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Editorial

Soul Catchers: The Material Culture of the Mind Sciences

A soul catcher is a piece of incised bear femur decorated with animal heads. Used by the Tsimshian people of the Pacific Northwest, it is plugged with cedar bark on both ends in order to catch and contain that ephemeral thing that Western Europeans have called 'the soul' – a lost soul or an evil spirit. While the soul catcher might strike us today as the cultural artefact of an animistic religious system, or perhaps as a superstitious relic, it resembles in both its form and its function a number of objects central to the modern mind and brain sciences. Many of these technologies could also in their way be labelled 'soul catchers' because they attempt to capture, render visible for study, and manipulate what otherwise eludes our physical grasp. With what justification might one consider voodoo and shamanism the products of naivety or deception, but not the devices and instruments, practices and routines used in Western science, which equally try to catch 'souls': the unconscious, the mind of the child, or the activity of a brain in a scanner?

This is not to downplay differences between these technologies of 'soul catching', which are indeed impossible to miss. Even a short glance reveals differences of scale, of cultural authority and plausibility, differences which reflect many of the oppositions that structure the modern world: science versus superstition, mainstream versus marginal, and the finer differentiations between psychoanalysis, psychology, neurology, brain science, and criminology, amongst others. Nevertheless, in this special issue, we use the anthropological comparison to the soul catcher in order to open up new perspectives on the history of the contemporary mind sciences and their material cultures. Casting the machines and apparatuses of the mind and 'neuro' sciences as soul catchers, we hope to draw attention to the way in which they use material means to examine what is often taken to be immaterial. What status do we attribute to the souls that they conjure up? How do they render those souls tangible, measurable, or treatable?

Material Culture

'Matter matters.' John Law's observation concisely expresses the insight that has fuelled the interest in the 'material culture' of science. Since the mid 1980s, when Steven Shapin and Simon Schaffer placed them at the centre of their investigations in *Leviathan and the Air Pump*, scholars have investigated the ways in which instruments and scientific practice have produced and shaped epistemic objects.[1] Drawing inspiration from the methodologies

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[1] John Law, 'The materials of STS', in Dan Hicks and Marc C. Beaudry (eds). *The Oxford Handbook of Material Culture Studies* (Oxford: Oxford University Press, 2010), 173–88; Steven Shapin and Simon Schaffer, *Leviathan and the Air-Pump: Hobbes, Boyle, and the Experimental Life* (Princeton, NJ: Princeton University Press, 2011 [1985]). For a later, but highly influential, intervention, see Hans-Jörg Rheinberger, *Toward a History of Epistemic Things: Synthesizing Proteins in the Test Tube* (Stanford, CA: Stanford University Press, 1997).

of anthropology, they have investigated the locations where scientific research takes place, examining material culture in order to analyse what has been called the 'manufacture of knowledge' (Knorr-Cetina) and 'laboratory life' (Latour and Woolgar).[2] In a number of micro-studies, these scholars and others have brought to light the myriad relations between scientists, their epistemic objects, and laboratory equipment used as 'inscription devices'.[3]

As proponents of the sociology of scientific knowledge (SSK), Shapin and Schaffer have been closely associated with social constructivism.[4] But the appeal to material culture has been used most often to temper social constructivism's more radical claims. An investigation of the apparatuses central to scientific research brings to light the material constraints and (contingent) limits of social construction. It thus curtails a tendency towards radical and self-destructive relativism without thereby entailing the embrace of naive realism.

About a third of a century after these early explorations, the historical study of material culture can boast a long pedigree and comprises multiple, sometimes conflicting, programs of research. But it is still possible to sketch out several key arguments that have structured the field from its earliest days:

1. Moving beyond the textual sources that have often guided research, scholars interested in material culture focus on scientific routines and practices. Scientific knowledge, they argue, is not made but performed. It becomes real 'in action'. By emphasising the importance of such practice, scholars have indicated the untenability of distinctions such as that between the 'strictly scientific' and the 'purely social', or that between brain scanners and indigenous soul catchers. The practices that produce and confirm knowledge are not restricted to the laboratory but can be found in a wide variety of locales.

