (2008) says about modern economic theory that it is "an engine, not a camera" because financial models have shaped financial markets. Mody (2017) describes Moore's law – the rule of thumb that the number of circuit components on a computer chip will double every two years – as a "performative device" (p. 8) that guides action in the semiconductor industry, rather than predicting its development. Similarly, Nordmann and Schwarz (2012) indicate that narratives around nanotechnology's rise to prominence have a seductive power to assemble heterogenous actors who preserve the narratives' promises.

In the light of these findings, I ask: how do narratives about the history of contemplative science re-enchant the brain sciences? How does the contemplative science community narrate its history to create the impression that contemplative science reinvests the world with meaning, without destabilizing its scientific legitimacy? To which ends do they valorize their field of research as a project of re-enchantment? To answer these questions, I study the "folk history" (Shanley, 2022, p. 24) that members of the contemplative science community construct to retell the evolution of the field at conferences, meetings, commemorative events, and in published written accounts. The contemplative science community encompasses mainly researchers from the neurosciences, psychology, and the clinical sciences who collaborate with smaller numbers of humanities scholars, social scientists, and contemplative practitioners (Komjathy, 2018, p. 20). An extensive body of literature in religious studies sheds light on Buddhist practitioners' interests in and the rhetoric around their collaborative engagements with scientific researchers (Hermann, 2011; Lopez, 2008; McMahan, 2009, 2010). I shift the analytical focus to Western scientists and scholars involved in

contemplative science to investigate how they valorize this kind of research by taking recourse to history.

This study contributes to the literature on how scientists attribute value to objects, technologies, and work-related activities to justify and legitimize their research (Anderson, 2012; Dussauge, et al. 2015; Mody et al., 2020; Morrison, 2018). This body of work has established that a range of discursive repertoires function in valuation and justification practices, but the strategic use of history has so far remained understudied (for exceptions, see Abir-Am, 1985, 1992; Olazaran, 1996). Specifically, I expose how the folk history of contemplative science combines Weberian ideal types of charismatic and rational authority to endow the field with enchanting qualities while underpinning its scientific legitimacy. Next, I reconstruct alternative histories of meditation research based on secondary sources in the history of science and explain how their absence from the official historical narrative shapes the charismatic-rational Janus face of contemplative science. Finally, I elucidate how contemplative scientists made appeals to the past when mobilizing "regimes of valuation" (Fochler et al., 2016) – social responsibility, contemplative values in science, diversity and inclusivity – in response to recent critiques of their work's socio-ethical implications (e.g., Purser et al., 2016). By demonstrating how the past becomes a forceful repertoire to defend contemplative science against critics, to attract novice researchers, and to build a contemplative science community, we gain a better understanding of how this kind of research establishes its multivalent status as credible, worthwhile, and inspirational in the present.

LITERATURE REVIEW, ANALYTICAL PERSPECTIVE, AND METHODOLOGY

This research builds on three bodies of literature: a review of research on (re-)enchantment of science and technology, an analytical perspective on valuation and justification work, and methodological approaches to historical ethnography. The literature review summarizes empirical studies which show that the modern project of disenchantment has never been complete or uncontested. In fact, there have been numerous attempts within science to move in the opposite direction. One of these attempts involves a blend of charismatic and rational authority in scientific personae and technologies. In the section on valuation and justification work, I present charismatic and rational authority as repertoires through which the contemplative science community valorizes and justifies its research. The section further explains how the deductive analysis is complemented with an inductive approach to identify additional repertoires that emerge from the empirical material. All these repertoires are historical, meaning they feature in or draw upon the narration of contemplative science's history. Finally, I introduce methodological approaches to historical ethnography to specify how data was collected on the construction of contemplative science's history.

(Re-)Enchanted Science and Enchanting Scientists

Working in the shadow of Max Weber, numerous scholars have emphasized the corrosive effects of scientific thinking on religious or spiritual systems of orientation (for an overview, see Saler, 2006). In his famous disenchantment thesis, Weber (1918/1958) characterizes modernity as a process of "intellectual rationalisation created by science and scientifically oriented technology" that obliterates "mysterious incalculable forces" (p. 117). Since the 1990s, however, postmodern scholarship has recognized the tensions and oppositions constitutive of modernity (Bilgrami, 2010; Latour, 1993; Taylor, 2011). With the rise of modern science, magical sorcery, spiritual beliefs, and religious values did not disappear but fragmented into patches within a complex pattern of modern enchantment. In social studies of science and technology, different understandings of modern enchantment come to the fore: re-enchanted science as a historical backlash in the *longue durée* of Western disenchantment; scientists' aesthetic experiences of enchantment; discourses and practices through which scientific personae, objects, or knowledge gain enchanting qualities. To distinguish between these understandings throughout this article, I use the terms 're-enchantment,' 'enchantment,' and 'to enchant,' respectively.

Historians of science and technology have conducted case studies of "reenchanted science" (Harrington, 1996). Examples are the spread of occultism in Victorian science (Owen, 2004; White, 2014), the emergence of a German-speaking science of wholeness in the early decades of the 19th century (Harrington, 1996; Treitel, 2004), and a range of "groovy sciences" (Kaiser & McCray, 2016) – cybernetics in Great Britain (Pickering, 2010) and parapsychology in the United States (Kaiser, 2011) – flourishing from the late 1960s to the early 1980s. Historical studies frame scientific and public interest in paranormal phenomena and altered states of consciousness as fringe reactions to religious doubts sparked by Enlightenment thinking, uncertainty in times of rapid socio-political changes, and postwar alienation following from the fatal sides of science, technology, and bureaucratic society.

Research in cultural studies, science and technology studies, and phenomenology, by contrast, highlights that the affective experience of enchantment is part of normal science. Experiences of awe, astonishment, and delight, usually reserved for spiritual experiences, accompany the intuitive grasp of how things work (Barbalet, 2009; Ellis, 2011) and the engagement with poorly understood but potentially transformative technologies (Mosco, 2005; Davies, 2014). Moreover, the use of instruments and devices to expand human perception and enter unknown worlds – the deep sea and divine heights (Adamowsky, 2010, 2015) or the inside of the body (Trimble, 2020) – have been shown to evoke wonder as well as uncanny feelings.

Lastly, media and discourse analyses demonstrate how scientists, engineers, and journalists bestow science and technology with magic to enchant other researchers, stakeholders, and wider publics. For example, the mystery and awe-inspiring potential of nuclear technology (Anshelm, 2010) and artificial intelligence (Ames, 2018) have not only been invoked for the sake of marketing and media hype. This potential also shields their creators from responsibility for the societal impacts of these seemingly unpredictable, superhuman technologies (Campolo & Crawford, 2020).

