Editors' Introduction

Talk of *technoscience* comes with millenarian overtones. In some current usages in the interdisciplinary field of science and technology studies (STS), claims about the close alliance of systems of knowledge production, technical control, and transnational capital are mixed up with versions of an imminent future of decentered, networked, and distributed capacities and visionary possibilities across species and across natures. But the eschatology of those who first introduced the term into English was initially much darker. Technoscience as a concept appeared at the start of the Cold War. In early 1946, the Yale law professor and military propaganda expert Harold Lasswell wrote of modern science and technology as a Western European monopoly whose universalization, even if temporarily blocked by the bipolar politics of US-Soviet rivalry, would inevitably subject the world to the rule of the machine, "a condensed way of referring to the modern techno-scientific complex." Lasswell commended Werner Sombart's ferociously anti-Marxist writings on proletarian socialism as a guide to how encounter with technoscience would dynamize "the traditional outlook of any culture," however "supine."[1]

Technoscience thus became a commonplace index for the allegedly inevitable system of modern capitalist industrialization, its mobilization of scientific and technical expertise, and, decisively, its military-economic dominance. Those who bemoaned scientists' enlistment in the bureaucracies and testing grounds of the military-industrial complex, or who reckoned that scientific virtue might just be able to resist such enlistment, used the term *technoscience* to describe the threat. By the late 1950s, the word was linked directly to thermonuclear extermination. "The vast power techno-science has placed in [the human race's] hands," Edgar N. Schieldrop observed in 1959, would apparently generate "a disaster surpassing all our nightmares."[2] Responding to what seemed the "wholesale madness" of game theorist and Princeton economist Oskar Morgenstern's tract on the rationality of nuclear warfare,

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one reviewer argued that technoscience was moral pollution. Any "moral-political perspective concerning the use of force" had collapsed, it was argued, because any practitioner in Cold War America "inevitably succumbs to the techno-science of our time."[3]

There are thus several reasons why political histories of technoscience, concept and reality, are necessary, especially since genealogies of the term among contemporary STS scholars are more likely to begin with Donna Haraway than with Lasswell. Attending to the initial emergence of the term in the original Cold War milieu of imminent global military catastrophe and intense economic and scientific mobilization by the capitalist state system—a critical point of departure for Haraway's influential 1985 essay "A Cyborg Manifesto"—illuminates important and consequential linkages between the historical development of understandings of science and technology and the condition of political and economic crisis in modernity. Radical historians have rightly attended to that modern conjuncture and explored in detail the pathways through which liberation struggles and contests over the fates of colonial, racist, and patriarchal regimes were fought out.

Less common, however, has been any systematic attention to or reflection on the more effective modes of making sense of midcentury technoscience, which is often treated as a historical phenomenon with fixed boundaries, a specimen frozen in amber. In broader narratives, which include the radical science movements that flourished from the interwar period and which were then transformed under Cold War regimes, histories of the sciences' past and projections of the future of technoscience always carried considerable public and polemical significance. In many industrial societies of the mid-twentieth century, radicals actively sought to integrate a critique of technoscience into the political and social lives of citizens and activists. As a result, radicals' various positions on the questions of science, technology, and society have had, and continue to have, serious consequences both for subsequent struggles and for the condition of scholarship on the history and sociology of science and technology. One way of making sense of the dilemma is to consider that obstacles to radical historical engagement with technoscience may well stem from a perception of the cloistered, specialist, and recalcitrant quality of the records and archives of the technoscientific enterprise. To increase the cast list of protagonists in histories of technoscience, it is vital to recover and interpret the traces of those workers and activists, artisans and collaborators whose labors and experiences have formed such a major part of the long history of technoscience at stake here. This is just the set of resources with which radical historians are familiar.

Thus one aim of this issue of *RHR* is to begin to account for the methods and approaches that would make the track records of engineers and campaigners, farmers and programmers, and miners and housekeepers more accessible and interpretable as part of the project to make a useable past for the technosciences of our time. The issue offers examples of scholars actively using new kinds of materials in teaching about issues in radical science and technology, historians simultaneously

engaged with and documenting current struggles in industrial and political systems of exploitation and production across the global South, and colleagues directly involved in the hard work of making sense of the many ways political, historical, and technoscientific worlds are mutually interwoven. Political histories of technoscience must first deal with the thorny issue of the roles of technologies and sciences in historical process. In a striking irony, insistence on the unique determination of socioeconomic transformation by science and technology has long been associated with, if not dependent on, a strange neglect and devaluation of critical and sophisticated work in the history of science and technology. High on the agenda of radical histories of technoscience, in other words, is the compelling need to better integrate an effective analysis of socioeconomic dynamics and reformulated understandings of the material enterprises of science and technology.

