

The Material Turn

CHANDRA MUKERJI

Abstract

There is a growing literature in the social sciences addressing the importance of artifacts, natural forces, and material regimes to social practices and systems of power. It looks at how material forces affect the conduct of everyday life, discusses how and when nonhumans have agency, and explores the methodological value of studying materiality for illuminating under-examined forms of social life—particularly the lives of nonliterate or suppressed groups. It is an emerging trend with multiple sources and faces, but it has roots in Foucault's analysis of political embodiment, work in Science and Technology Studies (STS) on object agency, and the growing interest (in part because of climate change) in how the natural world is entangled with social practices.

INTRODUCTION

The analysis of materiality in the social sciences has developed in many directions: looking, for example, at the material lives of suppressed groups; considering the social power of consumer goods, fashion, and taste; tracing the role of territorial control to the growth of states; and even addressing the questions of how humans affect the Earth's climate and how climate change demonstrates nonhuman agency. The interest in materiality in the social sciences has its most obvious roots in Marxism, and historical materialism. For that precise reason, materiality became ripe for rethinking at the end of the Cold War with the obvious failure of Marx's theory of history. Historians and social scientists needed to expand their understanding of material power, and how it was configured and used. At the same time, research on material practices became a more pressing concern with growing evidence of climate change. The social sciences generally had poor knowledge of how human communities physically engaged and reconfigured the natural world they inhabited or about the limits of human control over nature. Foucault seemed an unlikely source of new ideas about materiality, given his interest in discourse, but he wrote about the embodiment of categories in bodies and buildings, providing new ways to understand how material power worked.

Moreover, archeologists started to use their traditional tools and interest in artifacts to think about broader issues about materiality, power, and culture.

At its most radical, the new materiality has become a way of doing post-humanist analysis, taking as subject matter for social science not only people but also the physical environments they create and the creatures with whom they coinhabit social worlds. Social life is no longer imagined to be a human drama taking place against the background of an independent and static natural world, but is understood as activity within shared ecologies of people and nonhumans: states armed with weapons, corporations located in skyscrapers, furniture makers working with wood, laborers getting dressed for a job, or families socializing with pets.

The new materiality is interdisciplinary and diverse, drawing on multiple traditions of materialist analysis from history, geography, archeology, anthropology, sociology, and critical theory—just repurposing them. Archeologists that previously dug up remains of civilizations for museums now seek out material evidence of suppressed social groups; intellectual historians pose questions about global flows of people, ideas, and artifacts instead the ideas of great men; and sociologists and social historians study dams, forests, coins, and mosquitoes as social actors in regimes of power (Harvey *et al.*, 2013; Hicks & Beaudry, 2010; Mitchell, 2002).

FOUNDATION I: MARXISM AND MATERIALITY

Materiality studies have multiple foundations, many addressing issues raised by Marx about history and power. These include the Annales School of historical research, and the British School of Cultural Studies, both of which made important contributions to contemporary work on materiality.

THE ANNALES SCHOOL

Annales historians and social scientists explicitly tried to use elements of Marxism, anthropology and geography to describe material practices in history. Founded by Lucien Febvre (1976) and Marc Bloch (1953, 1966), members of this school were interested in issues at the heart of Marxism: economic history, peasant life, material foundations of culture, and historical dynamics. They focused on the transition from feudalism to capitalism, but were troubled the lack of good evidence of peasant life in archival sources written by literate elites. Therefore, they turned to geographical and anthropological methods to write history from below.

Fernand Braudel (1973, 1975, 1977), who directed the school for many years, argued that there were different temporalities in history in part because of material constraints. Forms of material life were slower to change than the

reins of kings and queens because they depended on local geography and climate. This meant peasant lives were materially grounded and could only be changed slowly. However, this did not make peasants passive or conservative. As Emmanuel Le Roy Ladurie (1979) showed, even traditional festivals such as carnival could evolve into moments of rebellion, making manifest the agency and political desires of peasants.