Some contributions to the last-mentioned body of literature highlight the link between Weber's concept of (dis)enchantment and his work on charisma (e.g., Ames, 2019). For Weber, modernity is a conundrum because the disenchanting process of rationalization is constantly threatened by the enchanting counterforce of charisma. While rational authority secures the stability of social order through bureaucracy and procedural rule-following, charismatic authority appeals to forces outside of formal structures (Parsons, 1946). Charismatic leaders are considered "extraordinary and treated as endowed with supernatural, superhuman, or at least specifically exceptional powers" (Weber, 1922/1968, p. 242), which enable them to fill the void of spiritual meaning and ethical purpose in a disenchanted world. Charismatic leaders can enchant followers – which literally means "to put them under a spell" (Ladkin, 2006, p. 167) – to either rebel against, reform, or support the existing rational order in modern societies (Islam, 2014).

Studies have illuminated how technological objects, digital networks, and scientific personae are portrayed as rational and charismatic at the same time (Ames, 2019; Kucinskas, 2018; Lee, 2020; Tresch, 2012). Their enchanting power of charisma no longer constitutes an alternative form of authority, but expands the social vision of technological fixes, the euphoric attachment to digital systems, and the legitimacy of scientific expertise. Along these lines, I analyze enchantment in contemplative science. I build on Kucinskas' (2018) observation that leading figures in the field attract other researchers and professionals from different backgrounds by emanating the impression that one could become "wise and spiritually aware by being part of this contemplative community" (p. 145). She locates the enchanting force of these figures in their interdependent forms of legitimacy, in particular the combination of epistemic authority derived from scientific credentials and charismatic authority grounded in Buddhist moral leadership. Her analysis of the discourses and practices that foster legitimacy is reminiscent of valuation studies.

Repertoires of Valuation and Justification Work

The study of how actors prove themselves legitimate is at the center of valuation studies (Kjelberg et al., 2013), which are influenced by science and technology studies (Dussauge et al., 2015; Heuts & Mol, 2013; Van De Werff, 2018) and pragmatism (Boltanski & Thévenot, 2006; Dewey, 1939). As actors justify their behavior, they resort to values that have legitimacy in the community they address. These values, broadly defined as something "good, proper, and desirable" (Dussauge et al., 2015, p. 7), are treated not as absolute or universal, but as produced in and through practices of valuation. Albeit locally accomplished, practices of attributing value to something and/or assessing something as worthwhile are not arbitrary. In fact, scholars have shown that actors in specific contexts habitually appeal to recurring "orders of worth" (Boltanski & Thévenot, 2006) to inform, orient, valorize, and justify their actions.

The analytical perspective deployed here relies on Reinecke et al. (2017) in approaching the orders of worth' framework as containing Weberian ideal types of charismatic and rational authority. In the industrial order, scientific and technical experts appeal to the good of technical efficiency. They engage in practices of valuation based on quantification and classification to establish rational authority – the derivation of expert

legitimacy from procedural rule-following. In the inspirational order, by contrast, charismatic authorities claim worth "through what they have that is most *original* and most *peculiar* to them, that is, through their own *genius*" (Boltanski & Thévenot, 2006, p. 161). Empirical research informed by Boltanski and Thévenot illuminates how actors perform "justification work" (Jagd, 2011, p. 343), the process of flexibly integrating and alternating between orders of worth to establish or repair moral and epistemic legitimacy (Mody et al., 2020; Morrison, 2018; Patriotta et al., 2011; Yamaguchi & Suda, 2010). Likewise, I examine how the combination of the industrial order of worth (rational authority) and inspirational order of worth (charismatic authority) valorizes, justifies, and legitimizes contemplative science as a project of re-enchantment.

Similar to researchers who found Boltanski and Thévenot's deductive scheme too rigid for their empirical research (Fochler, 2016; Fochler et al., 2016; Heuts & Mol, 2013), I do not limit my analysis to pre-defined repertoires. Instead, I follow Fochler et al. (2016) in identifying additional "regimes of valuation" inductively. Regimes of valuation "are comprised not only of institutional discourses, practices and material and digital infrastructures, but also of people living in, complying with and resisting these very regimes" (p. 180). Albeit open to change through acts of resistance and subversion, the regimes that researchers comply with in valuing and justifying their work (for example, in terms of publications and citations) are relatively durable. I follow a grounded theory approach (Charmaz, 2006) to analyze the dominant regimes invoked by contemplative scientists to shield their work against critique.

Historical Ethnography

In this study I employ "historical ethnography" (Abir-Am, 1992) to investigate how orders of worth and regimes of valuation are mobilized in the ways in which the history of contemplative science is preserved. Multiple methodological approaches to historical ethnography have been developed at the intersection of history, anthropology, and ethnology. While most of them use ethnographic methods and perspectives to study the past (Fenske & Bendix, 2007; Kornblum, 2004; Vaughen, 2004), this study traces "the uses to which people put history" (Frankel & Abir-Am, 1992, p. 361). Scientists narrate history at scientific anniversaries (Abir-Am, 1992; Richmond, 2006), conferences (Fisher, 2017; Stephens & Dimond, 2016), memorial volumes (Abir-Am, 1982), and in other commemorative practices of science (Abir-Am & Elliot, 1999). At these occasions, they generate and solidify a "myth of origin" (Abir-Am, 1985), an "imagined past" (Wilson, 2017), or a "folk history" (Shanley, 2022). While the terms 'myths' and 'imagination' invoke the impression that these distort reality (Badino, 2017; Miller, 2004), the concept of folk history acknowledges that the past is not an autonomous entity to be unearthed, but a way to give meaning to individuals and communities.

Shanley (2022) describes folk history as a simplified historical account, sometimes based on witnesses' experiences, but not systematically verified. This account is generally accepted by the members of a specific community, who can use and adapt it for strategic purposes to subtly direct or justify (future) actions. Abir-Am (1982) further emphasizes that "the real importance of collective public representations of science by scientists lies not so much in their content but in their systematic omissions" (p. 283). Folk histories

and their omissions serve to generate disciplinary loyalties to specific technologies, theories, or colleagues – rather than others – to legitimize authority by obscuring the relation between "scientist-heroes" (p. 284) and female or student scientists, to offer moral guidance for scientific behavior, identity formation, and community building around a shared historical anchor.

