

Lecture 18

Science, Culture and Society: Meanings, Interests, Values and the Modern State – Part II

State-idea, State-system and State-country

The idea of the modern state is variously institutionalized, ideological, philosophical, and scientific. In the context of these wider discourses, the modern state-idea is articulated with respect to at least six key centers of gravity: discourses of legitimacy (e.g., Hume’s concept of “natural liberty”); discourses of political representation (who should be represented and by what mechanism); discourses of nation (the “nation-state” idea); discourses regarding the proper scope of government authority (e.g., with respect to the economy, political liberties, etc.); discourses of security (including generalized health and safety); and discourses of design (schemes for governing land, the built environment, and the population). The focus of this study is on discourses of design, for it is there that ideas in science and government most clearly intersect. But it should be noted that a focus on design necessarily provides a route to discussions of the other five centers of gravity, for most matters concerning the modern state-idea ultimately become matters of design and craft, social and political engineering, and security. In terms of practice and materiality, my focus is on scientific and governing activities that targeted land, people, and the built environment. The aim is to explain how these materialities were transformed into techno-territoriality, biopopulation, and infrastructural jurisdiction.

Designing States

The French revolutionaries of the late eighteenth century were among the first to suppose that one could wipe the political slate clean and engineer a state from the bottom up on the basis of an entirely new and abstract design. Their attempt, like that of the Bolsheviks in the early twentieth century, stumbled and failed, partly because the inertia of the existing conditions called forth the application of brute force, a strategy that from the outset betrayed and corrupted the very values the revolutionaries claimed their designs sought to realize. The English took a somewhat different approach, in which a strong tradition of localism, an ideology of selfgovernment, a peculiarly modern worship of indigenous antiquities, and a more empirically oriented idea of science than one finds in Cartesian France shaped an engineering culture that sought to build into what already existed rather than erase older forms in the name of an overly abstract rational plan.

When Ireland was completely mapped in the second quarter of the nineteenth century, enormous effort was made to research the oldest and most “authentic” civic boundaries and place-names, and their inscription on the new map affirmed continuity with antiquity. The English and French cases demonstrate how the business of engineering the modern state in different contexts drew upon divergent designing ideas, sometimes highly abstract and “rational,” other times resembling those of the

bricoleur. These ideas about the state were, one might say, “internal” to its construction. There were others who sought to understand the state from the “outside,” from the perspective, in particular, of the social, political, and economic sciences. The distinction, once again, involves a center of gravity rather than an absolute or categorical separation, but the point of the distinction is to make possible a reflexive stance, one that places social-scientific conceptualizations of the state on the same level as those articulated by the state engineers. The interests of social scientists are generally quite different from those of state engineers, but that is not sufficient reason to treat the two asymmetrically. Indeed, as discursive formations, academic constructions of meaning oftentimes exhibit an easily identifiable traffic with the ideas of state engineers. In this context an important effect of a critical reflexive stance is to question the idea of the state as an *actor*, an idea first fully elaborated by Hobbes and still central to discourses of state that emerge from both within and without the offices and chambers of government.

The Limits of the Actor-state Idea

While it makes sense to speak of the state as an actor in some contexts, the idiom has its limitations, because, as I hope to show, states are complex and historically changing configurations of meanings and institutions, agencies, technologies and practices, and land, built environment, and people. While sovereign governments act in the name of states, they are not coterminous with states. Indeed, to conflate “the state” with the “government” or its bureaucratic agencies is in effect to rob a people of a body politic that is importantly constituted through that people’s very corporeal being, bestowing on a particular government or regime, at a particular moment in time, the image of the universally representative state-as-actor, philosophically conceived by Hobbes as the sovereign. When social scientists uncritically adopt the idiom *the actor-state*, they do not so much describe a political reality as become agents in the construction and institutionalization of the Hobbesian state-idea, the idea that when the head of state acts, the state itself acts. John Meyer has noted the problem, acknowledging that states “are by no means really actors,”²⁶ despite the deeply institutionalized idea that they are.

