THINK TANK AESTHETICS

Midcentury Modernism, the Cold War, and the Neoliberal Present

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Introduction

Think Tank Aesthetics

Encounters

Just what drove the artist to the point where he thought to throw the man overboard? If not to kill him—not exactly—perhaps to cause the former secretary of defense grave bodily harm, or maybe give him a really good scare? The last would seem a far more reasonable proposition than the very public murder of Robert Strange McNamara. Of course, in the dismal years of the Cold War leading up to the encounter, "reason" had long been in eclipse and "thought" was the least of all things.[1]

It was the early evening of September 29, 1972 and McNamara and the artist were on a ferry to Martha's Vineyard. The artist—a painter—guards his identity to this day. McNamara, on the other hand, had long been a proper name for the records. He was heralded first as a young business professor at Harvard, followed by a stint as a statistical control officer under General Curtis LeMay during the Second World War. Then he was a "Whiz Kid" hired by the Ford Motor Company in 1946, culminating in a brief stint as its president, in 1960.[2] Soon after assuming leadership at Ford, McNamara was tapped by John F. Kennedy to revolutionize the Department of Defense. He came armed with the most novel methods and the military logic of operations research and systems analysis (ORSA), in concert with affiliates from a think tank called the RAND Corporation. In 1968, he left Lyndon Johnson's administration to become the fifth president of the World Bank. There he would transform global finance into a gargantuan debt machine, one that might bankrupt developing nations of the global south whose politics offended the existing order of things.

But who would be thinking any of this out here on the Vineyard Sound, gliding on the *Islander* as it made its usual seven-mile journey to McNamara's summer home? The Santa Monica offices of the RAND Corporation—a sleek, modern complex steps from glittering views of the Pacific—were some 3,000 miles west. A shadowy crucible of American security and public policy research, home of that cryptic Cold War persona known as the "defense intellectual," RAND was a laboratory for the most innovative war games, applied math, computer technologies, and a host of related, vanguard disciplines with inscrutable names: game theory, cybernetics, systems analysis, operations research. As the crow flies in the other direction, Vietnam was some 8,600 miles east. Chile over 5,000 miles south. In a country even more topographically attenuated than Vietnam—"a long petal of sea, wine and snow," as Pablo Neruda once rhapsodized—the World Bank would exercise its considerable financial muscle, refusing credit to a nation that had democratically elected the first socialist president in the Western Hemisphere,[3] while covert activities were under way to overthrow him, in no small measure supported by the CIA, a cadre of free-market economists linked to the University of Chicago, and a consortium of think tanks and other similar institutions. Even so, from where McNamara and the artist stood on the deck, locked in messy, potentially fatal struggle, the Cold War could only have seemed far away.

No, it wasn't as if the artist had *planned* to kill him. There was no strategy, calculation, or reasoned decision behind his act. No tables or spreadsheets to advance the artist's agenda. No theory of games or stochastic models to plot his course of action; no mathematical formulations or quantitative analysis to justify his move. This was a grossly violent thing, unchecked and spontaneous, just a surge of poison rage as the artist seized McNamara by the collar and pushed him up against the rails in a failed attempt to chuck him into the sea. Somehow McNamara would hang on long enough for others to intervene. Just as quickly, on the journey to shore he decided not to press charges against his would-be assassin.

0.1 Robert McNamara, date and location unknown. Courtesy the Library of Congress.

Years later, the journalist Paul Hendrickson uncovered the details of the encounter that had accrued the status of local legend. It is to Hendrickson's forbearance and rigor that we owe this account. Hendrickson tracked down the artist, gained his confidence, and wrote how the event unfolded in his shattering volume on the defense secretary, *The Living and The Dead* (1996).[4] For his part, the artist describes the affair with no small ambivalence. Glimpsing McNamara in the ferry's bar, he concocted his plan on the fly. The artist approached the former statesman, telling him that he had a phone call, and would he please follow him to the pilothouse to receive it? "And well," the artist recalls, "I just turned on him. I was scared as hell but I think I was pretty calm, too. I didn't say a word, you know, here's to Rolling Thunder, sir, or this one's for the Gulf of Tonkin, you lying sack of crap. Nope, nothing like that. I just grabbed him. I got him by the belt and the shirt collar, right below his throat. I had him over, too. He was halfway over the side. He would have been gone, another couple seconds."[5]

The encounter between artist and statesman took place three years before the catastrophe in Southeast Asia drew to a close. It evokes a striking if familiar image: reason at war with the passions, "science" contra art, the two-cultures debate made flesh and blood, brawling and violent. A young bohemian—long-haired and bearded, in jeans and tennis shoes, alleged by some to be protesting the closure of a clothing-optional beach—is pitted against the wonkish persona of McNamara, he of the Brylcreem and rimless glasses, his perpetual condescension now held in mortal check above darkening waters. The picture reads as just shy of caricature. It calls up familiar scenarios of sixties generational conflict and artists engaged in any number of efforts—some organized and principled, some individual and rash—to protest not only the "American war" (*McNamara's* war) but the more sweeping Cold War ethos that saw Vietnam as its latest, perhaps most venal installment.

Opposition and instrumental reason are indelible and interlinked tropes in art history's Cold War literature. They are emblematic of postwar cultural politics as well as of the soft-power skirmishes waged between First and Second Worlds, narratives tilting between impassioned art warriors and covert governmental intrigues. Important volumes on activist artists are required reading for students of the period; while formative accounts of the uses of art as propaganda—so much informational *matériel*—are canonical in the field.[6] Spies live among the ranks of art historians; debates on Communist art will make it to the Senate floor; the Marshall Plan and the Rockefeller Foundation will weigh in on the cultural fortunes of a devastated Europe, if not of entire continents marginalized at the "periphery."[7] *Think Tank Aesthetics* both deepens and expands the ways in which such encounters are historicized, theorized, and described. For it will turn out that the encounter between reason and the aesthetic in the period—incarnated, as this opening suggests, by an artist and statesmen struggling on deck—calls up a host of other powerful connections that are not a part of the official record.

This book traces the aesthetic connections forged by Cold War think tanks and cognate "thought societies": that is, how certain methods and research protocols elaborated in the

think tank migrated well beyond its walls. A list of organizations discussed includes the RAND Corporation; the Hoover Institution on War, Revolution and Peace; the Mont Pelerin Society (not a think tank per se, but what the economist Friedrich A. Hayek, its founding president, called a "study group" or thought collective); the Cato Institute; the Center for Advanced Study in the Behavioral Sciences; and, by association, the interlinked networks of the "Cold War university" (including, but not limited to, MIT, Columbia, Case Western Reserve, the University of Chicago, the University of Pennsylvania, Yale, Harvard, Johns Hopkins, Princeton, Stanford, UC Berkeley, the California Institute of Technology, and the University of Illinois).[8] Their collective and shared research into such military phenomena, and the generalization of such methods across the culture, are crystallized in McNamara's own diverse professional itinerary: as a former Army Air Force officer applying the military's most innovative statistical methods to the postwar American corporation at Ford; as a former president in the corporate sector applying the same to Kennedy's and Johnson's Defense Department; and as the former American defense secretary *operationalizing* the global economy while helming the World Bank. How such approaches to military, geopolitical, corporate, and social phenomena converge with the interests of the *aesthetic*—midcentury modernism and beyond, running all the way up to the present tense of neoliberalism—is the subject of this book.

Think Tank Aesthetics advances a new reading of modernism's military entanglements, enmeshed further in a peculiar history of interdisciplinary thought. The encounter between the painter and the defense secretary opens onto a set of nested relations toggling between the interests of art, strategy, economics, the hard and social sciences, as well as the humanities. A brilliant defense strategist at RAND will shadow the career of a brilliant art historian, their respective and wildly divergent practices turning ultimately around an engagement with semiotics. Contracted by Project RAND and Columbia University to study the behaviors of the Cold War enemy, a famous anthropologist will deploy innovative visual aids recalling the radical abstraction of the contemporaneous New York School. A British management cybernetician, working in concert with a modernist designer steeped in the traditions of the Bauhaus and of constructivist and concrete aesthetics, will aid a new socialist government in Latin America by implementing a digital control room long before that country was connected to the Internet. Decades later, his experiment will inspire a raft of media art calling up the charged history of that episode and the uses of history itself during the Cold War. Contemporary artists will themselves engage interests originating in the Cold War—namely, the tactics of secrecy and redaction—if only to invert their larger strategies as they operate today.

Think Tank Aesthetics tracks such far-flung relations and the complex dynamic between aesthetics and the technocratic rationality characterizing the period, unspooling the peculiar networks among defense strategists, computer scientists, psychologists, anthropologists, mathematicians, economists, designers, artists, and art historians. In the process it also charts a subterranean history of interdisciplinary thinking bearing upon the study of art and visual culture, and points by extension to current debates on the "crisis of the humanities" in the university: that is, the continued relevance of such disciplines in an institutional culture increasingly geared to laboratory approaches to *interdisciplines* if not the interests of the STEM disciplines.[9] This book, in short, is about the Cold War think tank's modernist imbrications, projections, sensibility, and "imaginings"—its aesthetics—and their recurrence within the present. The history I tell concerns the ways in which research protocols stemming from the era's military imperatives—particularly those related to systems theory, operations research, and cybernetics—paved the way for its own genre of midcentury modernism, what the historian of science Sharon Ghamari-Tabrizi has called, in an evocative turn of phrase about the RAND Corporation, "the Cold War avant-garde."[10]

What Is a Think Tank? The RAND Corporation and the Cold War

> [The RAND Corporation,] a nonprofit corporation formed to further and promote scientific, educational, and charitable purposes, all for the public welfare and security of the United States of America.
>
> The articles of incorporation of arguably the most consequential Cold War think tank of them all—the RAND Corporation—are at once exigent, urgent, and strangely anodyne. Though this book is about much more than RAND, the iconic American think tank will serve as both our principal case study and historical point of departure. In 1948 the security of the United States was under siege. The Iron Curtain had dropped just two years earlier; a year later the Soviet Union would detonate its first atomic bomb in the Kazakh Soviet Socialist Republic. Closer to home, in 1947 the Truman Doctrine signaled the geopolitical chess match waged in the proxy spaces of Turkey and Greece. Founded in 1946 as Project RAND, the think tank would incorporate two years after, assuming a pivotal role as prime mover in numerous other confrontations in the following decades. The founding charter (or at least the part just cited) seems curiously flat in its pronouncement: the guarded rhetoric of postwar politesse. In fact, this affectless strain was equal but opposite to the deadly stakes at the heart of its mission, telegraphing both the objectivity of science and the midcentury imperatives of innovation.
>
> "Articles of Incorporation," 1948[11]

Before delving into this history, we need to consider a fundamental question: what, exactly, *is* a think tank, either of Cold War or contemporary vintage, and what if anything does it have to do with art? What brings together such radically disparate phenomena—the expressive, even transcendent virtues habitually assigned to painting and sculpture, and the soporific data crunched in Beltway-driven policy briefs? We might possess an *intuitive* grasp of what a think tank is, but intuition as such won't suffice here. Indeed it is precisely the vagaries of the term—indicating something that can't be easily circumscribed, named, or rationalized—that endow the think tank with its acute sensibility and power. Hence, a primer in the vocabulary of our analysis will lay the foundations for such seemingly improbable connections, and furnishes guidelines for considering the case studies that comprise this book.

Think the phrase "think tank," after all, and chances are that you might not immediately flash back to the Cold War—to say even less of aesthetics. For those born well after the fact of that period, conventionally dated 1947 to 1989 (or 1991), the term "think tank" has been generalized, with its military associations from the Cold War now playing a secondary role to the interests of public policy and an institutional culture of expertise inextricably bound to contemporary media. A basic definition, posted on the website of Harvard's Kennedy School, describes think tanks as "institutions affiliated with universities, governments, advocacy groups, foundations, non-governmental organizations, and businesses that generate public policy research, analysis, and activity."[12] A more precise formulation might flag how this research is conducted in an ostensibly "autonomous" setting; it is "extra-academic" or even "para-political" insofar as it isn't bound by the university's historical disciplinary mandates or by scholarly claims, however qualified, to objectivity. *Realpolitik* affords an even more jaundiced perspective, raising questions of partisanship and complicity, money trails and instrumental reason: to what end is such research being put, and just who bankrolls it? A billionaire might well fund "scientific" studies to deny climate change, after all; a report might justify the use of racial profiling on the part of police.[13] Other think tanks might coalesce around newly elected political officials representing historically underrepresented subjects—people of color, women—in the struggle for liberation, civil rights, and feminism.

From the Frankfurt School to the Cold War think tank, the status of "reason" as more than an ideological contrivance was hotly debated during a moment that partnered big science and mutually assured destruction (MAD) as strange but necessary bedfellows. We'll get to such issues in short order. Still, it is instructive to consider the more workaday associations of the term "think tank" and a far baggier notion of "reason" operative in our current moment: they flag the ubiquity of these institutions in the popular imaginary as simply the way things are. A talking head on cable news is identified as a fellow at the Brookings Institution, or the American Heritage Foundation, or the Center for American Progress, or the Information Technology and Innovation Foundation, or any number of organizations whose names trade on the virtues of freedom, progress, peace, and the American way. (Note, of course, that while histories of the Cold War think tank focus

largely on the United States—and the UK to a lesser extent—think tanks are now global in their reach.) Members of think tanks of both partisan and nonpartisan stripes dispatch policy briefs to Capitol Hill when they're not trading sound bites on Fox, CNN, or MSNBC. They have MPPs from the Goldman School, or Kennedy or Ford or the London School of Economics or other institutions of higher learning; they're patched in to opine on health insurance or public education, the housing crisis, AI, criminal justice reform, affirmative action, the postal system, or "intelligent design." On foreign affairs, they may be called upon to discuss the Middle East, whether settlements in the West Bank or the refugee crisis, or how to stem terrorist insurgency, or famines in North Korea. On screen, rows of books line up behind such experts like nameless sentinels. Take a closer look, though, and you might detect a flattened image of books where actual volumes might logically appear, a simulacrum of learning that serves to credentialize the authority of the invited speakers. A navy blazer completes the performance of expertise; an accompanying university title confers additional bona fides. For more than a few of these authorities, the think tank may be their fated destination after a long career in government has ended.

Of course given the know-nothing posture of too many politicians these days—the swelling ranks of those uniquely *unqualified* to govern the arenas they condescend to inhabit—the culture of expertise and its bands of "activist-experts" might itself seem in eclipse. But the televisual punditry associated with the contemporary think tank—so many policy experts engaged in highly mediated discourse—is but one facet of the think tank's current reach and reception. When its use is neither self-conscious nor ironic nor highly rhetorical, in the most mundane sense the phrase has come to mean a "meeting of minds," in both colloquy and collaboration. You needn't be a wonk or a hack to be in a think tank; you needn't spend your waking hours installed on Mass Ave between Dupont Circle and Thomas Circle, DC's so-called "Think Tank Row." Perhaps, instead, you're an influencer working alongside other influencers on social media, as the millennial patois might hold, or one of a group of like-minded creatives or thought leaders swapping ideas in a flexible space, "disrupting" the status quo. You could even be an artist, activist, or art historian debating the interests of "the contemporary" or combating the political rationality typically attributed to the public sphere.[14] Which is to say, the proliferation of think tanks *after* the Cold War attests to their global success story, in which such organizations play an increasingly naturalized role in civil society and public discourse, or in any situation demanding that "meeting of minds" in brainstorming and problem solving. Founded in 1989, the Think Tanks and Civil Societies Program at the University of Pennsylvania documents at least 6,300 of such institutions worldwide.[15]

While the phrase "think tank" is casually dropped into any number of contexts, scholars have long been preoccupied with its history and defining criteria. A key debate surrounds the idea of the think tank as autonomous or insular redoubt: no matter its apparent secrecy, it is paradoxically impactful in the realm of public policy, described by one authority on the topic as "the Fifth Estate."[16] As the word *tank* insinuates, the think tank might seem a kind of hermetically sealed, intellectual fortress closed off from the world, its members covertly laboring in the service of knowledge production and advocacy. In fact, this image of containment belies the think tank's actual behavior and record—as a nebulous, indeed ambiguous, organizational entity comprised of such experts and "intellectuals." (The scare quotes suggest that the criterion for what defines an intellectual is itself a charged topic in the literature.)

As Thomas Medvetz describes, this ambiguity is critical to its operative logic. He draws on Pierre Bourdieu to consider the think tank as a "social space" and "field of power," in a relational understanding of such organizations that effectively inverts the title of Bourdieu's most famous book, *Distinction*. For Medvetz, the think tank logically functions from a space of *indistinction*.[17] Its "structural blurriness," as he puts it, may well be its constitutive feature, enabling it to travel across various institutions and social and political circles at the intersection of policy, business, government, NGOs, academia, and the military.[18] For purposes concerning art and aesthetics—things that would seem to have nothing to do with the business of policy—it is precisely that murkiness that facilitates the Cold War think tank's extradisciplinary reach, its refusal to be hemmed in by strict institutional borders. Put differently, it provides both a cover and justification for a newly sanctioned *interdisciplinary* practice. The capacity to take from a range of sources, to both accommodate and take advantage of experts hailing from disparate fields as a veritable off-campus brain trust, will effectively shape the course of those fields in turn.

The phrase “think tank” itself has misty journalistic beginnings, although it’s largely recognized as achieving currency in the 1960s. Founded in 1916, the Brookings Institution is often cited as the first think tank, but the origin stories reach as far back as the mid-nineteenth century with the convening of the American Social Science Association in Massachusetts in 1865.[19] While the institutional history of the think tank appears to consolidate at “the close of the Progressive Era,”[20] it was arguably during the Cold War that the American public would become aware of it as a new kind of research institution. This was a function, in no small measure, of a ballooning postwar media culture navigating the many trails (if not minefields) through the military-industrial complex. Here the RAND Corporation would take center stage.

RAND began not as an independent corporation but as a governmental project in the wake of World War II, acknowledging the centrality of “research and development” (R&D)—namely, science and technology—to the military success of the Allied forces. New weaponry demands new strategies, tactics, and methods, after all; and there could be no grosser understatement than to say that the Second World War leveraged a world-historically shifting arsenal in the forms of radar, nuclear fission technology, V-bombs, and early digital computing. General Henry H. (“Hap”) Arnold in concert with a number of senior colleagues of the Army Air Force (AAF) and War Department understood the importance of holding some of the scientists involved in the war effort in postwar reserve.[21] Indeed, apart from the devastation captured by the place names Nagasaki and Hiroshima, it was wartime developments in radar and its outgrowth in *operations research*—generically understood as the application of mathematical models in military strategy and decision making, progressively coupled with the power of computing—that in no small measure enabled Allied victory. In October 1945, just two months after Little Boy and Fat Man rained cataclysm on Japan, Arnold and a number of military and industrial leaders convened at Hamilton Field in Marin County, California to devise “a concept for a new organization to provide independent scientific analysis, particularly in the areas in which military policy, planning and technology intersected.”[22] If engineering and mathematics departments in schools such as Caltech, the University of Pennsylvania, MIT, or the University of Illinois seemed the natural environment for such endeavors, in practice those departments could only fail to accommodate the urgency and contingency of postwar military planning. The business of classified information and security clearance, of extra-academic personnel and communications, could not align with the usual protocols of academic governance and the rhythms and structure of university life, nor the disciplinary and professional commitments of its individual actors. An independent contractor would make a better, because more nimble, organizational partner. The Douglas Aircraft Company, led by President Donald Douglas, signed on to partner with the AAF in creating Project RAND in March 1946. A $10 million contract was awarded. Two years later, following questions concerning conflicts of interest, Project RAND would become the RAND Corporation, independent from the newly autonomous division of the Air Force and supported through a loan from the nascent Ford Foundation.

Project RAND would be helmed by ex-pilot and aeronautical engineer Frank Collbohm as its first director, a key figure in concocting the think tank’s military role. He would go on to serve as president of the RAND Corporation from 1948 to 1967. RAND’s inaugural objective was sweeping, and purposefully so. It meant to foster “a program of study and research on the broad subject of intercontinental warfare other than surface,” to “include recommendations of ‘preferred techniques and instrumentalities,’ to the Army Air Forces.”[23] But what constituted “study and research” in this context banked on far more capacious criteria than might be imagined. This was not just the hard stuff of aerodynamics and ballistics but also habits of mind necessarily different—radically so—from what had typically come before.

They had to be. The world was a qualitatively different place after the Bomb, the Holocaust, the Gulag, and the lockstep march of authoritarianism worldwide. History no longer stood to reason; Art could little cling to hidebound claims to representation. “To write poetry after Auschwitz is barbaric,” Theodor Adorno wrote—among the most famous words to confront this situation, even if the quote is typically excised from the thinker’s acute dialectical framing. The White Sea Canal was too close; postwar metaphysics demanded new methodologies in turn. Not far on the horizon, an arms race was accelerating, mounting in ferocity and terror by dint of nihilism, national security, and hard science.

"Study and research," as such, could not follow business-as-usual conventions long practiced within the university, but needed more flexible conditions if they were to address the needs of the midcentury military with rigor, speed, and precision. Hence, RAND's mission in its early years:

> The study of intercontinental warfare in this context is interpreted in the broadest sense as including the pursuit of the twin objectives of decreasing the probability of thermonuclear or other war and of stemming or reversing the advance of Communism —the task of seeking peace but preserving freedom. Moreover, the search for preferred instrumentalities to these ends has *led to research programs of unexpected scope and diversity*.[24]

The tone is clipped and dry, in keeping with the serious issues in play. Allusions to "preferred techniques and instrumentalities" neatly confirm the critique of technocratic reason that will grow increasingly voluble in the social criticism of the period. Perhaps it is all the more surprising, because of this, that the language of *diversity* and *creativity* creeps into the think tank's historical narrative, as if to leaven the gravity of the situation at hand and showcase the innovative approaches undertaken to address such dire conditions. The paradox is stark and unavoidable: the categorically serious affairs of the Cold War think tank—matters not of "mere" conventional warfare but of mass annihilation—would license an approach to research and development that could well be described as casual, unfettered, even light. In her brilliant analysis of the career of Herman Kahn, former denizen of the RAND Corporation and prominent nuclear strategist, Ghamari-Tabrizi will address these scenarios of serious play and fatal gamesmanship as foundational to the think tank's operations. How does the business of war assume something like a ludic dimension—and engage a broader sensibility that means to render military planning a creative, even aesthetic, pursuit?

By 1963, on the 15th anniversary of the RAND Corporation's founding, a commemorative document cast a retrospective glance at such operations in these terms: "There is a deliberate attempt to keep the atmosphere at RAND informal and unrestrictive, to provide a climate suitable for creative work."[25] "As a collection of people RAND is superb," one participant offered, "but RAND is more than a collection of people; it is a social organism characterized by intellect, imagination and good humor."[26] To call the think tank a social organism, with an ambience of bonhomie and humor, is to embrace a variety of influences —surprising, imaginative, *diverse*—in the service of Cold War problem solving. An Air Force officer could describe this unique professional habitus in the following terms:

> Here at RAND, men trained in various disciplines may discover new results in basic science, develop new analytical techniques, produce new inventions. They look into the future, project trends, imagine contingencies. . . . Because of the skills and knowledge required to cope with current and future problems of national security, and because the research staff share in the solution of these problems, *an organization like RAND presents one (rare) device for overcoming the increasing compartmentalization and specialization of knowledge*.[27]

The terms for overcoming the "increasing compartmentalization" of knowledge at this dire historical juncture are *multidisciplinary*, *transdisciplinary*, and *interdisciplinary*. There will be ample occasion to see how this rhetoric informs the think tank's strategic and epistemic reach. It will touch upon the seemingly distant realms of art, aesthetics, and modernism as in fact continuous with the think tank's operative logic, banking on pathbreaking solutions to intractable problems in a headlong rush to the new.

It was this vision of the Cold War think tank that entered public discourse in May 1959 when *Life* magazine, still at the apex of its remarkable twentieth-century readership, published a ten-page pictorial on the intellectuals at the RAND Corporation as a "valuable bunch of brains."[28] The feature includes shots of these intellectuals hunched over gaming tables and crowded around blackboards, flexing their collective cerebral muscles for American defense. A cast of individuals with what were then largely unknown names—Herman Kahn, Albert Wohlstetter, Daniel Ellsberg—would make their media debut as early cold warriors. Some would go on to infamy, demonized by either right or left or both, while others would be lionized by American presidents in the coming decades.

But it was the sum total of this cooperation, rather than the work of any one individual actor, that made for the thematic interest and novelty of the report—and all the more so

given the sleek, lablike campus in which such encounters were choreographed and staged. The modernist setting at 1700 Main Street, Santa Monica, pictured in the *Life* article, was the platform facilitating such encounters, a Bauhaus-inflected lattice of offices punctuated by open patios and screenlike windows, vistas abundant with sand and sea.[29] As John D. Williams, head of the Mathematics Division, put it,

0.2 Leonard McCombe, "A Valuable Bunch of Brains," *Life* magazine, May 1959. Courtesy Getty Images.

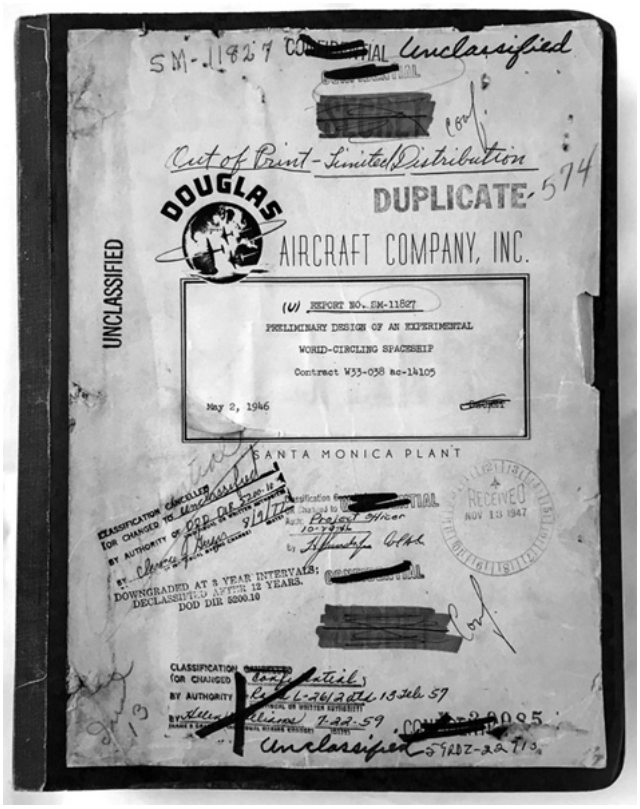
> Rand represents an attempt to exploit mixed teams, and . . . to the extent its facility can promote this effort it should do so. That is, at Rand, much more than at a university, the physicist is apt to encounter the political scientist, the engineer to consort with the economist. This is true—and important—not only in the formal work of an interdisciplinary project team, but also in the many informal contacts, ones the building design should stimulate. An expert in international relations may write a book by himself, but he is a different man and it is a different book because he has been stimulated and educated and buffeted by encounters with colleagues of many disciplines and varied experience.[30]

Williams is credited with the design of the building, which neatly telegraphed the futuristic pledge of postwar California organized around and among the most brilliant minds in mathematics, economics, engineering, psychology, and other hard and human sciences. Indeed its first publication, "Preliminary Design of an Experimental World-Circling Spaceship," might well have read to some as so much science fiction, having been published in 1946—that is, years before the space race was well under way. Silicon Valley is heir apparent to this futuristic vision today. Back then the Golden State augured better scientific tomorrows in its own genre of midcentury modernism, bolstered by corporate shareholders in the aerospace and burgeoning computer industry and a steady flow of intellectual traffic from universities across the country. It was a veritable "university without students."