To capture the folk history of contemplative science, I combine participant observation with document analysis. Ethnographies of conferences and scientific commemorations have shown that such ceremonies are an important site where "heroes" are celebrated, "myths" are codified, and stories are shared to bind scientists together around a specific version of the past (Abir-Am, 1992; Egri, 1992; Friese, 2001; Henderson, 2020; Mody, 2012). Moreover, ethnographies of scientific seminars and symposia have demonstrated that these events facilitate academic socialization through which scientists come to recognize and sustain the values, beliefs, and practices of their community (Lomnitz, 1983; Molyneux-Hodgson & Meyer, 2009; Sandler & Thedvall, 2017). Following these examples, I participated in contemplative science conferences, symposia, and seminars from 2017 to 2021, including events commemorating Francisco Varela (Table 1). While previous anthropological and sociological studies of contemplative science conferences took place in the US (Kucinskas, 2018; Tresch, 2013), most of the events I attended took place in Europe, where the field has been prospering since the early 2000s (Lutz et al., 2006). I triangulated my observations with contemplative scientists' published accounts of their field's history in documentaries, interviews, books, magazines, and journal articles.

To reconstruct alternative histories of contemplative science that are omitted from its established narrative, I drew on scholarly literature by historians of science. As a full-fledged historiography of contemplative science has yet to be written, I focused on histories of such adjacent fields as mind-body medicine (Harrington, 2008b), biofeedback (Robbins, 2000), and the neurosciences (Lysen, 2022). A pitfall of this approach is the asymmetry between the analyst's trust in historical secondary sources and her skepticism vis-à-vis actors' memories and historical narratives shared at conferences, meetings, interviews, and other published records. Yet, as Frankel points out "such asymmetrical distribution [of trust] is indispensable to knowing anything at all" (Frankel & Abir-Am, 1992, p. 358) since each explanation or interpretation depends on provisionally trusting a large body of 'facts' or 'understandings' inherited from past investigators. As each body of beliefs can be further deconstructed, I deem it the task of my historical ethnography to convince readers of the plausibility of alternative histories, rather than claiming them to be more trustworthy than the established folk history.

Table 1. Participation in contemplative science conferences, seminars, symposia, webinars, and retreats

Event	Year	Location
European Summer Research Institute (ESRI)	2017 2020 2021	Frauenwörth Abbey in Chiemsee, Germany Digital event due to Covid-19 Digital event due to Covid-19
International Conference on Mindfulness (ICM)	2018 2020	University of Amsterdam, the Netherlands Digital event due to Covid-19
European Contemplative Science Symposium (CSS)	2019	Venue Fürstenfeld in Fürstenfeldbruck, Germany
Varela Symposium	2020	Digital event due to Covid-19, otherwise at Upaya Zen Center in Santa Fe, US
Mind & Life Contemplative Research Conference (CRC)	2020	Digital event due to Covid-19, otherwise at Garrison Institute in New York, US
National Symposium on Mindfulness	2020	Digital event due to Covid-19, otherwise at Radboud University Medical Center, the Netherlands
European Mind & Life Retreat	2021	Digital event due to Covid-19, otherwise at the Center for Mindful Living in Niederwangen, Switzerland
Mind-Brain-Mindfulness Seminars	2019–2021	Free University of Amsterdam, the Netherlands, digital events since Covid-19
Mind & Life Europe Friends webinar series	2020–2021	Digital events organized by the European Mind & Life Institute
Francisco & Friends Life webinar series	2021	Digital events organized by the European Mind & Life Institute
Ouroborus seminars	2021	Digital events organized by the European Mind & Life Institute and the Metanoia Research Group from University of Ljubljana, Slovenia

FOLK HISTORY OF CONTEMPLATIVE SCIENCE

Francisco J. Varela's Research on Expert Meditators

> After sitting the entire day in a cross-legged position on a meditation cushion, I felt relieved to take a seat in the auditorium of the Frauenwörth Abbey for an award ceremony and documentary streaming. I was excited to find out who had received a Varela Grant, named after the Chilean neuroscientist and contemplative practitioner Francisco J. Varela. The grants were awarded to young researchers who formulated promising ideas for furthering Varela's legacy: the examination of contemplative practices that combines first- and third person perspectives on the human mind and brain. As I had heard about Varela for the first time during the conference, I was curious about this 'visionary' – as he was frequently called by conference speakers and participants. Watching *Monte Grande*, a moving documentary about Varela's life and science, I was captivated by his vivid smile in scenes filmed during his illness and shortly before his death in 2001 (Figure 1). I also gained a first inkling of the history of contemplative science. (Vignette, ESRI 2017)

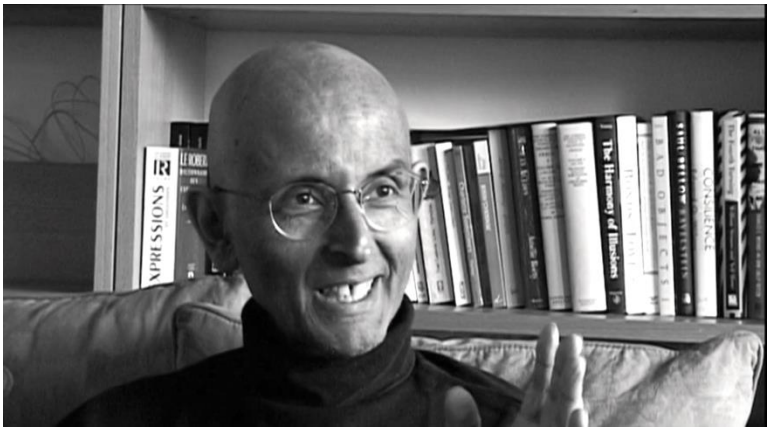

Figure 1. Francisco J. Varela in *Monte Grande – What is Life?* Documentary produced by Franz Reichle and released in 2004.

Varela's historical presence at ESRI provided conference participants with a specific ideal for their (emerging) contemplative science identity. This identity was grounded in a shared value of openness toward dialogue. In a CRC 2020 plenary panel on the origin of contemplative research, Varela's wife Amy Cohen Varela recited his understanding of dialogue as a way to find underlying relations between different cultures, moral systems, and knowledge traditions.