Questioning the idea of the actor-state is not an idle academic exercise. Philip Abrams, one of the founders of historical sociology in Britain, has suggested that one of the crucial ways through which organized political subjection is effected in modern societies is by a particular and interested government presenting itself as the universal and disinterested organization of the society as a whole. A particular political organization thus presents itself as a unitary entity, speaking and acting in a unitary manner and in a highly personified form. Abrams alerted sociologists to this statesupporting discursive strategy in order to warn about the ease with which social-scientific discourses might unwittingly serve it. Yet his remedy, that sociologists reject the notion of the state as a “real” object and instead focus on the ways the state-idea is constructed and legitimized, directs analysis toward ideology rather than material forms. Problematizing the personified actor state-idea need not, however, lead analysis in this idealist direction. While accepting that such a state-idea is central to the ideological project of legitimizing organized political subjection, one need not

be diverted from the ways the material environment is itself constituted as a force of moral and political governance. Like Abrams's analysis, Meyer's analysis of the state does not get us there, because he reduces the state to its "tendentious" culture, suggesting that its real foundation is a series of discursive "myths."

If treating the state-idea as *the* center of gravity of *the state* leads us into idealism, an exclusive focus on the state-system is also problematic. Treating the state-system as though it is coextensive with the state as a whole circumvents analysis of the material forms of state power that do not reside in the apparatus of governing bureaucratic agencies. Foucault rejected such an analysis precisely because it implied the existence of another domain, that of civil society, which was set in opposition to the state, and this is one of the reasons he was "led to raise the question of power by grasping it where it is exercised and manifested, . . . without considering, for example, the presence of a state which would exercise its sovereignty upon a civil society which itself would not be the depository of analogous processes of power." Foucault suggested that we should cut off the king's head in political theory, and work inspired by Foucault has seriously questioned the value of talking about the state as an actor. Such work has not generally done so, however, on the basis of an analysis of ideology. Rejecting the idea that power and ideology stop at the water's edge of knowledge, the work focuses on discourses of knowledge-power and the discursive rationalities of governance. Though centrally concerned with issues of science and power, "governmentality studies" largely remain at the level of discursive "mentalities." This is true even though governmentality studies emphasize the importance of science and technology in politics. As Mitchell Dean acknowledges, "thought" rather than practice is the center of gravity of governmentality studies.

Discourse, Practice and Ideology

Without an analysis of the ideological aspects of discourse, maintaining an efficacious analytic distinction between discourse and practice is difficult. For instance, by presenting "medical police" as an essentially German or Continental phenomenon inherently at odds with English political discourse, Thomas Osborne dispatches it as irrelevant to English history. "Britain," he declares, "was a country without a tradition of police." Osborne arrives at this conclusion because his theoretical orientation takes discursive formations at face value. Accepting the central premise of English liberal discourse, that is, the idea of self-government, as a sufficient measure of social reality, he precludes empirical analysis of the role of government through police in eighteenth-century England. Yet as Karl Polanyi has demonstrated, the discourse of classical liberalism was crucially ideological, because there was "nothing natural about laissez faire." On the contrary, the "road to the free market was opened and kept open by an enormous increase in continuous, centrally organized and controlled interventionism."

This mismatch between discourse and practice is difficult to grasp without acknowledging the ideological aspects of discourse. Polanyi's insight is readily applicable to the history of the relationship between police and public health in England. Though the liberal discourse of nonintervention and selfregulation with

respect to markets was extended into the domain of public health, that domain was, in fact, secured (to the extent that it was) by the expansion of the police power of government. This is an important point, because it counters the claim that medical police was a feature of English colonial government but not of English domestic government. Such arguments tend to downplay the role of police in modern liberal state formation. Thus, while governmentality studies provide a rich resource for understanding the development of liberal rationalities of government, much greater attention needs to be paid to actual practices of government. This is beginning to happen. Patrick Joyce, in his remarkable book *The Rule of Freedom*, navigates the dis/continuities across discourses and practices with respect to liberalism and the modern English city, noting that liberal ideas of selfgovernment have never fully displaced practices of police government.