Friedrich Engels's bold formulation in 1845 at the very start of *The Condition of the Working Class in England*, insisting that steam engines and cotton machinery had uniquely and unprecedentedly given rise to an *industrial revolution* that entirely transformed *civil society*, long dominated much historical materialist understanding of technology's status in social development.[4] On this showing, it has been supposed, technical knowledge and scientific organization functioned like a kind of unmoved mover, their powers somewhat removed from history, in little need of social and political analysis, yet driving its development. The mid-twentieth-century political construction and subsequent reconstructions of the category of technoscience began to offer resources for revision and reorientation of such models. Evidence of markedly uneven development in the social and labor relations of technoscientific systems proved crucial. Handicraft and embodied forms of labor demonstrably survived and informed the emergence and maintenance of machinofacture and automation. STS dramatically manifested the manifold ways the everyday conduct of scientists, engineers, administrators, and technicians closely resembled forms of skilled work by artisans and craft laborers. Labs and clinics, power plants and agronomy stations would be better understood as sites of complex and socially charged forms of embodied labor and knowledge. Demands of gender and class politics made it crucial to engage with the vital forms of labor pursued in domestic, urban, and pastoral sites typically excluded from consideration by technoscience. Such systems were understood as much more flexible, persistently reconfigured by the clashing demands of capital and labor and by the severe hierarchies of gender and race. Established notions of technological inertia were strongly criticized: much conflictual politics was embodied in the very structures of technoscientific projects.

Perhaps most significantly, resources have been developed for a deliberate dislocation of received historical geographies of the technoscientific enterprise. Engels's analysis was strikingly territorial: he famously referred to England, and especially Manchester, as the *classic soil* of the industrial revolution. The implication, that such transformations always went hand in hand with new organizations of

space and land and with novel kinds of communication and displacement, demands more thorough exploration. It is apt to reorient familiar and often deceptive models of center and periphery, diffusion and development, which have continued to dominate analyses of technoscience and its varying fates. The need is to avoid a reinscription of the forms of imperialism and determinism even as these approaches have been subject to critique.

The contributors to this issue share case studies from current research that deploy new approaches in theory and methodology across the humanities and social sciences. They focus on diverse historical periods as well as diverse geographic regions, populations, and objects of study. Science, medicine, and technology are integral to the histories of many societies and cultures throughout the world, yet contemporary case studies of science and technology often lack a broad historical perspective. Meanwhile, historical studies of science, medicine, and technology may take a limited theoretical or conceptual approach to their analysis—while mainstream histories often ignore their interpretation altogether. So how might social, political, and cultural histories look different if radical insights from STS were brought to bear on the analysis of society and culture? And how might conventional historical narratives look different if the boundary between the radical study of "history" and the radical study of "science and technology" were not assumed or taken for granted? What novel issues, historical problems, and debates have arisen with the opening of new academic fields and new political and historical conditions?

Technoscience, Modernity, and the State

In the first section of this issue, Jonathan Hill Jr. and David Roth Singerman, historians of Central American and Caribbean technoscience, respectively, address interactions between capital investment and exploitation, state power and corporate interest, and networks and practices of scientists and technologists, administrators and entrepreneurs. The economies and polities of states such as Cuba and Mexico offer compelling cases of the *classic soil* of a second industrial revolution in the later nineteenth and early twentieth centuries, dominated by new electrotechnical and power technologies, imposition of automation and intensified exploitative production under scientific management, industrialization of agronomy and transportation, and extension and intensification of telecommunications. The two essays explore new forms of infrastructure development in the epoch of modernism. This was a conjuncture in which established landowning and powerful bourgeois groupings continued to dominate large sections of the economy and the state. At the same time, new technologies of the second industrial revolution emerged, notably in communication, transportation, and primary extraction, with the capacity to destabilize or reorganize established power relations of the region. The relation between these formations seemed to offer dramatic possibilities of social revolution and economic transformation on an unprecedented scale. The specific cases, of the implementation of hydroelectric and irrigation systems in the northern state of Chihuahua dur-

ing and immediately after the Mexican Revolution of 1910–20 and the development of industrial chemistry within the expansive sugar economy of Cuba and Puerto Rico from the closing decades of the nineteenth century, both highlight the politics immanent in dynamic technoscientific systems.