The first dialogue between the Dalai Lama and Western scientists in 1987 is often described as the birth of contemplative science, as well as that of the Mind & Life Institute (Davidson & Harrington, 2002; Harrington & Zajonc, 2006; Hasenkamp & White, 2017). The institute was founded by the Dalai Lama, Varela, and the entrepreneur Adam Engele as a non-profit organization. Today's vision of the institute is articulated in reference to its founding figures: "When the Mind & Life Institute began over three decades ago, our founders envisioned a future where science and contemplative wisdom would come together to promote human flourishing . . . We're inspired not only by questions that drive scientific insight, but also by those that move people to greater compassion and action" (Mind & Life Institute, 2020a). This double agenda combining epistemology and ethics is supposedly at the roots of the meetings between the Dalai Lama, Buddhist monks, scientists, and other intellectuals.

While these meetings initially took place in a living room setting, after 2002 they would develop into increasingly publicized events disseminated through life streaming. Moreover, contemplative science conferences, known as Summer Research Institutes, have been held on an annual basis, typically at the Garrison Institute in New York since 2004, to build a community of contemplative scientists (Mind & Life Institute, 2020b). Four years later, Mind & Life Europe (MLE) split off from its American sister organization. According to Antoine Lutz, MLE associate and former PhD student of Varela, one of the objectives of MLE's establishment was to ground contemplative science conferences and activities more firmly in Varela's original vision of dialogue (personal communication, November 8, 2019).

Varela's vision of dialogue was inspired by retreats he had attended in the 1970s at the Lindisfarne Association (Reichle, 2004). Lindisfarne was a community first based in

the state of New York and later in Colorado, where people convened who were contemplative practitioners, intellectuals, and those who combined both identities like Varela himself. When he joined the community as a scientist in residence in his early thirties, he was already a distinguished biologist with a PhD degree from Harvard. Besides Varela, by now leading figures in contemplative science, such as psychologist Daniel Goleman, neuroscientists Richard Davidson and Cliff Saron, biologist Jon Kabat-Zinn, and philosopher Evan Thompson, were among the mix. According to Thompson, their conversations at Lindisfarne were often circling around Varela's ideas to "revolutionize" science. Varela sought to expand neuroscience by including disciplined first-person investigations of experience cultivated through Buddhist contemplative practice to better understand how the brain works (Thompson, 2004; Varela, 1996).

Varela sought to further translate his interest into experimental research in the 1990s while he was setting up his laboratory at the University of Paris in France. After initial attempts to collaborate with Tibetan monks were thwarted by cross-cultural communicative difficulties (Houshmand et al., 2002), a study succeeded to produce remarkable results in the early 2000s. Lutz, Davidson, and other scientists found that expert meditators with lifelong meditation experience produced a gamma brain activity while resting that was twenty-five times stronger than that of college students inexperienced in meditation (Lutz et al., 2004). To mark the study as a major breakthrough, an electroencephalogram of brain waves increasing in amplitude was printed on the cover page of Goleman and Davidson's (2017) popular science book *Altered Traits* (2017). Davidson's by now most highly cited paper (Davidson et al., 2003), however, was published one year earlier with Jon Kabat-Zinn: the first randomized controlled clinical trial of mindfulness-based stress reduction.

Jon Kabat-Zinn's Mindfulness-Based Stress Reduction

> I was surprised by the bustle in the entry hall of a university building in Amsterdam. People with conference badges huddled at bar tables, some were standing in line for coffee, ginger tea or cucumber water, and others were pinning their posters to panels. The urge to find my way through a crowded building to one of the seven parallel sessions reminded me that this was a scientific conference with a focus on clinical research and application, rather than a meditation retreat.
>
> On the second day, however, the conference got a contemplative flavor. Jon Kabat-Zinn was projected on a large screen (Figure 2) in a lecture hall where about 300 conference attendees had gathered to watch him on video live-stream. Although 74 years of age, he spoke clearly and forcefully when making appeals to the audience: to increase the rigor of mindfulness research, to bring mindfulness to society, to maintain a personal mindfulness practice, and to pursue 'Buddhadharma' in all these activities. (Vignette, ICM 2018)

Figure 2. Keynote lecture by Jon Kabat-Zinn at ICM 2018. Photograph taken by Jason Gonzales at the University of Amsterdam.

The subtle contradictions at ICM – coffee and cucumber water, hustle bustle and communal meditation, scientific rigor and quasi-religious preaching – reflect the interpretive flexibility that has permeated clinical research on meditation since its emergence.

The clinical branch of meditation research was instigated by Kabat-Zinn in the 1980s. After finishing his PhD in molecular biology at MIT, he had a "flash as to how meditation training could effectively be introduced into the mainstream of medicine" (Kabat-Zinn in Davidson et al., 2009) during a meditation retreat in 1979. Goleman and Davidson (2017) describe the episode as follows: "On that retreat Jon had an insight, which he quickly wrote down on the back of an envelope . . . In his vision he realized that pain clinics are filled with people whose symptoms are excruciating and who can't escape the pain except through debilitating narcotics. He saw that the body scan and other mindfulness practices could help these patients uncouple the cognitive and emotional parts of their experience of pain from the pure sensation, a perceptual shift that can itself be a significant relief" (p. 84). This was the birth of mindfulness-based stress reduction or MBSR. Shortly after, Kabat-Zinn opened a Stress Reduction Clinic at the University of Massachusetts Medical School to introduce the program to patients with chronic pain, illness, or stress. In the classic documentary *Healing and the Mind* (Wagner, 1993), Kabat-Zinn is portrayed as an inspired and inspiring healthcare practitioner who conveys more to his patients than a simple technique.

Kabat-Zinn's success had a clinical base, but also a scientific one. Historical sketches in scientific reviews of mindfulness often locate the origin of meditation research in the early 1980s, coinciding with the development of MBSR as the dominant paradigm for clinical studies on meditation (Baer, 2003; Loizzo, 2014; Moulinet et al., 2018). Due to its standardized eight-week format, MBSR lends itself as a clinical intervention and has become the most widely tested meditation program with more than 600 published studies in 2017 (Kabat-Zinn, 2019). Such research was functional in implementing

mindfulness-based programs in hospitals. “If you want to be able integrate into medicine, you’ve got to be able to charge insurance companies for it,” Kabat-Zinn stated at a conference on Buddhism in America in 1997 to explain his motivation for conducting randomized controlled clinical trials on MBSR (cited in Purser, 2019, p. 66).