Braudel's social history provided intellectual inspiration for Immanuel Wallerstein's (1974) world system analysis with its emphasis on geographical economic patterns and regional practices of peasant life. It provided a useful structure for doing comparative, historical sociology of material regimes. James Scott (1985, 1998) has also used economic history and anthropology to study peasant life, similarly pointing to the agency of peasants and their "weapons of the weak." Similarly, Mark Leone (2005) has developed his own form of history from below by combining geographical and archeological methods in excavating Annapolis and shedding new light on slave culture.

CULTURAL STUDIES OF CONSUMPTION

The British school of cultural studies has provided another critical intellectual foundation for materiality studies. This school tried to explain the failure of Marx's theory of history, focusing on the world of goods and the cultural seductions of capitalism. Raymond Williams (1961, 1980, 1982a) and his colleagues looked at commodification and mediation—not just representations in culture. They studied theater, newspapers, television, music and other popular cultural forms that were embodied and materialized as commodities. They focused on working class life styles and consumer acts of agency. Dick Hebdige (1979) famously described the Punk reappropriation of safety pins as piercing jewelry as a refusal of the hegemonic meanings of things.

Critical studies of consumer culture also focused on shopping, fashion and urban pleasures as distractions, immersive fantasy, and drivers of manufacture and trade. Rosalind Williams (1982b) described displays in department stores as dream worlds of consumption, using the allure of things to shape consumer choices. Simon Schama (1987) looked at consumer culture within the Dutch Golden Age. Daniel Miller (1998) wrote about the material constitution of social selves through shopping choices, looking not only at economic institutions but also the effects of fashion on taste. Sharon Zukin (1995, 2004) described cities as emporia where shopping was entertainment and a measure of self. Sewell (2010) illustrated connections among fashion, textiles, and labor, showing their interconnected importance to the rise of capitalism. Finally, Bourdieu (1984) made clear the social implications of lifestyle choices, linking tastes to the reproduction of social class. In all these works, goods

were treated as fundamental tools for constituting social worlds, selves and social hierarchies.

Critical geographers, such as Lefebvre (1991) and Harvey (1989, 2001), considered the power of spaces to sustain political regimes. They described them as simultaneously physical, political and cultural, legitimating as well as sustaining political orders. Critical cultural geography became a leading field in materiality studies connecting places to power through neo-Marxist analysis.

FOUNDATION II: FOUCAULT AND THE MATERIAL TURN

A different direction in materiality studies developed from Foucault (1977), particularly his description of the panopticon and his analysis of surveillance. The panopticon was a type of building designed for penitentiaries and mental hospitals that made all the inmates visible from a central point of surveillance. It stood for a form of policing designed to control conduct and distinguish with its walls between legitimate and illegitimate social actors. Foucault provided a different view of politics than neo-Marxists by emphasizing the importance of linguistic distinctions that were imposed on people and showing how this kind of power could be embodied and materialized in things. Bodies, buildings and military uniforms were used to shape social identities and privilege some bodily forms over others, creating hierarchies that were not products of politicoeconomic forces, but rather linguistic categories.

Discursive politics was diffuse and hard to control, since people could oppose or ignore the categories imposed on them. However, once linguistic differences were drawn with walls and bars, or were invested in bodies, discursive power became more difficult to deny or displace.

This logic of analysis had immediate impact on feminist theorists such as Judith Butler and race theorists such as Stuart Hall. Racialized and gendered bodies made categories seem natural and real. They were not a matter of argument, but evidence and experience. Therefore, body cultures pressured groups to enact their prescribed social roles.

Researchers following Foucault added to the material turn by demonstrating social categories were not ideas dissociated from things. Quite the contrary, discourse had material forms. The question was when and how such materiality mattered.

THE CUTTING EDGE: SCIENCE AND TECHNOLOGY STUDIES

Many of the major ideas shaping the material turn today are being developed in Science and Technology Studies (STS)—a field in which scholars have been studying forms of power/knowledge. They have witnessed the constitution

of “nature” through scientific research, and seen the entanglements of people, instruments, classifications, artifacts, and natural forces that made this possible. Ironically, STS began by treating knowledge as a social phenomenon, but not a tool of power/knowledge. Still, interest in epistemology made STS a rich site for developing ideas about knowledge that could be used to address issues of power/knowledge.