Careful analysis of the relation between these developments in high capitalist technoscience and changes in state formation and labor expertise has much to teach about how social, economic, and technical forces interact. In neither the case of Mexican hydroelectric schemes nor the case of Cuban sugar plantations did new technology effortlessly dominate and determine sociopolitical change. But it becomes evident through Hill's and Singerman's analyses that protagonists of these technoscientific programs reckoned it could and should. General Electric generators and Canadian financiers would allegedly modernize northern Mexico; Massachusetts Institute of Technology chemists and their powerful centrifuges would supposedly guarantee the sugar economy's uniformity and efficiency. The aim here is not to ignore these claims but, instead, to understand how such social formations were produced and sustained, such that it might well seem that technoscience was the fundamental determinant of change.

Hill shows how the vast Boquilla dam, constructed during the early years of the Mexican Revolution, might simply be seen as an economic initiative by established private regional landowners and power brokers to mobilize and exploit the possibilities of novel technical systems in electricity extraction and distribution. However, he demonstrates how much of an oversimplification such a story would be; instead, the fundamental character of the state as a system of infrastructural construction and exploitation was in question right through the early period of the dam, involving massive reorganization of economic, political, and technological activity in railroads and mines, farms and workshops. In similar terms, the emergence of a controlling group of industrial chemists in the new system of central plants in the sugar plantation system of Cuba and Puerto Rico might be seen as a self-evident and inevitable aspect of rationalist automation and industrialization of the cane sector. Singerman shows, rather, the ingenious and improvised politics in play in the everyday workings of these chemists, their conduct, and their equipment. In both cases, key concepts of the political economy of technoscience are reworked and deployed. In the case of Chihuahua hydroelectricity, Hill explores the state's role as both an agent and a subject of major transformation: "the state *takes place*," as he puts it in his analysis of the relation between forms of governance and of capacity building in this revolutionary conjuncture. Singerman attends, in contrast, to the conditions of possibility of commodity production at this moment of major industrial intensification. Commodity formation demanded systematic standardization, and chemists worked to produce and maintain the metrology, the practice and principle of identity, on which the commodification of sugar relied. In neither case was the technoscience automatically effective or hegemonic. Instead, industrial and agronomic systems were intrinsically conflicted and demanded permanent work of maintenance

and repair. Alongside these important reflections on the forms of the state and of the commodity, both essays help reorient the geographies of technoscience in the period of the second industrial revolution. Local, regional, and global movements of capital, labor, and equipment accompanied dramatic reorganizations of the spatial relations of trade and exploitation.

Rethinking Postcolonial Science and Technology

In this section, we feature two unconventional formats in STS scholarship—a reflection piece and a group conversation—that explore the ways histories of technoscience can promote and provoke histories of postcoloniality. For nearly three generations, scholars of postcoloniality as diverse as Arjun Appadurai, Homi K. Bhabha, Frantz Fanon, Edward W. Said, and Gayatri Chakravorty Spivak have provided scholars in the humanities and social sciences with useful heuristic tools for thinking about empire, imperialism, the status of the other in the Western imaginary, and the shifts and continuities from the colonial to postcolonial period. But it is important to remember that the scientific positivism and Western exceptionalism made visible in postcolonial critique—whether through military campaigns, or engineering projects, or business practices, or else the public health activities of academic and philanthropic institutions—are not merely reflected in the uses of science and technology. Rather, positivism and exceptionalism are *made possible* by science and technology, thus highlighting one of the dominant tropes of historicizing technoscience: to the colonial engineer, bureaucrat, or clinician with a hammer, everything looks like a nail.

Suman Seth argues in his essay that it was once not uncommon for histories of colonial science and medicine to draw on postcolonial theory. Yet Seth argues that one finds many fewer such histories, despite the growing popularity of the field, since it first began to develop in the mid-1980s. He thus offers an important gloss on the history of postcolonial approaches to science and medicine, from its initial excursions three decades ago to the end of the twentieth century. Seth also examines the turn, around 2000, toward studies of the present and near past in works on postcolonial technoscience, before looking to the future and arguing that a return to colonial-era history would better inform and improve contemporary studies of postcoloniality. Throughout his essay, Seth reminds us why postcolonial critique involves the study of both Western sciences' universalizing tendencies and their vaulting ambitions for what the sciences could become in global terms, were they allowed to flourish under conditions of their own choosing.