Still, the public remained largely mystified by what actually took place within RAND's walls. The think tank's uneasy commingling of mystification and enlightenment, cloak-and-dagger secrecy and the alleged transparency of science, would contribute to its increasingly nefarious profile as the Cold War drummed on. By the early 1960s—at least since the Gulf of Tonkin incident in 1964—RAND would be regarded as a laboratory for

cryptic and sinister experimentation, with images of murky control rooms and Dr. Strangelove serving as its pop-cultural touchstones (the latter figure, as envisioned in Stanley Kubrick's dark 1964 satire, was widely regarded as some hybrid of at least two fellows at RAND: Herman Kahn and Albert Wohlstetter).[31] As the body count in Southeast Asia ticked ever upward on the evening news, the once-optimistic image of the postwar think tank grew darker, taking on increasingly ominous associations. The cultivation of a democratic ethos and its concomitant personality at midcentury gave ground to something pernicious, conspiratorial. When Daniel Ellsberg leaked the irredeemably damning Pentagon Papers in 1971, some 7,000 thousand pages baldly revealing the utter corruption of McNamara's war, the RAND analyst only fueled the collective ire already well directed toward this now infamous think tank. A few years earlier, protests visited upon its Santa Monica headquarters organized by the Artists' Protest Committee represented among the first activist salvos on behalf of artists against the war.[32]

0.3 RAND Corporation, 1700 Main Street, Santa Monica, California. Photo courtesy the RAND Archives.



0.4 "Preliminary Design of an Experimental World-Circling Spaceship," RAND Corporation, 1946. Photo courtesy the RAND Archives.

Though the RAND Corporation has long outlived the Pentagon Papers episode, and has significantly diversified its research programs beyond the military sphere in its 60-plus years of existence, Ellsberg's actions bear decisively upon the present culture of leaks and whistleblowing, as we'll see in chapter 4 of this book. RAND's status as *éminence grise* among American think tanks is assured, as it now offers its own graduate degree program in policy through the Pardee School while occupying a modish new campus in Santa Monica by DMJM Design. Meanwhile academics of various ideological stripes, and from across a range of disciplines, populate regional offices in New York and Washington in addition to the headquarters in Santa Monica. Defense strategy no longer takes priority on its agenda—the Cold War has been "won," so the refrain goes—but the interests of public policy and the influence of such organizations have increased exponentially.

Art and aesthetics scarcely warrant a mention in chronicles of the Cold War think tank. Which brings us to the *what*, *why*, and *how* of think tank aesthetics. In what ways might the Cold War *think* tank—that putative seat of reason, of the quantifiable and rationalized, of the hard, scientific rigor demanded of research and development—dovetail with art, consigned by many to the soft and affective, so much "fuzzy" stuff? Or is "dovetail" even the correct word in this context, sounding as it does an almost pacific encounter between two parties, the one scientific, the other party to the humanities? Can we speak, instead, of an impulse by scientists to gain ground on the visual and aesthetic domain as a different intellectual territory to explore, perhaps even exploit, in the ways of content, resource material, and creativity?

The Variety of Think Tank Aesthetics

Setting out from Medvetz's notion of the "structural blurriness" of the think tank—a "space" or even "field of power" in the spirit elaborated by Bourdieu—we can sketch the shifting borders that constitute our aesthetic interests. They take root in the Cold War but starkly flourish in the present. One claim of this book is that in the contemporary grip of neoliberalism we remain unwitting legatees of the Cold War. Perhaps this seems an odd or flatly spurious take on geopolitical grounds. Given the abject servitude displayed by the leader of the former First World toward the autocrat of what was not long ago the Second, the Cold War might seem very much a thing of the past. Nonetheless, the military logic underlying the formation of the Cold War think tank has undergone a sea change in the economic rationality that guides so much of what determines our place in the world. How we behave, socialize, and operate, and how we might be—as subjects increasingly submitted to the logic of algorithmic capitalism—*operationalized* in turn, bears a decisive genealogy stemming from these midcentury institutions.[33]

Four categories might detail the variety of think tank aesthetics, with many notable overlaps between them. I begin with the most literal approach to this question before addressing the systemic or global dimensions fundamental to this book:

I. Art made within the think tank or through collaborations with think tanks: Cold War creativity

However diverse the members comprising such organizations—from computer scientists to astrophysicists to economists to philosophers—they typically did not include artists in their ranks, and art seemingly remained an outlier discipline to the think tank's research agendas. As mentioned earlier, however, there were at least two think tanks in which artists worked in the late 1960s: the RAND Corporation in California and the Hudson Institute in upstate New York. There they collaborated with staff and visiting fellows as residents. These episodes are not the focus of this book, but they demand acknowledgment for the epistemic interface they stage between art and the think tanks' collaborative models. The ways in which such encounters seem to announce the flight of *creativity* across the disciplines—a virtue stereotypically associated with art in its broadest forms—sheds light on the imperative of novelty and innovation enshrined within such institutions. Andreas Reckwitz describes how "in the late 20th century, art went centrifugal," meaning "the domain of what counted as an artistic object overflowed its borders to seep into events and artefacts not previously regarded as art."[34] Normative accounts of the "creative class," famously elaborated by Richard Florida, have licensed the generalization of creativity as a

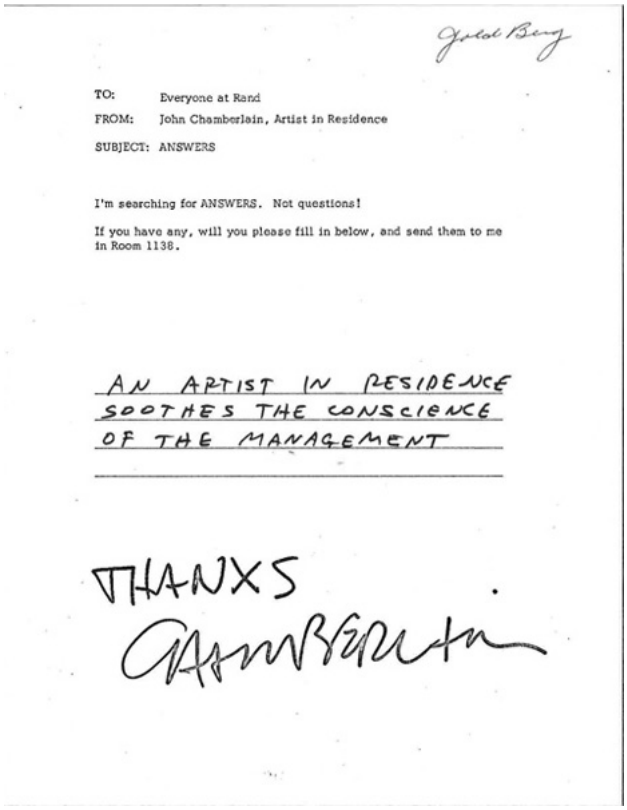
contemporary phenomenon, coextensive with the cultures of neoliberal globalization in which individuals are "released from oppression" and are "finally . . . free to be creative." But earlier narratives of the *creativity dispositif*—Reckwitz's term for a complex ethos "in preparation since the late eighteenth century and accelerating markedly since the early twentieth century"—suggest that creativity is itself a historical invention, neither an epistemic or methodological *a priori* so much as an ethos and artifact.[35] "The creativity complex does not merely register the fact that novelty comes about," he notes, "it systematically propels forward the dynamic production and reception of novelty as an *aesthetic* event in diverse domains."[36]

Reckwitz observes that the field of art is typically "relegated to the margins" in the social analysis of creativity but that "it is precisely art that turns out to assume the role of an effective, long-term pacemaker, imposing its shape on the creativity dispositive in a way that surely runs counter to the intentions and hopes associated with art in modernity."[37] In *Chronophobia: On Time in the Art of the 1960s* (2000) I briefly introduced the example of the RAND Corporation as emblematic of this very tendency, as its intermittent engagements with the L.A. art world of that decade make evident. (*Chronophobia*, no doubt, tracks in part as both prologue and complement to the book you're now reading; the same is the case for a more recent publication, *New Games: Postmodernism after Contemporary Art*.) The multiyear Art and Technology Program sponsored by the Los Angeles County Museum of Art from 1967 to 1970 facilitated partnerships between contemporary artists and organizations and industries mostly based in Southern California, many of them key actors in the region's military-industrial complex (i.e., the Jet Propulsion Laboratory, Lockheed Martin). John Chamberlain, best known for monumental abstract sculptures featuring crushed car parts, took up residency in the Santa Monica headquarters of RAND. By most accounts the exercise was a wash-out. Chamberlain could not fail to be impressed by the army of squares he encountered on site, complete with stereotypical pocket protectors and thick glasses. For the staff, on the other hand, the artist's presence on the corridor was received with little enthusiasm or with outright hostility. Given the received wisdom about works of art and what artists are supposed to do, Chamberlain's irredeemably conceptual orientation little satisfied their notions of what constitutes art.

A quick glance at the artist's project illustrates the mismatch. Chamberlain's *RAND Piece* was a performative work involving both a Xeroxed multiple of seemingly disjointed, eccentric remarks (phrases include "Baby-dumpling" and "Damned poor aerodynamics in either case") and the distribution of circulars among the staff in a nod to the think tank's administrative logic as a technology in itself. In quasi-bureaucratic fashion, Chamberlain posed a question to the piece's recipients: "I'm searching for ANSWERS. Not questions! If you have any, will you please fill in below, and send them to me in Room 1138." The piece had some basis in Chamberlain's work as an experimental poet but was also wholly consistent with the conceptualist ethos, tracking organizational systems, the media of bureaucracy, and the paper trails they generated.[38] It also tapped into the spirit of RAND as an institution primed to address, and potentially answer, the most challenging questions of Cold War America. The printed multiple by Chamberlain—housed in an orange Mylar folder, words presented in neat Courier type—opened with a similarly inscrutable statement, as if to mime the think tank's cryptic operations:

> *The Rand Piece is constructed to be used by anyone or groups as far as the imagination can carry it. All possibilities are considered to be valid, at least by me.*

The other instance in which a contemporary artist worked within a think tank was also arranged under the auspices of LACMA's Art and Technology Program. James Lee Byars was paired with New York's Hudson Institute in May 1969 as the first out-of-state corporation to be involved with the California-based program. The Hudson Institute was founded by Herman Kahn in 1961—nuclear strategist, systems analyst, and author of the widely read (and condemned) books *On Thermonuclear War* and *Thinking about the Unthinkable*.[39] Byars's project was not unlike Chamberlain's in its address to the organizational culture of the Hudson Institute, and the repeated conversations he was to have with Kahn.



Gotlob Berg

TO: Everyone at Rand

FROM: John Chamberlain, Artist in Residence

SUBJECT: ANSWERS

I'm searching for ANSWERS. Not questions!

If you have any, will you please fill in below, and send them to me in Room 1138.

AN ARTIST IN RESIDENCE SOOTHES THE CONSCIENCE OF THE MANAGEMENT

THANXS

JOHN CHAMBERLAIN

0.5 John Chamberlain, a questionnaire seeking answers sent to the employees of the RAND Corporation as part of his *RAND Piece*. © 2018 Fairweather & Fairweather, Ltd./Artist Rights Society (ARS), New York. Photo © Museum Associates/LACMA.

Together Chamberlain's and Byars's projects attend to the workings of the think tank as an ostensibly closed system, equipped with its own rituals of communication and managerial protocols. You might gather, from this brief, that the two artists intervened in the think tank's operations as participant observers, in quasi-ethnographic but ultimately critical fashion. Perhaps some institutional culture jamming was in play, given the satirical note struck in both works. Or maybe, from the other side of things, this was a public relations gambit on the part of Hudson and RAND. The unrolling of the welcome mat to artists might well soften the blunt, militaristic image associated with both institutions at the time.

All positions are tenable, but they should not be read in isolation from the fundamental culture of the think tank described earlier: that the "diversity," "creativity" and "imagination" attributed to its staff was encouraged in *overcoming the increasing compartmentalization and specialization of knowledge*. With this in mind, we need to repeatedly ask: Just what did RAND or the Hudson Institute, or any think tank, for that matter, stand to learn by installing artists in its midst, or by incorporating arts and visual culture into its larger agendas? What could R&D gain—and potentially appropriate—in its interaction with the era's contemporary artists, beyond the gleam of an aesthetic halo for its collective innovation and creativity?

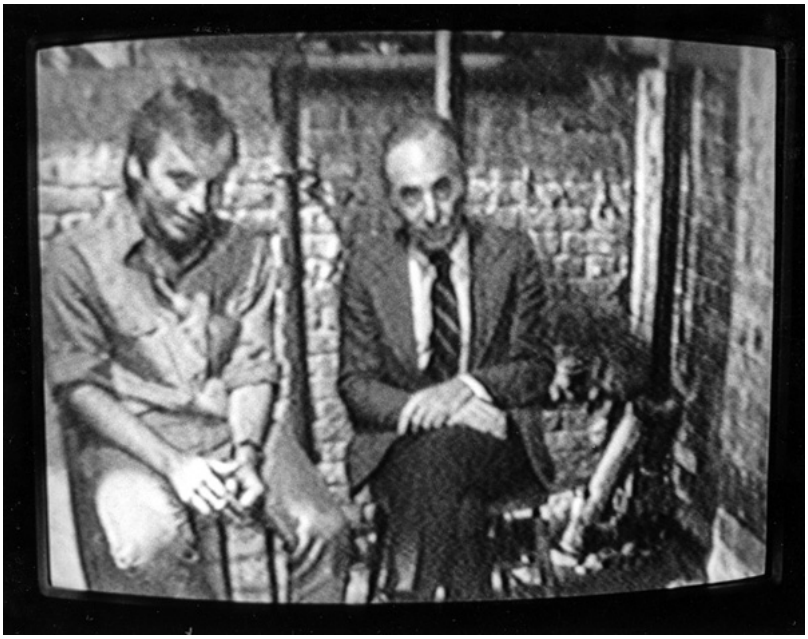
II. Art that thematizes, illustrates, or alludes to the models and methods directly stemming from the think tank; art that internalizes such research agendas; the isomorphic relations that obtain between works of art and the structure of the think tank

A second, multitiered approach to our question considers (1) how artists addressed the themes or research programs stemming from think tanks, (2) how the systems-based paradigms or strategies elaborated in the Cold War think tank might inform the "systems aesthetics" of postwar art, whether video and its logic of feedback or conceptual art and its computational and technocratic engagements, and (3) the structural *isomorphisms* between works of art and such practices, flagging what Ludwig von Bertalanffy, the

Austrian biologist and author of *General System Theory*, identified as "the appearance of structural similarities or isomorphisms in different fields."[40] Clearly, these positions do not separate easily; they will touch upon other categories of think tank aesthetics discussed below. But provisionally classing them in such terms allows us to isolate the occasional interests of iconography and intention on the artist's part from the ways in which works of art might internalize, implicitly or symptomatically, the think tank's research methods at procedural, strategic, or even operational level. Intention, we need to state immediately as well, is not the point of this account either, or anything as linear or unidirectional as a causally determined influence that travels from science to art. To anticipate the fourth category outlined shortly, if the think tank teaches us anything, it's that a larger constellation of institutional and extra-institutional actors—a multifaceted and interdisciplinary *network*—triggers a recursive relationship to collective knowledge production.

Two quick examples suffice here. Consider *Prisoner's Dilemma* (1974), Richard Serra's performance-cum-video produced in collaboration with Robert Bell. The work is ostensibly about techniques deployed in police interrogations, casting various members of New York's fledgling SoHo community, including the gallerist Leo Castelli, in a witty parody of a television game show. But in *New Games: Postmodernism after Contemporary Art*, I discussed the structural logic of this work relative to game theory, as derived from the strategic analyses associated with the RAND Corporation and applied principally (but by no means exclusively) to Cold War military conflict. A discipline of economics grounded in mathematical methods, game theory takes interaction as its object of study in situations of conflict, negotiation, bargaining, leveraging, and bluffing, whether involving people and things, organisms, institutions and businesses, or nations and states. Game theory charts strategies of, and solutions for, these particular encounters as a type of economic behavior that can be rationally mapped.[41] The first wave of game theory was associated with some of the era's most profoundly consequential thinkers, all of whom worked at or within the orbit of RAND: John von Neumann, Oscar Morgenstern, and John Forbes Nash.[42] For his part, Serra's video was modeled after the most famous gaming scenario of them all, the "prisoner's dilemma." The Princeton mathematician Albert Tucker bestowed this name upon a well-known paradox formalized by Merrill Flood and Melvin Dresher at RAND in 1950. Serra and Bell engaged this scenario while also invested in *The Strategy of Conflict* (1960), the influential work of RAND mathematician and economist Thomas Schelling. (Schelling would long be associated with what has come to be known as Richard Nixon's "mad man strategy.")[43]

Another instance demonstrating the coincidence in research interests between think tanks and contemporary artists of the period is George Brecht's publication *Chance-Imagery* (1966), an important section of which addresses the topic of randomness. As a leading associate of Fluxus (itself called a "think tank" by its principal impresario, George Maciunas),[44] architect of the "event score;" a professionally trained chemist, and theorist of chance, contingency, and randomness, Brecht was deeply engaged in at least one of the research topoi of the RAND Corporation through the mid-1960s. In 1955, the think tank published *A Million Random Digits with 100,000 Normal Deviates*, a number table of some 400 pages, produced by "an electronic analogue of a roulette wheel."[45] RAND's research into random numbers began in its earliest years when an interest in experimental probability emerged as a concern, particularly for the study of risk analysis in times of war (as in the Monte Carlo method or simulation, integral to the mounting arms race, as well as the discipline of cryptanalysis). *A Million Random Digits with 100,000 Normal Deviates* answered the demand for random numbers. It represented a major contribution in the early history of the think tank, and is a historical demonstration piece for the power of digital computing in the postwar years.[46]



0.6 Richard Serra, Leo Castelli in *Prisoner's Dilemma*, 1974, detail. © Richard Serra/Artists Rights Society (ARS), New York.

Brecht's attraction to such research was all but inevitable. His essay *Chance-Imagery* reads as a strikingly erudite appreciation of the topic, ranging widely over both the history of art (Marcel Duchamp, the surrealists, Jackson Pollock, John Cage) and of science (Robert Boyle and gas kinetics, James Clerk Maxwell and thermodynamics, Brownian movement). Conceptualizing "randomness" relative to broader notions of chance, he is quick to identify the term's technical implications in statistics, "where it applies to special techniques for eliminating bias in sampling."[47] "The importance of randomness for purposes of scientific inference will be the same as the reason for its importance in the arts, that is the elimination of bias," he notes further, before attending to the tables in the RAND publication as "a convenient and reliable bias in selection." "Of course we don't mean to imply that chance-imagery is the direct result of the artist's knowledge of these trends," he is quick to stress;

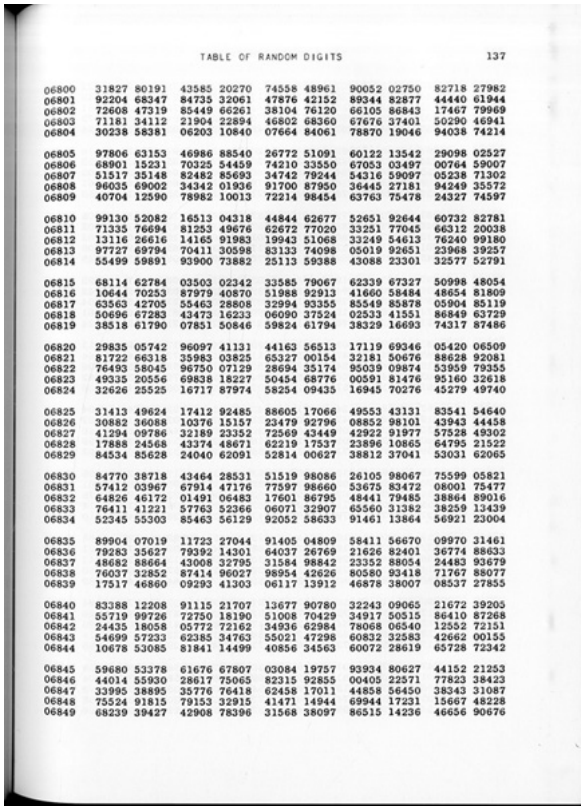


TABLE OF RANDOM DIGITS 137

06800	31827	80191	43585	20270	74558	48961	90052	02750	82718	27982
06801	92204	68347	84735	32061	47876	42152	89344	82877	44440	61944
06802	72608	47319	85449	66261	38104	76120	66105	86843	17467	79969
06803	71181	34112	21904	22894	46802	68360	67676	37401	50290	46941
06804	30238	58381	06203	10840	07664	84061	78870	19046	94038	74214
06805	97806	63153	46986	88540	26772	51091	60122	13542	29098	02527
06806	68901	15231	70325	54459	74210	33550	67053	03497	00764	59007
06807	51517	35148	82482	85693	34742	79244	54316	59097	05238	71302
06808	96035	69002	34342	01936	91700	87950	36445	27181	94249	35572
06809	40704	12590	78982	10013	72214	98454	63763	75478	24327	74597
06810	99130	52082	16513	04318	44844	62677	52651	92644	60732	82781
06811	71335	76694	81253	49676	62672	77020	33251	77045	66312	20038
06812	13116	26616	14165	91983	19943	51068	33249	54613	76240	99180
06813	97727	69794	70411	30598	83133	74098	05019	92651	23968	39257
06814	55499	59891	93900	73882	25113	59388	43088	23301	32577	52791
06815	68114	62784	03503	02342	33585	79067	62339	67327	50998	48054
06816	10644	70253	87979	40870	51988	92913	41660	58484	48654	81809
06817	63563	42705	55463	28808	32994	93355	85549	85878	05904	85119
06818	50696	67283	43473	16233	06090	37524	02533	41551	86849	63729
06819	38518	61790	07851	50846	59824	61794	38329	16693	74317	87486
06820	29835	05742	96097	41131	44163	56513	17119	69346	05420	06509
06821	81722	66318	35983	03825	65327	00154	32181	50676	88628	92081
06822	76493	58045	96750	07129	28694	35174	95039	09874	53959	79355
06823	49335	20556	69838	18227	50454	68776	00591	81476	95160	32618
06824	32626	25525	16717	87974	58254	09435	16945	70276	45279	49740
06825	31413	49624	17412	92485	88605	17066	49553	43131	83541	54640
06826	30882	36088	10376	15157	23479	92796	08852	98101	43943	44458
06827	41294	09786	32189	23352	72569	43449	42922	91977	57528	49302
06828	17888	24568	43374	48671	62219	17537	23896	10865	64795	21522
06829	84534	85628	24040	62091	52814	00627	38812	37041	53031	62065
06830	84770	38718	43464	28531	51519	98086	26105	98067	75599	05821
06831	57412	03967	67914	47176	77597	98660	53675	83472	08001	75477
06832	64826	46172	01491	06483	17601	86795	48441	79485	38864	89016
06833	76411	41221	57763	52366	06071	32907	65560	31382	38259	13439
06834	52345	55303	85463	56129	92052	58633	91461	13864	56921	23004
06835	89904	07019	11723	27044	91405	04809	58411	56670	09970	31461
06836	79283	35627	79392	14301	64037	26769	21626	82401	36774	88633
06837	48682	88664	43008	32795	31584	98842	23352	88054	24483	93679
06838	76037	32852	87414	96027	98954	42626	80580	93418	71767	88077
06839	17517	46860	09293	41303	06117	13912	46878	38007	08537	27855
06840	83388	12208	91115	21707	13677	90780	32243	09065	21672	39205
06841	55719	99726	72750	18190	51008	70429	34917	50515	86410	87268
06842	24435	18058	05772	72162	34936	62984	78068	06540	12552	72151
06843	54699	57233	62385	34763	55021	47298	60832	32583	42662	00155
06844	10678	53085	81841	14499	40856	34563	60072	28619	65728	72342
06845	59680	53378	61676	67807	03084	19757	93934	80627	44152	21253
06846	44014	55930	28617	75065	82315	92855	00405	22571	77823	38423
06847	33995	38895	35776	76418	62458	17011	44858	56450	38343	31087
06848	75524	91815	79153	32915	41471	14944	69944	17231	15667	48228
06849	68239	39427	42908	78396	31568	38097	86515	14236	46656	90676

0.7 An excerpt from *A Million Random Digits with 100,000 Normal Deviates*, RAND Corporation, 1955. Photo courtesy the RAND Archives.

> We only mean that works of great artists are products of the same complex, interacting welter of cause and effect out of which came the results of mathematical physics. If we believe history to show that art of the past has fit into the cultural matrix of the time in which it was produced we have incentive to look for the trends in contemporary art which are consistent with analogous trends in other fields.[48]

Brecht argues against a model of influence that travels unimpeded from the sciences to the arts; and we'd do well to follow his lead. The "complex, interacting welter" of any number of cultural, social, scientific, and economic factors might be treated in isomorphic terms within the space of the think tank, a means to enlarge the scope of what amounted to a new genre of defense, with art playing an increasingly visible role.

III. The research methods, tools, and approaches embraced and elaborated in the Cold War think tank (including operations research, cybernetics, systems and game theory) as they are brought to bear upon works of art and visual culture; a resulting "operational" aesthetics

Here we turn the tables of the artist-centered approaches to the think tank so far described, in a category constituting a significant preoccupation of this book. It considers how researchers circulating within both the think tank and its larger spheres of influence engaged works of art, design, and visual culture, deploying methods and strategies with patently military implications and effectively recruiting the interests of art in the process, resulting in what I'll provisionally call an "operational aesthetics."[49] Here too we move beyond the walls of these bricks-and-mortar organizations to address the *space* of the think tank as announced by Thomas Medvetz. Not restricted to addresses in Santa Monica or DC, in other words, our case studies are implicated in a "complex, interacting welter" that charts the isomorphism and actual points of tangency between art and Cold War technics.

Our introductory vignette framing the encounter between McNamara and a nameless artist serves notice of one major tendency: namely, the generalization of operations research (OR) during the Cold War beyond its original military applications, coupled with the burgeoning interests of managerial science. Consider how McNamara, as a former business instructor at Harvard, brought OR from the US Army to Ford; to the Department

of Defense with the RAND Corporation; and then, in taking leave of government, to his tenure at the World Bank. A more expansive treatment of OR than our earlier definition will anticipate both its implications for and convergence with the scenes of art and aesthetics.[50]

Also called "operational research" (associated with the British war effort), "operations analysis," "management science," "industrial engineering," "decision science," and, most broadly, "systems analysis," the science of OR began neither in the think tank nor during the postwar moment. It was first officially introduced into the US military in 1942, although some experts claim antecedents traced back to classical sources in both Archimedes and Phillip II of Macedon.[51] Its origin story, however, is decisively British in inflection, with broad contours drawn as early as World War I. By the mid-1930s, the experimental physicists associated with the Bawdsey Manor Research Station in Suffolk, and then Biggin Hill Airfield in Kent, undertook groundbreaking research directed to antiaircraft defense and advances represented by U-boat technology after World War I. Supported by the RAF, they endeavored to integrate the new science of radar (then with the capacity to detect unknown aircraft some 30 miles away) with preexisting defense systems ranging across the British military.[52] Among the most consequential of these scientists, the physicist Patrick M. S. Blackett authored the widely influential memorandum "Scientists at the Operational Level" (1941) "in order to inform the Admiralty of some of the developments which had occurred in the Operational Research Sections already established at Fighter, Anti-Aircraft and Coastal Commands," describing the mutually constitutive relationship between science and these distinct commands.[53]

To be sure, collaboration between the RAF and the US Army Air Force was essential to Allied victory. The Cold War, however, would introduce even more serious stakes for the deployment of OR. To this point, as one military historian notes, definitions of OR are strategically capacious, as the generic explanation courtesy of the Department of Defense makes clear:

> The analytical study of military problems undertaken to provide responsible commanders and staff agencies with a scientific basis for decision on action to improve military operations.[54]

Though this definition does not specify the use of math or computers in OR (we'll see how nonmathematical methods were brought to bear on the study of art and visual culture), what we currently group together as the STEM disciplines (science, technology, engineering, and mathematics) are indeed continuous with many of OR's current practices. Charles Shrader enumerates "five essential elements, or steps" in its deployment within the American context, emphasizing a procedural, means/ends relationship to postwar military logistics, including:

1. the *definition of the problem* and the determination of the means of measuring its critical elements;
2. the *collection of data* (either by direct observation, the use of historical data, or the use of computer-generated data);
3. the *analysis of the collected data* (using both mathematical and nonmathematical methods);
4. the *determination of conclusions* based on the analysis of the collected data; and
5. the *recommendation* to the military decision maker of a course of action.[55]

All of these elements contribute to what has become a standard definition of OR, as articulated by its leading American protagonists at midcentury, Philip M. Morse and George E. Kimball: "Operations Research is a scientific method of providing executive departments with a quantitative basis for decisions regarding the operations under control."[56] The expansion of such terms to industry would lay the stakes for the nascent Information Age.