EPISTEMIC CULTURES AND BOUNDARY OBJECTS

Influenced by ethnomethodology, Kuhn and Wittgenstein, early researchers interested in the Sociology of Scientific Knowledge (SSK) (Bloor, 1976, 1997) focused on epistemic practices at the local level. Ethnographers in laboratories found themselves watching researchers working on instruments, preparing samples or reading printouts from machines. To make sense of this, ethnographers in SSK took a material turn (Barnes & Shapin, 1979; Knorr, Krohn, & Whitley, 1981; Latour & Woolgar, 1979; Lynch, 1985).

Karin Knorr-Cetina (1999) has called the sociomaterial practices of knowledge seeking in laboratories epistemic cultures, and emphasized how differently scientific fields developed methods of research. There was no single canonical scientific method, but many ways of using instruments and objects of study to produce knowledge.

Researchers working in these different epistemic cultures sometimes shared common instruments or standardized objects of study such as fruit flies: boundary objects that linked fields. These common material tools were meant to facilitate communication and mutual understanding across fields, but as Leigh Star and James Griesemer (1989) showed, objects and instruments did not have the same significance in different epistemic cultures. The flies and instruments might have been the same, but their uses and understandings of results varied widely. Therefore, these boundary objects had more social than cognitive importance, not only roughly coordinating work across fields but also helping bind research groups into communities of related fields.

Work on epistemic cultures and boundary objects drew attention to instrumentation and the standardization of specimens, and showed that science was a complex of material activities rather than a single, distinctive way of knowing.

POSTHUMANISM AND OBJECT AGENCY

Posthumanist STS has had more radical effects on materiality studies. Much of the work focuses on objects agency, developing this idea from Bruno Latour (1987) and Michel Callon’s Actor Network Theory (ANT). Latour

pointed the power of nonhuman agents in science when he showed that Pasteur's experiment "worked" when microbes did what Pasteur predicted, ratifying his theory. These invisible agents become his allies in promoting his ideas. Michel Callon (1986) then made the radical argument that nonhumans could have agency. He wrote that scallops in Biscayne Bay, in responding to changes in their environment, were exhibiting agency or physically stating what they thought. Callon and Latour (1992) combined these ideas in actor networks, saying both people and things could "actants" testifying to the validity of scientific ideas.

POWER/KNOWLEDGE

Steve Epstein (1996) showed that diseases were nonhuman agents in his research on AIDS, but also argued they were caught up in systems of power/knowledge. AIDS could kill the people it infected, and at first no one could stop it. Medical researchers tried to identify it to understand its agency. AIDS had power, and knowledge of its power empowered those who could claim it. This is why AIDS activists from the gay community were able to have some effects on AIDS research and treatments because they saw the disease's effects most directly. Epstein (2007) similarly showed in his work on clinical trials how bodies politics worked in medicine. The decision to include women and minorities in clinical trials reproduced social classifications as embodied differences, and made them real in relation to effects of medicines.

MATERIAL REGIMES

Some STS scholars began to realize that natural knowledge had political uses by governments that STS could illuminate. Based on the distinction between human and nonhuman agency, I was able to distinguish the logistical power used in territorial governance from the strategic power used in political struggles, illustrating how infrastructural engineering was used to get around noble opposition to the empowerment of the state in France (Mukerji, 2009). Patrick Joyce (2003, 2013), Gabrielle Hecht (1998), Patrick Carroll (2006), Sarah Pritchard (2011), and Karl Appuhn (2009) have also done research on infrastructures, territoriality and states, looking at how governments gain power by diverting rivers, digging canals, building dams, erecting nuclear power plants, building post offices and draining plains. Carroll showed how scientific measurement was used for gaining control of land in colonial states. Moreover, Hecht and Pritchard showed how states made themselves more powerful and addressed historical weaknesses by using infrastructure. Joyce (2003, 2013) added that the buildings and spaces

designed by governing elites affect how people understand themselves as social actors, providing cultural scaffolding for forms of modern governmentality, for example, communicating to people who they are and what they are expected to do.