One of the many paradoxes made visible by colonial technoscience is that the solutions proposed for addressing the complexities of the global are central to the problems that the forces of political and cultural imperialism brought about in the first place. Thus the postcolonial critique of STS offers both a genealogy of the global and a genealogy of the *notion* of the global through the colonial episteme.

Perhaps the very suitedness of postcolonial approaches to our "globalized" present may have seemed to limit their applicability to the colonial and precolonial past.

In this spirit, the conversation with Keith Breckenridge and Gabrielle Hecht in this section provides insight into not only the orientations of their fields as historians of economics and science, respectively, but also the state of African histories of technology since decolonization. Like Seth, both Breckenridge and Hecht argue that academic interest in technology in African history began to decline in the mid-1980s and that the study of technology on the continent—with some important exceptions—was long confined to anthropology and archaeology. Historians of technology in Europe and the United States also mostly ignored African sites, even when the technologies and infrastructures they investigated had significant African histories. That is because, as Breckenridge and Hecht argue, historical and anthropological approaches to African technology—such as looking at particular forms of farming or mining—tend to invoke tradition and continuity and thus reify certain aspects of the colonial gestalt. Invocations of African "tradition," they argue, obscure more than they clarify. They tend to collapse rather than reflect local and regional complexities across Africa in the twentieth and twenty-first centuries. But as with Seth's focus on postcoloniality and STS, Breckenridge and Hecht also argue that there has been a change in the motivating forces behind African STS since the 2000s, with historians of technology in the past decade exploring Africa's colonial origins in their studies of technological infrastructures and users. By paying attention to the technological specificity of industrial production, to material and political infrastructures, and to gaps and dependencies, Breckenridge and Hecht suggest possible directions for contemporary and future African histories of technology. The conversation with Breckenridge and Hecht concludes with a superb reference list that surveys four decades of critical scholarship pertinent to postcolonial STS that complements the many strands of their discussion.

Vital Knowledges

This section highlights the profound influence of vitality, a concept with roots in the political economies of Thomas Hobbes and Karl Marx, on the work of contemporary STS scholars engaged with body politics. Of course, such approaches are familiar territory for radical historians: for Hobbes, "vitality" makes a fundamental alignment between life and the political subject's sovereignty over his or her body; for Marx, alienated labor is an example of "vitality as a sacrifice of life," what Charles Thorpe has characterized as capitalism's "inversion between life and death."[5] Beginning in the 1980s, as academic engagement with it became more poststructuralist and thus more fluid, the concept of vitality was absorbed into Michel Foucault's explication of the concept of "biopower." Writing in 1978, Foucault defined *biopower* as "the set of mechanisms through which the basic biological features of the human species became the object of a political strategy, of a general strategy of power, or, in other

words, how, starting from the eighteenth century, modern Western societies took on board the fundamental biological fact that human beings are a species."[6]

Foucault was not unique in his perspective. But the concept of biopower has helped critical scholarship move on from concerns with the symbolic dimensions of "life" under the conditions of premodernity or even during the first phase of industrial capitalism, toward engagement with the material dimensions of "life" in a conjuncture when modern states and corporations organize and control populations, be they workers, soldiers, prisoners, or schoolchildren. The proliferation of biopower as a critical tool within the humanities and social sciences cannot be overestimated. And for STS—and, in particular, those configurations of technoscience in dialogue with feminist and queer science studies, postcolonial studies, disability studies, and critical geography studies—the concept of biopower remains fraught with complications, especially in terms of attempts to understand the body as either a pliable object of technological determinism or else an autonomous subject that resists technological determinism.

Rebecca Herzig and Banu Subramaniam in their essay shift the conversation away from the metaphoricity of biopower to explore its meanings as related to the historical origins of industrial capitalism. In particular, they examine the advent of the concept of "biocapital" found in recent STS to assess the utility of "biological" or "clinical" labor for radical historians as well as for those who seek to establish discussions of workers and students in the fields of science, technology, engineering, and mathematics (STEM) as part of a lineage of technocratic and scientific labor. Herzig and Subramaniam analyze the proliferation of new categories—"affective" labor, "immaterial" labor, "digital" labor, and so forth—in order to describe the asymmetrical relations of capital and labor in and across contemporary settings. Without presupposing clear or stable boundaries around either labor history or STS, Herzig and Subramaniam probe the meanings and limitations of the concept of "biological labor" from the vantage points of both fields, drawing in particular on critiques of human exceptionalism generated by scholars in animal studies, critical race studies, indigenous studies, postcolonial studies, queer and trans studies, and feminist new materialisms.