2. Once established, such practices tend to stabilise and reproduce themselves. The integrated package of scientists and technicians, their instruments, and their recording devices become what Latour has called 'immutable mobiles', which can be moved from one setting to another without losing their structure and coherence. They account in this way for the stabilities and continuities in scientific investigations across space and time. To understand scientific knowledge and realities, we have to pay attention to these mobiles and their material aspects, examining the human relationships they create and the forms of knowing they allow.

[2] Karin Knorr-Cetina, *The Manufacture of Knowledge: An Essay on the Constructivist and Contextual Nature of Knowledge* (Oxford, New York: Pergamon Press, 1981); Bruno Latour and Steve Woolgar, *Laboratory Life: The Social Construction of Scientific Facts* (Beverly Hills, CA: Sage Publications, 1979); Bruno Latour, 'Visualization and Cognition: Thinking with Eyes and Hands', *Knowledge and Society: Studies in the Sociology of Culture Past and Present*, 6 (1986), 1–40. For a recent exposition of Latour's later theories, see Bruno Latour, *Reassembling the Social: An Introduction to Actor-Network Theory* (Oxford, New York: Oxford University Press, 2005).

[3] Latour and Woolgar, *op. cit.* (note 2).

[4] Harry M. Collins, 'Introduction: Stages in the Empirical Programme of Relativism', *Social Studies of Science*, 11, 1 (1981), 3–10. For a discussion of the relevance of social constructivism for the history of medicine, see especially Ludmilla Jordanova, 'The Social Construction of Medical Knowledge', *Social History of Medicine* 8, 3 (1995), 361-81; and David Harley, 'Rhetoric and the Social Construction of Sickness and Healing', *Social History of Medicine* 12, 3 (1999), 407–35. The debate over such social constructivism started with the earliest formulations of SSK in the 1970s, but it is the controversies of the 1990s that are perhaps best remembered: Michel Callon and Bruno Latour, 'Don't throw the baby out with the bath school! A reply to Collins and Yearley', in *Science as Practice and Culture*, Andrew Pickering (ed.) (Chicago, IL: University of Chicago Press, 1992), 343–68; or David Bloor, 'Anti-Latour', *Studies in History and Philosophy of Science*, 30, 1 (1999), 81–112. Peter Galison's *Image and Logic: A Material Culture of Microphysics* (Chicago, London: University of Chicago Press, 1997) was a central text in these debates.

3. An emphasis on material culture has produced close affinities between the history of science and neighbouring fields. The ideas developed in media studies, particularly those of Friedrich Kittler, have been influential in the German-speaking history of science.[5] Kittler's concept of the 'Aufschreibesystem' (inscription system) allows for the reconstruction of the various connections between humans, apparatuses, and inscription devices as a condition of the modern life sciences.[6] Similarly, as we have seen, material culture opens up points of contact between the history of science and anthropology, which has long examined the meaning and uses of objects as a way to understand society.

The Mind Sciences and Material Culture

While an analysis of material culture has been widely influential in the histories of science and medicine, it seems to reach a limit case in the history of the mind sciences. The confluence of the two raises a host of important and difficult questions: How does the mind interact with the world? How have scientists understood the interaction between the two? How have they constructed material apparatuses to record the workings of the mind? And in what ways has this material culture informed scientific developments? In its most authoritative formulations, at least, the historiography of the mind sciences has not offered rigorous answers to these questions. We can explain this lacuna by the way in which the major strands of that history – one participating predominantly in broader trends within the history of medicine, the other in trends within the history of science – have responded to the historiographical choices of the scholarship in the first half of the twentieth century. Reacting to its elitism, its moral optimism about scientific development, or to its emphasis on intellectual history as the prime driver, the history of the mind and brain sciences has not yet posed the problem of soul catching.

At least from the perspective of historians in the 1960s and beyond, early twentieth-century histories of the mind sciences focused excessively on great men and their ideas, presenting heroic narratives about the discovery of truths, structured teleologically by ideals about how the sciences of mind and brain should be performed. Most famously, in 1941, psychoanalyst-historian Gregory Zilboorg presented the history of psychiatry as a series of medicalisations through which the superstition of the Middle Ages was overcome to produce a positivist present.[7] The result was a story of 'progress'. Over time, witchcraft came to be recognised as what it truly was: mental illness.