Appropriately for a field concerned with the agency of nonhumans, climate change has also played a part in the material turn within STS. Bruno Latour has called climate change “the great experiment.” Extracting fossil fuel to drive manufacture was supposed to demonstrate human rationality in the use of natural resources, but was an experiment in the coproduction of a new material reality. Nature and culture were entangled, and the great experiment confirmed that any change one was a change in both.

Environmental historians have provided evidence of the modern compact that governed the great experiment. Cronon’s (1991) work on Chicago showed that modern industrial cities were products of material connections and flows of things between city and country, nature and culture. The housing for Chicago’s laborers was made from timber from Wisconsin. The grains and beef at the heart of Chicago’s economy came from prairies turned into farmland. Moreover, the feedlots in the city held cattle until it could be slaughtered and shipped by refrigerated rail to eastern urban restaurants. Its rural surrounds and Chicago became a single unit of material transformation: a constellation of people and things that was meant to be rationally controlled, but was really part of the great experiment.

NEW DIRECTIONS: ENTANGLEMENTS AND INARTICULACY

There are many new directions in materiality studies, but three that seem to hold the most promise for changing the field: new directions in posthumanism and material regimes in addition to new work on inarticulacy.

Posthumanist feminists in STS are drawing on feminist theories of embodiment to rethink nature and culture, blurring distinctions between people and things rather than articulating their distinct qualities. This version of posthumanism has roots in Andrew Pickering’s (1995) work on scientific practice that blurs the subject-object distinction in laboratory practices, emphasizing the coproduction of scientists and research findings. It also has roots in Donna Haraway’s (1991) work on cyborgs in which she celebrates cybernetic mergings of people and new technologies. Posthumanist feminist STS scholars such as Annamarie Mol (2002) and Karen Barad (2007) follow a similar path, foregrounding the entanglements of people and things in the practice of research and medicine. Haraway took her understanding of human and nonhuman relations in an ecological direction with her reflections on pets as companion species. People and pets, she argues, live together because both

live longer if they do. Certain ecologies of people and nonhumans are biological beneficial, and social communities reflect this.

Annamarie Mol treats bodies as assemblages, biomes, arguing against human exceptionalism and autonomy. She critiques the humanist vision of human exceptionalism as a pernicious myth, obscuring our place in nature. Karen Barad argues that scientific observation is not furthered by achieving objective distance, but rather is a product of entanglements with things. The universe is made up of entanglements, and so are we.

This work is particularly valuable for the social sciences it illustrates how deeply human communities are entangled with things through their daily practices, their bodies and their knowledge of who they are. It suggests that social scientists need to consider human–nonhuman relations not as an interesting specialty, but rather as fundamental to understanding social dynamics.

MATERIAL REGIMES

The new studies of material regimes try to integrate an understanding of object agency with political analysis, and to look at social dynamics from below using the powers of things. Marian Feldman (2010), inspired by Alfred Gell's (1998) writings about object agency in the arts, studies how stele carrying legal precepts and decorative art not only exercise top-down administrative power, but shape social space around them by affecting circulation and sight. Robert Scott (2003), looking at Gothic Cathedrals, considers how spiritual seeking animated labor processes that were long and arduous, making these buildings not just tools of Church domination but also evidence of cultural desires animating the lives of artisans. Similarly, Severin Fowles (2013) uses artifacts to reconstruct the arrival of some of people to the Taos Pueblo to escape spiritual domination by the theocracy in Chaco Canyon.

These studies use artifacts as evidence of social processes that were entangled with people in complex ways, trying to tease out how material practices enabled them to make social changes. This work helps to reveal some of the political dynamism in political regimes, and illustrates how power is exercised, contested and elaborated through shifts in the material order.