Herzig and Subramaniam's essay raises important genealogical and critical questions about biopower's limitations. Are we still living in a world captured by Foucault's concept of biopower? For example, are the systematic forms of control over bodily autonomy perpetuated by biopower—exploitations of labor, reproduction, military activity, and so forth—in the twentieth and twenty-first centuries the same as those that first began to flourish in the seventeenth and eighteenth centuries? Of course, for racialized and gendered bodies living under the regimes of modernity, such questions have never been abstract. Anthony Hatch, in his essay on race and surveillance technologies in the United States, argues that African Americans face ongoing technological assault in the United States most visibly at the hands of state agents. Technological transformations that have simultaneously enabled the oppression of African Americans have also shaped African American resistance

movements in the United States. His essay addresses how technologies have shaped the conditions for the struggle between racisms and resistance against racial power and how they also have helped provide the mechanisms through which black liberation movements have aimed to raise and transform people's consciousness about racism. Hatch's essay admonishes the seemingly race-neutral positivism of social media technologies to demonstrate how African Americans' use of social media technologies to organize and engage in protest against racism flattens hierarchies within social movements, removes the media filters that select particular stories for promotion and circulation, and has the potential to expand movement participation.

As Hatch's essay shows, what is often different is not so much the subject as it is the apparatus of the camera itself. We are not just living lives under the sway of biopower; we are biopower's subjects as well as its instruments, implicated as much in the sociotechnical systems that define who we are as the technologies we serve. One could argue that the difference between Marx and Foucault is the result less of economic or social changes than of the technocratic forms that organize our lives. Across the landscape of biopolitical critique that stretches from Hobbes and Marx and Foucault to Haraway and Nikolas Rose and Alondra Nelson, is the material body merely a subject of control? Or, to invoke the work of Langdon Winner, does it have its own politics as well as its own agency?

Such questions are central to the roundtable discussion, "Debating Data Science," presented in this forum. Brian Beaton, the roundtable organizer, and his colleagues Amelia Acker, Lauren Di Monte, Shivrang Setlur, Tonia Sutherland, and Sarah E. Tracy argue that scholars and activists working at the intersections of history and STS have an unexpected opportunity when it comes to the growing profession of data science. They have a chance not only to document but also to shape this "new" scientific profession, one that seems intent to scale up swiftly and determined to claim considerable global influence as big data continues its horizontal and vertical spread across every aspect of our lives. Of course, charting origins and tracing the early histories of scientific and technical professions is an enduring tradition within histories of technology as well as radical history, broadly construed: from 1960s research on the origins of psychology by Joseph Ben-David and Randall Collins to Nathan Ensmenger's work on the cultural politics of early computer experts and Katie Shilton's on Internet architecture engineering teams. By examining data science through the intersections of political history, economic history, labor history, and STS, Beaton and his colleagues enable us to think about the ways that big data, to a large degree, has reinvented the structures and functions of Hobbesian vitality in order to organize, and perform, political subjecthood for the twenty-first century.

Histories of Radical Science

Rallies of radical working scientists and engineers are often neglected in radical historical scholarship, despite the fact that precursors for radical science movements date back hundreds of years. This section offers perspectives and presents materials

for reflection on two significant late twentieth-century radical science groupings of left-wing scientists and engineers from the United Kingdom and the United States: the British Society for Social Responsibility in Science (BSSRS), founded in 1969, and the US-based group Science for the People (SftP), which emerged from the anti–Vietnam War culture in the late 1960s and early 1970s. What differentiated scientists involved in the BSSRS and SftP was their ambition to open up the politics of science to both scientific and public scrutiny so that it might change and improve, rather than their simply calling for more research funds or demanding for their voice to be heard more in the media or public policy. These were scientists and engineers deeply self-conscious about their role in collective resistance to, and undoing of, conventional forms of "science as usual." They regarded science and engineering as particular sites for radical social change and activism.