These narratives provoked a robust reaction in the mid-twentieth century on the part of historians of psychiatry participating in the 'social turn' in the history of medicine. Taking its cue from Marxism, the 'new social history of medicine' turned away from the study of great men and their ideas and rather sought to recover the experiences of non-elites and analyse the social impact of medicine as well as social responses to disease.[8] Though these

[5] Volker Hess and Andrew Mendelsohn, 'Case and Series: Medical Knowledge and Paper Technologies, 1600–1900', *History of Science*, 48 (2010), 287–314; Volker Hess and Sophie Ledebur, 'Taking and Keeping: A Note on the Emergence and Function of Hospital Patient Records', *Journal of the Society of Archivists*, 32 (2011), 21–32; Christoph Hoffmann, 'Processes on Paper: Writing Procedures as Non-Material Research Devices', *Science in Context*, 26 (2013), 279–303; Cornelius Borck and Armin Schäfer (eds), *Das psychiatrische Aufschreibesystem* (Paderborn, Germany: Fink, 2015). See also Philippe Artières, *La police de l'écriture. L'invention de la délinquance graphique* (Paris: La Découverte, 2013).

[6] Friedrich A. Kittler, *Discourse Networks 1800–1900* (Stanford, CA: Stanford University Press, 1990).

[7] Gregory Zilboorg, *A History of Medical Psychology* (New York: W. W. Norton, 1941). Other early histories of psychiatry include work by Walther Riese, Albert Deutsch, and others.

[8] A leading light in this scholarship is Charles Rosenberg. See Charles Rosenberg, *The Cholera Years: The United States in 1832, 1849, and 1866* (Chicago, IL: University of Chicago Press, 1962). Other, more programmatic,

new forms of history often presented themselves as (Marxist) materialist accounts, they tended to pass over material culture and remained focused on the questions and problems of the old orthodoxy. As Alexandra Bacopoulos-Viau and Aude Fauvel have shown in a recent and thoughtful special issue of this journal, historians of psychiatry responded to Roy Porter's programmatic 1985 essay 'The Patient's View: Doing Medical History from Below' by paying attention to new sources, the roles of gender and class, and to non-Western perspectives, amongst others. Often this work was mobilised as social criticism, a trend recently picked up by 'Mad Studies'.[9] In all of this, scholars foregrounded *human* subjectivity and agency. It is telling that, in the special issue, material culture is primarily considered as a means by which we are able to hear the patient's voice.

A second line of criticism attacked the teleology implicit in the older generation's account. Historians like Andrew Scull and David Rothman took inspiration from Michel Foucault's treatment of the psychiatric asylum, analysing the ways in which knowledge was complicit in structures of power.[10] Taking as their target the Whiggish view of scientific progress, these historians were concerned predominantly with breaking the connection between knowledge and liberation, and so they directed their attention to the social ramifications of the medicine of the mind. And even as some of these works have come under attack, these questions have remained at the forefront of debate. Jack Pressman's history of lobotomy from 1998 (which can be taken as representative of a broader trend in the history of the mind sciences[11]) responded both to the social history of medicine and to Foucault; in contradistinction to them, he emphasised the beneficial aspects of somatic treatment in psychiatry. But, as before, Pressman pitched his analysis at the level of social relations.[12]

Though not participating directly in the same developments of the history of medicine, the scholarship in the history of psychology has adopted a similar set of questions. The work on psychological testing, for instance – histories of intelligence,[13]

contributions were published by Roy Porter, David Rosner, Susan Reverby, and others in the 1970s and 1980s. See Roy Porter, 'The Patient's View: Doing Medical History from Below', *Theory and Society*, 14 (1985), 175–98; Susan Reverby and David Rosner, 'Beyond "The Great Doctors"' in Reverby and Rosner (eds), *Health Care in America: Essays in Social History* (Philadelphia: Temple University Press, 1979), 3–16. For an account of the 'new social history of medicine', see Allan Brandt, 'Emerging Themes in the History of Medicine', *The Milbank Quarterly*, 69, 2 (1991), 199–214; Frank Huisman and John Harley Warner, *Locating Medical History: The Stories and Their Meanings* (Baltimore, MD: Johns Hopkins University Press, 2004).