Despite his ambition to bring meditation into evidence-based medicine, Kabat-Zinn has framed mindfulness as both scientific and spiritual. Although he had couched MBSR in secular language in *Full Catastrophe Living*, in 1990 he published the book with a preface by the prominent Zen teacher Thich Nhat Hanh (Kabat-Zinn, 1990). Four years later, he brought out his international bestseller *Wherever you go there you are* (Kabat-Zinn, 1994), in which he makes the Buddhist roots of mindfulness explicit. Furthermore, he acknowledged in a magazine for Buddhist communities (Kabat-Zinn, 1993) and later in outlets for academic audiences (Kabat-Zinn, 2011) that there was no difference between ‘Buddhadharma,’ the teachings of the Buddha, and ‘universal Dharma,’ the lawful nature of the human mind and suffering captured in MBSR. With his ambiguous language – flexibly adapting to different audiences and making more room for allusions to Buddhism over time – Kabat-Zinn tried to find the “right vocabulary and the right framework . . . to reach many people at a heart level” (Kabat-Zinn in Davidson et al., 2009; see also Braun, 2017). As meditation and Buddhism slowly lost their countercultural, New Age, and mystic connotations, he became increasingly outspoken about the confluence of Buddhist dharma, medicine, and science.

Topoi of Charismatic and Rational Authority

The folk history of contemplative science reconstructed in two branches – Varela’s laboratory experiments on expert meditators and Kabat-Zinn’s clinical trial research on mindfulness – touched upon *topoi* of authority. *Topoi* are commonplaces, relatively stable themes common to audiences and authors who deploy and adapt them according to occasion for rhetorical purposes (Walsh, 2013). Some well-known *topoi* of charismatic authority – (1) extraordinary features of body and face, (2) exceptional manners of working and living, (3) visionary ideas, and (4) moral guidance – are revisited above. Inspired by Walsh’s (2013) and Hamilton’s (2017) analyses of charismatic scientists, I show that the purported personae of Varela and Kabat-Zinn express the convolution of these *topoi* of charisma with rational authority.

First, both scientists were captivating speakers whose power of mind seemed to be elevated by the fragility of their bodies resulting from old age or imminent death (Shapin, 1998). Second, both were not only long-term meditation practitioners, but also highly productive, influential scientists with degrees from and positions at prestigious universities. Their work and life were shaped by efforts to navigate their “hybrid role identity” (O’Kane et al., 2020) merging a contemplative self with a scientific one. Third, their experience in meditation fueled their original ideas: Varela’s vision to revolutionize the cognitive sciences through a combination of first- and third-person approaches and Kabat-Zinn’s inspiration to treat chronic conditions by separating the experience of pain from its cognitive-emotional overlays. Fourth, their research was entangled with the moral aspiration to alleviate suffering and promote human flourishing. Varela sought to create spaces for open dialogue in which opposing viewpoints, approaches to knowledge,

and political positions could find common ground. Kabat-Zinn aimed to disseminate mindfulness in society to improve health and well-being by generating evidence for the positive effects of meditation through clinical trials.

The blend of Kabat-Zinn's and Varela's scientific personae with *topoi* of charisma could be interpreted in the light of Porter's (1995) understanding of expert authority. Porter proposes that expert communities endorse rational procedures as a source of authority whenever the legitimacy of expert consensus becomes vulnerable. Accordingly, rational authority underpinned by publications in respectable journals and scientific credentials has helped establish contemplative science as a legitimate field of research. Within the contemplative science community, however, foregrounding the mesmerizing qualities of historical figures like Varela and Kabat-Zinn fosters social cohesion. Although the folk history spun around these figures is only one reason why researchers feel attracted to contemplative science among several others (for instance, epistemic and contemplative interests, the recent 'hype' around mindfulness, and career-related ambitions), it helps interpret the Janus-faced nature of contemplative science. As charisma rallies 'insiders' while rationality persuades 'outsiders,' contemplative science looks into two directions at once, and is thus imbued with antinomies and tensions. In the following, I show how the rational-charismatic Janus face is inverted in the alternative histories of meditation research that are absent or explicitly demarcated from the official narrative of contemplative science.

ALTERNATIVE HISTORIES OF MEDITATION RESEARCH

The Green's Groovy Biofeedback Research

Although historical sections in scientific reviews of meditation research reference studies on contemplative practices in the 1960s and early 1970s in passing (Lutz et al., 2006; Loizzo, 2014), this period does not feature prominently in the folk history of contemplative science. This is surprising since during that time first EEG-biofeedback experiments were conducted on meditating yogis. Biofeedback attracted public attention through reports in popular magazines and documentary films, and are today remembered in books and articles on the history of neurofeedback (Brenninkmeijer, 2013).

At the center of these historical accounts are Elmer Green, an applied physicist, and his wife Alyce, a trained psychologist. They were best known for their 1974 research expedition to India (ibid.). Equipped with a portable laboratory, they made physiological recordings of yogis controlling their heart rate, body temperature, and brain activity. Their findings demonstrated that humans undergoing extensive training could attain volitional physiological control, which substantiated the biofeedback research they had been doing since 1964 at the Menninger Clinic in Kansas. They had tried to teach self-regulatory skills to ordinary people by monitoring physiological changes and feeding them back to volunteers for greater self-awareness (Parks et al., 2020).

The Greens' research was motivated by their long-term meditative practice. They discovered that whenever Elmer slipped into a meditative state, his EEG displayed low-frequency theta brain waves. After conducting further research on theta, they claimed that it was associated with an enhanced state of well-being through the quieting of body,

emotions, and thought (Robbins, 2000). Informed by their observation that every change in mental-emotional state was accompanied by a physiological change and vice versa, they envisioned "a science in which mind and matter were not forever separate" (Green & Green 1977, p. 13).

Their visionary science was intertwined with their socio-political convictions – an intertwinement that became evident in their work's emphasis on volition. Their understanding of volition referred to people's freedom to willfully choose a mental-physiological state. According to Hartman (2016), the training of volition was of societal relevance for the Greens, since they considered it as a "vital response to a pervasive social dependence on top-down systems of governance" (p. 10). They believed that through the combination of biofeedback technology and meditative practices, ordinary people could learn to take responsibility for their own health and activities, and, in this way, free themselves from a patronizing political system.

This sketch of the Greens' work and life highlights that, similar to Varela and Kabat-Zinn, their scientific personae merged with charismatic features: their hybrid role identity combined meditative practice with scientific ambitions, they had non-mainstream ideas about the relation between mind and matter, and their research extended into political philosophy. Although their research in India was widely publicized through the documentary *Biofeedback: Yoga of the West* (Hartley & Hartley, 1975), which reproduced East-West clichés similar to those pervading meetings between the Dalai Lama and Varela, they are not remembered as early forerunners of contemplative science (for an exception, see Edwards, 2011). A reason may be that "biofeedback had a New Age whiff about it" (Robinson, 2000, p. 6) and that the Greens associated their research with transpersonal psychology (Hartman, 2016), sometimes considered a New Age trend (Sutcliffe, 2003). As such, the Greens' biofeedback research could be considered part of the 1960s "groovy sciences" (Kaiser & McCray, 2016), which had a countercultural air around them.