As Alice Bell's eloquent reflection tells us, the BSSRS engaged with Cold War issues such as antinuclear activism and worries about chemical and biological warfare as well as Northern Ireland and the policing of dissent, in addition to other concerns: note, for example, the spring 1969 statement signed by, among others, J. D. Bernal, Eric Hobsbawm, Julian Huxley, and Bertrand Russell—and at the Royal Society. Meanwhile, the SftP, as Sigrid Schmalzer and Daniel S. Chard tell us, was composed of professional scientists, students, professors, workers, and concerned citizens, many of whom wanted to be a voice of critical consciousness from within the scientific community exposing science against the people and the dangers of what they saw as the misuse of science, from the perils of sociobiology to corporate and military uses of science, to issues of gender and racial inequality in the scientific workplace and participation in debates about the green revolution and genetic engineering and computers. Well-known critical academic scientists associated with the SftP movement included Stephen Jay Gould and Richard Lewontin, among many others, and many of its participants remain among the leaders of STS in the United States.

Members of these two movements reflected critically on their position both in radical movements and in the history of science. They were acute observers of science and how it was perceived, and often misperceived, by the public. They belonged to local groups in different cities and regional networks. But they also cast an eye toward significant national and international events, such as policy talks at the United Nations or European science initiatives. Driven by contemporary concerns, they saw the twinned disciplines of history and history of science as important sites for social change; as Bell's essay makes clear, they argued a great deal about how the writing of histories of science ought to be conducted and presented. Many of the notable twentieth-century histories of science—from Antonie Pannekoek's *History of Astronomy* (1951) to Joseph Needham's *History of Embryology* (1934, revised edition 1959) and *Science and Civilisation in China* (1954–2008) to Bernal's *Science in History* (1954) and Gould's *Mismeasure of Man* (1981), among others—were written by scientists who also identified as socialists.

The focus on teaching in this section presents archival sources, oral histories,

and even Federal Bureau of Investigation surveillance files that may serve to expand the pedagogy of the history of social movements as well as provide valuable historical context for current concerns in interdisciplinary science and technology studies. As Bell, Schmalzer, and Chard show, different types of archival and primary sources for writing histories of radical science and social movements exist. Many of these are informal and ephemeral: mimeograph pages, cartoons, pamphlets, banners, surviving newsletters, and journals, yet the sources were not all bound to their organizational history. That many of the individuals in radical science groups engaged with the mainstream national, radical, and scientific media and other local social movements means, additionally, that traces of their work and aims may be mined as well from traditional sources for the history of science, including scientific publications and textbooks. Among the images reproduced here are cartoons from the early BSSRS and SftP groups, highlighting incisive takes on information technology, science teaching, social hierarchies, and "war games." To quote Bell: the revolutionary movements left their mark in science and society "if you know where to look."

The Land beneath Our Feet

In our final section, we interview Gregg Mitman about the background and significance of *The Land beneath Our Feet*, a documentary he completed in 2016 with filmmaker Sarita Siegel that explores a 1926 scientific expedition to Liberia undertaken by Harvard University's Department of Tropical Medicine and funded by the Firestone Tire and Rubber Company. The Harvard expedition took extensive ethnographic film footage, which now constitutes some of the only surviving visual media of early twentieth-century inland Liberians. Reviewing the footage and placing it in its appropriate historical and technoscientific frameworks raises complex questions not only in relation to Firestone's neocolonial corporate presence but also about the systematic erasure of national memory in Liberia since the early twentieth century—a fundamentally vexed topic for any African nation in the postcolonial era but exacerbated in the past few decades following Liberia's first and second civil wars and the outbreak of the Ebola virus just a few years ago. Much like Mitman's own role as a radical historian, *The Land beneath Our Feet* seeks to understand film's relationship to national memory and local heritage, thus challenging habitual associations between the medium of film and the practices of a racist technoscience.

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Notes

1. Lasswell, "Interrelations of World Organization and Society," 903–4.
2. Schieldrop, "Century of Fear and Hope at the Crossroads," 44–45, quoted in Raynaud, "Note historique sur le mot 'technoscience.'"
3. Roherty, review of *The Question of National Defense*, by Morgenstern, 530–31.
4. Engels, *Condition of the Working Class*, 37.
5. Thorpe, *Necroculture*, 26.
6. Foucault, "First Lecture: 11 January 1978," 1.

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