Others inspired by Foucault, most notably Timothy Mitchell, have confronted the ideological problem head on, approaching the state as an “object of analysis that appears to exist simultaneously as material force and as ideological construct.” Mitchell interrogates this and a range of other contradictions, such as that between the coherence of the analytical/popular state-idea and the incoherence of state practices, and the distinction between the state and the economy/society. He provides a much needed problematization of the basic concepts through which the state is understood, but I suggest that we need to move beyond the deconstruction of dualisms and begin instead with a single triangulated distinction among state discourses, state practices, and state materialities. The actor state-idea, because it is centered in discourse, reaches well beyond the state-system in precisely the way Foucault suggests, and by virtue of being believed it structures a whole range of apparently nonstate practices and oppositional politics. The state-system, however, can be viewed as well bounded once it is analytically distinguished from the state-idea. The state-system is the organizational apparatus of governing organizations, from courts, legislatures, and executives to government departments, police organizations, postal systems, census offices, and so on. It is through the state-system that governing *practices materially incorporate* land, bodies, and built environment into the state-country.

STS and Historical Sociology

Trying to speak to many disciplines, and especially across STS and historical sociology of state formation, I sometimes make observations that are news to one paradigm but not in the least to the other. The effort to integrate the theoretical and methodological strategies of historical sociology with those of STS has, however, great potential for advancing explanation in both areas. The scientific, engineering, and technological culture that facilitated the Western takeover of the world is now being recognized for the power that it has been. Jack Goldstone, for instance, explains why the technological “effervescence” of modern Europe did not give way, as in other regions and at other historical moments, to a period of technological stagnation. Goldstone’s emphasis on the significance of the steam engine, and the science and engineering culture that fostered its invention and development, provides a more specific explanation of the rise of the West than more general theories of rationalization, bureaucratization, institutionalization, capitalization, or

modernization. Indeed, Goldstone demonstrates that much of what is cited as unique to the West can be found in many regions of the world at different points in history. The steam engine, however, was the first really powerful technology in that it transduced fire into mechanical motion, a dream pursued by a number of engine scientists in the seventeenth century, including William Petty. Though the steam engine represented a departure from previous technologies, its invention is not surprising when viewed in the context of over a century of experimental engine science, the engineering culture it fostered, and the material technologies it spawned.

One of the aims of this book is to further advance the emerging dialogue between STS and historical sociology by revealing the intimate relationship between science and statecraft. This relationship is evident when viewed in the context of the rise of modern engineering culture, the coproduction of this culture in both scientific and governing practices, and the proliferation of institutional, organizational, and material relations between science and government. Modern statecraft is science-based as well as coercion-based. Developments in scientific statecraft are, of course, importantly related to the rise of modern political economy (in its various forms) and the social sciences generally. Equally important, however, is the reconceptualization of political objects in terms of the natural ontology attributed to them by the new experimental science in the seventeenth century. This reconceptualization resulted in land, built environment, and people becoming “boundary objects” that linked science and governance together. On the basis of the concepts of “engine science” and “engineering cultures,” I seek to show that the relationship between science and state formation is profound and that a modern state is, by definition, an “engineering state.”

Triangulating Science as Culture

The post-foundationalist question of how to distinguish science from other domains of culture is a critical problem in current science studies. Once again I triangulate the question, distinguishing among the idea of science, the practices of science, and the material culture of science. (See figure 1.) Three crucial dimensions of the modern science idea can be distinguished: mechanical philosophy (the grand unifying concept), ingenuity (a cognitive culture of intellectual and technological inventiveness), and experimentalism (the concept of how to practice natural philosophy). I suggest that experimentalism implies an overarching engine science that places material technologies at the heart of natural scientific inquiry. Engine science requires the integration of natural philosophy, engineering, and mathematics *in practice*. The result is a culture of inquiry in which the conceptualizations of theory are tied to the manipulations of engineering and the operations of mathematics.