The rubrics of an identifiable *problem* demanding such criteria, the collecting of data in analyzing that problem, and the impulse to quantify such information are critical to our reading. The proposal is that works of art or examples taken from the visual field are treated adjacently to such "problems" within the space of the think tank. In drawing closer to our contemporary moment, the rhetoric of *problem solving* is effectively naturalized in

popular discourse—in business, in charity, in education, in culture at large—as the function of an operational mindset outstripping its inaugural military motivations if indebted to their technological methods.[57] Take the following proposition as we press on: A visual artifact, in its aesthetics or design, is considered as information to rationalize in something amounting to quantitative terms. In the wider orbit of the think tank, this is done in the service of defense-related initiatives and the ideologically motivated projects that might sponsor them.

We could put it in a formulation at once crude but to the point: during the period in question, works of art and visual culture might be *operationalized* to such ends. For the think tank and its environs will license a new approach to art and the image, one that could treat abstract painting, comic books, geometric patterns, and Rorschach tests alike as radically intelligible phenomenon, all submitted to Cold War innovations in research and development.

IV. Networked and interdisciplinary

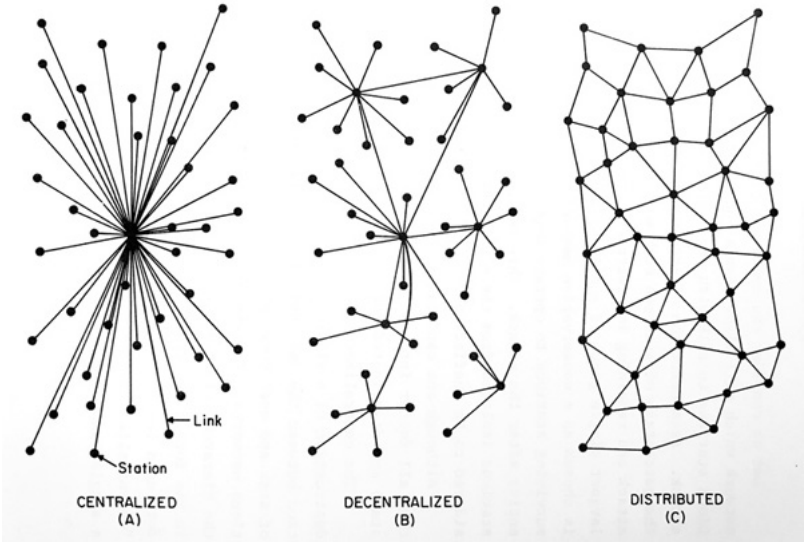
The linked categories of networked and interdisciplinary aesthetics necessarily follow the operational approaches described above. A founding principle in the historical development of OR was to enable decision making through the linked contributions of diverse and myriad experts, with information shared and managed across multiple divisions of the British military. Such messages and the ensuing recommendations, of course, required the highest security possible, coextensive with developments in coding and cryptography during the period. Communication technology was integral to the success of the war effort, the foundation for survival.

To this later point, a signal contribution made by the RAND Corporation was its pioneering work in what would come to be known as packet switching, technology elaborated at the behest of the Air Force and the newly formed Advanced Research Projects Agency (ARPA), founded in 1958. (The technology of packet switching, it needs to be said, was also independently evolving in the UK in the work of Donald Davies.) As developed by engineer Paul Baran in 1964, and articulated in a series of RAND memoranda called "On Distributed Communications," packet switching is that mode of data transmission is which a message is broken into smaller, discrete units of data ("packets") and routed individually through an electronic network, then ultimately "assembled" at the destination of its receiver. In Baran's more cumbersome and original formulation of this phenomenon, "distributed adaptive method block switching" was designed as a "means of building communication systems to withstand heavy enemy attacks," a notion consistent with the goals of what would ultimately become ARPANET.[58] Baran also sagely predicted that distributed communications would serve purposes that were not just strategic or defensive, a fact borne out at planetary scale with the coming net economy.

The concept of "network aesthetics" has been named and elaborated by scholars in the humanities, who powerfully map its instantiation across the spectrum of culture, from Wagner's *Gesamtkunstwerk* to gaming platforms to serial television shows such as *The Wire*.[59] Deploying it here necessarily returns us to the history of the think tank and the systems discourse concocted within it. A well-known illustration from Baran's first memorandum provides a concise graphic lesson. Three diagrams visualize the orders of communication—old to new—locating Baran's distributed model as the most advanced. A centralized network is pictured as a single point out of which numerous vectors radiate. "Stations" are marooned in a virtual sea of data, connected by tenuous, because isolated, links, by far the most vulnerable means to distribute information. Decentralized networks, for their part, provide more multifocal points of contact between these stations in a kind of generalized, synaptic mapping but expose their own vulnerabilities. Meanwhile, Baran's distributed communication is presented as a diffuse, reticulated pattern, affording multinodal contacts through proliferating links and vectors.

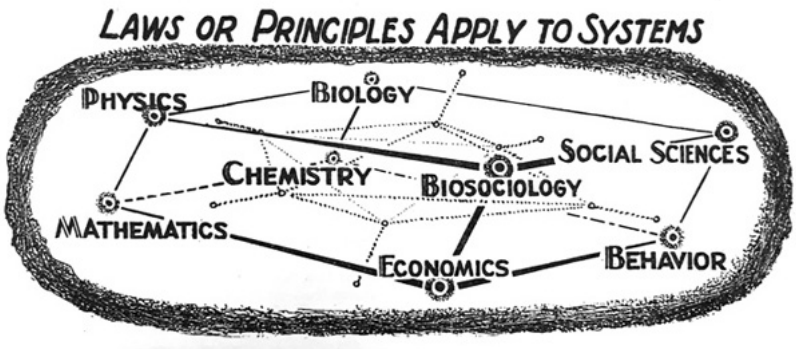
Baran was formative in engineering the network as the most advanced and technologically secure form of communication. This "distributed," radically decentralized model would find a historiographic complement in the interdisciplinary approaches to knowledge production also elaborated in think tanks, universities, and adjacent scholarly societies sponsored by the Cold War. An illustration published in the inaugural newsletter of the Society for the Advancement of General Systems Theory, cofounded by Ludwig von Bertalanffy in 1954, makes the point emphatic. Von Bertalanffy would variously lay claim to having originated the notion of "systems" thinking long before the Cold War; he would

note how cybernetics, the theory of the control of messages pioneered by Norbert Wiener in the 1940s, shared much in principle with his approach.[60] For von Bertalanffy, understanding the biological or social scientific "organism" as a *system* required moving beyond one's disciplinary specialization to advance a collectively shared base of knowledge. The illustration offers a neat diagram of such activities, constellating the interaction between once-discrete fields of scientific inquiry as a new intellectual universe. Physics, biology, chemistry, biosociology, mathematics, behavior, social sciences, and economics work in concert with one another.



0.8 Paul Baran, "On Distributed Communications," RAND memorandum, 1964, detail. Photo courtesy the RAND Archives.

The picture envisions a sort of utopia, a cosmography of collaborative and interlinked knowledge production. It is emblematic of what Peter Galison has called, in a famous metaphor within science studies, a "trading zone": a model with anthropological valences that describes the ways in which two groups establish "rules of exchange" in coordinating interactive and interdisciplinary modes of research.[61] Trading zones are those places in which the incommensurability of the many actors involved might facilitate the creation of "creolized," hybridized, or pidgin languages. The pathbreaking discoveries at the MIT Radiation Lab represent one such trading zone.



0.9 Ludwig von Bertalanffy, detail of brochure, Society for the Advancement of General Systems Theory, 1954. Courtesy the Bertalanffy Center for the Study of System Science, Vienna.

In chapter 3 I'll return to this image and one complex network it models in some detail. I offer it here to make a simple if critical point about the current prospects of interdisciplinary thinking following this midcentury example: that during the Cold War, interdisciplinarity largely turned around the discourses, practices, and disciplines of the hard and social sciences, and that their intellectual implications must necessarily be treated relative to ideologically specific phenomena stemming from such fields in their own right. Two thinkers as different as Louis Althusser and Jean-François Lyotard could weigh

in on such developments with marked skepticism. “Interdisciplinarity is usually the slogan and the practice of the spontaneous ideology of specialists,” Althusser notes in his three-part lecture series “Philosophy and the Spontaneous Philosophy of the Scientists,” “oscillating between a vague spiritualism and technocratic positivism.”[62] Lyotard surveys this state of affairs in light of the increasingly tenuous status of knowledge in computerized societies: which is to say, in the condition of postmodernism.

> The idea of an interdisciplinary approach is specific to the age of delegitimation and its hurried empiricism. . . . The relation to knowledge is not articulated in terms of the realization of the life of the spirit or the emancipation of humanity but in terms of the users of a complex conceptual and material machinery and those who benefit from its performance capabilities.[63]

These are, to say the least, sanguine philosophical perspectives dating from the mid to late Cold War. But we need to be very clear: “interdisciplinarity” was neither invented nor institutionalized whole-cloth during the period, any more than we can say von Bertalanffy was the sole architect of systems theory. Harvey J. Graff reminds us that a genealogy of interdisciplinarity is indivisible from the history of disciplines—“not oppositional to them”—and takes a measure of the long history of interdisciplines in the constitution of the modern university.[64] Indeed, Graff’s longer discussion of OR argues “that most accounts of interdisciplinarity . . . place a superordinate emphasis on World War II.”[65] No doubt: in the following pages I narrate earlier, historical precedents—including, for instance, the impact of the Unity of Science movement on Cold War intellectuals.

For our more aesthetic purposes, the interdisciplinary impulses discussed are necessarily examined through such Cold War optics, with an eye cast on our collective inheritance of these tendencies in the present. This will prove as true for the study of art history and the humanities as it is for any other academic discipline. Of course, we won’t and can’t throw out the baby with the Cold War bathwater. A wealth of critically urgent scholarship that does not seamlessly align with traditional institutional homes—namely, work directed to questions of race, ethnicity, sexuality, gender, disability, and animal studies—underscores not only the necessity of research conducted under such interdisciplinary rubrics but the subject positions marginalized within the structures of academic culture, and the ideologies and systemic inequities that have historically informed the university. Indeed, for some thinkers, this approach constitutes a mode of “fugitive” intellectuality that resists capture by the politics and racism structuring higher education.[66] All the same, over the last three decades, interdisciplinary approaches to art history have been assumed as our default method, laying waste the formalist mandates of Greenbergian modernism in the repeated claims to transgress traditional disciplinary borders. At this late date, these remarks are uncontroversial. The opening of the field to figures, objects, and practices long marginalized in the history of art remains its most pressing and important legacy, with the motivations that typically justify this opening largely progressive in both orientation and outlook.

But a broader goal of this book is to push for another narrative or adjacency, or at least to complicate the received wisdom in our collective rush to embrace all things “interdisciplinary.” For what if we were to treat such tendencies less as a kind of radical border crossing than as something closer to a colonizing gesture, in which the specific interests of the humanities are assimilated into the larger programs and methods of the social and hard sciences? These methods may well have mitigated the disciplinary conventions that separated fine art from the artifacts of what we now call “visual culture,” leveling these objects in the same methodological playing field, but what else has been mitigated—even lost—in the process? As the contemporary university struggles to justify the interests of the humanities to undergraduate populations (as well as trustees and state and federal government agencies); as the liberal arts would seem to offer little in the way of gainful employment compared to STEM disciplines, what territory have we ceded in this laboratory approach to the arts and humanities, in no small measure the legacy of the think tank’s Cold War innovations?

Chapters

The four chapters that make up this study follow a historical, if not continuous, trajectory from the late 1930s to the present. The first begins with an encounter between an art historian and a defense strategist, circa 1939, before chapters 2 and 3 take up the years 1947 and 1973. The concluding chapter, touching on the contemporary inheritance of the Cold War think tank and its secrets after the fall of the Eastern Bloc, speaks to the continuance of its stealth mission in the ways of law and civil society, rather than the covert exigencies of defense.

A brief comment on the ersatz periodization suggested by the chronological shorthands given above. Doubtless the years "1939," "1947," and "1973" might initially read as too punctual to capture the breadth of think tank aesthetics, Cold War media cultures, and the geopolitical crises that motivated them in turn. To go this route, in any case, would seem to beg the question of how such banner years were chosen among many more likely contenders. (Arguably, 1955 and the space race; 1959 and the Kitchen Debate; 1961 and the Bay of Pigs; and 1968, as the "Year of the Heroic Guerrilla," would seem more consequential for their marquee impact.) But while my three years serve as neat chronological placeholders for the pre-, middle, and late Cold War, they also name methodological, subfield, and *inter/disciplinary* engagements specific to the protagonists at the center of each chapter: semiotics, math, and logic in chapter 1; anthropology and psychology in chapter 2; economy and history in chapter 3. All come into surprising contact with art. Collectively they throw into relief that complex welter of interaction that Brecht notes between military logistics and the reach of the aesthetic.

Chapter 1, for example, speculates on the decades-long colloquy between Albert Wohlstetter, a logician, early nuclear strategist, and influential analyst at RAND, and Meyer Schapiro, the formidable art historian and critic of both medieval France and modernist New York. In 1985 Wohlstetter and his wife Roberta received the Presidential Medal of Freedom from Ronald Reagan; in the 1930s, by contrast, Wohlstetter apprenticed under Schapiro at Columbia University as a young partisan fascinated by modern art and architecture at a time when the art historian was writing some of his most polemical criticism on the social bases of art. Wohlstetter's archive at the Hoover Institution on War, Revolution and Peace at Stanford University reveals an abiding investment in modernism that, for some, might seem strikingly dissonant with his ideological commitments. On the other hand, to treat his engagements in the terms of Ghamari-Tabrizi's "Cold War avant-garde" is to restore the interest of midcentury modernism for the strategist's arsenal as relentlessly forward-looking and technologically progressive. The chapter asks: what does the relationship between the defense intellectual and the art historian suggest about the *aesthetic* or at the very least visual dimensions of systems-oriented strategy? In particular, in what ways is Schapiro's later thinking on art and semiotics isomorphic with Wohlstetter's own consideration of the same? Wohlstetter's earlier training in logical empiricism—his dual stakes in both the Vienna Circle and modern art—shed speculative light on the diverse approaches to semiotics he will take from his art historical mentor.

In chapter 2, I consider how postwar anthropology, under the pressures and at the bidding of the Cold War, licensed a new approach to the image that converged in striking ways with the popular reception of abstract expressionism with which it was contemporaneous. Here, the collective responses to works of art and visual culture were treated by anthropologists as data to mine for purposes of both defense and propaganda, stemming from the broader claims attached to the program that anticipated *The Study of Culture at a Distance* (1953) by Margaret Mead and Rhoda Métraux and reflected the work of Ruth Benedict before them. In *Soviet Attitudes toward Authority*, an analysis commissioned by the RAND Corporation in 1951, Mead and her colleagues from both the think tank, the Midtown gallery scene, the modern art museum, and a consortium of universities offered an anthropologist's analysis of national identity. With neither knowledge of Russian nor direct access to Soviet culture on the ground, Mead would conditionally advocate for the use of "projective tests" for her national subjects—among them, the Rorschach inkblot and other thematic apperception tests—and in so doing would lay claim to the radical intelligibility of visual phenomena across disparate populations and identities. That the Rorschach test became a recurrent motif in the mainstream, even vulgar, reception of abstract expressionism and midcentury abstraction more generally attests to the ways such models traveled from anthropological discourse to popular art criticism and back. But as the chapter also suggests, this was neither a one-way street nor a unidirectional mode of influence. Mead's experiments with such tests, it will turn out, betray the aesthetic intelligence of her closest interlocutors, and the expansion of midcentury artistic cultures into the discursive orbit of the Cold War think tank.

Think tank aesthetics, it needs to be stressed, are not restricted to conditions stemming from defense initiatives in the United States, nor to the ideologies and policies they mean to protect and advance. Their reach is global due to their operational, networked and interdisciplinary dimensions. Chapter 3 addresses a warring perspective in the use of cybernetic principles relative to socialist revolution in Latin America, considering the afterlife of think tank aesthetics and its methodological "space" through the historical example of Cybersyn, a transnational collaboration between the team of Stafford Beer, the British founder of management cybernetics, and Salvador Allende's Popular Unity government in Chile, the first democratically elected socialist government in the Western Hemisphere. In the early 1970s, Beer applied the principles of management cybernetics to facilitate Allende's planned economy in a prototype described as a socialist "internet" well before the fact of the web. The construction of a control room (the "Opsroom"), consisting of approximately 500 telex machines designed to track and enable Allende's socialist economy in real time, has been a flashpoint among historians of science, media, and technology, in no small part due to its extraordinary (some would say outlandish) modernist appearance. The Opsroom was produced by a team including the German designer Gui Bonsiepe, whose training in the town of Ulm at the formative Hochscule für Gestaltung (often referred to as the new Bauhaus) ensured its high modernist, indeed avant-garde, pedigree. Destroyed not long after Pinochet's coup on September 11, 1973, the Opsroom has experienced a second life as a work of media art reenvisioned by the Chilean collective OR-AM, restaged under the auspices of the National Council of Culture and the Arts in Chile and the Center for Art and Media (ZKM) in Karlsruhe, Germany. This chapter asks about the implications of restaging the cybernetic workings of socialist statecraft, rooted in the directives of operations research, as a work of art. I consider how Cybersyn's reimagining is bound to a contest over history as much as the protocols of new media art, and to a distinct temporality with which the project is in concordance. I treat the Opsroom, its related epiphenomena, and the virtual assemblage of people and things it would effectively collate and disperse as the *arche* of neoliberalism, traveling surprising networks that include a brief history of the Mont Pelerin Society, a curriculum of a school of design, and the itineraries of economist and polymath Friedrich Hayek. It is at this point in my narrative that the neoliberal stakes of the Cold War think tank fully emerge, with Hayek and colleagues from Vienna, Chicago, Palo Alto, and Santiago advancing claims that found their genealogical touchstones in the 1930s.

Chapter 4 considers one aspect of the Cold War think tank's legacy in the present. It treats the peculiar visual economy that traffics in both concealment and hypervisibility as a strategic position; and a culture of leaks that serves notice to the stockpiling of information as power. From Daniel Ellsberg's release of the Pentagon Papers in 1971 to the media-enabled disclosures of WikiLeaks, the revelation of such covert material spurs imaginative projections of that which *can't* be seen nor available as figuration. The think tank, I noted earlier in this introduction, occupies a shadowed position between "mystification and enlightenment, cloak-and-dagger secrecy and the alleged transparency of science." Following on this conceit, the contemporary artists discussed here—Jamal Cyrus, Jill Magid, and Trevor Paglen—variously interrogate the mechanisms of contemporary secrecy in a culture staked on both the image economy and surveillance media. However inadvertently, their work confirms the historical claim that secrets withheld in institutions such as think tanks or governmental agencies perform their own kind of ideological labor: that the appearance of withholding the secret is as critical to the interests of power as whatever content we might imagine such organizations conceal. Indeed such secrets might even possess something like an *appearance*—an aesthetics, if you like—that flags their existence between disclosure and redaction, if also troubling easy claims to representation.

The coda of this book, "Cato at the Met," addresses the think tank's emergence into visibility in the present, at once enshrined and validated by museums of art. As the contemporary think tank itself ever more encroaches upon public policy and the media and assumes the tacit privileges of an ascendant "fifth estate," the work of art comes to occupy a position both uneasy and resistant relative to the spaces the think tank would ostensibly colonize as so much data to operationalize and exploit. As this book argues, this position finds its historical bearings in the Cold War and those peculiar institutions looking to art's example as emblems of "diversity," "creativity," and "imagination."

1

Aesthetic Strategist

Albert Wohlstetter, Meyer Schapiro, and a Theory of Midcentury Modernism

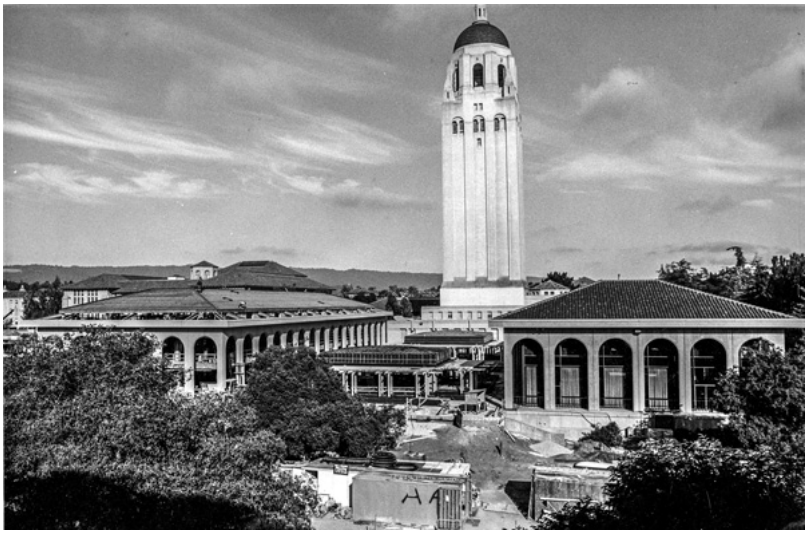
Adjacencies

Each morning as I walked to my office on the campus of Stanford University, I found my path crossed by the shadow of the Hoover Institution on War, Revolution and Peace. This is not a metaphor.[1] Founded in 1919, the university's residential think tank sat yards away from the Department of Art and Art History, its famous tower looming vertiginously over the humanist proceedings down below. The Hoover was so close to the Nathan Cummings Art Building, in fact, that one could glimpse the movements of its various fellows—among them Condoleezza Rice and George Schultz—while helming discussions on aesthetics and politics in the seminar room. Anecdotal histories, meanwhile, detail repeated sightings of a bearded émigré and Hoover fellow installed in the Art Library reading room: Alexander Solzhenitsyn. The workaday proximity to this think tank, in other words, never failed to startle, calling out the presence of such institutions within academic culture at large and their expansion in multiple and overlapping spheres of influence. The longstanding authority of the Hoover, for its part, has informed public policy for decades, from Cold War analysis ranging from the Gulag to the arms race, to position statements on the liberalizing of markets, to media dispatches on the "war on terror."

But there are other adjacencies equally startling. For what has always struck artists and art historians mining the archives of the Hoover—an extraordinary repository of the global twentieth century, registering some its most consequential actors in the realms of politics, economics, and society—is its astonishing modernist source material. There you can read letters between Trotsky and Kahlo or survey a rich collection of Soviet broadsides. You can inspect photographs by Tina Modotti or graphics trumpeting Third World solidarity, crisply rendered images in silvery tones or striking compositions in black, red, and green. These documents welcome a decidedly mixed audience in the reading room, a place where artist veterans of the 1960s might sit cheek by jowl with Reagan-era functionaries. While the description dramatizes a disquieting tension between the institutional culture of the think tank and its artistic holdings, it also introduces the subject of the think tank's modernist imbrications and imaginings: the ways in which its research protocols and agendas, related to operations research, cybernetics, and systems discourse, also set the terms for its own brand of "midcentury modernism." In meshing the interests of the hard and social sciences, these methods would effectively license a new approach to the image, eclipsing the conventions that separate fine art from the artifacts of what we now call "visual culture." They foreshadow the interdisciplinary approaches that are all but given within the culture of the contemporary university.

To explore these imaginings, their adjacencies and convergences with the history of art, is the founding ambition of this book, with a genealogical eye cast toward their implications for the present. This chapter sets the stage in what might at first seem an eccentric colloquy, on its surface reading as a micronarrative about a cold warrior and his occasional interactions with an art historian. In fact, what follows encodes the much larger terms and methodologies of an increasingly complex network bringing such individuals and their respective fields into greater contact, sanctioned by think tanks and a range of institutions dating from the 1930s to the Cold War and beyond. It turns on a figure who might well be the aesthetic strategist par excellence, Albert Wohlstetter (1913–1997). His is a name undeniably obscure to art historians but one writ large in both the chronicles of postwar national security and the neoliberal agendas that are the legatees of the Cold War think tank.[2] Wohlstetter was among the most formative defense intellectuals at RAND engaged in the minutiae of nuclear deterrence—"the delicate balance of terror," as he put it in one of

his most influential essays published in *Foreign Affairs* in 1958.[3] In 1951, Wohlstetter, who studied mathematical logic, law, and the philosophy of science at City College (New York), Columbia, and Harvard, became one of the principal analysts consulting with the RAND Corporation, the premiere think tank of the era that virtually staffed the "revolution" in Robert McNamara's Department of Defense during the Vietnam War.[4] Together with his wife Roberta Wohlstetter, a formidable military historian whose groundbreaking study on Pearl Harbor has continued to impact foreign policy, Wohlstetter was awarded a Presidential Medal of Freedom by Reagan in 1985, and received dual accolades for distinguished service from the Department of Defense of both McNamara *and* Donald Rumsfeld.[5] Wohlstetter's classroom influence was likewise indelible. He was a Ford Professor at UC Berkeley from 1962 to 1964, followed by his most consequential tenure as University Professor at the University of Chicago. There, from 1964 to 1980, he would serve as mentor to a generation of neoliberal policymakers, war architects, and a future president of the World Bank, notably Paul Wolfowitz and Richard Perle.



1.1 Hoover Tower of the Hoover Institution on War, Revolution and Peace, Stanford University, Stanford, California, 1960. © The Board of Trustees of the Leland Stanford Jr. University.

Such associations fail to register in art history's treatment of midcentury modernism and the Cold War. The first generation of art historians compelled by this relation fixed largely —and no doubt justifiably—on questions of art and propaganda. An indispensable bibliography on the stakes of soft power would unspool the workings of the Council for Cultural Freedom, the OSS and CIA, the Ford Foundation and the Marshall Plan in studied concert with an ersatz aesthetics of imagined liberty. More recently, art history's global turn has moved beyond the West-and-the-rest approaches to the Cold War that regarded its hemispheric interests as little more than third-world Grand Guignol staged by US and Soviet puppet masters.[6] Still, what we know about reactionary modernism in the 1930s has yet to receive its full-dress appraisal in the second half of the twentieth century, much less the twenty-first, with neoliberalism in quickening ascendance and appraisals of recent art perpetually vexed by the obscenities of the art market. How do we begin to parse these relationships, which will bear more than a decisive historical footing in the Cold War; and what role, however tacit or inadvertent, might a defense strategist play in such proceedings?

In this light we'll draw inspiration from the historian of science Sharon Ghamari-Tabrizi, who in her work on Herman Kahn, Wohlstetter's RAND colleague and occasional irritant, describes the scene of the think tank as a kind of "Cold War avant-garde."[7] I follow her lead in considering the peculiar "aesthetic" of the postwar think tank not just as a matter of appearance, period style, or literal design—the decorative addenda, one might say, of the Cold War—but as an institutionally sanctioned sensibility stemming from its innovative research techniques. RAND, as we noted in the introduction, styled itself as an iconoclastic outlier to the traditional institutions and departments of the university, putting diverse, interdisciplinary and creative thinking at the service of midcentury defense. A problem of tone follows: from our perspective on the other side of the twentieth century, Wohlstetter's

professional and ideological commitments might seem strikingly dissonant with the emancipatory ethos thought by some to be synonymous with late modernism. But we need to keep in mind that the think tank itself underwent any number of historical and methodological paroxysms over its history, continuous with the shifting consensus around the Cold War and fractures that would emerge within its ranks. The RAND of the immediate postwar years, after all, was a different animal than what it was during the McNamara years; indeed, as David Jardini reminds us in one of the most exacting histories of the think tank, its staff would become increasingly divided around US prospects in Vietnam.[8] Our goal here is to chart the subterranean as well as explicit relevance of the think tank for discussions of aesthetics and politics at midcentury: in short, to consider the entanglements between art and a host of disciplines taking cues from both the social and hard sciences.

What links such seemingly disparate phenomena is a certain revisionist account of methodology, or perhaps more aptly described, *strategy*. As supported by the demands of operational analysis, the collaborative methods championed by Wohlstetter and his colleagues have been generalized as the lingua franca of the contemporary university, in which the insistent appeals to "laboratory" modes of research are as prevalent among its humanistic as among its scientific cultures. (Indeed, the currently embattled state of the humanities in higher education in no small measure owes to this earlier history.) Over half a century ago, however, such approaches were the function of a strategic agenda that lies largely repressed in progressive accounts of interdisciplinary research. For Wohlstetter, these methods stemmed in part from his earlier, prewar formation in both experimental semantics and logical empiricism, an engagement discussed in what follows as prelude to the inverted relation to semiotics taken up in the history of art at midcentury. The convergence between these approaches will sponsor the period analyses of cultures consistent with the geopolitical imperative to "read" signs of the enemy, to discriminate from the noise and miscellany that was the Cold War semiosphere.