[9] Porter, *op. cit.* (note 8); Alexandra Bacopoulos-Viau and Aude Fauvel (eds), 'Tales from the Asylum: Patient Narratives and the (De)construction of Psychiatry', *Medical History*, 60, 1 (2016), 1–104.

[10] Michel Foucault, *Folie et déraison. Histoire de la folie à l'âge classique* (Paris: Union Générale d'Éditions, 1961). The original was abbreviated by Foucault and translated into English in 1965 as *Madness and Civilization: A History of Insanity in the Age of Reason* (New York: Vintage, 1988 [1965]), 276; Andrew Scull, *Museums of Madness: The Social Organization of Insanity in Nineteenth-Century England* (New York: St Martin's Press, 1979 [1974]); David Rothman, *The Discovery of the Asylum: Social Order and Disorder in the New Republic* (New York: De Gruyter, 2002 [1971]).

[11] Jack Pressman, *Last Resort: Psychosurgery and the Limits of Medicine* (Cambridge, New York: Cambridge University Press, 1998). The list includes, but is not limited to: Joel Braslow, *Mental Ills and Bodily Cures: Psychiatric Treatment in the First Half of the Twentieth Century* (Berkeley, CA: University of California Press, 1997); David Healy, *The Antidepressant Era* (Cambridge, MA: Harvard University Press, 1997); David Herzberg, *Happy Pills in America: From Miltown to Prozac* (Baltimore, MD: Johns Hopkins University Press, 2009).

[12] Pressman, *op. cit.* (note 11), 209; Marietta Meier, 'Psychochirurgie: Eingriffe am Gehirn als Massnahme gegen 'asoziales' Verhalten 1945–70', in Bernet *et al.* (eds), *Zwang zur Ordnung: Psychiatrie im Kanton Zürich 1870–1970* (Zürich, 2007), 235–270.

[13] John Carson, *The Measure of Merit: Talents, Intelligence, and Inequality in the French and American Republics* (Princeton, NJ: Princeton University Press, 2007), 1750–940.

personality,[14] and projective testing[15] – have often assumed the task of revealing these practices' political meanings and de-humanising potential. Similarly, historians who have examined technologies for capturing dreams and detecting lies were largely interested in the moralising and coercive aspects of these endeavours.[16]

The avoidance of the question of soul catching is perhaps more surprising in a second strand of the history of the mind and brain sciences, a strand which participates more directly in the turn towards material culture. Most immediately relevant for us is the work of Michael Hagner, Cornelius Borck, and Andreas Mayer, who all follow the lead of Hans-Jörg Rheinberger and his analysis of 'experimental systems'.[17] In 'The Electrical Excitability of the Brain', Hagner demonstrates how the discussion of cerebral localisation in Germany grew out of physician Eduard Hitzig's finding during electrotherapy that currents applied behind the human ear caused eye movements.[18] In his work on the history of the inscription of mental events, Cornelius Borck shows how for Hans Berger the EEG transformed changes in the electrical potential of the brain into an 'epistemic thing',[19] allowing thought to be visualised.[20] So, too, Andreas Mayer situates psychoanalysis within a broader scientific culture of what he calls the 'experimentalisation of the unconscious', of which hypnosis was a major part; psychoanalysis should be understood as a successor to the stage and laboratory technique of hypnosis.[21]

But while these works emphasise the materiality of experimental systems, they haven't foregrounded the problem of soul catching. Hagner, Borck, and Meyer direct their efforts primarily against the emphasis on intellectual history seen in the scholarly literature from the first half of the twentieth century. They want to show that the production of scientific knowledge is as much, if not more, the result of experimental systems as the logic of ideas.

[14] Roderick Buchanan, 'On Not "Giving Psychology Away": The Minnesota Multiphasic Personality Inventory and Public Controversy Over Testing in the 1960s', *History of Psychology*, 5 (2002), 284–309; Robert E. Gibby and Michael J. Zickar, 'A History of the Early Days of Personality Testing in American Industry: An Obsession with Adjustment', *History of Psychology*, 11 (2008), 164–84.