Triangulating Science

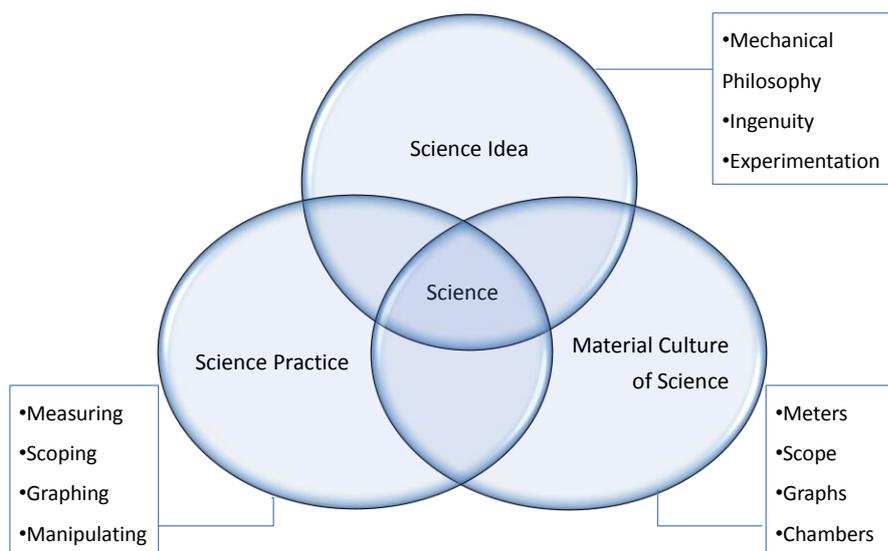


Figure 1: Triangulating Science

This new culture of inquiry is importantly defined by the role of material engines in the key epistemic practices of measuring, scoping, graphing, and manipulating. The four forms of material engine that correlate with these practices are meters (barometer, hydrometer, etc.), scopes (telescopes, stethoscopes, etc.), graphing technologies (cartographic instruments), and chambers (e.g., hydraulic and pneumatic technologies). I conceive of these as *epistemic engines*, because they generate objects of inquiry, institutionalize and structure practices of inquiry, and drive the research agenda. In doing so, they become what Latour calls “obligatory passage points” in scientific inquiry. Attention to these technologies facilitates a comprehensive and naturalistic understanding of science as a very specific cultural complex of discourses, practices, and material culture. And though the specific technologies employed in statecraft may differ from those in natural inquiry, analogous practices of scoping, metering, graphing, and manipulating can be identified. Geological surveys and censuses, for instance, can be understood as terrascopes and sociometers. The point is to view the specific technologies in terms of the wider practices of engineering culture that straddle science and government in the modern period. Practices are the lynchpin between discourses and materiality, because they participate in both.

Triangulating the Science – State Relationship

My conceptualization of the relationship between state and science follows the same analytic strategy. The relationship is conceived from the three angles of discourse, practice, and material culture. (See figure 2.) In this context I investigate discourses that sought to orient government practice toward experimental intervention. I connect the theological “argument from design”—the conceptualization of God as the “Contriver and Maker of the Whole World”—to the emergence of engine science. I draw connections between engine science and ideas about the virtue of labor, the idea

that civility and grace were signified by a cultivated nature, and show how the supposed absence of culture among “barbarous nations” legitimated colonization as a civilizing mission. The ideology of “improvement,” at the heart of the civilizing mission, served the construction of colonies as spaces of experimental statecraft and social engineering.

Triangulating the Science – State Plexus

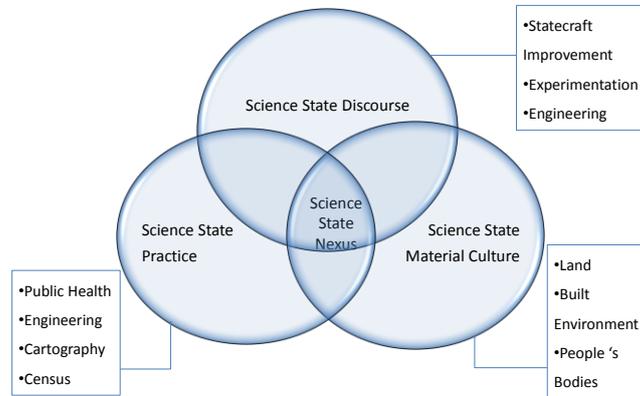


Figure 2: Triangulating the Science – State Plexus

Viewed from the angle of practice, the period of modern state formation (1650–1900) is one of continual proliferation of the relations between government and science that results in what I call the science-state plexus: a dense web of heterogeneous connections among scientific and governing practices. From public health and geology to cartography and censuses, the land, built environment, and people were targeted as natural and artificial objects whose cultural, political, and economic capital could be augmented. Land, people, and the built environment, as I hope to show in the following pages, were materially incorporated into forms of governing through the practices and knowledge of science and were transformed into a socio-technical network of technoterritory, bio-population, and infrastructural jurisdiction.