It is this link to the counterculture that contemplative scientists have downplayed to gain scientific legitimacy for Buddhist meditation. As mindfulness researchers like Kabat-Zinn have aimed to introduce meditation practice into established institutions, such as hospitals, schools, and governments, an association with countercultural revolutionary ideas could harm their cause (Kucinskas, 2018). Therefore, Davidson, Goleman, and Varela made careers in mainstream science before they came "out of the closet" (Davidson et al., 2009; Varela, 2000) with their interest in Buddhism in the 1990s, when countercultural stereotypes slowly started to fade (Turner, 2008). As contemplative science has constantly faced the risk of being identified with the New Age wing of the American counterculture, it has distanced itself from its history in biofeedback research. In the case of the Greens, the charismatic-rational Janus face is not constitutive of contemplative science's re-enchantment, but threatens its project with too much grooviness.

Benson's Disenchanted Relaxation Response

Another biofeedback researcher who did *not* become a player of note in the folk history of contemplative science is the cardiologist Prof. Herbert Benson. For one thing,

he has not featured in commemoration practices at contemplative science conferences. Also, in retelling the history of the field, Goleman and Davidson (2017) mention him only briefly. His relative absence from the origin story of contemplative science in comparison to Kabat-Zinn and Varela is salient because in other respects their research careers appear to have been quite alike.

Similar to Varela, Benson was keen on meeting the Dalai Lama. In 1979, eight years before the first Mind & Life Dialogue, the opportunity arose when the Dalai Lama came to Harvard for a visit. On that occasion, Benson told him about his interest in studying "g'Tum-mo" or "inner heat meditation," during which experienced Tibetan meditators upregulated their thermal production to burn defilements of improper thinking (Benson, 1991, p. 42). Several months later, Benson received a letter from the Dalai Lama inviting him to study g'Tum-mo practitioners near Dharamsala. Benson completed the research project with a *Nature* publication reporting that these practitioners had increased the temperature of their fingers and toes by 8.3 °C (Benson et al., 1982).

Benson's research on g'Tum-mo supported his clinical interest in studying the possibility that meditation, conditioning techniques, and biofeedback could lead to striking changes in the body and treat stress-related illnesses. After training patients with hypertension to lower their blood pressure through biofeedback (Benson et al., 1971), he conducted research on young meditators. He observed that their blood pressure, metabolism, breathing rate, and brain wave frequency rate decreased when they performed mantra meditation in comparison to a state of quiet repose (Wallace & Benson, 1972). He interpreted the result as the systematic reversal of the stress-induced fight-or-flight response, which he eventually called "Relaxation Response" (RR) in a best-selling book (Benson, 1975).

By the 1990s, the RR technique had been incorporated into modern medicine as a recommended therapy for hypertension, chronic pain, depression, and other conditions (Benson, 1991). Just like Kabat-Zinn, Benson had brought meditation into the clinic by authoring more than 190 scientific publications and by founding an Institute for Mind Body Medicine at the Massachusetts General Hospital (Benson, 2019). Although both researchers are considered as having laid the foundation for meditation's proliferation in Western medicine (Horowitz, 1999; Langer & Ngnoumen, 2018), contemplative scientists are vocal about Kabat-Zinn's contributions but remain rather silent on Benson.

My interpretation of Benson's relative absence from the folk history of contemplative science is twofold: he lacks charismatic authority and curtailed his rational authority by siding with the 'wrong' allies. Benson has always presented the RR in strictly secular terms. To evoke it, one should sit quietly and relax the body, breathe slowly and repeat a word, sound prayer, or muscular activity, and disregard other thoughts that come to mind. As "it is not religion per se, it is what the person believes in" (Benson, 1997), one could choose to repeat "*Ave Maria*," "*Om*," "Peace & Harmony," or any other phrase. Benson's descriptions do not only allude to the placebo effect, but also compare the RR to daily exercise (Benson et al., 2019). In this way, he could maintain an allure of objectivity, even though he himself started practicing the RR technique to relieve age-related aches. In contrast to Varela and Kabat-Zinn, Benson does not display a

contemplative-scientific hybrid role identity and his language has remained plainly secular over the years. His authority has been purely rational.

In the eyes of contemplative scientists, however, his rational authority may have looked damaged due to his research history. The study that helped Benson coin the RR was conducted with practitioners of Transcendental Meditation (TM). TM's spiritual leader, Maharishi Mahesh Yogi, had advertised his mantra meditation as celebrities' favored path to psychedelic bliss, with iconic images of the Beatles at his ashram (Wonfor & Smeaton, 1995), before searching for scientific legitimacy. Although TM produced what some call the "the first large wave of scientific studies on meditation's effects" (Farias & Wikholm, 2015, p. 48) in the 1970s, with hundreds of studies paving the way for a second wave on mindfulness thirty years later, contemplative scientists refuse such lineage. After TM had attracted negative attention for court cases, exaggerated claims, and conflicts of interest, scientists tended to dismiss TM research as 'pseudoscience' (Tøllefsen, 2014). To avoid such labelling of their own meditation research, contemplative scientists have "attempted to do this work in a way that's different than in the seventies with the TM people" (Davidson cited in Kucinskas, 2018, p. 81). They carefully focused their research on empirical rather than metaphysical questions and made great efforts not to overgeneralize results. They also excluded any links to TM in contemplative science's history, like Benson's research on the RR.

HISTORY AS A REPERTOIRE OF JUSTIFICATION WORK

Having demonstrated how history is constructed to tell an origin story of contemplative science that bolsters its charismatic-rational authority, I now examine how scientists deploy the past strategically to fend off critical backlashes. Although they made efforts to learn from the failures of TM researchers, contemplative scientists frequently met with criticism. They have been criticized, for example, for claiming authority to speak about meditation despite methodological limitations of meditation studies (Van Dam et al., 2018), and for advancing the commodification, commercialization, and militarization of meditative practices (Purser, 2019). In the last decade, reporters, social scholars, Buddhist meditators, and contemplative scientists alike have reacted with critical scrutiny to the exponential growth of peer-reviewed articles on mindfulness and the application of mindfulness practices in nearly every sector of society. In a recent special issue on mindfulness, contemplative scientists Bernstein et al. (2019) emphasize that "critical perspectives and questions have not fallen on deaf ears. Many scholars, scientists and practitioners have been and continue to grapple with these challenges" (p. vii). I analyze the strategies that contemplative researchers have developed to respond to such challenges. This analysis identifies regimes of valuation – social responsibility, contemplative values in science, diversity and inclusivity – and directs attention to their historical nature. It reveals how they make references to Varela and Kabat-Zinn for the purpose of justification work, while, at the same time, reproducing contemplative science's enchanting qualities.