Perhaps most surprising of all, Wohlstetter's "semiological adventure"—in a promiscuous borrowing from Roland Barthes—offers an instructive, certainly provocative, comparison to an art historian with whom he had a nearly three-decades-long association: Meyer Schapiro.[9] The great art historian was himself a legendary polymath when it came to his disciplinary avocation: the towering scholar of the Romanesque was also the formidable partisan of the modern. Schapiro's canonical reading of semiotics, "On Some Problems in the Semiotics of Visual Art: Field and Vehicle in Image-Signs" (1969), has been exhaustively discussed by art historians in terms flagging its author's humanist and materialist proclivities.[10] Yet his stake in such material acquires a new valence when submitted to the interests of Cold War method, one that, as David Rosand notes, "accords full recognition to the ambiguities inherent in such a situation, the responsiveness to the contingent."[11] The comparison between the strategist and the art historian stages a contest of meaning over information and its strategic prospects as instrumental reason. It will further dramatize the confusion, misrecognitions, and controversies attending the diverse approaches to semiotic inquiry during the period.

This is a theory of midcentury modernism, in other words, at radical odds with the high-modernist verities organized around autonomy and medium specificity: a sclerotic account of Clement Greenberg's modernism that would seem as shut off from external influences as RAND's intellectual prerogatives were necessarily hybridized and open. On the contrary: ours is a theory at once more holistic in its appeal to the spectrum of scientific and humanistic inquiry, more pluralizing in its range of sources, and more universalizing in its normative claims to coordinate the range of academic disciplines. Ironically, perhaps even tragically, it may well be a theory with more totalizing implications as a result.

The Burckhardtian Man and the Unity of Science

To these many complex points, let me begin by recounting what is less known about Wohlstetter than the hawkish encomiums he garnered over the course of a half-century: his modernist and aesthetic sensibilities. To sift through his early papers at the Hoover Institution, to read the testimonials of his RAND colleagues, and to listen to their recollections, distantly remembered if still vivid, is to encounter a self-identified "Burckhardtian man," nominally linked to the foundational Swiss art historian Jacob

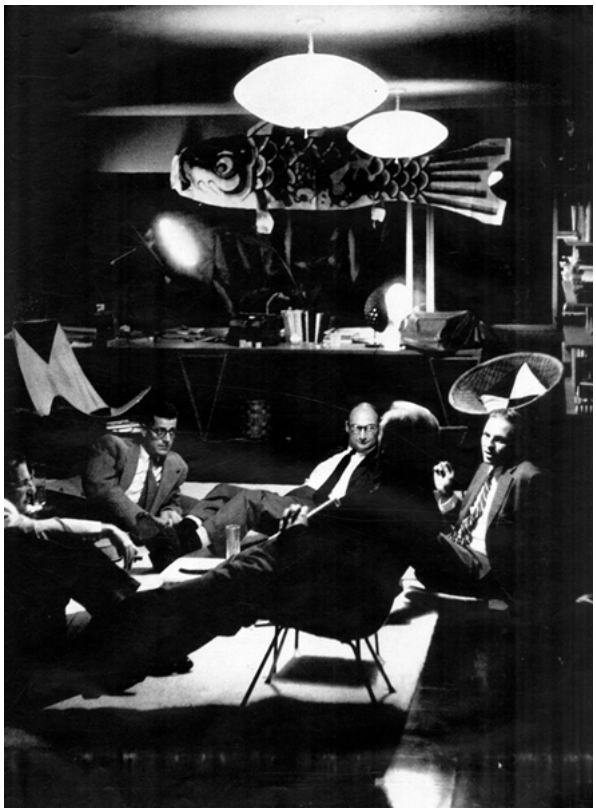
Burckhardt (1818–1897). Burckhardt's *The Civilization of the Renaissance in Italy* (1860) would install a Donatello or Michelangelo as protagonists in the great cultural, social, and political web of the period, stretching from Florence to Venice to Siena to ancient Greece, steeped in the traditions of the period's humanism and likewise regarding early modern statecraft as a work of art in its own right. Of course Wohlstetter's encyclopedic intelligence and aesthetic appetites would ultimately hew more closely to the technocratic agendas of the cold warrior than the humanist ethos of the Renaissance, but it's also the case that military stagecraft would assume an aesthetic dimension in the period that concerns us.[12] To survey the habits of mind Wohlstetter cultivated *before* the Cold War is to appreciate not only what it might have meant to be a "*universal* man" in the period but a longer history informing the methodological explorations of the think tank. This is not merely one intellectual's unique *Bildungsroman*, in other words. It involves a larger field of relations—both academic and extramural—that would crystallize decades later in these novel Cold War institutions.

Wohlstetter's Burckhardtian sensibilities are suggested early in the 1930s by his earnest grappling with Eliot and Joyce. A joint pursuit with Roberta, this was student work revealing a young mind wrestling with Prufrock's alienation or inhabiting the galloping cadences of a Stephen Dedalus. They are flagged by his relationship with Konrad Wachsmann and Walter Gropius, with whom he worked at the General Panel Corporation in a program addressing the postwar housing shortage.[13] The Burckhardtian self-regard is also registered in his long friendship in Los Angeles with his neighbor Julius Shulman, who photographed Wohlstetter's Laurel Canyon home, designed by Josef Van der Kar, on more than a few occasions. Perhaps the most striking visualization of such sensibilities is a photograph of the strategist's den from the May 1959 issue of *Life* magazine discussed in the introduction, as well as a series of images taken by no less than Shulman. Here the goings-on at RAND's modernist headquarters in Santa Monica find their domestic complement in Wohlstetter's residence, just bordering the Hollywood Hills on a leafy meander of Woodstock Road. Complete with a gathering of recumbent defense intellectuals, the Eames-styled furnishings, vaguely Japonesque aesthetic, and low-slung, open floor plan all telegraph the cool and the new, a universal language of design that served as backdrop to the advanced research initiatives pursued in the think tank.[14] As Alex Abella puts it in his nonacademic account of the RAND Corporation, Wohlstetter was "a constant proponent of what can only be called modernity."[15]

Intriguing as these examples are, the litany begs a rhetorical question. What, after all, could be any *more* modern than a defense intellectual, a man of logic endeavoring to calculate the interests of peace in the closed fortress of a Cold War laboratory? The rise of such an emblematic character after Hiroshima is indeed continuous with the sphere of administered life that is the dialectic of Enlightenment: that intractable, punishing knot between the brute reality of the postwar moment and its simultaneous claims to rebirth in the wake of the era's catastrophically enforced tabula rasa, a Cold War renaissance. In fact, there's little justification for *not* investing such a faithful guardian of progress, science, and reason, alongside a Gropius, Eames, or Neutra (with the latter two of whom Wohlstetter was also on personal terms), as a great architect of the new. The defense intellectual, after all, is the last arbiter of rationality at a moment in which reason has all but fled the scene. In the words of Kahn, he is the individual trained to "think the unthinkable"—to think rationally about phenomena that could only travesty the foundation of reason.

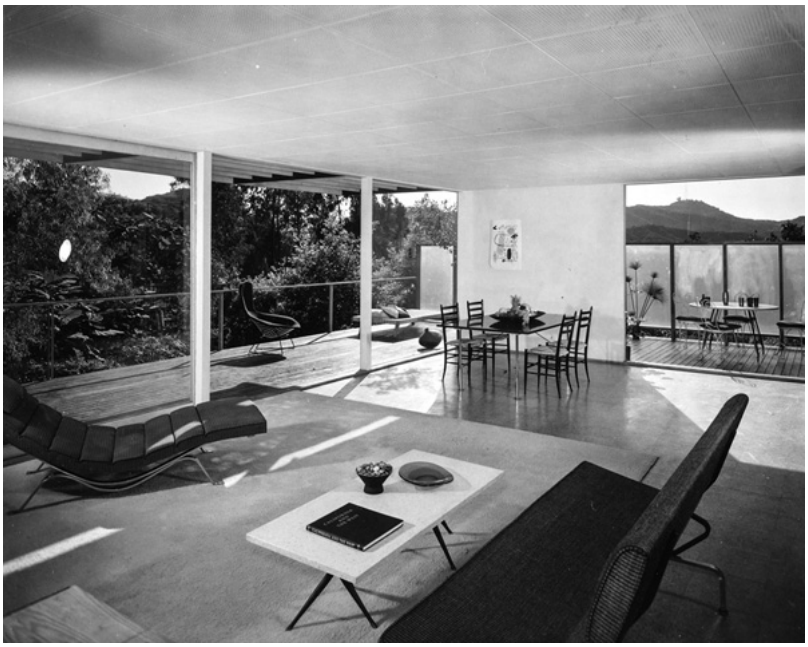
The questions demand to be posed; the answers are endlessly qualified and hedged. But nothing quite approaches the most striking affinity by far among Wohlstetter's aesthetic engagements, his relationship with Schapiro. The epistolary record documents its beginnings circa 1936 and its end around 1963.[16] The analyst was unstinting in his praise for the great art historian, whom he most likely met when he began studies in law at Columbia around 1934, even serving as his research assistant for a brief spell during the period.[17] The timing of the initial encounter is both curious and suggestive, for Wohlstetter's oral history gives little indication of any activist tendencies on his part beyond familiarizing himself with the rudiments of geopolitics. And yet this was also a moment, to court understatement, that called out precisely for such commitment. Wohlstetter described himself, rather, as an "aesthete" when he wasn't otherwise pursuing study in the logic of math and science, his pantheon including the logical empiricism of the Vienna Circle—about which we will have more to say in short order—or intellectual kinship with C. S. Peirce and Willard V. O. Quine.[18] As Henry Rowen, president of RAND from 1966 to 1972, will tell it, there's ample reason to challenge Wohlstetter's recollections of

neutrality during this period (at least as he skirts the issue in his oral history), in addition to the implied split between aesthetics and science that the strategist's comments might suggest.[19] All the same, Wohlstetter's memories of Schapiro underscore how such expanding interests fell seemingly outside the borders of his prescribed curricular métier. With Roberta, he would remain inspired by Schapiro's example throughout his life. "I was finding myself sitting in on all sorts of obscure courses," Wohlstetter recalled, "like Romanesque Monumental Stone Sculpture and French Illuminated Manuscripts as given by Meyer Schapiro . . . and his Impressionist Paintings. . . . Meyer was perhaps the most brilliant lecturer I ever heard."[20]



1.2 Leonard McCombe, Albert Wohlstetter's home pictured in "A Valuable Bunch of Brains," *Life* magazine, May 1959. Photograph by Leonard McCombe for Time Life Pictures/Getty Images.

1.3 Julius Shulman, photograph of the Wohlstetter house, Josef Van der Kar, architect, Los Angeles, California, 1954. © J. Paul Getty Trust. Getty Research Institute, Los Angeles (2004.R.10).



1.4 Julius Shulman, photograph of the Wohlstetter house, Josef Van der Kar, architect, Los Angeles, California, 1954. © J. Paul Getty Trust. Getty Research Institute, Los Angeles (2004.R.10).

The first-name intimacy opens onto a correspondence stretching over decades, with letters ranging in topic and temperament from the banal to the thoroughly elliptical. Affectionate greetings pass between spouses Roberta and Lillian. Recommendations for travel throughout the Continent are generously given. Open-door invitations to Bennington or Laurel Canyon are extended in perpetuity. Such exchanges might seem *de rigueur* for an art historian renowned as an extraordinarily catholic correspondent—Schapiro's archive is itself an encyclopedia of the twentieth century—if not for a strategist who could also count Saul Bellow and Sidney Hook as friends from youthful days. The letters are mostly quiet on politics or method as such, it is true. Still, there's plenty in both the personal and published record to warrant speculation about the strategist's larger aesthetic engagements, and their emblematic status within the think tank.

Consider, for example, what may well seem the most mundane artifact of any academic encounter, yet is in fact highly suggestive of Wohlstetter's intellectual formation and future proclivities. A document dating from around 1938—a request for a letter of recommendation from the art historian—channels his ambitions. Signing off with the student's eternal refrain ("I hope this won't be a big bother"), he proposes a project that would use the methods of experimental science, syntax, and semantics in a way radically new to art historians, taking an empiricist's approach to the ostensibly qualitative material of art. The project

> would concern the relations between meaning, true [sic], designation, confirmability, inquiry, control and similar concepts. I'd use logistic (and e.g. Carnap and Tarski's syntax and semantics) in the formulation but I'd try working it out in connection with several detailed applications. . . . One application is in the field of myth and scientific inquiry. . . . Another application is in the field of value statements as they function in art-historical inquiry and with reference to analyses of particular works.[21]

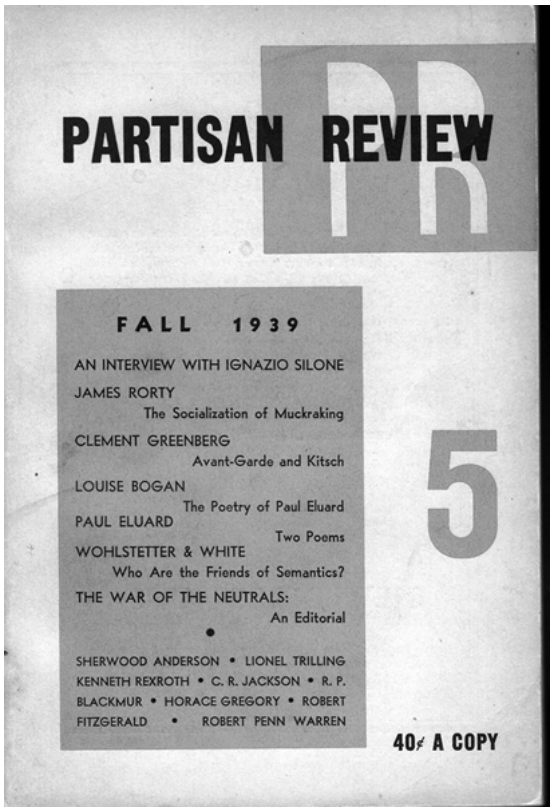
The goal is to analyze the work of art as so much legible and quantifiable data, and to recruit the mathematical and logistical methods associated with Alfred Tarski and Rudolf Carnap to the purposes of aesthetic inquiry. Wohlstetter would abandon his studies in law at Columbia for a master's degree at the same university in mathematics; work with Ernest Nagel, a philosopher of science, undoubtedly informed these citations. The Kantian interests of aesthetic judgment are in this instance tacitly recoded as the logician's "value statement." Wohlstetter, in short, means to treat art as *transparent* to the applications of other fields, as physical, evidentiary, empirical. He likewise proposes, decades before Claude Lévi-Strauss's formative work in structural linguistics (if in a completely different vein), to submit the field of myth to such semantic protocols.

In this regard, Wohlstetter's recommendation request is not simply academic boilerplate. It virtually anticipates the ubiquitous "two cultures" debate that came to preoccupy scientists, humanists, educators, and policymakers after the war. In 1959, twenty years after Wohlstetter's request to Schapiro for a recommendation, C. P. Snow would confront the gulf between the hard sciences and the soft humanities in his famous Godkin lectures on the "Two Cultures and the Scientific Revolution."[22] That gap is effectively bridged in multiple narratives of Wohlstetter's life, souvenirs of a man who could enjoy an afternoon driving Le Corbusier around Manhattan as much as discourse authoritatively on Soviet ballistics and the Strategic Air Command. Anchoring a widespread debate about what might be called the operational value of the academic disciplines after the war, Snow's thesis will haunt the end of this chapter. Here it is raised to suggest that the noise issuing from such polemics drowns out a third term animating Wohlstetter's work in the late 1930s: the contingent status of his politics. For it is his politics that triangulate his understanding of both science and art, and their increasingly charged relationship at the end of the decade.

As it turns out, Wohlstetter's first published essay addressing international relations appeared not in the 1950s—that is, in the foreign policy reviews for which he would gain his reputation as an analyst—but in a seminal journal of culture and politics with which Schapiro and other important art historians had a storied relationship. The text "Who Are the Friends of Semantics?" was cowritten with the logician M. G. White and published in the Fall 1939 issue of *Partisan Review*. The historiographic prestige of this issue cannot go unremarked. Opening with the grimmest postmortem on the Molotov-Ribbentrop pact (the authorless editorial "The War of the Neutrals" narrates the shock of fellow travelers that the Kremlin's "interests are not those of the international working class"), the issue also featured Clement Greenberg's "Avant-Garde and Kitsch."[23] Wohlstetter and White's essay would follow immediately after the art critic's, which is to say that the future strategist could not have found himself in more urgent political—and polemical—company. If Greenberg's contribution famously narrated the desperate intertwining of ideology and aesthetic form at the precipice of World War II, Wohlstetter and White's essay would track the political motivation of the sign. Their essay addressed the increasingly contested methods brought to bear on the analysis of signs as they serviced the agendas of current geopolitics; namely how a critique of the sign drawn from a host of novel approaches effectively contributed to partisan politics in the wake of the Nazi-Soviet nonaggression pact.

One can scarcely resist the none-too-subtle ramifications of this obscure text from Wohlstetter's early bibliography. In *The New York Intellectuals*, Alan Wald cursorily

identifies the young logician as "a precocious Columbia student" who was a member of a Trotskyite splinter group called "The League for a Revolutionary Party (LFRP)."[24] Ron Robin, more recently, has nuanced the affiliation with the LFRP: Wohlstetter was not a Trotskyite as such but a "Fieldite," named for Trotsky's American associate B. J. Field, who would part ways with the theorist of permanent revolution.[25] In his thirties radicalism followed by a swing to the right after the war, Wohlstetter takes a well-worn path of City College stalwarts of the 1930s, Daniel Bell and Irving Kristol to name among the most prominent.[26] The more pressing issue for our purposes is the convergence between semiotics and politics advanced in this early article. I'll state the obvious before digging in: semiotics, at that historically fraught juncture, scarcely resembled the semiotic principles sometimes recruited by art history today—that is, a ready-to-hand set of tools that might unlock the "meaning" of the work of art in service to humanist inquiry. On the contrary, debates on the subject sparred over means and ends, whether taking up the linguistic orientation of early twentieth-century semantics, or a conflict over the theory of signs in which a thinker like C. S. Peirce was read in wholly positivistic terms. Reductively put, these differences often turned on the extent of their universalizing or culturally specific claims. They would subsequently divide further relative to both their partisan and disciplinary implications.



1.5 Cover of *Partisan Review* with articles by Wohlstetter and Clement Greenberg, Fall 1939. Courtesy Howard Gotlieb Archival Center.

Wohlstetter and White's essay "Who Are the Friends of Semantics?" is very much a period piece, grounded in the rigors of logical empiricism current in the 1930s. We'll treat the essay with some quickness but also with considerable historiographic regard, for it augurs the broader interests of politics and form—in this case the consolidation of ideology by language—as they would be taken up by a theory of signs. The essay thrashes a then-popular branch of semantics represented in the work of S. I. Hayakawa, Thurman Arnold, and Stuart Chase. In part influenced by the "general semantics" of the philosopher Alfred Korzybski, the thrust of which described the limitations of human knowledge as a direct function of the structure of language, Hayakawa, Thurman, and Chase generalized Korzybski's methods to political discourse, charting the shifting meanings of capitalism, socialism, and fascism circa 1939. (Korzybski's notion that language effectively "enslaved" its subjects given its inherent abstraction was, perhaps, both prescient and timely for his American followers.)

Wohlstetter's retort in *Partisan Review* follows on Hayakawa's "The Meaning of Semantics," an article from the *New Republic* that was in its turn a response to an earlier text in *Partisan Review*. The educator and future US senator argues that the *Partisan Review* editorial, disparaging Stuart Chase's book *The Tyranny of Words*, was a vulgar understanding of their shared semantic principles: a certain failure to recognize that "all terms derive their meanings . . . not from definition, but from usage in a context."[27] Casting the *Partisan Review* approach as hidebound and doctrinaire, Hayakawa impugns in such writers the "two-valued orientation" of certain bodies of linguistics: that is, what he describes as a dismissal of Aristotle's "law of the excluded middle" in support of the notion that all statements are either meaningful ("operational") or meaningless.

But in the late 1930s, as Hayakawa sees it, such a black-and-white/true-and-false approach could only spell catastrophe for the maintenance of democratic discourse. "A two-valued orientation," he writes, "is a necessary condition to the congealing of minds and the enslavement of a people."[28] In laying claim to Korzybski's general semantics, on the other hand—appealing to what he regards as the scientific embrace of a multivalued or even infinite-valued orientation—he insinuates that the editors of *Partisan Review* are in dubious methodological company where a theory of signs is concerned. Hayakawa infers that they are providing a rationale for totalizing (or more bluntly put, totalitarian) analyses of political discourse.

Unsurprisingly, Wohlstetter and White argue that Hayakawa's treatment of semantics, and his quasi-scientific recourse to the "infinite-valued orientation," itself amounts to an ideological contrivance, a political apologia that, in contrast to acknowledging the conflicting schools of socialist thought, "furnish[es] unique scientific support for institutions of democratic capitalism."[29] Articulated through the highly technical language of experimental semantics, the ferocity of their accusation is unmistakable: that Hayakawa and others ground their defense of capitalism on a gross misreading of socialism. It is in this sense that the spirit of the essay chimes with the editorial of the same issue. The shock ensuing from the Molotov-Ribbentrop pact demanded greater critical vigilance on the part of the journal's readers to attend to the difference and contingencies of the socialist platform—to read, in a deliberately anachronistic formulation, socialist signal against Stalinist noise. The call is to resist the notion that the Soviet betrayal of the Comintern was a betrayal structural to the meaning of socialism itself.

We needn't parse Wohlstetter's complaint against Hayakawa too closely. Instead we may raise a question of approach: how disparate applications of the theory of signs and the vehicles conveying their meaning—a portable method named semiotic(s), inclusive of semantics—could accommodate a range of cultural, scientific, and political variables, both in the service of denaturalizing ideology and of shoring up one's partisan interests. For in contrast to the work of Hayakawa, Chase, and Arnold, Wohlstetter and White argue that the *true* thinkers of experimental semantics inherit from the International Unity of Science movement, which "aim[ed] at an integration of science to be illustrated in the collective project of many scientists, the Encyclopedia of Unified Science."[30] Wohlstetter is referring to the logical empiricism of Tarski, Carnap, and Otto Neurath—eminences of the Vienna Circle—and to the International Unity of Science movement that had more recently made it to North American shores, elaborated in the work of Charles Morris at the University of Chicago and bearing the institutional imprimatur of Harvard University with its Fifth Congress in 1938.[31] Noting that the research accomplished in this area has been mostly specialized, Wohlstetter heralds its groundbreaking potential in the areas of biology, physics, mathematics, sociology, and economics. He is describing, in other words, a peculiar renovation of Enlightenment to combat a precipitously dangerous time. The project of *unity*—a shared consensus across a wealth of scientific fields, scattered in their methods and approaches—might be recruited in the progress of modern society.

The Unity of Science movement, to gloss a highly complex episode within the history and philosophy of science, took root in the Vienna of the 1920s, then reeling from the devastation of the Great War.[32] Carnap, Neurath, and Tarski—along with Moritz Schlick, Philipp Frank, Kurt Gödel, and others—were the central protagonists in an informal group of logicians, mathematicians, physicists, philosophers, and social scientists associated with the University of Vienna, a crucible for some of the most urgent debates in philosophy, mathematics, and a host of other disciplines, economics and art history included.[33] "Unity" was at once a theme and a potential objective debated within the philosophy of science for millennia: the project of constructing overarching laws or languages for coordinating the

diversity of scientific knowledge reached back as far as the pre-Socratics and would later preoccupy the Encyclopedists. For the Vienna Circle, Bertrand Russell, Wittgenstein, and Einstein were contemporary touchstones in the elaboration of a "scientific conception of the world" that aimed to promote science in the service of a greater social agenda. The times would call for it, nowhere more so than in post-Hapsburg Austria, where Red Vienna was ominously shadowed by the looming threat of fascism. In spite or because of such collective calls to unity, the circle's most prominent members intensively debated the terms of reductionism and holism relative to methodology, the means by which such "unity" might in practice be achieved.[34]

The group's 1929 manifesto, "Wissenschaftliche Weltauffassung: Der Wiener Kreis," argued that "the spirit of Enlightenment and anti-metaphysical research" was then growing stronger in opposition to the postwar retrenchment of metaphysics—and superstition—and advocated a "unity of science without metaphysics."[35] The larger aim was to consolidate a "unity of method and language that included all the sciences, natural and social."[36] Peter Galison and other scholars note how a strong visual program complemented such ambitions, including outreach to modern museology, architecture, and graphic design, with powerful educational implications. Otto Neurath's pioneering work at the Social and Economic Museum in Vienna, and his establishment of the Institute for Visual Education in The Hague in 1933, telegraphs a pedagogical impulse in the deployment of visual culture to a broad, indeed universal, audience. In concert with designers Rudolf Modley, Gerd Arntz, and Marie Reidemeister, Neurath's development of a graphic system called the Isotype (International System of Typographic Picture Education) banked on an aesthetic in dialogue with the Bauhaus and constructivism. An "international picture language" that might be "read" across languages or cultures, it was a kind of visual Esperanto mirroring the universalizing claims of his scientific objectives.[37]

By the early 1930s fascism forcibly changed the trajectory of the Vienna Circle: members of Jewish heritage and socialist commitment would flee to the Netherlands, England, and the United States.[38] Through both the intellectual efforts and enforced itineraries of Neurath, Carnap, and Frank, the movement assumed cosmopolitan dimensions. In 1934, the year that saw the assassination of Austria's chancellor and an attempted Nazi coup in Vienna, Neurath would call for international cooperation in the Unity of Science, proposing as its master document an International Encyclopedia of Unified Science. A series of international congresses was staged, a journal founded, an Institute established at Harvard. All of these developments could inspire a young Wohlstetter, connecting the interests of mathematics, experimental semantics, and art history. They would bear as well upon the coming interdisciplinary stakes of cybernetics, game theory, and systems theory, central to Wohlstetter's later Cold War métier at RAND. After World War II, the founding of the Intra-Scientific Discussion Group, described by Jordi Cat as "a self-conscious extension of the Vienna Circle," would include Norbert Wiener and Oscar Morgenstern as contributors in the larger institutional drive to operations research.[39]

1.6 Gerd Arntz, Isotype diagram based on principles by Otto Neurath. Courtesy Artists Rights Society (ARS).

George Reisch narrates how the politics of the Vienna Circle, which openly acknowledged the work of Marx in its inaugural manifesto as positivist "social science," would undergo a radical shift in tenor in the United States with the advent of the Cold War. Not surprisingly, whatever vestiges of socialism survived the war were stamped out in the establishment of logical empiricism within American departments of philosophy.[40] But the prewar interest it exerted on the young Wohlstetter are to the point of our larger thesis, not merely on

account of his ideological affiliations in the 1930s, but of the interdisciplinary orientation that would later organize the workings of the think tank. In other words, the emergent defense strategist certainly did not have exclusive rights to such intellectual developments or their implications for art and visual culture. They would impact a number of figures we will meet throughout this book.[41]

To wit: Schapiro himself would have his own foot in the Vienna Circle, in the kind of historical Venn diagram that saw the New York intellectuals inhabit shared discursive and actual spaces with recently emigrated Viennese colleagues. A cache of letters to the art historian from Neurath's International Foundation for Visual Education registers a long exchange established in 1936; Schapiro would also come to befriend Carnap and his wife.[42] Neurath, for his part, would recruit the art historian to contribute to his Encyclopedia. The commissioned manuscript, on art and art criticism, would ultimately go unfinished, but the interests raised by the empirical outlook would not. A short text by the art historian "On Value Statements" resonates with Wohlstetter's proposed analysis of works of art.[43]

Schapiro's lengthy and increasingly voluble correspondence with Neurath ultimately saw the two come to rhetorical blows on the subject of science and the war.[44] The conversation founders on whether or not science might rescue humanity from the catastrophic turn of events at midcentury; it is, of course, Schapiro who expresses profound skepticism on the issue. His position countenances the sense of possibility Wohlstetter saw in the empirical methods of the Unity of Science a few years earlier. Recall, for instance, Wohlstetter's letter to the art historian, one year before his *Partisan Review* essay, in which he describes his proposed area of research in "the field of value statements as they function in art-historical inquiry and with reference to analyses of particular works."[45]

The empiricist's reckoning with the aesthetic—to apply the tools of logic to analyses of particular works of art—affirms a generalized search for a universal language inclusive of heterogeneous artifacts of culture, as much as radically disparate scientific phenomena. Retrospectively, such an approach will tip the balance—perhaps even push it—to a collective impulse to quantify such meaning after the war. It might look to the visual field as a potentially rich source of such information.