[15] See especially Rebecca Lemov, 'X-Rays of Inner Worlds: The Mid-Twentieth Century American Projective Test Movement', *Journal of the History of the Behavioral Sciences* 47, 3 (2011). See also Lemov's other work, especially ch. 10 on brainwashing in *World as Laboratory: Experiments with Mice, Mazes, and Men* (New York: Hill and Wang, 2005), and her recent book, *Database of Dreams: The Lost Quest to Catalog Humanity* (New Haven, CT: Yale University Press, 2015). On the Rorschach, see also Naamah Akavia, *Subjectivity in Motion: Life, Art, and Movement in the Work of Hermann Rorschach* (New York: Routledge, 2013) and Peter Galison, 'Image of Self' in Lorraine Daston (ed.), *Things That Talk: Object Lessons from Art and Science* (Cambridge, MA: MIT Press, 2002).

[16] Ken Alder, *The Lie Detectors: The History of an American Obsession* (New York: Free Press, 2007); Rebecca Lemov, *Database of Dreams*, *ibid.*; Kenton Kroker, *The Sleep of Others and the Transformations of Sleep Research* (Toronto, Buffalo: University of Toronto Press, 2007). More broadly, Danziger and Kusch have given social explanations of developments in psychology: Kurt Danziger, *Constructing the Subject: Historical Origins of Psychological Research* (Cambridge, New York: Cambridge University Press, 1990); Martin Kusch, *Psychological Knowledge: A Social History and Philosophy* (London, New York: Routledge, 1999).

[17] In their early programmatic account, Hans-Jörg Rheinberger and Michael Hagner cite the work of Latour and Woolgar. Hans-Jörg Rheinberger and Michael Hagner, *Die Experimentalisierung des Lebens: Experimentalsysteme in den biologischen Wissenschaften 1850/1950* (Berlin: Akademie Verlag, 1991). See also Rheinberger, *op. cit.* (note 1).

[18] Michael Hagner, 'The Electrical Excitability of the Brain: Toward the Emergence of an Experiment', *Journal of the History of the Neurosciences* 21, 3 (2012), 237–49.

[19] Cornelius Borck, *Hirnströme: eine Kulturgeschichte der Elektroenzephalographie* (Göttingen: Wallstein, 2005), 55.

[20] See also the edited volume by Cornelius Borck and Armin Schäfer, *Psychographien* (Zurich: Diaphanes, 2005).

[21] Andreas Mayer, *Sites of the Unconscious: Hypnosis and the Emergence of the Psychoanalytic Setting* (Chicago, IL: University of Chicago Press, 2013 [2002]).

Their work has thus been focused predominantly on adjudicating claims of responsibility and causality in scientific development and not on the questions raised by the apparent mismatch between the immaterial mind and the material devices designed to grasp it.

Catching Souls

In this special issue, the papers focus on this missed opportunity for thinking through the relationship between the history of the mind sciences and material culture. All begin their reflections by posing this relationship as a problem and guide their reflections by the examination of one set of material apparatuses. The analyses raise a number of issues:

First, as the provocation of our title makes clear, the analysis of soul catching challenges the narratives of scientification and secularisation that have guided old accounts of the mind sciences. It requires us to think about how to draw the line between the scientific and the animistic, to determine what separates the equipment and technologies of the modern mind sciences from those that one might define as occult. In this way, it can draw attention to a lingering persistence of the spiritual in the most seemingly modern of sciences or the way in which animistic and modern technologies can come together in unexpected ways. We might go further. Perhaps the soul catcher doesn't simply alert us to the way in which animistic elements can persist within modern biomedicine; perhaps it shows that they are inextricably connected. Several of the papers suggest that the soul catcher analogy is powerful because it points to an irreducible contamination of the supposedly somatic principles of modern medicine. The argument here is that the instruments and material culture of the modern mind and brain sciences function like soul catchers because they are grappling with the same problem: how to make the invisible visible, to capture and study that which seems fleeting and ethereal. In this vein, Nicolas Pethes shows how Hippolyte Baraduc's soul photography in late nineteenth-century Paris informed contemporaneous psychology and medicine and inspired the aesthetics of the avant-garde ('Psychicones: Visual Traces of the Soul in Late Nineteenth-Century Fluidic Photography'). Non-mimetic and abstract in character, soul photography was particularly appealing at a time when the soul itself was imagined as abstract. Cornelius Borck in 'Animating Brains' examines EEG and neuroimaging to illustrate how a naturalising paradigm requires hybridisation, the uneasy appeal to the immaterial mind it otherwise seems to exclude. Taking the recent controversy around 'Voodoo Correlations in Social Neuroscience' as his starting point, Borck shows how these machines establish 'natural objects with more-than-natural qualities'.