Social Responsibility

An early, far-reaching socio-cultural critique of meditation's scientific framing in programs like MBSR was put forward by the professor of business and Zen Buddhist teacher Ronald Purser. He published a blog post on *Huffington Post* (Purser & Loy, 2013) that went viral and fed into his book *McMindfulness* (2019). He warns that uncoupling mindfulness from its Buddhist roots could reduce the practice to an attention training amenable to ethically dubious ends, for example in the military or corporate business. He further invokes Žižek's (2001) critique of mindfulness. In the sense of Marx, Žižek describes mindfulness as an opiate that smoothens the functioning of global capitalism by lowering employees' stress levels just enough that they are deflected from structural injustices. Contemplative scientists are accused of being complicit in the dissemination of corporate mindfulness by purporting to show that mindfulness enhances productivity at work.

Critiques like Purser's have given rise to expressions of commitment to social responsibility in contemplative science, which often invoke Kabat-Zinn's socio-ethical conception of mindfulness. A response to Purser's book issued by the Centre for Mindfulness Studies in Toronto points out that Kabat-Zinn "designed the 8-week MBSR program to help those with chronic illness and *pain*, not just stress . . . These contexts drove its rising popularity, not corporate or capitalist adoption" (MacPherson & Rockman, 2019). It is further suggested that Purser fails to recognize the "real problem of mental illness" (MacPherson & Rockman, 2019), which obstructs people from advocating for corporate justice. Mindfulness is not an opiate, but instead enables people to take responsibility for social change. The moral vision of healing society through healing the self, famously encapsulated in Kabat-Zinn's (2005) description of meditation as a "radical act of sanity" (p. 8; see also Kabat-Zinn, 2010, 2019), is the underlying thread of the response to Purser.

Kabat-Zinn's vision has been further reiterated in written responses to the McMindfulness critique (Repetti, 2016; Willmott, 2018), in interviews with contemplative researchers (Davidson, 2020; Thompson, 2020b), and at conferences. MLE conferences addressed the climate crisis, political conflicts, and social injustices under themes, such as "Beyond Confines: Integrating Science, Consciousness and Society" (CSS 2019) and "Care for life: Enacting knowledge in an interdependent and uncertain world" (ESRI 2021). Calls to go beyond the confines of the individual and to recognize interdependencies are reminiscent of Kabat-Zinn's (2005) emphasis on the links between the self, society, and the planet (p. 14). Keynote lectures were given by speakers with a background in party politics, activism, and economics whose personal stories and political agendas grounded solutions to grand challenges in cultivating virtuous qualities through contemplative practice. Implicit and explicit allusions to Kabat-Zinn's socio-ethical conception of mindfulness are embedded in their justifications against McMindfulness critics.

Contemplative Values in Science

After the McMindfulness critique had been raised mainly by social scholars and Buddhist practitioners from outside of the contemplative science community, scientists

held the proverbial mirror up to themselves. While Tresch's (2013) ethnographic study of the early American Mind & Life Summer Research Institutes indicates that a conflict between contemplative values and scientific life has occupied contemplative scientists since the 2000s, I observed it gain momentum in the last three years in Europe. Former physicist Wolfgang Lukas, for example, had relentlessly tried for years to spread his proposal for a "mindful research culture" at annual ESRI events. He had not gained much attention until ESRI 2020 where his proposal sparked vibrant discussions (Lukas, 2020). In these discussions, Tania Singer, a prominent contemplative scientist who hit the headlines as the "The World's Top Empathy Researcher Revealed as a Bully" (Heaney, 2018), was frequently referred to. She appeared to embody the paradox of contemplative scientists who do not 'practice what they preach.'

Attempts to address this paradox have often framed the integration of contemplative values in science as a problem of individual integrity to which solutions can be found in contemplative science's history. For instance, MLE developed value cards intended for use during meetings, conferences, and everyday work to reconnect to the "heritage and founding principles" of the institute (Mind & Life Europe, n.d.). Each card is decorated with an icon and a quote by Varela expressing the meaning of values like "take care" and "stimulate dialogue." Similar appeals to Varela for moral guidance were recurringly made at the MLE retreat 2021, and these aimed to support contemplative scientists in giving space to their contemplative as well as professional practice. Retreat participants were suggested to read an interview with Varela (2000), in which he described his attempts to never lose sight of the purpose of his research, contemplating whether he was motivated by the pursuit of fame and glory or his wonderment about life and the intention to alleviate its inherent suffering. In support of such contemplations, scientists following Varela's legacy, like Lutz and Davidson, have encouraged meditation practice during workdays and have sent their teams to meditation retreats. The moral message derived from history seemed to be that 'practice what you preach' meant first and foremost 'contemplate your values on the cushion.'

Diversity and Inclusivity

A critique raised both within and without the community marks the exclusive character of contemplative science. As observed by sociologist Kucinskas (2018): "For a movement inspired and motivated by democratic aspirations, progressive politics . . . and spiritual liberation for all, it is striking how the contemplative base was composed of such a privileged homogenous, group of people" (p. 193). In recognizing that to pass as a 'contemplative scientist' one has to be both a high-achieving researcher and a dedicated meditation practitioner, participants in contemplative science events have become increasingly critical of the label. While some dislike that it excludes researchers who study contemplation but do not work in the 'hard sciences,' such as psychologists, religious studies scholars, and cultural anthropologists (Komjathy, 2018), others are skeptical of the qualifier 'contemplative.' In contemplative science's definition of contemplation, Thompson (2020a) recognizes "Buddhist exceptionalism" (p. 1). He observed the development of an "in-group/out-group structure" in the 2000s, which sidelined people who criticized the "special treatment" (p. 12) given to Buddhism.

Buddhist meditation has come to be considered superior to other forms of contemplation in that it provides access to the fundamental nature of the mind, which puts it in a privileged position to work with the neurosciences.