Interdisciplined in the Think Tank

> Horrible word, interdisciplinarity . . .
>
> Meyer Schapiro[46]

Such a generalized methodology, even in its most inchoate stages in 1939, resonates strongly with the Cold War think tank as a midcentury institution, overseeing a peculiar mutation of such interests expressed through the twinned terms of information and national security. Wohlstetter would leave behind his radicalism and philosophical work in mathematical logic after the war; but the vestigial impulses of the latter tendency remained in the ascendant work of strategic analysis. At its Santa Monica headquarters, RAND would helm this phenomenon. There, Wohlstetter served as the leading light of what he would call "opposed-systems" design.[47]

Shorthand for "Research and Development," Project RAND was founded less than two months after the cataclysm of Nagasaki as a joint effort between the US Army Air Force and Douglas Aircraft; it would be incorporated to become a nominally independent public policy institution in 1948. Its charter describes the think tank as "a nonprofit corporation formed to further and promote scientific, educational and charitable purposes, all for the public welfare and security of the United States of America."[48] But just how such a public policy institution might influence "scientific, educational and charitable purposes" is not especially clear from this language, given the mystifying and highly technical interests of strategic analysis. Cold War defense strategy could itself be described as a semiotic endeavor—an attempt to decode a shadowy enemy through a raft of signs both militaristic and cultural, whether the "indexical" traces registered through the new technologies of radar; the anthropological analysis of Soviet, Japanese, and German attitudes to authority; or the interactive dynamics observed within the ascendant field of the behavioral sciences. In the era of the go code, reading such signs was a business of grave, indeed mortal, prospects. On the flip side of the defense equation, "signaling" itself would be proposed as a

military technique. It was a way to communicate to the enemy the seriousness of one's intent, as in the bombing strategies elaborated in Vietnam, mounting exponentially in their ferocity, to telegraph in the most uncertain terms that *this* enemy was not going away.[49]

Extensively treated within the history of science, the influence of midcentury military strategizing on the coming information age called for a methodology that could answer problems spanning traditional disciplinary boundaries. As discussed in the introduction, operations research (OR), as advanced by the British, supported the deployment of what Patrick Blackett called "mixed teams": groups in which specialists in one area might work in concert on solutions to problems created in another field. Paul N. Edwards details how work at RAND, particularly its adaptation of OR, developed into the even more accommodating approach of systems analysis: its new analytic tools, as a supporter remarked, were directed "at a range of problems to which there can be no 'solution' in a strict sense because there are no clearly defined objectives that can be optimized or maximized."[50] In the introduction to this book we seized upon the language of "problem solving"—based fundamentally on identifying the problem in the first instance—as critical to the stakes of OR. Just as Peter Galison speaks to the notion of "trading zones" within early twentieth-century and midcentury science, Geoff Bowker describes these tendencies as the search for a new universal language based on the assimilation and de-differentiation of once-discrete arenas of inquiry. This provisionally universal language is founded upon what he calls "legitimacy exchange"—the idea that one discipline might claim power from another and thus enable the "coordination of work across multiple research projects and multiple professional communities."[51]

As Wohlstetter himself observed of the workings of the think tank, particularly when it came to "opposed-systems design" and what he would later call "Pan Heuristics," such a language "required the cooperation of several disciplines and, in particular, a kind of close working together of natural science and social science disciplines which remains very unusual, if it exists at all, in universities."[52] The statement heralds the collaborative dimension of such an approach and trumpets its methodological inventiveness. Wohlstetter's remarks also implicitly narrate the postwar fate of his beloved *huomo universale* and the depoliticized investments of the Unity of Science. The Burckhardtian man has now been refashioned as cold warrior, networked with others to satisfy his belated encyclopedic inheritance. The universalism once immanent to this persona's intellectual profile could now be delegated to "mixed teams" of experts from an ever-expanding field of disciplines. The clamoring for interdisciplinary work at midcentury was the think tank's tacit appeal to universalism of a distinctly Cold War variety: the collaboration between, and integration of, historically autonomous disciplines in the name of strategic analysis.

On all these fronts, it is significant that RAND took an ecumenical attitude to postwar art, bestowing its institutional approval on then-advanced aesthetic practice. The introduction to this book remarked upon the infamous Art and Technology Program organized across town from RAND at the Los Angeles County Museum of Art. Curated by Maurice Tuchman and Jane Livingston, who embarked upon the initiative in 1967, it was denounced by the critic Max Kozloff as a "multi-million dollar boondoggle," a pernicious case study in the reach of the military aesthetic complex at the height of Vietnam.[53] This criticism is unassailable on political grounds, but RAND's appeal to art, I would insist, was not just a public relations campaign designed to humanize the institution's increasingly troubled public image. Something about the relationship, rather, was structurally consistent with the think tank's own methodological explorations—a flexible and creative approach to the range of contemporary phenomena that might now include humanistic endeavor as part of its behaviorist outlook. As Brownlee Haydon, assistant to Henry Rowen at RAND, remarked in the late 1960s: "We think Rand has something special to offer the creative artist: an intellectual atmosphere and the stimulation of being amid creative individuals working in many disciplines. In this milieu, the artist may find influences on his work apart from the other 'materials' that he may discover in the Rand environment."[54] Haydon was speaking belatedly of the Art and Technology Program at LACMA. He would himself be charged to engage artists who protested RAND in both closed and open-door sessions, a year before RAND would partner with the Los Angeles County Museum of Art.[55] The timing of this collaboration can't be overlooked.

On the other hand, what the institutional pairing between the museum and think tank obscures is a longer and deeper history preparing the ground for such interactions. Here Wohlstetter's aesthetic aptitudes will prove emblematic, with vectors between art and

defense multiplying in numerous directions and fields, occasionally brokered by a science called *semiotics*.

Where do these vectors go?

Signal to Noise; Figure to Ground

All of which is prologue to some final speculations on Wohlstetter and Schapiro. Our goal is to inhabit the virtual ellipses that haunt their correspondence as it draws down in the early 1960s; and to sound the echoes between them relative to a burgeoning information age and the competing interests of semiotic inquiry. Permit me the following disclaimers before I do so. The comparison between the strategist and the art historian means neither to rehabilitate Wohlstetter nor to impugn Schapiro. This is not an argument regarding either thinker's priority nor a blanket dismissal of interdisciplinary work born of less militaristic motivation. Rather the pairing attends to the cognate relationship of such methods from the 1950s through the early 1960s—their shared sense of innovation and urgency—but throws into relief the diverging ends of their systems, even if propelled by similar logics. Indeed, the comparison underlines their mutual misrecognition. The strategist's goals were analytic, the art historian's cultural. The former would apply his approach across disciplinary phenomena; the later would do so to crystallize the interests of his field.

Of course, as our brief on the Unity of Science movement makes clear, such tendencies were well in place prior to the war. But the progressive outreach on the part of humanists (such as Schapiro) to disciplines such as math and logic was likely accelerated by the contemporaneous imperatives around systems discourse and information theory, and also by the assimilation of operational rhetoric within humanistic cultures. Plentiful examples from the period abound, if each registering its own particular agenda in summoning the language of information. We see this in the emerging Tartu School around 1956, most famously in Yuri Lotman's desire to abolish the opposition between the humanities and sciences in his work in cultural semiotics.[56] We see it in the publication of Barthes's *Mythologies*, also in 1956, and the appearance of Eco's *Open Work* a few years later, the title of which is plainspoken in recruiting the language of cybernetics but whose reception would turn largely on its discussion of chance in art.[57] At the same time, we observe this tendency in the analyst's will to find a grammar appropriate to this new age, not to mention the Cold War growth of institutions that existed somewhere between RAND and the university, places where scholars might explore such new methods of implacably military origin. As one such example, consider the establishment of the Center for Advanced Study in the Behavioral Sciences in Palo Alto in 1954. Supported by the Ford Foundation and several leading RAND associates, it would foster cutting-edge approaches to the social sciences and the humanities, inviting a range of academics from diverse fields to take up residence in its leafy, midcentury redoubt.[58]

For his part, Wohlstetter's strategic meditations are premised on reading such signs relative to a world of ambiguous signifiers, to account for all possible contingencies in their signification and motivation. Schapiro's semiotic inquiries, on the other hand, take up the oscillation of the sign within the work of art as a means to trouble the overdeterminations of iconography, as when he reads, for example, the literal and metaphorical involutions of the capitals at Moissac as "an arbitrary assemblage of separate signs."[59] Hubert Damisch seizes upon the tactic underwriting Schapiro's semiotic work: "he was ever intent on working to present problems in fresh relief and to engage in a dialogue about them with the most widely disparate speakers . . . with the idea of putting the speakers themselves to the test by having them confront an essentially polymorphous and—dare I say it?—perverse object."[60]

Following Damisch's suggestion, we might put Wohlstetter to Schapiro's test as one such disparate speaker, an outlier to the art historian's world confronting that essentially polymorphous, even perverse, object of nuclear strategy. For a defense strategist, the polymorphous—or more specifically, the *polysemic*—was the enemy. New technologies and methods would need to be elaborated in confronting both variety and contingency in the battlegrounds of information. From the beginning of his career at RAND, we could say, Wohlstetter's stock in trade was the *relative* ambiguity of signs—relative insofar as they

were semiotically relational—and the deathly consequences that might result from their misapprehension.

In a pivotal essay of 1958, "The Delicate Balance of Terror," Wohlstetter argued against the then-prevailing wisdom in policy circles—"the nearly universal optimism"—that strategic deterrence between the US and Soviet Union could be presumed to be stable and "automatic."[61] This orthodoxy was in large part based on the work of his RAND colleague Bernard Brodie and presumptions of the enemy's "second strike" capacities: the ability to retaliate with a force so devastating that it could discourage the opening salvo in the first place. The rationale for this view, however, effectively derived from what Wohlstetter might have regarded as categorically irrational: the idea that the consequences of a second strike were just too unthinkable to consider, and that the first strike therefore constituted the greatest insanity. This presumed that both parties would share the same strategic and ethical logic, as suggested by game theory; as Ron Robin puts it, "the concept of mutually held fears—the very essence of a stable balance of terror—was predicated on a moral equivalence of values."[62] Wohlstetter's estimation of the enemy wholly rejected these terms. "Some military commentators," he wrote, "founded their belief in the certainty of deterrence on the fact simply that there are uncertainties."[63] But the failure to confront uncertainty itself could well be deployed by the enemy, just one more sign to process in the complex grammar of nuclear strategy.

Analyzing the potential range of accidental misreadings by either party, whether prompted by technical failures or by rogue agents ("finally, there can be miscalculations on the part of governments as to enemy intent and the meaning of ambiguous signals"),[64] Wohlstetter opens the door to even more contingencies. He remarks on fail-safe mechanisms as a means to game these contingencies: feedback checks to ensure that a military response to an imagined strike was warranted in the event such signals had been incorrectly interpreted. If a plane was sent off to bomb the Soviet Union, for instance, a number of bases along the way could legitimize the received message or alternately have the mission aborted if the message failed to be confirmed. Fail-safe was designed to rein in errant codes or failed communications. It assumes the likely contingency of misinformation as an acutely historical genre of midcentury siegecraft, when base studies at RAND, and the technologies of Strategic Air Command, were quickly being outpaced by developments in missile technology; and Wohlstetter's own interlocutors at RAND could vehemently disagree on strategies for reading the enemy.

Running parallel to this specific reading was a formative concept the Wohlstetters adapted from information theory, now advanced in militaristic terms: the "signal to noise ratio" in the collection and analysis of intelligence data. Claude Shannon's mathematical theory of information (informed by Norbert Wiener's probabilistic studies) would find strategic application in the rhetoric assumed by both of the Wohlstetters.[65] In the canonical study Shannon authored at Bell Labs in 1948, subsequently popularized in Shannon's collaboration with Warren Weaver, a model of communication is organized around a relay between sender and receiver. Message, transmission, signal, noise, channel, and reception are its principal components. The content of the message is less at issue than the structural logic that facilitates its transmission as information.

The notion found one of its most cogent articulations in Roberta Wohlstetter's 1962 book *Pearl Harbor: Warning and Decision*, an analysis of American intelligence failures awarded Columbia University's Bancroft Prize for American History (and a book that would receive renewed attention in the early years of the "War on Terror"). The Japanese attack on Pearl Harbor could be read as an object lesson in the failure to read such signs correctly. Given the threat of a surprise attack, launched by the Japanese in 1941 but potentially by the Soviet Union in the Cold War present, the transmission of sensitive information over a noisy channel would demand interception and decoding; information entropy would need to be accounted for as messages hurled to and fro. Roberta Wohlstetter applied the idea to identifying discernable patterns within security analysis "not for want of the relevant materials," as she wrote, "but because of a plethora of *irrelevant* ones."[66] Seemingly "irrelevant" information, in other words, is not equivalent to *misinformation*, as her husband would explain it many years later. What might at first seem mere noise would have to be treated relative to the overarching constitution of a message. No signs were functionally "irrelevant" in its larger transmission, or relative to a succession of messages, which should then be analyzed as a pattern betraying the behaviors (or potentially identity) of the enemy. "No signal, in the sense in which it is used in the Pearl Harbor book and the

sense in which it is used in information theory," Albert Wohlstetter wrote, "is ever completely ambiguous . . . no bit of noise is unambiguously noise; it is always possible to hypothesize that some apparently random series of events contains a piece of information, deliberately or actually concealed."[67]

What constitutes "relevant" or "irrelevant" material is at the crux of the think tank's strategic enterprise. The strategist's holistic methodology enabled greater sensitivity to the ratios of information in the production and circulation of a message. It meant, fundamentally, taking seriously, studying assiduously, signs otherwise regarded as merely adjacent to the ostensible content of a message. The adjacency of such signals could function as a semantic supplement in the reception of that message. In a visual context, such ratios might be referred to as a "figure-ground" relation, where the interplay between background and foreground is analyzed as a mutually constitutive process of signification: the figure only reads as legible in the context of both the literal and compositional ground that supports it, which in the traditions of Western easel painting imparts a virtual recession in the distance.

An echo of such dynamics can be detected in Schapiro's "On Some Problems in the Semiotics of Visual Art." The essay was published in 1969, but Schapiro had lectured on semiotics at least since the early sixties and had been broadly invested in linguistics, semantics, and adjacent approaches well before the war. Appearing in the journal *Semiotica*, the essay grew out of his 1966 contribution to the Second International Congress on Semiotics in Kazimierz, Poland, an organization on whose board he would serve and that included Barthes, Julia Kristeva, Roman Jakobson, Lotman, and Thomas Sebeok. The journal variously published thinkers who themselves did work for RAND, among them Margaret Mead.

Well known as the essay is within the history of art, Schapiro's text demands revisiting in light of the institutional cultures of the Cold War. In part, the art historian is concerned with the "non-mimetic" elements in image making, beginning with the smooth prepared surface serving as the ground for figuration, which "made possible the later transparency of the picture-plane without which the representation of three-dimensional space would not have been successful."[68] Given how critical this development was to the history of Western art, Schapiro remarks on how "students have given little attention to this fundamental change in art"—and how the determination and bounding of such a field are taken for granted, naturalized.[69] Which is to say that that image field (or more generally, the ground) has been historically treated as little more than a stage upon which narrative or figuration is imagined to alight—a transparency—without expressive or signifying features in its own right.

Yet in acknowledging that "such a field corresponds to nothing in nature or mental imagery," as well as the question of the arbitrariness of those elements that would virtually lie on its surface, Schapiro tracks the historical and perceptual meanings of that image field —the "properties of the ground as a field"[70]—throughout diverse cultures and chronologies from the medieval to the modern. (In classical painting in China, for example, he writes that "the ground of the image was hardly felt to be part of the sign itself.")[71] He will further analyze issues of size, orientation, the frame, and other nonfigural aspects of the pictorial field ("sign-bearing matter"), such that a recursive dynamic between ground and such elements is formative in the production of meaning. In drawing a connection between signal and noise and between figure and ground, Schapiro wrote of the naturalization of this visual device, with the example being children's drawings, in terms that paralleled language acquisition and locution, the dynamic processes of verbal signification. The "ground" may not be "noisy" in the communication of the painting's message. Its conventional job is to expedite the message, after all, not block it. Even so it bears a constitutive relation to the message's transmission and facilitation.

A question arises at this juncture. What implications might we pull from such approaches, beyond a family kinship of sorts? Again we are compelled to read between the lines, turning to the last correspondence from Wohlstetter to Schapiro in the art historian's archive, dated May 1963. On RAND letterhead, the strategist writes:

> I am enclosing an offprint of a paper entitled "Scientists, Seers and Strategy," from the April 1963 *Foreign Affairs*. As you will see, it was designed to be unpopular with all factions of the physicists. You should read Roberta's book even if only to defend yourself, since Roberta, in her speech accepting the Bancroft Award, named you as her chief inspiration and the principal reason up to getting the prize that she regarded Friends of the Columbia library as friends of hers.[72]

Nearly thirty years after the Wohlstetters attended Columbia, the strategist still praises Schapiro for his inspiration for their work, passing along an essay claimed to bear something of his stamp. It is a Cold War intervention into the two-cultures debate, the postwar divide between scientific and literary culture articulated in Snow's 1959 lectures. In part written on the occasion of a conference sponsored by the Columbia University Council for Atomic Age Studies, Wohlstetter reflects on the extent to which policymakers need to understand the sciences in order to make informed decisions about strategy. If he finds the two-cultures conceit useful for the questions it raises, he will also see Snow's characterization of postwar science as, in fact, a caricature, among other problems failing to address the methodological (particularly interdisciplinary) advances sponsored by the think tank. As Wohlstetter writes, the decision to develop a fission bomb or an H-bomb does "have narrowly technological components but they involve just as essentially a great many other elements," both qualitative and quantitative. Much of the work done in the service of national security, Wohlstetter argues, does "not fit into any of the traditional disciplines of natural science or engineering."[73] Referring instead to the interdisciplinary interests of operations research and systems analysis, he argues that "the appropriate methods of study may . . . be closer to the methods of some behavioral sciences."[74] He speaks to the balancing act performed in such interdisciplinary investigations and writes, in an uncharacteristically affective statement, hardly the usual stuff of *Foreign Affairs*: "The honest strategist must wear two hats, and this can be something of a personal strain. It can actually lead to quarrels among friends and organizations."[75]

You have to wonder about those quarrels among friends and organizations. And you have to wonder about Schapiro's response to Wohlstetter's essay—all the more so since Wohlstetter's letter arrived at a new address for the art historian. In academic year 1962–1963, Schapiro was in residence at the Center for Advanced Study in Behavioral Sciences in Palo Alto. The Center was a veritable satellite of RAND-think in Northern California that had hosted some of the preeminent American semioticians of the day, including Schapiro's associate Thomas Sebeok, the editor of *Semiotica*. It could hardly be incidental that Schapiro also penned an essay that same year on the two-cultures debate. As the draft of the essay is undated, it's impossible to tell which text preceded the other—student's or teacher's—and we can only speculate on the imagined disagreement between the two. Is Schapiro's an actual rejection of Wohlstetter, an opening salvo, or a stern, if veiled, rebuke? Perhaps it's none of these things. Snow was required reading at the time, after all. "The Two Cultures" was a signal text for any engaged intellectual reflecting on their role not just within the midcentury university but in other spheres of academic influence at the time—think tanks, branches of the military, extramural foundations.

FELLOWS AND STAFF OF THE CENTER FOR ADVANCED STUDY IN THE BEHAVIORAL SCIENCES, SEPTEMBER 25, 1962
TOP ROW L to R: Wayne Smith, JOHN SMITH, DAVID LEVIN, MICHAEL SCRIVEN, HERBERT SCARF, PETER BLAU, EUGENE HAMMEL
DAVID CLARK, DAVID BORDUA, GEORGE SCHALLER, ROBERT DIVINE, JOHN GARRATY, FREDERICK MOSTELLER,
FREDERICK HARBISON, RENE MILLON, ARNOLD KAUFMAN, Chris Dodds
THIRD ROW L to R: Preston Cutler, IRVEN DeVORE, Ralph Tyler, LEO RANGELL, IVO KOHLER, Ted Cooper, YEHEZKEL DROR
John Gilbert, MEYER SCHAPIRO, WAYNE HOLTZMAN, CARL ROGERS, A. M. UTTLEY, H. L. WILENSKY, J. C. HUREWITZ,
GORDON WRIGHT, LANCELOT LAW WHYTE, Bruce Svihus
SECOND ROW L to R: Dorothy Riffle, Cecilia Charlton, Katharine Holbrook, Jean Pearce, Dorothy Brothers,
EDWIN FOGELMAN, BENJAMIN PAUL, H. MIZUHARA, K. R. L. HALL, EVSEY DOMAR, HENRY HOENIGSWALD, PHILIP JACKSON,
LEONARD BROOM, WILLIAM MADSEN, FRANK MANUEL, Margaret Stetson, Mabel Hockstatter
FRONT ROW L to R: ALBERTA SIEGEL, Claire Christmas, Betty Calloway, Johnnie Mae Williams, Regina Marshall,
Elizabeth Nicholas, PHYLLIS JAY, Irene Bickenbach, Helen Cole, Daisy Schmidt, Anna Tower, Jane Kielsmeier,
Helena Smith, Margaret Shoup, Elizabeth Armstrong, Joan Warmbrunn, Julie Raventos, Trudy Ross.

1.7 Meyer Schapiro and colleagues at the Center for Advanced Study in the Behavioral Sciences, Palo Alto, California. Courtesy Miriam Schapiro Grossof.

Schapiro's verdict on the equation is blunt nonetheless. Entitled "Humanism and Science: The Concept of the Two *Half*-Cultures" (my emphasis), his essay shifts the balance to those fields typically repressed in the two-cultures equation, fields appropriated by the new postwar dominion of science. "In all matters of policy," he writes, "the responsible minds are guided by the knowledge and views of those whose special business is to understand the field in question. And such knowledge today, whatever the field, is increasingly subject to scientific standards. This is true of the arts as well as of technology and social affairs."[76] Schapiro closes his short text with what could be called a value statement on the ways in which postwar science has arrogated humanistic culture. And he reserves particular venom for those scientists (a nameless physicist is his principal target) who claim to commandeer those arts they otherwise "need for recreation and diversion" but somehow imagine they "could produce themselves." In contrast, he concludes by affirming a "modern *liberal* culture nourished by the arts, social awareness and criticism, the movements to advance freedom and well-being."[77] Decades after the fact of this essay, his words sound an alarm to the contemporary university.

Who knows if Wohlstetter ever read this essay? In the end, it hardly matters. At this point the communications between the strategist and art historian peter out. The epistolary trail grows cold. Whether this was due to personal conflict or shifting priorities or bureaucratic cross-wires or missing files cannot be easily confirmed in the accessible archival record. It is indeed the case, nonetheless, that Wohlstetter offered nothing but praise for the art historian throughout his life.

In the meantime, the situation was becoming even more heated at RAND in 1963. Events in Vietnam, over which the think tank would exercise an increasingly morbid influence through McNamara's Department of Defense, were beginning to show the form of their eventual catastrophe. Perhaps the art historian revived his earlier convictions in light of the think tank's growing visibility within the culture, if not its methodological innovations. Perhaps he never gave them up. In 1936, around the time he first encountered the young Wohlstetter, Schapiro delivered "The Social Bases of Art" to the First American Artists Congress. Following Rosand's stress on this statement, I conclude with the second line of this famous essay: "Art has its own conditions which distinguish it from other activities."[78] Semiotics enabled Schapiro to distill such conditions to their finest points. For the strategist, on the other hand, the use of such approaches, generalized through the requirements of information, was motivated by far more universalizing or perhaps totalizing agendas: to read, and thus control, an expanding empire of signs.

2

Pattern Recognition circa 1947

"A Curious Assortment of Individuals"

In 1947, the Cold War semiosphere was a dissonant place, signals barely audible above the noise. The clash between First and Second Worlds saw messages repeatedly crossed in a battle of veiled communications. Words passing between the superpowers could be cheap when they weren't covert or dire. Codebreakers, senders, and receivers were tested by the trials of identification—*what* is the message?—and a concomitant game of attribution—*who* sent it? They sought to read patterns in such messages that might reveal something crucial about the enemy. And they would seek in those patterns forms of behavior that would allow them to strategize in kind.

It was in that year that Project RAND recruited a diverse group of thinkers in the interests of American national security, sponsoring innovative platforms with long-range consequences for the humanities and social sciences. An interdisciplinary conference held in New York included what RAND president Frank Collbohm called a "curious assortment of individuals": among them anthropologists, political scientists, mathematicians, psychologists, and at least one art historian.[1] Together, their collaborative efforts would extend the wartime promise of operations research, involving mixed teams of experts in the burgeoning science of decision making. Such approaches were hardly restricted to the New York conference. They would be generalized throughout the culture in an effort to wrest meanings from visual cues; namely, patterns of personality that required a new method of identification—better put, *recognition*—to chart the character of the subjects. To diagnose such behaviors through these cues could only be the work of those hailing from disparate arenas of research. Sometimes they trafficked between museums of art and museums of anthropology—between the Midtown location of the Museum of Modern Art, for instance, and the Upper West Side of the American Museum of Natural History. Sometimes they made stops at the think tank, the university, the movie house, and the art gallery. Along the way they effectively colonized the range of materials now classed under the rubric of "visual culture," eclipsing the distance between fine art and popular media in the process.

My principal interlocutors in this chapter are indeed a "curious assortment of individuals," foremost among them two major anthropologists, Ruth Benedict and Margaret Mead; a host of their interdisciplinary colleagues; and, in a supporting and provocative role, *the* vanguard artist of that moment, Jackson Pollock. The relay between anthropology and modernism that concerns me is neither one of personal contact nor of iconography but is a function of method. What might the military investments of Cold War anthropology—stemming from the earlier historiography of "culture and personality" studies—have to say about Pollock's breakout work of roughly 1947–1950?[2] In calling this approach "pattern recognition," I acknowledge an earlier anthropological and psychological literature while anticipating the visual stakes of the coming information society.[3] The notion of pattern as message, we shall see, owed to cybernetics and systems discourse; while the technics known as "pattern recognition" would be formalized within computer science in the 1960s by Leonard Uhr and others.[4]

2.1 Edward Lynch, portrait of Margaret Mead, c. 1950. Courtesy Library of Congress Prints and Photographs Division, Washington, DC.

2.2 Portrait of Ruth Benedict, undated. Courtesy Archives and Special Collections Library, Vassar College Libraries.

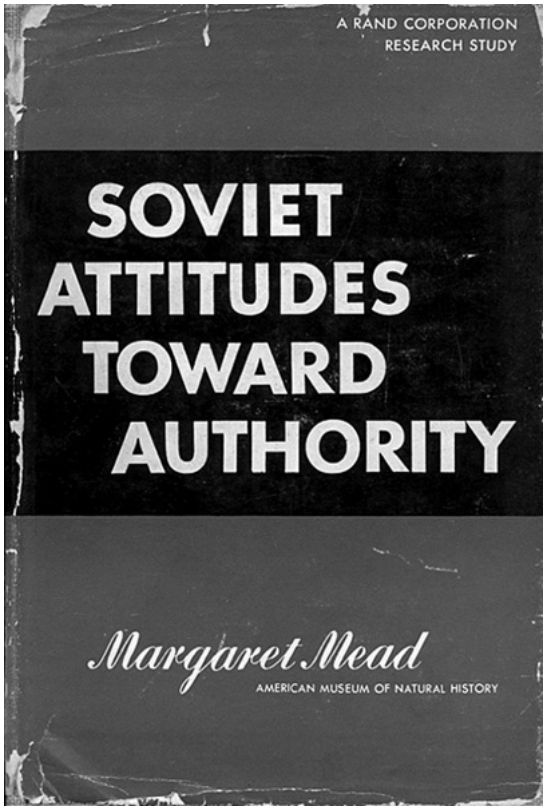
But the history that preceded this technique transgressed such disciplinary interests. In 1934 Benedict published *Patterns of Culture*, a study that treated cultures as "personalities writ large" across their material artifacts; and it was during the early years of the Cold War that this approach would assume geopolitical and thus mortal urgency. What I explore in the following is how the collective interest in seizing upon pattern *as image*, reading its workings as a meaningful whole, will preoccupy social-scientific thought at the very moment Clement Greenberg could write, "Pollock's strength lies in the emphatic surfaces of his pictures, which it is his concern to maintain and intensify in all that thick, fuliginous

flatness."[5] "Pattern recognition" suggests a hyperbolic approach to decoding visual media that superficially mimes the interests of formal analysis, if ultimately it betrays high modernism's methodological orthodoxies.