INARTICULACY

Some of the most recent work on materiality, trying to understand how objects work politically, focuses on inarticulacy. As Gilles Deleuze (1994) suggests, objects are mute forms that can be sources of cultural change because of their silence. Most of the time, new objects are made to resemble older ones, and fit linguistic categories of things. However, Deleuze argues, people often experiment with variants as they make things, and can find

new opportunities for material action they did not anticipate and cannot fully articulate. As Hebdige showed with safety pins, objects can be used to challenge classification schemes and counter commonsense reasoning because of their inarticulacy that links their meaning to their embodied uses.

A number of recent articles feature work on inarticulate politics and configurations of things, mainly focusing on spaces designed to shape identities. Fred Turner (2012) writes on the “Family of Man” photography exhibit that toured America after WWII that was designed to reshape American identity by emphasizing individual choice and autonomy in the layout of the show. I explain how Versailles worked as a pedagogical environment for enrolling the French nobility in Louis XIV’s political agenda (Mukerji, 2012). Lyn Spiegel (2012) writes on the furnishings of post-WWII US houses that helped organize media centered consumption. Erica Robles-Anderson (2012) analyzes the Crystal Cathedral and the growth of drive-in religion as an extension of televangelism and faith through consumption. Moreover, Marisa Brandt (2014) shows how identity and interiority are being addressed with machines by studying the design and development of Virtual Reality Therapy for PTSD. In all these cases, people and things are entangled, issues of power are at stake, and identities are tied to material arrangements. Yet the inarticulacy of things makes their politics hard to pin down, makes their use important to their meaning, but also makes their politics difficult to articulate and confront.

All of the new work in materiality studies emphasizes the entanglements of people and things, and the mutual production of social worlds and material environments. They show, too, that societies, institutions, communities and states all create material regimes to further ways of life, setting up ecologies of people of things that affect human welfare and ought to be more systematically integrated into social research.

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Chandra Mukerji is Distinguished Professor Emerita of the Department of Communication and the Science Studies Program, as well as Adjunct Professor of Sociology at the University of California, San Diego. She has written extensively on materiality in relation to industrialization, state formation, natural knowledge, and political culture. In her first book, *From Graven Images: Patterns of Modern Materialism* (Columbia, 1983), she described the importance of materialism—tool development, materialist philosophy, and consumerism—to the British textile industry, arguing for a cultural interpretation of the Industrial Revolution. In *A Fragile Power: Science and the State* (Princeton, 1989), which won the Robert K. Merton Award in 1991, she focused on the material skills of scientists, and how they were appropriated by the state, arguing that the state in funding science was less interested in controlling scientific ideas than in developing a skilled labor force of scientists that could be called upon to solve political problems. *Territorial Ambitions and the Gardens of Versailles* (Cambridge, 1997), which won the 1998 Culture book prize from the American Sociological Association, looked at the royal gardens under Louis XIV as a microcosm

of France that demonstrated the material capacity of the king to control his land, and highlighted ways France was exercising territorial power. Finally, in *Impossible Engineering: Technology and Territoriality on the Canal du Midi* (2009), which was cowinner in 2012 of the ASA's highest book award, the Distinguished Scholarly Book Award, Mukerji looked at the material production of state power. She focused on an infrastructural project that was technically impossible according to formal knowledge of the period, but was made possible with a form of "French intelligence"—a system of distributed cognition in which women peasants and trained engineers helped each other reconstruct and make available to the state elements of Roman hydraulics. She used this case study to pose the question of how states gained power through territorial control, and showed that exercising logistical power (material rather than social power) was a struggle with nature rather than patrimonial elites. Elites could not compete with or successfully stop such large projects that shifted patterns of local life away from those that had served elites in the past. Currently, Mukerji is working on a theory of inarticulacy to explain how material forms exercise cultural and political powers. The first hints of these ideas appeared in a paper, "Space and Political Pedagogy at the Gardens of Versailles" *Public Culture* 24:3 515–540, that used figured world theory to explain how artifacts can affect thought and shift patterns of political reasoning.

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