Although Thompson had himself defended that view in *The Embodied Mind* (1991) co-authored with Varela and Rosch, he wrote in the introduction of its revised edition: "[W]hen I reread the book now, I cannot help but see it as limited by several shortcomings, ones that have become increasingly apparent to me over the years and that we need to leave behind in order to advance the vision and project of this book" (Thompson, 2016, p. xxii). Thompson has come to consider meditation, just like any other form of contemplation, as a ritual whose experience is as much shaped by social context as it reveals the inner domain. For him, the idea that Buddhist meditation is closer to direct experience than other forms of contemplation, which deeply informed Varela's thinking, is misguided. In taking distance from Varela, Thompson establishes himself as an authentic, reflexive participant in the past. His reflexive take on *The Embodied Mind*, rejecting some while confirming other parts, helps him stress the sustained relevance of the book's overarching vision: Varela's idea of inclusive, cross-cultural dialogue.

In reference to this conception of dialogue, diversity and inclusivity have been presented as central aspirations of contemplative science conferences. Conferences were organized with such themes as "mindfulness teachings around the world" (ICM 2020) and "diversity and equality" (ICM 2021), hosting keynote speakers from different countries, including Colombia, Iran, Israel, South Africa, to name but a few. At ICM 2020, discussions on spiritual healing following Ubuntu philosophy, Muslim Ramadan, and Jewish prayer emphasized their fundamental equality with mindfulness. One could consider such conference discussions as enactments of Varela's understanding of dialogue, which seeks to expose underlying relations across differences. The revival of the past in the turn to diversity and inclusivity performs justification work in response to critiques of Buddhist exceptionalism in contemplative science. At the same time, the appeal to Varela for moral guidance bestows contemplative science with deeper meaning, purpose, and moral vocation.

CONCLUSION

The analysis above reveals that it is possible to understand contemplative science as a case of modern enchantment. While several historiographies have foregrounded the presence of spirituality, religious beliefs, and magic in modernity (Castle, 1995; Daston & Parks, 1998; Landy & Saler, 2009), in this study I shift scholarly attention to the enchanting power of historical narratives. Through a combination of participant observation and document analysis, I examine how scientists and scholars involved in contemplative science narrate their field's history as a project of re-enchantment. Their folk history and its eluded alternatives are "partial connections" (Strathern, 1991) that hold together seemingly incommensurable accounts of the world: Eastern contemplation and Western science, ethical significance and materialist brain research, charismatic and rational authority (cf. De La Cadena & Blaser, 2018; Ellis, 2011; Morita, 2017; Verran, 2001).

This study further contributes to literature on charismatic scientists. In line with Weber's (1922/1968) description of charismatic authority as a revolutionary force, charismatic scientists have been shown to dwell outside established institutions (Hamilton, 2017) or to take on transitory leadership (MacKenzie & Elzen, 1996). Other scholars find that charismatic authority thrives within modern scientific institutions (Lengwiler, 2006; Shapin, 2010; Thorpe & Shapin, 2000). What both interpretations of charisma have in common is that they consider it to be contingent on normative uncertainty – either due to the absence of established procedures in revolutionary times or created by tightly structured organizations, in which an individual vouches for situational, local courses of action. This case study on contemplative science, by contrast, highlights that charisma can function as a glue attaching individuals to a community of researchers. In conveying the impression that one could become as spiritually profound and academically successful as contemplative science's charismatic founders, the contemplative science community instils a powerful desire to belong. While I focus on the charisma of Varela and Kabat-Zinn because they feature most prominently in the folk history of contemplative science, future research could inquire into the role of other leading figures, for instance Davidson and Lutz, in strengthening communal ties and attracting novices to meditation research.

The reconstruction of the folk history of contemplative science, in other words, exemplifies the role of language as a technology that effects things in the world (Belyaeva, 2021; Hasse, 2022; Heß, 2021; Nordmann, 2020). To defy the traditional distinction between word and deed, this study portrays narratives as powerful instruments to achieve specific ends. In contemplative science, historical repertoires are mobilized to assemble a research community, to defend science against critics, and to create moral obligations in the present. The analysis of regimes of valuation in response to socio-ethical critiques of contemplative science illuminates that appeals to past visions and moral ideals do not only perform modern enchantment, but also justification work. Enacting allegiances to a particular version of the past creates obligations through the articulation of a moral indebtedness of descendants to their ancestors. Tracing these allegiances opens up contemplative scientists' regimes of valuation to closer scrutiny. For example, presenting Varela's soul-searching contemplations on the meditation cushion as a path to 'practice what you preach' may divert attention from structural violence in contemporary academia to individual responsibility. In foregrounding such examples in the analysis, I intend to prompt socio-ethical reflexivity about the oft-unacknowledged practical effects of narratives within contemplative science.

I also seek to promote reflexivity about contemplative science's present by shedding light on historical figures expelled from its official historical narrative. Attributing the omission of the Greens to their countercultural bent may help explain why relations between contemplative science and other sciences with a groovy past, such as research on psychedelics (McCray, 2016), have remained rather obscure until today. In light of the "modern renaissance of psychedelic research" (Pollan, 2018, p. 24), psychedelics are often talked about over dinner at contemplative science events, but only seldomly appear in scientific presentations and have neither made it into conference themes or keynotes. Future research could further examine and interpret the hidden or

refuted connections between contemplative science and research on psychedelics (Langlitz, 2013), psychoanalysis (Harrington & Dunne, 2015), and cybernetics (Pickering, 2010). This sort of analysis could also be fruitful for other academic fields. A case in point is Shanley's (2021) alternative historiography of the responsible research and innovation community, which highlights interlinkages with largely forgotten elements in the history of science and technology studies.

Finally, I suggest not only to investigate why certain alternative histories fall into oblivion, but also to explore what renders the official narrative so powerful in building a contemplative science community. Whereas skeptics of Weber's disenchantment thesis wonder why it has been so compelling in the West (Saler, 2006, p. 693), I propose to specify the question and ask: why is the re-enchantment narrative so powerful in areas such as the brain sciences, where disenchantment seems to be realized most industriously? Although this question goes beyond the scope of this case study, I draw on Harrington (2008a) and McMahan (2010) in formulating a tentative hypothesis: re-enchantment may be most vigorously sought after in epistemic cultures where science and technology drastically threaten to subvert what many of us hold dear – moral virtues, free will, and experiences of transcendental significance. It may well be easier to translate agency and experience into neural activation patterns if research makes room for inexplicable, mysterious aspects of our subjectivity.

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СВЕДЕНИЯ ОБ АВТОРЕ / THE AUTHOR

Марейке Смолка, mareike.smolka@humtec.rwth-aachen.de, ORCID: 0000-0002-0343-0888

Mareike Smolka, mareike.smolka@humtec.rwth-aachen.de, ORCID: 0000-0002-0343-0888

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