Of course, the literature on abstract expressionism has taken an abiding interest in both anthropology and the Cold War, from the primitivist sources of early New York School iconography to the byzantine intrigues between the CIA, the Museum of Modern Art, and the rhetoric of aesthetic freedom accorded the new painting.[6] But the history of art has tended to treat the two topics separately, islands in the stream of midcentury culture. The claim here is that pattern recognition rendered the connection between art, anthropology, and the Cold War decisive. It turned on a trope leading to more recent investigations into visual studies: specifically, *identity* and its crystallization as image, projected onto—and read from—the surface of canvas or paper, celluloid or screen, as behavioral trace. The vicissitudes of identity, personality, character, and behavior will assume outsized importance in the Cold War think tank, as well as the larger spheres of culture and geopolitics that informed it.[7] Was there something isomorphic in the popular reception of Pollock, whose abstraction was no less opaque to the general public than the cryptic behaviors of the enemy? And how did the techniques of pattern recognition accommodate a dawning visual culture, admitting popular graphics, film, and comics to its expanding archive while rejecting the disciplinary investments that separated them from fine art?

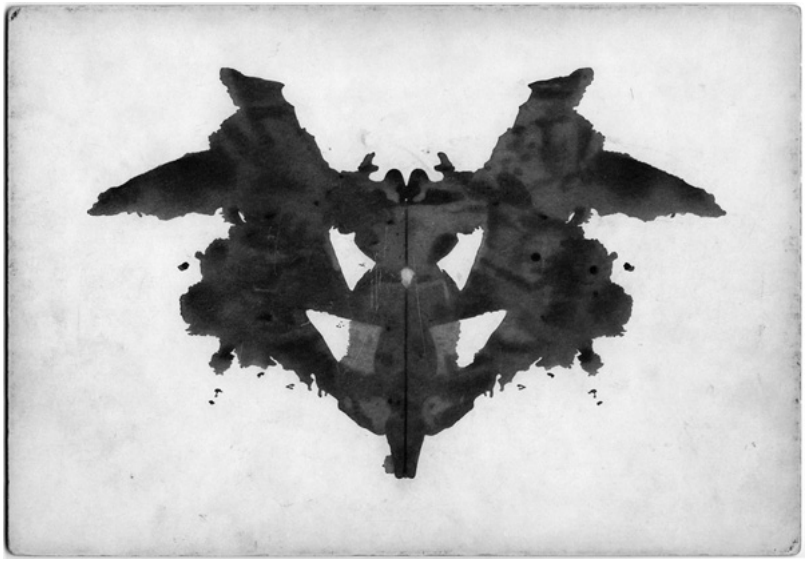
The wartime and postwar efforts of Benedict and Mead offer an especially instructive case study on the aesthetic dimensions of both anthropology and military intelligence.[8] Even as Mead became a celebrity anthropologist, notorious for her musings on sex and intercultural studies in Samoa, she was, like so many of her colleagues, engaged in work around the war and its fallout.[9] From 1947 to 1952, Benedict and then Mead secured sponsorship from the Navy in support of the project Research in Contemporary Cultures at Columbia University.[10] This led to the publication in 1953 of the multiauthor volume *The Study of Culture at a Distance*, a book that analyzed "cultural regularities in the character of individuals . . . inaccessible to direct observation,"[11] with the larger ambition to identify the "application(s) of these principles to international affairs."[12] At the same time, Project RAND—incorporated as the RAND Corporation shortly after—hired the anthropologists for a related study, *Soviet Attitudes toward Authority*.[13] After Benedict's untimely death in September 1948, anthropologist Rhoda Métraux stepped into the breach, aided by a diverse team of scholars. Among some sixty participants, the group would include: Gregory Bateson, the profoundly influential anthropologist and then cybernetician, who was Mead's husband from 1936 to 1950; Nathan Leites, RAND sociologist and authority on the Politburo, and later author of a book on Michelangelo;[14] the psychoanalyst Martha Wolfenstein, who had studied aesthetics at Columbia and would author numerous papers over the years about film and art; Elisabeth Hellersberg, a psychologist heavily invested in the psychodynamics of the image; and Nicolas Calas, late of Breton's surrealist circle in Paris, poet, art critic, and occasional curator in the heated new gallery scene of Midtown Manhattan.

This list makes plain a thoroughgoing interest in art and visual media, consistent with what would be called "visual anthropology" and inclusive of what was then radical or at least unorthodox research material. For in addition to photographs, cartoons, films, and advertisements, so-called "projective" tests of highly abstract means—including Rorschach inkblots and drawing tests based on empty squares—would serve as platforms through which the behaviors of national character might emerge. Writing on the test's early twentieth-century history, Peter Galison has referred to the Rorschach inkblot as a veritable "technology of selfhood," and I seize upon this principle as a kind of Cold War hermeneutic, with powerful implications for art history and visual culture studies both.[15] Which can only beg the question for art historians of the postwar moment: could there be any more of a cliché—any more of a joke, really—than equating an inkblot and a Jackson Pollock? Nonetheless, the stubbornness of the cliché amounts to something historically apt and methodologically telling. Indeed, it recalls that genre of category error that Yve-Alain Bois, in revisiting Panofsky, has identified as "pseudomorphism" in the study of modern art: the tendency to draw visual equivalences between radically different things, revealing a transhistorical, and perhaps transdisciplinary, agenda in the process.[16]



2.3 Margaret Mead, *Soviet Attitudes toward Authority*, commissioned by the RAND Corporation, 1951. Courtesy the RAND Archives.

This chapter traces this tendency as a pattern itself, once pronounced but now submerged, from a crisis of Cold War identity addressed by anthropology's engagement with the pattern and gestalt, to a problem of communication in the reception of abstract expressionism, to the aesthetic dimensions accorded projective tests in the 1940s and 1950s. Even as Benedict's and Mead's respect for cultural *difference* was paramount—the function of a relativist anthropology indebted to their mentor, Franz Boas—the following is a larger thesis about identity and similitude within Cold War modernism. What, we might ask, does the mania for likeness and identity at midcentury suggest about our current habits of seeing, the technologies enabling such connections, and the rise of a form of culture qualified as "visual"?[17] What might the mania for pattern suggest about *identity* as a historically inflected category, recruited in the interests of military strategy, power, and control?



2.4 Hermann Rorschach, Rorschach inkblot, 1922. Courtesy Yale University, Harvey Cushing/John Hay Whitney Medical Library.

The chapter offers a multitiered response to such questions and concludes with a brief provocation about the legacies of such patterns in the present. It begins not with the anthropologists, nor in the think tank, but with the kind of readings of Pollock dismissed by art historians out of hand, turning on the mechanics of similitude, decoding, and the hidden identity of the image. A question raised repeatedly within the literature of abstract expressionism—the relationship between abstraction and representation—will assume new significance relative to the operations of the think tank. I then address how the diverse interests of pattern were directed to *a crisis* of identity within the culture at large—and taken up by the think tank as a matter of course. These interests range from the anthropological inheritance of Gestalt psychology to the cybernetic imperative to "read" patterns as messages—whether patterns of behavior or patterns in works of art. Here I chart the approaches elaborated in the projects *The Study of Culture at a Distance* and *Soviet Attitudes toward Authority*, both impacted by Project RAND and the RAND Corporation and undertaken by their academic associates. Finally, I discuss the ways in which projective tests were deployed by social scientists that bear more than a passing resemblance to the popular reception of modern art.

Like a Jackson Pollock

What might it mean to say a Pollock is "like" a Rorschach test circa 1947—and to claim further that the simile is instructive on historical and methodological grounds? Or, just as critically: What if the terms were flipped to say a Rorschach test is "like" a Jackson Pollock? In 1964, Thomas Hess could condemn this equivalence following nearly two decades of its popular usage: "We object to those who look at Pollock as an ink-blot card and read their own insecurities into his life."[18] The reference to Pollock and the inkblot seems to enter the official criticism at a relatively late date, but the grammar opens onto cognate approaches in the artist's contemporary reception, as well as that of other New York School painters. All those quips about Pollock's painting being "like" this or that (things which are decisively *unlike* his painting), and all those comparative constructions founded on "like" and "as," are more than convenient figures of speech or lazy dismissals of the artist's formal innovation. Rather, the traffic in similes where abstract expressionism is concerned needs to be taken up as part of its critical reception and legacy, one implicated in the vicissitudes of Cold War semiotics.[19] Indeed, in revisiting one of the most influential tracts on New York School painting through these terms—Harold Rosenberg's "The American Action Painters" (1952)—we might well be struck by the title of one of the essay's sections, "Dramas of *As If*" (my emphasis). Eschewing the typical interests of art criticism in advancing his famous notion of painting as an "act," Rosenberg will claim: "The new

painting has broken down every distinction between art and life. It follows that *anything* is relevant to it."[20]

While Rosenberg's "as if" was consistent with the period's existential boilerplate, his language remains suggestive for the interpretive questions this chapter will raise. The banality of the evidence might seem to imply otherwise. "Pollock's paintings . . . resemble nothing so much *as* a tangled mop of hair I want to comb out," Emily Genauer would infamously quip in 1949.[21] Or perhaps his work was like "the contours of a Gettysburg battlefield map." Or maybe it recalled the atom bomb, coils of barbed wire, or half-baked macaroni. For others his painting seethed like a "raging queen," appeared "as" a woman in armor; looked like pigs, eels, storks or shingle factories. Others saw aerial maps of populous cities, Indian sand paintings, vast cosmographies. Some saw magnetic fields, spider webs, and brain tissue, microorganisms and black masses. The associations were legion, and they were inadvertently confirmed by the artist's own Jungian pursuits. In rejecting the term "abstract expressionism," to say little of nonobjective painting, he famously noted: "I'm very representational some of the time, and a little all of the time. But when you're painting out of your unconscious . . . figures are bound to emerge."[22]

Taken together, what—and how—might these random bits of journalistic noise *mean*? The notion that any meaning might be projected onto Pollock's lines and drips like a Rorschach test is clearly anathema to the Greenbergian doxa. Still, we know these readings too well as a certain genre of Pollock's reception. Vulgar, untrained in the rigors of formal analysis, subjective bordering on confessional, embarrassing to both connoisseurs of modern art and radical devotees of the avant-garde: such accounts telegraph a willfully eclectic approach to the image, a referential grab bag as diverse as the audiences imagined to encounter such work. Unprincipled as such readings may seem, they take on signal implications within the discursive orbit of the Cold War think tank, with the anthropological imperatives of pattern recognition at their foundation. This, then, is to revisit Pollock's popular reception as guided by the moment's larger will to isomorphism and identification: to propose some equivalence between things on the basis of some projected resemblance; and to assign an identity to a visual cue that would otherwise trade on its opacity.

In short, this was to press the abstract and occult into the service of Cold War signification. And it's a problem made all the more complicated given the collective shunning of discourse on the part of so many of the artists involved, Pollock chief among them, but so too any number of his associates: Mark Rothko, Adolph Gottlieb, David Smith, numerous others.[23] New York School painters advocated instead a kind of mute existentialism that wordlessly telegraphed the tragic and sublime. Abstract expressionism's peculiar resistance to language may have been par for the course for any emerging movement. Its members might regard art criticism as constricting aesthetic or interpretive possibilities—as well as generalizing a diverse range of practices. But whatever the usual protests waged against the critics, there may well have been something historically specific about this reception, as well as about the objections that necessarily followed.

Given these framing issues, the fundamental questions posed by Pollock's reception—the amphibious nature and fate of his abstraction, the pronounced tension between the figurative and the abstract—come to read quite differently than previously understood. Let me begin this approach by revisiting T. J. Clark's formative analysis of Pollock's abstraction and "the bad dream of modernism." I don't assign any Cold War motivations to Clark's specific reading but track something highly suggestive in his language. In Clark's take on the drip paintings, here serving as a decorative backdrop to Cecil Beaton's infamous 1951 photographs for *Vogue*, he asks: In what ways do these photographs matter—and how?[24] Doubtless they matter as signatories of an ideologically radical inversion. The paintings' accessory status to fashion, to commerce, overturns whatever claims they might have made to resisting bourgeois hegemony, having now been reappropriated as "the central organs of bourgeois culture itself."[25] This is the crux of Clark's contemporary reading. What strikes me is his peculiar turn of phrase, which neatly captures both the tenor and texture of Pollock's contemporary reception:

> What Pollock invented in 1947–1950 was a set of forms in which previously disorganized aspects of self-representation—the wordless, the somatic, the wild, the self-risking, spontaneous, uncontrolled, "existential," the "beyond" or "before" the conscious activities of mind—could achieve a bit of clarity, get themselves a relatively stable set of signifiers. A poured line with splatters now *equals* spontaneity, etc. A certain kind of painted interlace can now be taken to stand—taken quite casually—for states of mind like rage or elation . . . and so on. These are aspects of experience that culture wants represented now . . . because capitalism . . . needs a more convincing account of the bodily, the sensual, the "free" in order to extend, perhaps perfect, its colonization of everyday life.[26]

Clark will stress the semantic pressures Pollock's work would undergo with its inaugural reception, as if the paintings' opaque locutions had been fatally commandeered in the service of "a relatively stable set of signifiers." What first appears wildly contingent would come to *equal* individual experience. That which was driven by chance, rather than "expression," would be equated with the tenets of freedom subsequently hawked in so much Cold War propaganda. This latter point is, if in dramatically redacted form, the groundbreaking thesis of Serge Guilbaut and others describing the instrumental reason of abstract expressionism during the Cold War. I mean neither to detail nor contradict that reading so much as flag the language of similitude and identity upon which these arguments are staked, drawing upon the collective will to render the visually ambiguous transparent and intelligible; to make the foreignness of such signs *mean*. And it's an approach continuous with the questions asked of Pollock's art circa 1947: namely, how such interpretations might slide from abstraction to representation and back again.

2.5 Cecil Beaton, "Model Wearing a Pale Blue Ballgown by Irene," *Vogue* magazine, March 1951. Courtesy Cecil Beaton/Vogue, © Condé Nast.

Not incidentally, Pollock's drip paintings *were* regarded as "foreign" or otherwise *Other* even as they heralded all that was "American" at midcentury. They were like "Oriental" calligraphy or "Indian code"; they were as exotic as Arabic writing. Their joint heritage in Mexican modernism was duly noted, murals especially. Navajo sand painting was referenced; the "Picture-Writing" of American Indians too might offer its own modernist lessons.[27] Or maybe the works were seen as extraterrestrial, flagging Pollock's power of expression as cosmic, if not downright alien. If such responses seem irredeemably and unavoidably primitivizing, in line with the surrealist inheritance of New York School

painting, such works seemed acutely foreign when—*especially when*—ideologically recruited for nationalistic purposes. Perhaps the painting's radical otherness demanded to be linguistically colonized by its native audience. These readings, I would argue, were not the usual journalistic responses to the usual avant-garde provocations, but party to a phenomenon with decisively extra-aesthetic, indeed nationalizing, implications.

To this point, we need to remind ourselves of the interpretive question consistently raised by Pollock's second-period works, where the line between figuration and abstraction was perpetually blurred, where questions of "veiled" representation were *de rigueur*, and where the artist's denials that his work was "merely" nonobjective were corroborated in the popular reception. Well before Pollock's late experiments known as the "Cut-outs"—paintings in which a piece of canvas was excised from the picture plane, registering a figure by means of its physical absence—reception of the artist seized upon the shifting valences of the nonobjective and the representational. Critics acknowledged the painting's near-militant capacity to slide from one register of signification to another, and back again. "It conducts us," Edward Allen Jewell observed of his painting, "not without precipitate violence, into the realm of abstraction." This is how Jewell put it as early as 1943, but the terms could easily be reversed and applied to the later work; for Pollock's abstraction might be strong-armed into the realm of figuration with equally brute force. "These cannot be called non-objective abstractions," Jewell further remarked, "for most of them have fairly naturalistic titles, and two that are marked 'Untitled' have become particularized by the artist since the catalogue went to press."[28] Jewell has identified the problem of Pollock's figurative titles and their discomfiting relation to his abstraction—a question that would become critical to literature on the artist around 1947 but whose Cold War implications remain otherwise unexplored.[29]

And so it's on this count that the endless references to the artist's work being "cryptic" or like a "shibboleth" might be read in tandem with all the other Pollock platitudes. Together, they signal a marked preoccupation with deciphering his abstraction in the language of communications and cryptography, in spite or because of the fact that Pollock's drip paintings *did not* follow a consistent or repeatable pattern. Regardless, they would be treated as a pattern to be decoded—or an image to be read. Consider Robert Coates, who saw in Pollock's work of 1947 a failure to communicate a singular message, because refusing to stay put in any one signifying register: "Such a style has its dangers," he wrote, "for the threads of communication between artist and spectator are so very tenuous that the utmost attention is required to get the message through."[30]

The interpretive labor demanded of Pollock's audience was even more explicitly thematized by the film critic Parker Tyler in 1950, in a review which combines references to the artist's mysterious patterns with foreign language systems, decoding, and abrupt shifts between abstract and figural modes. Tyler's language is itself a jumble, tripping over its metaphors. "We have a paradox of abstract form in terms of an alphabet of unknown symbols," he wrote, describing its association with Arabic calligraphy, a genre of inscription at once writerly and aesthetic. As Tyler sees it, Pollock's is an "alphabet of unknown symbols," a kind of "language . . . as image." In an all too appropriate turn of phrase, he identifies the work in terms of *pattern*:

> this is a cuneiform or impregnable language as image, as well as beautiful and subtle patterns of pure form.
>
> . . . On ancient stelae . . . certain languages have come down to us whose messages experts have labored to interpret. The assumption is that every stroke is charged with definite, always penetrable meaning. But in these works of Pollock . . . a definite meaning is not always implicit. Or if we say that art always "means something" Pollock gives us a series of abstract images . . . which by their nature can never be read for an original and indisputable meaning.[31]

The convolutions of Tyler's statement are consistent with the mysterious character he ascribes to Pollock's art. Pollock's abstract "image" presupposes any number of readings on the part of its viewer, whose efforts to make sense of these shadowy works may not be far from deciphering cuneiform. And perhaps that *is* the work's inherent meaning—that abstraction is a vehicle for such profligate hermeneutic pursuits.

What I'm suggesting, in short, is that the language of communications running through these accounts supports the tendency to say a Jackson Pollock is "like" many things: atom bombs, exploding cosmologies, barbed-wire fences, noodles, hair, and so forth. To make

such signs read as code, to endow such visual shibboleths with a rational, or at least legible, pattern, had an extensive reach within the visual culture of the wider period, the worlds inhabited by many New York School artists included.

As one blunt illustration, consider a graphic for a window display advertising courses in cryptography in New York during the early forties.[32] Lee Krasner headed a team of artists for the WPA, including Pollock, for a new propaganda initiative of the War Services Office, resulting in a series of collages of 1942. Two are on the subject of cryptography. Krasner's display features the hallmarks of futurist and constructivist design, with words tilted at vertiginous angles and a peculiar jostling of fragmented images, all around the theme of wartime communications. There is the dim profile of a map, a carrier pigeon with its secret charge in the foreground, a rapt GI on the phone, multiple code tables scattered about, and earnest men and women attending to their analysis. Letters in black are scrambled in the background: they snap into focus in white as they cross the image. Anticipating Krasner's graphic output of later decades, the collage offers a series of semantic inversions, plays of figure and ground, word and image. It is a visual primer, in other words, on the logic of cryptography itself.

2.6 Lee Krasner, cryptography display, 1942. © 2018 Pollock/Krasner Foundation/Artists Rights Society (ARS).

Notably, there is also a set of abstract squiggles in the immediate right foreground: errant, calligraphic gestures set on an oblique white plane. This section rhymes with the code table reversing these colors on the left side of the collage. Perhaps these abstract lines on the right are a design afterthought, the bored doodles of an artist (or artists?) exercising her limited artistic autonomy at the margins of this wartime advertisement. Still, they function as a peculiar complement to the mysterious grids of letters they mirror on the other side of the work. Ostensibly the viewer is pulled into the scene of this decipherment through the obscure markers framing it, and then—as if entering the central sphere of activity—acquires the tools to unlock whatever secreted meaning these abstract gestures may hold.

I'm aware that, for some, this reading might well seem like my own projection. And that's also to the point. Surely Krasner was no more conversant with cryptography than she was, say, with chemistry or any of the other subjects she was tasked with promoting through her art. But intention is not my point here. Rather, the tendentiousness of the interpretation is historically appropriate, in the spirit of a willful misrecognition characterizing many period efforts within and outside spheres of vanguard art making. There are other instances in which developments in midcentury abstraction dovetail with the logic of ciphers and encryption: Cy Twombly's stint as an army cryptographer in the early 1950s is one such tantalizing example. But we don't need to reference such episodes nor treat this as a kind of

crypto-iconography to stake a larger claim about the period's reception of the abstract image, now forced to carry the semantic burden of whatever meaning is provisionally assigned to it; and conscripted to act, *like* a Jackson Pollock drip painting, *like* something else. The choice of the word "conscription," with its decisive military valences, is also purposeful. To force this image to perform as I do is in line with the brute requirements of Cold War interpretation. For social scientists working in the orbit of RAND, those processes flagged the urgency of pattern recognition as its own midcentury methodology. Whatever identity was assigned *to the image* effectively betrayed the identity of its maker or audience; and whatever information could be gleaned from that maker or audience would in turn be understood as a *pattern*.

Patterns of an Identity Crisis

Drawing a line between the notions of pattern and identity raises a question of tone and tense for art historians of the Cold War. When questions of "identity" come up within contemporary art circles, they are typically directed to the representational imperatives of the civil rights era, the multicultural agendas of a more recent vintage, or current topics on gender, sexuality, intersectionality that would mean to problematize stable notions of identity and subjectivity. As it is understood here, identity, circa 1947, was an issue with far less affirmative connotations. Identity was a matter of national security, of crisis. Indeed, whatever its profile on the world stage, the United States at midcentury might itself be said to have undergone its own type of "identity crisis," the language owing to Mead's friend and colleague Erik Erikson.[33] How to pattern such identities would prove essential to geopolitics, demanding new approaches drawn from across the disciplines.

We might take one of the canonical documents of the era as representative of this shift. In July 1946, the diplomat George F. Kennan dispatched his famous "Long Telegram" from Moscow to Washington, outlining the then-inchoate doctrine of containment to a closed circle of American intelligence officers.[34] At some 5,500 words long, its author was keenly aware of "burdening the telegraphic channel," but the urgency of the message was paramount, as suggested by the telegram's metamorphosis in 1947. This once deeply covert message underwent a very public airing that year when it appeared in *Foreign Affairs* as the essay "The Sources of Soviet Conduct." The title broadcasts the influence of the behavioral sciences on military strategizing—and the rhetoric of *patterning* by extension. There are references to the Soviets' "neurotic view of world affairs" and the "Soviet pattern of thought" throughout the essay. That the author's name in this psychologizing brief was only provided as "X" dramatizes the deadly stakes around which midcentury identity turned; for the revelation of that identity was nothing less than a matter of national security.

"The Sources of Soviet Conduct" would most certainly find an attentive audience among denizens of RAND, first and foremost Nathan Leites, the political scientist best known for his research on the show trials, an important collaborator with Mead, correspondent with Meyer Schapiro, and a colleague of Kennan's at the National War College.[35] Yet the article's fame within the literature of the early Cold War masks its methodological novelty, in which identifying the behaviors of the enemy as a *pattern* becomes a strategy to forecast future actions—and make principled decisions stemming from such findings. Indeed, by 1946, Kennan would have little need to explain this language to foreign policy analysts, Sovietologists, or other social scientists. Since the 1930s, at least, anthropology had been steadily shaping a notion of national character as a *pattern*: both a virtual and (for some of its adherents) a literal intertwining of culture, information, and personality.

To understand the implications of "pattern" as a period concept requires delving into the larger interests of culture and personality studies that shaped the term, and to chart those studies' impact for a nascent approach to visual culture studies, significant for the reception of abstract expressionism. Culture and personality (C&P) studies drew from the towering influence of Franz Boas (1858–1942), known as the "father of American anthropology" for the many institutional roles he assumed in both museums and academia, as well as his training of a formative generation of cultural anthropologists and ethnographers: Benedict, Mead, Edward Sapir, Arthur Kroeber, Zora Neale Hurston.[36] His career was not without controversy. Boas's outspoken stance on the entry of the United States into the First World War, and his excoriation of anthropologists serving as "spies"

during the period, earned him censure among the American Anthropological Association and then at Columbia University.[37] But Boas's activism, expressed consistently in statements against racism, fascism, eugenics, and anti-Semitism throughout the 1930s, chimed with the progressive methodologies he had advanced since the 1890s, based on the principle that cultures should be evaluated as integrated wholes rather than as biologically determined outputs. Countering the evolutionary orientation of British anthropology, replete with its own colonizing agendas, Boas argued instead for the contextual, historical, as well as contingent nature of cultural production, the ways in which a people's material traditions and behaviors are shaped by a host of "supraorganic" forces. His contribution is often reduced to the shorthand of "cultural relativism," due to his claims around the curatorial practices of ethnographic museums.[38] In 1897, he would write a foundational statement on the totalizing logic of such museums, which traditionally mounted displays of the same artifacts by different peoples to justify an orthogenetic reading of cultural development. "It is my opinion that the main object of ethnological collections should be the dissemination of the fact that civilization is not something absolute, but that it is relative," he wrote, "and that our ideas and conceptions are true only insofar as our civilization goes."[39]

The tenets of cultural relativism are at the crux of C&P studies, posed against the Eurocentric verdict supporting a telos-driven history. The former hierarchies dividing high culture and "masscult," the West from the rest, self from other, would be progressively eclipsed with the introduction of contextualizing criteria. As Margaret Caffrey writes in her biography of Benedict, C&P studies received institutional support from the Social Science Research Council Committee and the National Research Council Committee in the mid-1930s; Sapir taught a seminar on the topic at Yale in 1931.[40] Notions of cultural pattern or "patterning" served the interests of such studies fundamentally, as both trope and overarching method. Culture "patterned" an individual's relation to society, manifest in the ways of her behavior and personality. The extent to which individuals were active agents within the constitution of that culture—its pattern—was a topic hotly debated.

Caffrey notes that Boas and his students first deployed the concept of "patterning" as early as the 1910s, if in support of different research agendas. Sapir, for instance, was predictably concerned with its implications for language, as in the so-called Sapir-Whorf hypothesis; whereas Kroeber argued for "culture-element complexes"—that is, "patterned co-occurrences of cultural traits that marked different cultural groups."[41] Benedict was far from the first to make use of the term, in other words, but she would effectively popularize it with the appearance of *Patterns of Culture* in 1934, a book that would be translated into fourteen languages, sell over a million copies by the early seventies, and remain in continuous print since its release. In studying the Zuñi, the Dobuans, and the Kwakiutl, and striving to explain both entrenched traditions and social deviance, Benedict was "preoccupied with the question of coherence of culture" as evidenced by such patterns.[42] "A culture, like an individual, is a more or less consistent pattern of thought and action," as she put it, an observation that underscored the dynamic tension between collective and individual, whole and part.[43]

The notion of "patterns" of cultural behavior—and questions of identity by extension—hence owed to a diverse array of sources, and enjoyed a concomitantly broad reach across the humanities and social sciences.[44] The peculiar traction of C&P studies in the 1930s and 1940s may have been a function of the field's own hybrid status: its recourse to, as well as relevance for, the disciplinary interests of linguistics, psychology, and later the burgeoning field of information theory. In turn, cultural anthropology also drew from such disciplines as a means to support its scientific (and social-scientific) *bona fides* at the very moment when competing schools of anthropology might criticize its approach for being more speculative—or even aestheticizing—than empirical.