There is, however, a second way of thinking about the soul catcher, one that, initially at least, appears to be diametrically opposed to this last interpretation. The soul catcher isn't about the persistent trace of the spiritual, the ghost in the machine: it is rather a ghost buster. The soul catchers of the American Northwest attempted to imprison an evil spirit. Do the soul catchers of modern science also try to reduce, contain, or tame the soul? Are they perhaps technologies for refusing it any autonomous ontological status? In this, technological complexity is not decisive per se. As Katja Guenther shows in her contribution ('It's All Done With Mirrors': V.S. Ramachandran and the Material Culture of Phantom Limb Research'), the neuroscientist Vilayanur S. Ramachandran working at the University of California, San Diego in the 1990s thought that the mirror, one of the simplest pieces of neuroscientific equipment, could be used to manipulate mental representations of the body without departing from a materialist framework. Ramachandran was led to this conclusion by the success of his mirror therapy in treating phantom limb pain and a consideration of new research into mirror neurons. Even words

are able to produce material effects. Such is the argument in Scott Phelps's paper, 'Brain Ways: Meynert, Bachelard, and the Material Imagination of the Inner Life'. Phelps is interested in the way in which the Austrian psychiatrist Theodor Meynert used 'material images' (Bachelard), such as 'roots', 'fibers', or 'pathways' to support the argument that the mind was materially grounded: that, in Phelps's words, 'the interior of the brain *was* the interior of the mind'.

There is a third aspect of the soul catcher that emerges from our analyses. The soul catcher is never simply about the individual scientist or patient. Rather, it mediates a relationship. Catching or treating a soul is always a social activity. It wants to make that soul public, to open up the solipsistic individual to other people, to render what is private readable. As Alicia Puglionesi argues in 'Drawing as Instrument/Drawings as Evidence: Capturing Mental Processes with Pencil and Paper', drawing was used as an objective access to thought processes in the three contexts between 1880 and the 1930s that she explores: the child study movement, psychical research, and neuropathology. In drawing, the mind revealed itself; thus, sketches could mediate between different disciplines and groups of professionals as well as the relationship between doctor and patient.

In his 1962 work *The Savage Mind*, Claude Lévi-Strauss used anthropology to challenge the opposition between 'primitive' thought and modern rationalism.[22] The 'savage mind' was not fundamentally different from the modern scientific one; rather, it revealed most clearly the way thought in general was structured. Such an approach has also proven valuable in the mind and brain sciences.[23] Here, however, we are using the anthropological reference for a subtly different reason. The soul catcher analogy does not demonstrate how 'primitive' thought is more familiar than we tend to believe – how seemingly mythical totems were 'good for thinking'. Rather it draws our attention to the ways in which modern science is less familiar, more mysterious than we normally assume. To defamiliarise the machines and apparatuses of the modern mind sciences would be to remind us that they are not simply concerned with optical illusions or blood flows in the brain. Perhaps they are just the latest in a long line of instruments designed to catch the soul.

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[22] This is in contrast to the early scholarship by historians on the subject. Erwin Ackerknecht, for example (himself immensely interested in anthropology), assumed a divide between traditional approaches and the modern 'sciences of mental disease'. Erwin Ackerknecht, *A Short History of Psychiatry* (New York, London: Hafner Publishing, 1959), 1.

[23] For example, in the analysis of 'deep-brain stimulation' by the anthropologist Baptiste Moutaud. Baptiste Moutaud, 'Neuromodulation Technologies and the Regulation of Forms of Life: Exploring, Treating, Enhancing', *Medical Anthropology* 35, 1 (2016), 90–103.