To this later point, Benedict, Mead, and their colleagues were particularly engaged with the schools of Gestalt psychology arriving from Germany in the 1920s. Gestalt theory advanced a holistic model based on the perception of a dynamic and relational ordering of things—their structure, outline, or shape—over the behavioristic parceling of sensory or atomistic data: perception treated as an aggregate of sensory elements. In distinction to functionalist models of anthropology associated with the likes of Radcliffe-Brown, Gestalt theory offered anthropologists the notion of configuration, an underlying "form of pattern that linked facts and events with the attitudes and beliefs underlying them."[45] According to Mead, Benedict had been introduced to Kurt Koffka's *The Growth of the Mind* sometime in

the early 1920s; for her part, Mead brought the text to Sapir's attention in 1925. (Sapir would soon after collaborate with the psychologist Henry Stack Sullivan in elaborating his own approach to culture and personality studies—a point of intramural interest given the latter's subsequent treatment of Clement Greenberg.)[46] Discussions around the book were prompted further by a shared interest in Jung.[47] Benedict put it plainly: "Gestalt psychology has done some of the most striking work in justifying the importance of this point of departure from the whole rather than the parts."[48]

The interests of pattern and gestalt were not restricted to anthropology proper but were, like the very phenomena they surveyed, generalized across the social sciences and hard sciences. As Kennan's example suggests, the applications of pattern extended beyond the purview of academia to matters of geopolitics—and the new strategies and technologies born of the war effort implicitly. Indeed, Benedict had been asked to pen a study of Japanese personality by the US State Department and the Office of War Information following the success of *Patterns of Culture*. Her *The Chrysanthemum and the Sword: Patterns of Japanese Culture* (1946) was faithful to the spirit and means of the earlier title, explaining to her American audience the behavior of the Japanese Other during wartime.

If Gestalt psychology informed the anthropologist's investigations in the 1930s, the concept of pattern as *information* would become central to the revolutions in computing advanced at midcentury by the likes of the mathematicians Norbert Wiener and Claude Shannon, both critically implicated in the Cold War struggle to decode the messages of the enemy.[49] Wiener in particular was party to the anthropological turn of military strategy due to his social and intellectual proximity to Benedict, Mead, and Bateson. All were participants in the groundbreaking Macy Conferences of 1946–1953.[50] These multidisciplinary meetings, attended by some of the most important psychologists, mathematicians, anthropologists, and engineers working at the time, have become synonymous with the emergence of cybernetics—the new science of control and communication of messages that paved the way for the digital age. Social scientists debated with mathematicians and neuroscientists on the gestalt, but the notion of "pattern" proved a durable, transdisciplinary conceit. Pattern would be a guiding principle within cybernetics—a means to communicate in an increasingly noisy signal world. As Wiener wrote in 1950 in his bestselling book *The Human Use of Human Beings*, "Messages are themselves a form of pattern and organization."[51]


1st Row: T. C. Schneirla, Y. Bar-Hillel, Margaret Mead, Warren S. McCulloch, Jan Droogleever-Fortuyn, Yuen Ren Chao, W. Grey-Walter, Vahe E. Amassian.
2nd Row: Leonard J. Savage, Janet Freed Lynch, Gerhardt von Bonin, Lawrence S. Kubie, Lawrence K. Frank, Henry Quastler, Donald G. Marquis, Heinrich Klüver, F. S. C. Northrop.
3rd Row: Peggy Kubie, Henry Brosin, Gregory Bateson, Frank Fremont-Smith, John R. Bowman, G. E. Hutchinson, Hans Lukas Teuber, Julian H. Bigelow, Claude Shannon, Walter Pitts, Heinz Von Foerster.

2.7 Josiah H. Macy Conference, 1953. Courtesy the Josiah Macy Jr. Foundation.

Here I need to pause and make an obvious, if important, point. To chart patterns of behavior as a means to establish identity, predict a subject's actions, and devise strategies or make decisions as a result is hardly the same thing as identifying graphical or plastic patterns. To make such a pattern and to read such a pattern are not equivalent exercises. Just how one performs the latter with respect to the former—that is, reads a literal pattern as a spatial analogue to a set of culturally shaped behaviors, crystallizing as individual action—is far from given. Cultural configurations may well be irreducible to material configurations; the anthropologist's projection may well stand for interpretation. "Disciplined subjectivity" was the phrase given to this necessarily subjective pursuit.

Benedict and Mead, however, might occasionally stand accused of conflating these principles. Visual art and media might formalize such patterns of behavior. An acute attention to form was thus essential to such readings. As Mead would note of Benedict's approach, culture was "treated as a problem calling for the detailed analysis of specific forms—the design of the border of a pot, a particular way of making basketry."[52] One gleans from this comment that cultural patterns at large could be reduced to more local or specific visual details, whether the warp and weft of a textile or the bands encircling a pot or basket. The point was not to regard such details in isolation—this would contradict the logic of the gestalt, after all—but to assess part relative to whole. And in keeping further with Gestalt-oriented thinking, which sought to describe the act of perception not as discrete bundles of sensory data but as an infinitely more organic, or supraorganic, process, the anthropologist needed to evaluate such forms in analogously holistic, even bivalent, terms. Mead notes, "there was an emphasis on possible reversibility—on the possibility that representational designs could become geometric and geometric designs representational."[53]

Stress is placed on a reciprocal dynamic between geometric (read: abstract) patterns and representation; that is, an oscillation between the nonobjective and the figurative in which cultural character might be determined through a practice miming the interests of formal analysis. Implicit in this approach to form is the Gestaltist's abiding interest in visual reversibility and figure/ground relations. What Mead is flagging is a principle of visual reversibility in which an abstract pattern might encode referential meanings, and representation might in turn be viewed as abstraction. A visual pattern—something so mundane as a geometric border, a series of lines, a scattering of dots, the symmetrical ordering of elemental units—communicated something larger about the culture from which it came than a simple record of mark making. A concrete referent might be attached to an abstract line; a personality and culture telegraphed in a gesture. The seemingly errant detail, scrupulously analyzed, might communicate something global about the society out of which it sprang, a worldview distilled to points, lines, and dashes. And all of this as a means to bridge disparate things, to make unlike like: to establish a morphology of the same based on difference. All in the service of *as if*.

Which is not *unlike*, we might say, the drip of a Jackson Pollock.

Culture at a Distance: Art and Anthropology with RAND

We have now arrived at the juncture between midcentury anthropology and midcentury modernism, a relationship, we noted at the outset, well addressed by a certain genre of abstract expressionist criticism. Mostly that literature is concerned with a primitivizing version of anthropology, where the material culture of Indigenous peoples is recruited as evidence of Euro-American superiority, with the historiographic verdict issued against the field being irredeemably colonizing. We cannot ignore the relevance of Pollock leafing through all those annuals from the Bureau of American Ethnology; or the popularity of Joseph Campbell to various members of the New York School; or how the symbology of "primitive" peoples is writ large in the work of Adolph Gottlieb or so many others. But the relativizing dimension of Boasian anthropology—and its explicitly liberal politics—raise a different set of questions for the figures who concern us, particularly as they would turn their ethnographic lens upon their own culture.

For her part, Benedict made ample reference to art history in *Patterns of Culture*, citing Wilhelm Worringer's account of Greek and Byzantine art as informed by a holistic approach recalling the gestalt.[54] And in language that would not seem to jibe with anthropology (and was indeed controversial to more conservative schools within the discipline), she would also seize upon Nietzsche's aesthetics to characterize the cultural

configurations of the Zuñi, whom she saw as largely Apollonian in their austerity and rigor.[55] But if these were reflections penned in the mid-thirties, what did the visual and artistic field enable *after* the war for like-minded anthropologists, when pattern recognition assumed the status of Cold War hermeneutics?

For the purposes of Benedict and Mead's notion of "culture at a distance"—the study of cultures otherwise inaccessible to the anthropologist in time and space—the identification of such patterns as visual images allowed for a tactical engagement with their nationalist

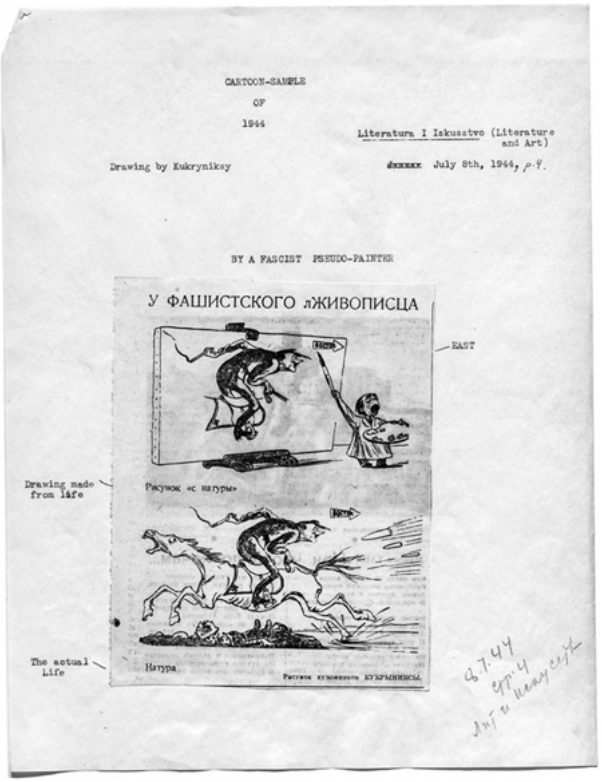
subjects. To use visual material as formative media in such interactions meant that one needn't be wholly fluent in a foreign language nor endure the on-the-ground demands of fieldwork, impossible behind the Iron Curtain in any event. The ground for these visual tendencies had been set prior to Benedict and Mead's contract with RAND, when the extensive photography produced by Mead and Bateson in Bali was considered a pathbreaking use of ethnographic media in the late 1930s.[56] I can only acknowledge the role of photography in passing to suggest the progressive deployment of such novel media in the anthropologist's analysis of national cultural types.

What this *does* suggest is a certain faith placed in the transparency of the visual; that the recurrence of national behaviors would form around the interpretation of the image from across the spectrum of visual culture; and that the identity of their subjects relative to the endlessly qualified notion of "national character" could be registered through their own reflections on such images. In this regard, Research in Contemporary Cultures, and its RAND-related projects, was at the leading edge of visual analysis in the Cold War avant-garde.[57] Take the work that went into Mead's edited volume *Soviet Attitudes toward Authority*, the book commissioned by the RAND Corporation as an outcome of *Studies in Soviet Culture* (1949–1950). Benedict had been in contact with Project RAND since 1947. By 1949, the year after she died, the think tank had become an independent,

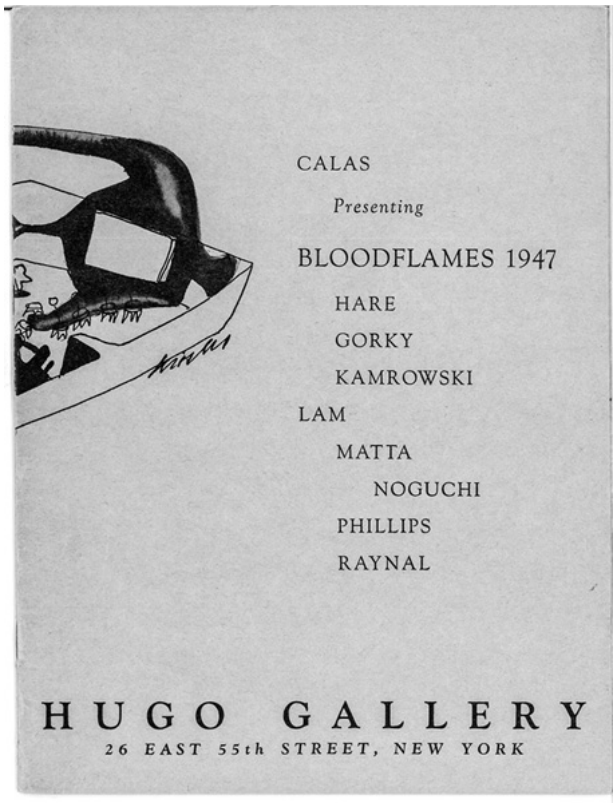
nonprofit corporation, with offices both in Santa Monica and Washington. RAND would continue its work with Mead, the American Museum of Natural History, and professors from Columbia, Yale, Harvard, and MIT to complete a study called "The Postwar Soviet Image of the United States." The English anthropologist Geoffrey Gorer, collaborator on the project, wrote a position paper on the importance of new visual media in his essay "The Use of Graphic Media in Teaching Regional Specialists." "Students of foreign countries who have not had any opportunity of visiting these countries," he wrote, "can gain considerable insight into some aspects of the attitudes of the people by a study of collections of their graphic art."[58] Gorer was clear that he was mostly interested in "popular art," by which he meant political cartoons, comics, and the like. Hence the preponderance of "cartoon samples" flooding Mead's archive, visual briefs from the Soviet Union and the United States that served to illustrate collective attitudes toward both fascism and the Cold War.

In other words, the media culture of the Cold War, its contemporary *visual* culture, was receiving unprecedented attention from an interdisciplinary group of thinkers. This expanding anthropological archive meant not only an engagement with cartoons, comics, and popular films but—critically—with modern art. Perhaps the relativist foundation of Mead's training—the Boasian rejection of evolutionary, comparatist approaches to culture—effectively leveled whatever hierarchies obtained between fine art and popular visual media.

Modern art would assume signal importance in this regard: the convergences between this particular group of anthropologists and the officially sanctioned institutions of modernism were legion.[59] The example of the poet Nicolas Calas is especially instructive. Born Nikos Kalamaris in Lausanne in 1907, raised in Athens, and a surrealist insider in Paris, Calas became a close associate of Mead in working on the Research in Contemporary Cultures project at Columbia. But he was as much drawn to Midtown as to uptown, in the thick of the modern art scene as well as the world of academic anthropology. Calas's avant-garde commitments found curatorial expression in 1947 when he presented the show "Bloodflames" at the Hugo Gallery. As designed by Friedrich Kiesler, the exhibition included a mixed demographic of second-generation surrealists—Matta and Wilfredo Lam, for instance—and members of the burgeoning New York School, including Isamu Noguchi, David Hare, and Arshile Gorky.



2.8 Comic samples. Margaret Mead Papers, Library of Congress, Washington, DC.



2.9 Cover, catalogue of exhibition “Bloodflames,” organized by Nicolas Calas, Hugo Gallery, New York, 1947. © Nicolas Calas Estate, Louisiana Museum of Modern Art, Humlebæk, Denmark.

Importantly Calas did not compartmentalize his curatorial interests and his anthropological investigations. In “Précis for a Cultural Analysis of Modern Art,” a

manuscript in the Mead archives intended for publication in *The Study of Culture at a Distance*, he reads the new anthropological methods as continuous with the new abstract art, which he would refer to as "athematic":

> From the time I started working, three years ago, on the Columbia University Project for Studies in Contemporary Cultures, I became aware of the desirability of extending this type of research to the field of modern art. . . . Instead of "explaining away" the work of art, which invariably happens when we replace the study of the painting by the history of its economic . . . origin, let us try to reduce it to the proportion of a segment of a broader pattern.[60]

The language of modernist abstraction and anthropological patterns is seen as more than just comparable; they are equivalent:

> When the abstract artist is expected to paint what he does not SEE in the world . . . can only be understood after the spectator has learnt to interpret the picture in relation to the psychological patterns it conforms to. Patterns, however, used by the painter are part of the broader pattern which is revealed in every aspect of life and should therefore be compared with patterns discernable in other fields of human activity within that society.[61]

Calas will further suggest that abstract painting be viewed as "documents communicated in a pictorial language"—artifacts of a given culture which might be "deciphered on the X-ray level of psychoanalysis."[62]

Calas's essay was ultimately not published in *The Study of Culture at a Distance*, even though one draft merited a rigorous edit. Most likely his poetic phrasing would not bear the burden of social-scientific analysis. For this reason, Part 7 of the book—on the use of Projective Tests—is especially instructive in its meshing of humanistic interests with social-scientific methods. Including the Rorschach test and a novel new drawing completion test—call them the inkblot and the empty square—these instruments were used to discern the behavior of national character through the interpretation of visual patterns. They found a strikingly widespread reception—and bear even more surprising implications for midcentury abstraction.

The Inkblot and the Empty Square

The extraordinary vogue for projective tests at midcentury—tests using ambiguous visual media to assess the personality of their subjects—has a long and convoluted back story I can only acknowledge in passing.[63] Historians have drawn a longer kinship between the stains of a Leonardo—a crack in the floor or spit hawked on the wall—and the Rorschach blot as visual tools through which the psychodynamics of the subject might be expressed. For his part, Hermann Rorschach came to the technique as a young man divided between his obsession with art and his destined vocation as scientist.[64] Fascinated with the game of blotto or klecksography as a child, he developed what he called a "form interpretation test" using ten cards. Rorschach was deeply embedded in the psychoanalytic milieu of early twentieth-century Switzerland, studying with Eugen Bleuler and influenced by Bleuler's associate Carl Jung. Jung's own theories of word association would prove significant in the historiography of the Rorschach test, a point I mention in light of Pollock's own Jungian investments.

Rorschach's magnum opus on the topic, *Psychodiagnostics*, was largely neglected by the German-language psychoanalytic community when it was published after his death in 1921; its English translation followed in 1942. This did not stop the mania for "projective tests" from taking off in the United States at midcentury. For their critics, "projective tests"—as opposed to "objective tests"—seem to have granted a kind of interpretive license to the examiners that failed to impress the social sciences. Yet some of the most progressive social scientists embraced such tests, claiming that the visual phenomena could be subjected to formalization, and that the mobility of the image being used was key to addressing important social needs of the postwar years. Lawrence Frank, psychologist, friend of Mead, Bateson, and Wiener, and important Macy Conference participant, coined the term "projective methods" in 1939. He opened his foundational statement on such techniques by justifying their use relative to the military:

> It has become evident that as a people we are exhibiting many forms of personality difficulties, as dramatically shown by the frequency of rejections by the Selective Service and the discharges from the Armed Forces by various personality disorders.[65]

Due to the small number of psychiatrists and psychoanalysts available to "meet the demand for individual diagnoses and treatment of the large numbers in need of such care," Frank advocated a growing reliance on diagnostic tests. Projective tests, he suggested, "might provide a more immediate point of entry into shorter forms of psychotherapy."[66]

Art historians may find it difficult to take seriously what Benedict, Mead, and their colleagues considered groundbreaking visual media back then—media as radical as any form of vanguard painting. For good reason, we have been warned off the pseudomorphic tendencies of comparing an inkblot to a Jackson Pollock, two resolutely *unlike* things of genetically removed origins. And yet in treating the Cold War's relevance for contemporary culture, we need to be attentive to the historiographical interests of an approach that might now seem a category error. To ignore what was deeply historical about these approaches is to miss an opportunity to reflect on current habits of seeing.

To be sure, the aesthetic dimensions of such methods found welcome audience among cold warriors as well as their most vocal critics. As a period method, projective tests placed a formative stake in visual media *as* information. Such techniques were so pervasive, in fact, that they could be described by one occasional subscriber living in the United States at that time, Theodor Adorno, as "ambiguous and emotionally toned stimulus material . . . designed to allow a maximum of variation and response from one subject to another."[67] In seeking to identify the behaviors of the authoritarian personality circa 1947, Adorno and his UC Berkeley colleagues researching "Studies in Prejudice" would themselves negotiate the closing distance between the social sciences and visual culture, even as Adorno inveighed against the increasingly beleaguered fortunes of aesthetic autonomy.[68] As it was, this most mordant of social critics was not immune to the rhetoric of patterns himself, publishing in 1951 on fascist patterns of propaganda.[69] And Mead, for her part, would likewise publish in the Institute of Social Research—a point of contact which may seem surprising to some.[70]

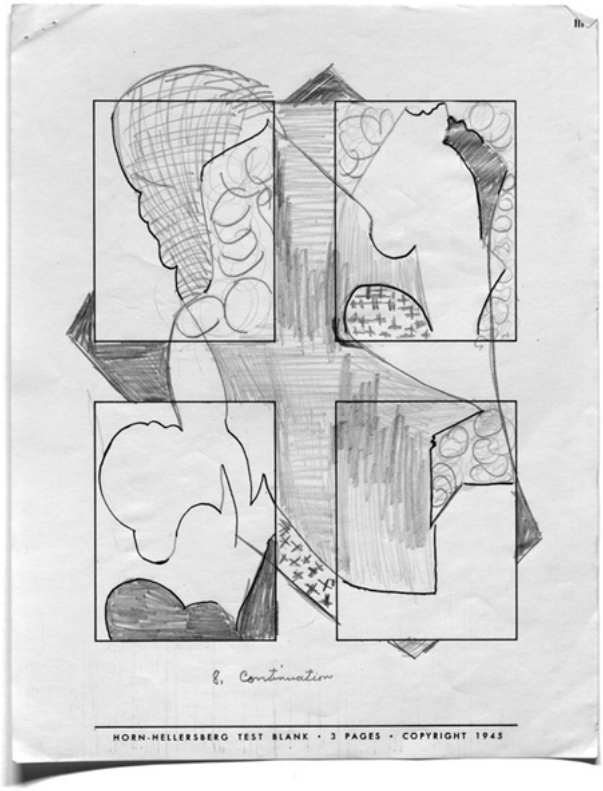
A few years later, in *The Study of Culture at a Distance*, Mead and her colleagues Theodora Abel and Frances L. K. Hsu deployed such tests in the analysis of Chinese immigrants living in New York City.[71] They included the Rorschach inkblot and another exam called the Horn-Hellersberg drawing completion test. Mead's introductory statement on the topic flagged the potential limits of such approaches, but also admitted that they could be "extremely congenial research tools" that might "present a *highly formalized and relatively exact way of coding materials* to be communicated to other projective test workers."[72]

For her part, the psychoanalyst Elisabeth Hellersberg invented the drawing completion test with an arts educator named Carl Horn.[73] Copyrighted in 1945, it consists of three pages of four empty squares, with each containing a number of lines taken from internationally known paintings. (The squares would later become rectangles.) The subject was instructed to make a picture out of every cell, using the given lines. She was then invited to write a caption or title underneath the image and to orient the page in any direction. On the last page, she was encouraged to draw unrestrictedly, outside the lines so to speak. The subject would then be interviewed by the analyst/anthropologist, and her interpretation of the test and the resulting drawings would be studiously recorded.

2.10 Cover (designer unknown), Theodor Adorno, *The Authoritarian Personality*, Part One, Science Editions imprint (New York: Wiley, 1964).

Mead's use of the drawing completion test reveals anthropology's aesthetic attitudes toward modernist abstraction. In 1953–1954, she was conducting fieldwork in Papua New Guinea on the Manus Islanders over two decades after her first visit there; the trip would be documented in the book *New Lives for Old*.[74] Mead arrived with an arsenal of new visual tests, including the Bender Visual Gestalt Test, the Lowenfeld Mosaic Test, the Rorschach test, and several others. Activities involving drawing and sculpture were also incorporated into her fieldwork.[75]

Mead was not above subjecting her colleague, Lenora Schwartz, to something like an anthropologist's parlor game, which touched decisively upon the affinities between Cold War method and midcentury modernism.[76] Consider a suite of drawing completion tests. A page entitled "Continuation" at once recalls a Gestalt exercise in figure/ground reversals and a wan approximation of a cubist still life. A grid of rectangles is repeatedly traversed and confused by a veritable catalogue of abstract gestures: short hatch marks; curlicues and loops; small, notched crosses. Some of the figures bear faintly organic associations, while others are more geometric. Perhaps we read a profile here or there; meanwhile another cell will position dark against light. Grounding the overall composition, such as it is, is the suggestion of a dark quadrant in the background tipped on its side, endowing the image with a dynamic, because off-kilter and unfinished, sensibility.



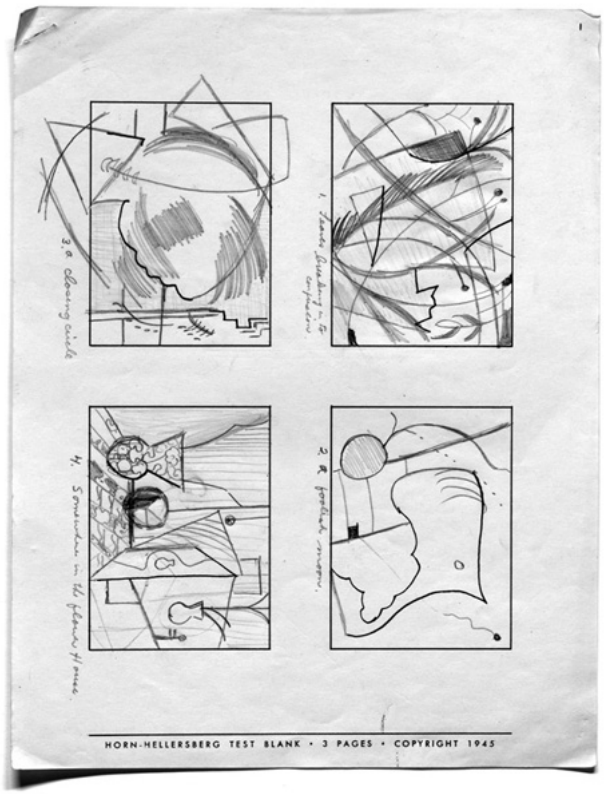
2.11 Margaret Mead with Lenora Schwartz, drawing completion test, Manus Islands, 1953–1954. Margaret Mead Papers, Library of Congress, Washington, DC.

Other pages likewise confirm an aesthetic intelligence. In the work in the upper left corner of one sheet, entitled "Leaves breaking into confusion," we see biomorphic and geometric forms converge in a spatially ambiguous, allover field. The statement accompanying the image reads: "I'm thinking of every line as an important meaning, so that if I have a line going this way, and it seems to overbalance or destroy the balance of the picture, then I'll either have a counteracting one or one in back of it." Here the subject plays the part of garden-variety formalist with a rudimentary grasp of compositional strategies. She will describe how some vaguely representational elements push against a wholly abstract interpretation. The introduction of a leafy motif, for instance, pulls the analysis in a suggestive direction. As the statement further reads, "yes they are leaves . . . a little bit of realism is more or less a cue, but the rest is the physical property of the leaf rather than the appearance of the leaf." Both ends of pattern recognition are accounted for here, in an ambiguous visual drawing suspending the representational and abstract.

A drawing in the upper right-hand corner, "A Foolish Moon," is even more explicit in its modernist references. It's a spare exercise in which the ground of the image supports surrealist motifs and geometric shapes. The subject reports that the work was "a little ridicule of Miro's figures." While taking a swing at one of modernism's key players, she will go on to ventriloquize the language of abstract expressionism. Like Jackson Pollock, who could not help letting representation emerge from the web of his abstractions, the subject of this test describes a near-identical process. "I try to work purely on a subconscious level and just let my hands direct me," she states, "I didn't want to think too much of it." Which is to say: such abstract forms—better yet, patterns—reveal the workings of her interior life, without editing, rationalization, or censorship.

Abstraction is cryptic, murky, and occult. During the early years of the Cold War its projected meanings could not help assuming a military aspect. Scholars commissioned by RAND would marshal their diverse expertise in reading analogous patterns, bridging the divide between art and a broader visual culture, and between the humanities, social sciences, and hard science. This unprecedented interdisciplinary exercise anticipates the laboratory culture of so many universities today, in which art, or visual culture broadly speaking, serves as a kind of intelligible resource material for any number of inquiries from across the academy. But such tendencies will migrate to even larger spheres of influence.

Some seventy years plus after the fact, pattern recognition finds its digital legacy in the culture—and indeed, *economics*—of the algorithm and the data set. A computer might now read *our* patterns of behavior online; it might read them ubiquitously. It might then generate its own patterns in turn as a means to predict our future ways of communicating, seeking information, and, most perniciously, our habits of consumption.



2.12 Margaret Mead with Lenora Schwartz, drawing completion test, Manus Islands, 1953–1954. Margaret Mead Papers, Library of Congress, Washington, DC.

In 1947, the military entanglements were enough. For an exhibition staged at the Museum of Modern Art a few years earlier, Gregory Bateson wrote what would amount to a prophetic statement for the year that concerns us: "There is one common ground between the scientific world of the anthropologist and the world of art: the idea that in some sense the artist expresses himself. . . . In time of war [this idea] may become as grim as a mathematical equation in ballistics."[77] As RAND collaborations would make plain, mixed teams of experts are required to decipher art's ambiguous signs. As grim as a mathematical equation in ballistics, social scientists would attempt to extract such identities from the visual field as so many shadowy, abstract patterns.

3

1973; or, the *Arche* of Neoliberalism

> If it works, it's out of date.
>
> Stafford Beer, *Brain of the Firm*, 1972[1]

Artifact 1: *Multinode Metagame*, Part 1, 2007

An old munitions factory in southwest Germany has been rehabilitated as a proving ground for new media art. Once staffed by prisoners of concentration camps, it now hosts a notoriously capacious genre encompassing a range of materials, forms, platforms, and technics. Whether the virtual, robotic, or biological, the hard shell of the interface or the soft worlds of 0s and 1s, the Center for Art and Media in Karlsruhe (Zentrum für Kunst und Medien, ZKM) has showcased some of the most vanguard aesthetic practices since its founding in 1989, that signal year precipitating the end of the Cold War. Here, in what is often called the "digital Bauhaus," the usual stuff of art making—linseed oil, canvas, shaped clay, forged metal, paper—can only assume a vestigial function.[2] Such are the relics of a medium age that, if by no means consigned to the past, might by any other measure be considered historical.

But the artifact that opens this chapter will put critical pressure on the term "new media" art and a distinct approach to think tank aesthetics. History itself is our central problematic. Making its dual and inseparable appearance in 2007, the *Multinode Metagame* is an ongoing project by Chilean artists Catalina Ossa Holmgren (b. 1982) and Enrique Rivera Gallardo (b. 1977), known collectively as or-am. It was "an internet connected installation that would inhabit different corners of the world"—these corners being the dedicated art space that is ZKM and the cultural center at La Moneda, the Presidential Palace in Santiago. In Santiago it featured in an exhibit devoted to an "open archive" of Chile's recent history;[3] in Karlsruhe, on the other hand, the work appeared in a group show called "YOU_ser: The Century of the Consumer," the title flagging the routines of digital exchange. A glancing view of the project would seem to satisfy all the criteria of this transactional ethos. There's the requisite darkened gallery, a flashing screen populated by moving images and scrolling data, and a user-friendly control panel embedded in the arm of an ergonomic chair, soliciting the viewer to create new streams of information in real time with an imagined receiver stationed elsewhere.

3.1 Zentrum für Kunst und Medien (ZKM), Karlsruhe, Germany. © Foto: ZKM | Zentrum für Kunst und Medien Karlsruhe, Foto: Artis Deck.

3.2 Palacio de la Moneda, Santiago de Chile. Courtesy Miguel Hernandez/CC-BY-SA 2.0.

3.3 or-am (Catalina Ossa and Enrique Rivera), *Multinode Metagame*, 2007, ZKM, Karlsruhe. © or-am, © Foto: ZKM | Zentrum für Kunst und Medien Karlsruhe, Foto: Anatole Serexhe.

3.4 or-am, *Multinode Metagame*, 2007, ZKM, Karlsruhe, detail. © or-am, © Foto: ZKM | Zentrum für Kunst und Medien Karlsruhe, Foto: Anatole Serexhe.

3.5 or-am, *Multinode Metagame*, 2007, ZKM, Karlsruhe, detail. © or-am, © Foto: ZKM | Zentrum für Kunst und Medien Karlsruhe, Foto: Anatole Serexhe.

The game is forthcoming in its gratifications. It appeals to the present tense of the viewer, whose agency is registered by the spectacular display of her input, mediated through a sleek armchair interface. In this it wholly satisfied the premise of the ZKM exhibition, which meant to celebrate that user as a *consumer* controlling her environment through the rhetoric of a virtual market. In the here and now of a contemporary art museum—that fabled digital Bauhaus—we're navigating an agora of data, information to barter and trade.

Peter Weibel, the pivotal experimental artist of 1960s Vienna and founding director of ZKM, would describe the emancipatory prospects of such exchanges. He wrote that the show was premised on the possibilities of "computerized planetary networks and their corresponding technologies, and the 'sociological' change they might bring with them": "the installations shown at this exhibition bear witness [to] the incorporation of the contributions of every user within an artistic context, and offer the 'spectator' and user the possibility of emancipation."[4] The consequence is that each individual's input amounts finally to a collective output, guided by recursive loops of information. The temporality of the work, for this reason, might be described as *proleptic*, projecting forward in time so as to anticipate the user's "emancipation."

Yet we need only stay a bit longer with the *Multinode Metagame* for something decisive to shift, as if the work sought to complicate both the real-time and speculative premises of

the exhibition. A carousel slide projector, old-school media long out of production, clicks along in another corner. A march of archival documents is projected as a "digital book," betraying their vintage through the archaic inscription of a typewriter. Meanwhile an actual book is enshrined in a neighboring vitrine. Interviews with older men—the collective gray eminence of systems theory and cybernetics—appear on nearby monitors. Ambient music from the 1970s floats a faintly nostalgic soundtrack. No matter the seductions of contemporary media, in other words, history drags us back. History will pull us out of the feedback loop of a perpetual present affirmed by the novelty of the game's technics. We learn, for one, that the prototype for the *Multinode Metagame* dates from 1973, well over thirty years before its renovation by two artists born after the fact of this pivotal date. And we sense that to classify the prototype in aesthetic or outright artistic terms seems a provocative gambit, if not misrecognition, on their part. For the technology of that prototype would seem as obsolete as the ideological agenda of its original makers. It's an agenda to which the business of contemporary art might seem incidental at best.

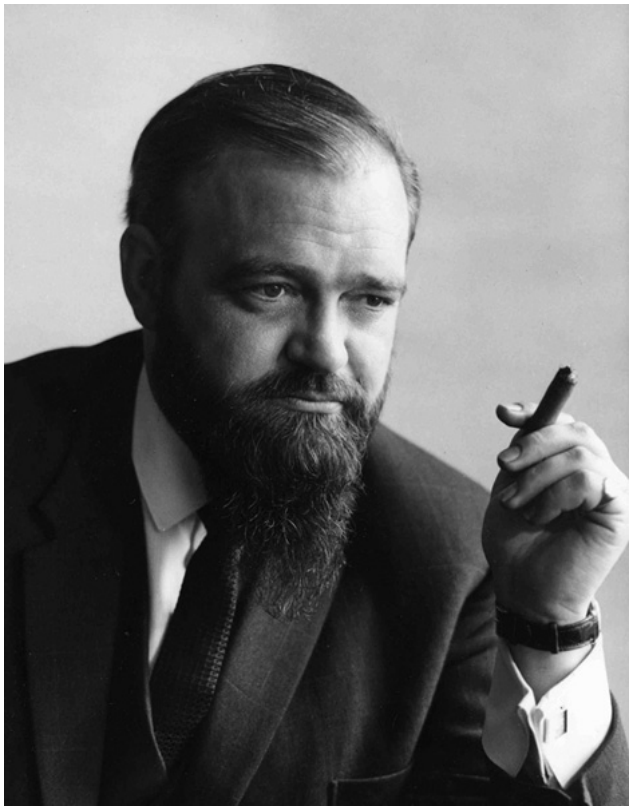
Indeed, the *Multinode Metagame* will restage and update the control center—the Operations Room ("Opsroom")—of Salvador Allende Gossens's planned economy for Chile named Project Cybersyn, or El Sistema Synco. A neat contraction of the period terms "cybernetics" and "synergy," Cybersyn was designed to be a radical, real-time network for Allende's new socialist state in the era of Chile's Popular Unity Government (1970–1973), the coalition of leftist groups that elected him president by the slimmest of margins, on his fourth effort to win the office dating back to 1952.[5] Cybersyn, we need to state outright, existed mostly as prototype, a point that is fundamental to what follows. Some parts were operational—and they were deployed to critical effect in the three scant years of Allende's presidency, including during a notorious truckers' strike in October 1972—but the system as a whole was embryonic, on the way.[6] The Operations Room was constructed in the courtyard of the national telecom building on Avenida Santa María in downtown Santiago, a location that had formerly housed the Chilean offices of *Reader's Digest*—a point that its creators noted with some irony.[7] A directive was sent by the *Compañero Presidente* to move it to La Moneda on September 8, 1973, a trip it would never make. Pinochet's henchmen, who could little understand its uses let alone its strategic value, had it destroyed not long after September 11.

3.6 Stafford Beer, Gui Bonsiepe, et al., Operations Room (Opsroom), Cybersyn, Santiago de Chile, 1973. Courtesy Gui Bonsiepe.

Cybersyn was created by a mixed team of transnational specialists in various dimensions of operations research, with at least one participant trained in the doctrines of the avant-garde. Foremost among them was Stafford Beer (1926–2002), the British pioneer of management cybernetics. It was his book *Decision and Control* (1966) that inspired Fernando Flores, a Chilean engineer and academic working at the behest of the State Development Federation as a Cabinet member, to invite Beer to Chile in 1971. The team also included Raúl Espejo, an engineer and the operational director of the project; and critically, for our purposes, Gui Bonsiepe. Bonsiepe, a German industrial designer associated with the legendary Hochschule für Gestaltung—the so-called new Bauhaus of

postwar modernism in the German town of Ulm—was on the faculty at the Catholic University and a principal member of INTEC, Santiago's Institute of Technology. Beyond these three, a host of dedicated engineers, designers, students, and workers were integral to the project, overseeing the system's design and implementation—both software and hardware—and then the management of its day-to-day operations. The team included Sonia Mordojovich, Tomás Kohn, Rodrigo Walker, Roberto Cañete, Mario Grandi, Hernán Avilés, and Isaquino Benadof, among many others, including transnational consultants from the UK and elsewhere, and a team of graphic design students, Pepa Foncea, Lucía Wormald, Eddy Carmona, and Jessie Cintolesi, all women.

To say that Cybersyn was a complex affair in the history of computing, as well as one of the most contested set pieces in the computer's Cold War adventures, is to court understatement.[8] For the historian, Cybersyn presents considerable challenges in the telling, given the extraordinary circumstances supporting its emergence; its myriad technical, material, and interdisciplinary considerations; the legion of actors involved, both domestic and international; and the politics on the ground in Chile—and everywhere else, it turns out—supporting its creation and finally destruction. At its most basic, Cybersyn was organized into four interlinked sections, including:



3.7 Portrait of Stafford Beer with cigar, undated. Image courtesy Gui Bonsiepe.

3.8 Portrait of Gui Bonsiepe, undated. Courtesy Gui Bonsiepe.

3.9 Portrait of graphic designers for the Opsroom, from left to right: Pepa Foncea, Lucía Wormald, Eddy Carmona, and Jessie Cintolesi, Santiago de Chile, c. 1972–1973. Courtesy Pepa Foncea.

(1) Cybernet, a program in which, as Beer put it, "every single factory in the country, contained within the nationalized social economy, could be in communication with a computer";[9]

(2) Cyberstride, the software suite running it that would provide data from each factory;

(3) CHECO—the "CHilean ECOnomic simulator," a means to "model the Chilean economy and provide simulations of future economic behavior" so as to offer "policy makers an opportunity to . . . visualize different outcomes";[10]

(4) The Opsroom, the interface of the project and the crux of this chapter.

Cybersyn would be based on a network of 500 telex machines distributed throughout the 2,700-mile-long country (Cybernet) and connected by two computers, an IBM 360/50

machine and a Burroughs 3500 machine, to run the program Cyberstride.[11] It would follow Beer's concept of the "viable system model," a five-tiered system based on the human nervous system. Data would be input once a day from the newly nationalized industries contributing to the economy so that workers could share, circulate, and keep pace with information in something approximating real time, as a form of data-driven collectivism. All of this was to happen with the enthusiastic endorsement of the first democratically elected socialist president in Latin America, the physician whose support for Cybersyn was continuous with the technological affordances it bestowed upon *el Pueblo*. In a speech cowritten with Beer to inaugurate the project, Allende declared, "What you are about to hear today is revolutionary . . . not only because this is the first time that this is applied in the world, it is revolutionary because we are making a deliberate effort to give the people the power that science gives to us, enabling them to use it freely."[12]

Consider the revolutionary clamor to bestow cybernetic power on the people as collective and free. Consider the prospect of nationalizing the economy by computer as the expression of a supreme technological audacity, some two decades before the Internet would become fully global and operational, and well in advance of the algorithmic capitalism and data set that drives the current economy. Up to this point in our narrative, such powers have been recruited to serve vastly different agendas from Allende's, top-down in their hierarchy and directives and issuing from the United States almost exclusively for purposes of defense. There, science and reason might motor a war machine, anchoring the defense interests of McNamara's Planning, Programming and Budgeting System or its complement in the Pentagon's systems analysis, rationalized in bombing raids and torrents of napalm visited on a small nation in Southeast Asia. But science and reason could also do otherwise in the developing world, in a country whose principal resources in nitrate and copper had long ago been expropriated by British and American corporations and then, at least in part, taken back by Allende's predecessor in the presidency, Eduardo Frei Montalvo.[13] Science and reason, likewise, might take on a different disciplinary accent in the UK than in the United States, even as collaboration and exchange were *de rigueur* across transnational intellectual communities, not to mention allies whose militaries depended on technical advances in operations research.

The history of Cybersyn has exerted decisive fascination within computer science communities and media and technocultural studies for all of these reasons, first in rarefied journals devoted to cybernetics and management; on bulletin boards and chat rooms and increasingly fractious blog posts; in rigorously argued and brilliantly conceived dissertations; in books of fiction, plays, and even a *telenovela*. More recently, it has been described in manifestoes calling for a radically futuristic vision of work in a postcapitalist era, as it has also appeared in mainstream accounts—in magazines and podcasts—unpacking the Chilean experiment in relation to the sinister incursions of Big Data and the market.[14]

Not surprisingly, colleagues and friends of Beer kept the discussion alive—they had never stopped discussing it, to be clear—but around 2001, Eden Medina, a scholar of a different generation, began a dissertation at MIT that would treat Beer's cybernetic innovations specifically relative to the socialist Chile of the Popular Unity government. She would first collaborate with Weibel, Bruno Latour, and others at ZKM in describing Cybersyn as a platform in "making the Chilean economy public"; in 2011, she would publish *Cybernetic Revolutionaries*, her pathbreaking account of the project based on her doctoral thesis.[15] Andrew Pickering, for his part, would ground Beer's contribution in the distinct ecology of British cybernetics. Meanwhile, in 2007 Rivera and Ossa would revisit the Opsroom as a work of art and would not be the only artists or designers to do so, having begun the project several years earlier with a group of like-minded colleagues in Santiago. Indeed, the lengthening international roster of artists and designers who have addressed the project, whether in laudatory or critical terms, includes Nikolaus Hirsch, Michel Müller and Felix Huber, Mario Navarro, Pablo de Soto, the AvANa collective, and a design team called FabLab Santiago.[16] But the work of or-am, in concert with a consortium of international actors and institutions, was among the most sustained, thoroughly researched, and methodically drawn of the iterations that followed. The contemporary work would be realized in the spirit of Cybersyn itself—as a collective enterprise recruiting a diverse team of transnational participants.

In what lies the insistence of these aesthetic returns and their peculiar address to the present? Specific details concerning the *Multinode Metagame* will follow, but we need to

state our case explicitly at the start, given the larger interests of this book. As a case study in think tank aesthetics, treating the Opsroom as *art history* is both paramount and paradoxical. It may not be reducible to the discipline's intramural engagements, but for the historian of art the questions are unavoidable. They entail formalist and genealogical excursions; the warring entanglements of design theory and practice, no less than of aesthetics and politics; and unexpected constellations and surprising isomorphisms from across the visual field. Our questions center on the implications of restaging the cybernetic workings of statecraft, rooted in the directives of operations research, economy, and calculability, as a work of art, something like a socialist *Gesamtkunstwerk*. What transpires in so doing, in the frank metamorphosis from wonkish to artsy, such that the Opsroom lives on in a kind of suspended animation, as both historical remainder and speculative art project, swirling around the past, present, and future all at once? "Today, one is as likely to hear about Project Cybersyn's aesthetics as about its politics," Evgeny Morozov notes in his essay "The Planning Machine," a tacit prompt to consider those dynamics given Cybersyn's current artistic iterations.[17] Do *Multinode Metagame* and other media reenactments of the Opsroom only confirm the avant-garde's habitual anxiety about the aestheticization of politics: that historically radical phenomena are defanged as so much gallery spectacle? Or, in a cognate formulation, is this process only consistent with the fate of Cybersyn and the collectivist ideology it was designed to actualize—on the fast track to the end of the Cold War and the *end of history* along with it?

The official version of this history will tell us that Allende's dream was a mere blip in the natural course of things. The Opsroom was destined for La Moneda but would ultimately be destroyed after General Augusto Pinochet's *coup d'état* of September 11, 1973. With the extramural backing of Nixon's White House, Henry Kissinger and the CIA, effectively sanctioned by a cadre of free market economists associated with the Austrian School, the London School of Economics, and the University of Chicago, Pinochet was to lead one of the most brutalizing campaigns in Latin America's age of dictatorship.[18] The murder of more than 3,000 citizens, the kidnapping, torture, and disappearance of political dissidents, the mass exile, and the occult circumstances swirling around the deaths of figures ranging from Allende to the folk singer Víctor Jara remain traumatic and ever-present touchstones in the nation's public imaginary.[19] The memory of Cybersyn would first be scattered along with the engineers and designers who fled Pinochet's death squads. At least one (Flores) would be imprisoned on Dawson Island for three years before finding exile, first in Palo Alto and then in Berkeley. Another (Espejo) would make it to the UK, where he would become an influential professor; while a third would escape to Brazil, Argentina, as well as Silicon Valley (the itinerary of Bonsiepe). For his part, Beer, a distinctly colorful persona in the annals of think tank aesthetics—a bearded sybarite with his ready-to-hand stockpiles of whisky, chocolate, and cigars—would be irrevocably changed by what David Whittaker called "the loss of friends and the brutal shattering of a dream."[20] The trauma of 1973 compelled the cybernetician to reverse course. He would retreat to a cottage in mid-Wales to assume the ascetic's life, in a cabin with neither electricity nor running water. Quiet pursuits—writing poetry, tantric yoga, painting—would occupy his later years.[21] He too would prove an aesthete.

The Opsroom, as the brief suggests, is a relic of a failed utopia, a moment in history in which the prospect of aggregating data was equivalent to collectivizing the economy. Its fate would be entwined with Allende's fall and Pinochet's ascendance. It is fundamental, in other words, to a recent history of neoliberalism, where ideology masking as rational enterprise—the view of economics as dismal science—is imported from elsewhere but indivisible from mass atrocity on the ground. Chile, circa 1973, presages the onward march of neoliberalism, typically pinned to 1989 as the before-and-after moment signaling the fall of the Berlin Wall. Chile may well be the Cold War *ur*-test case of "creative destruction," generalized to mean the ways that capitalism effectively destroys particular economies, cultures, and ways of life in the interest of establishing new markets.[22] For this reason, as Peter Kornbluh acerbically notes, Chile has also become "the ultimate case study of morality—the lack of it—in the making of U.S. foreign policy, of this period."[23] But just how such history is narrated as a *fait accompli* or a "neo-fatalist ideology" (in the phrasing of Ernst Mandel) demands closer scrutiny than in generic accounts of the period. And perhaps something as *seemingly* tangential to this debate as aesthetics and a work of art might shed light on the workings of history itself as discourse, the material of which threatens to slip ever more precipitously into the Cold War past as we stare down the entrenchments of a neoliberal present.

Taking the artistic afterlives of Cybesyn as its point of departure, this chapter wrestles with these histories as artifacts in their own right, at a moment in which history is progressively demonized as an ideological contrivance, the abject spoils of neoliberalism. Francis Fukuyama, a member of the Political Science Department at RAND and later a trustee on its board, put it bluntly in the 1989 essay that anticipated his profoundly influential book *The End of History and the Last Man*: "An unabashed victory of economic and political liberalism" signaled "the poverty of materialist theories of economic development."[24] A workaday translation of this statement reads the economic and political liberalism represented by scholars from Chicago and Vienna as squashing the Marxist teleology—historical materialism—critical to the interests of Cybersyn. As understood by Milton Friedman and Friedrich A. Hayek, among others, Chile was all but a laboratory for the free market policies they had been championing since midcentury. On the topic of neoliberalism, Friedman could write in 1951: "The citizens would be protected against the state by the existence of a free private market . . . and against one another by the preservation of competition."[25] We'll see that Friedman, Hayek, Karl Popper, and Ludwig von Mises were frequent habitués of the postwar think tank and its cognate social and intellectual worlds, first as founding members of the Mont Pelerin Society (a neoliberal "thought collective," in the words of Dieter Plehwe, or a "study group" to follow Hayek) followed by the American Enterprise Institute in Washington, DC, the Hoover Institution on War, Revolution and Peace at Stanford University, and the Cato Institute, among other such organizations.[26] Of all these figures, Hayek incarnates an especially important vector in this network, due to his intellectual peregrinations within the worlds of systems discourse and cybernetics.

To such ends, an assemblage of diverse artifacts is charted in the following pages, interweaving three larger claims about the afterlives of the Opsroom as both history and art history.[27] Following no one direct path nor cohering as an inexorable narrative, they are presented in the multinodal and recursive fashion advanced by the work of both Beer and or-am: as proliferating points of communication and distribution within a larger network. Like the object they both present and re-present, their relations could be described as *alineal*, challenging what Michel Foucault called "pre-existing forms of continuity" in his analysis of the unities of discourse.[28] Fundamentally I consider how the Opsroom's reimagining as a work of art is bound to a contest over history as much as to the protocols of new media, and a distinctly recursive temporality with which the historical project is concordant. I treat the Opsroom, its related epiphenomena, and the virtual assemblage of people and things it would effectively collate and disperse as the *arche* of neoliberalism.

The use of the term *arche* is meant to give pause.[29] The etymology and philosophical pedigree of the word, and the implied punctuality of the year in question, can only read as paradoxical given our relative historical proximity to September 11, 1973. *Arche*, by contrast, flags a question of origins associated with the pre-Socratic philosophers and the Aristotle of the *Categories*, *Physics*, and *Metaphysics*. It suggests foundations, first principles, and primordial substances or substrates. Deployed here, *arche* also telegraphs the term's multiple valences in power, control, command, and the *cosmos*. This is not to suggest that the events around Cybersyn's demise are the literal starting point or origin of anything like a neoliberal "epoch," a historically and methodologically indefensible claim at the very least.[30] It is, on the other hand, to grant authority to the art that gives such episodes visual and material form, and thus inaugurates a confrontation with these histories as the occasion for debates in the present. "*Arche* as it is understood in ancient Greek," Wolfgang Ernst reminds us, "is less about origins than about *commandments*."[31] This notion of command, and of control by extension, updated within the proto-digital worlds of the Cold War think tank, will signal the interests of power and epistemology that were the think tank's stock in trade. These are problems of media, control, and history we need to reckon with today, when access to, and the deployment of, such media will amount to questions of governance, sovereignty, and markets and the competing narratives of history around which they turn and are turned.

Arche also channels the familiar but perennially urgent interests of "media archaeology" and the archive, that diverse set of approaches to the history and theory of media ranging from materialist analyses associated with Friedrich Kittler and Ernst (both of whom would disassociate their work from such rubrics, or at least interrogate the relationship) to more cultural-studies orientations generally linked to Anglo-American scholars. Media archaeology has been called a "traveling discipline"—a branch of study without a stable,

institutional home.[32] This chapter is preoccupied neither with the warring methods nor with the historiography informing the literature of media archaeology but assumes its historically and topographically itinerant sensibility. It highlights an investment in outmoded media, time out of joint: the larger concern with the "dead ends, losers and inventions that never made it . . . into history."[33] Erkki Huhtamo refers to comparable aesthetic gestures as a mode of "time travelling in the gallery," dramatizing the scrambled temporal dynamics between contemporary media and the waste matter of the past.[34] We'll follow this lead in traveling great distances in time and space as well.

Departing from this conceit, a linked interest of this chapter considers the belatedness of the Opsroom for contemporary art. Throughout, I suggest that its appeal to recent art lies in providing a historical and aesthetic image of a *network* at the moment of Cybersyn's simultaneous constitution and demise, an intractable knot between its historical promise, never fulfilled; its destruction with the advent of Pinochet's regime; and its perpetual reimagining in the present. If the Opsroom has alternately been celebrated and derided as "Allende's internet," its retransmission as art occurs when the interdisciplinary mission of operations research is surpassed by the aniconic dimensions of a network too complex to be captured through simple representation.[35] What image, object, or thing is adequate to this charge; what aesthetic directives might provisionally crystallize such history as both visual and performative? The role of the designer Gui Bonsiepe is critical to our thinking in this regard, for his example brings to bear the optics of systems discourse, semiotics, and cybernetics on art, design, and modernist pedagogy. But other networks—surprising social relations among Cold War intellectuals, Hayek among them—will also emerge in the telling.

Third, *arche* will resonate with its more colloquial association in archaeology, as in the stuff that lies buried beneath the surface of things, or as "evidence" demanding the spadework of historical excavation, even of the recent past. The Opsroom will be constellated with other artifacts that might at first appear incompatible with the present interests of this chapter, but whose historiographic, ideological, and aesthetic kinship will prove both unimpeachable and heuristic. One example—Aleksandr Rodchenko's Workers' Club, exhibited at the Paris world's fair of 1925—is a prototype from the historical avant-garde. Like Cybersyn, its utopian sensibility was designed to advance the interests of the collective through a systematic presentation of knowledge and information. Another artifact, Patricio Guzmán's wrenching film *Nostalgia de la luz* (2010), telescopes the interplay between cosmos, time, and power—an *arche* of a sort—undergirding the catastrophe of Pinochet's regime.

"If it works, it's out of date," Stafford Beer mused in the epigraph to *Brain of the Firm*. The phrase catalyzes the interests of or-am and the trail of artifacts we'll follow. But if *it* never really worked in the first place, as the Opsroom failed to do, then *it* was *never* out of date to begin with. Which leads to our central line of questioning: what might its reimagining suggest about both the wages and erasure of the various histories orbiting around it, the strange temporality underwriting it, the aesthetics and media used to present it? Or even more bluntly: what about *history* as such, here treated as the ultimate artifact of the period in question? This is the rhetorical question posed by the Opsroom for think tank aesthetics, as the Cold War—too often relegated to the over-and-done-with in 1989, as the triumphant "end of history"—continues its steady bleed into the present.

Artifact 2: The Opsroom

We start with the Opsroom, the artifact upon which the contemporary work is based, and a brief on the larger project of Cybersyn it would come to represent. Our concerns hew to aesthetics. Medina describes the Opsroom as the "symbolic heart of the project," and it is this point that directs us to its formal characteristics. We'll examine it in apparent fits and starts, historical paroxysms that mime the irruption of narratives under discussion, gesturing toward earlier and comparable prototypes as well as futurist speculations.

On the cover of *Cybernetic Revolutionaries* or the flash page of the ZKM exhibition in which the *Multinode Metagame* was shown, a photograph of the original Operations Room taken by Gui Bonsiepe in 1973 and credited to the Grupo de Diseño Industrial telegraphs a vision of the future that would fail to come. Countless iterations of the image live online. It

pictures an interior whose contours at first read as ambiguous, with the walls at the back of the photo canted just so and the center of the room appearing to bulge, as if seen through a fish-eye lens.[36] White chairs dot the center of the room while the walls host screens whose appearance seems primed to receive data and images. References to *Star Trek*, *2001: A Space Odyssey*, and other cinematic situation rooms are habitual, often dismissive, in descriptions of Cybersyn—all too appropriate given its 1970s vintage—but little if at all discussed are the plainly modernist aesthetics underwriting this interior. There are good reasons to take the science fiction allusions seriously, as we'll later note, but there's also no mistaking that this is modernism writ large and stripped, form following function to service the goals of Unidad Popular. A room that would operationalize a nationalized economy would need to be appropriately ergonomic, up to the task, bold and rational. Its appearance should project a confident, headstrong futurity, striking a difficult balance between efficiency and utopia. On this count, the Opsroom is as evocative of its moment in early seventies Santiago as Albert Wohlstetter's Laurel Canyon home was of its, a modish fifties habitat for California's nuclear strategist. If at different poles of the ideological spectrum, both speak to their respective settings as charged with a sense of historical possibility.[37]

Wohlstetter's midcentury salon showcased the defense intellectual in recumbent cogitation. In the Opsroom we encounter not the traditional seats of power and control, with their gilded appurtenances hieratically ordered, but the brass tacks of the British war room mingled with the sleekness of a contemporary gentlemen's club. Medina remarks on the room's conflation of gendered spaces, from Churchill's subterranean Cabinet Room in Westminster to the closed social worlds inhabited by a privileged male demographic. The room is paneled in dark wood and outfitted with dark carpet, both accessible resources. The economic considerations would have been formidable given the relentless monetary crises besetting Allende's presidency, but the palette still projects the urbanity of its users. Here, then, we witness the aspirational brown of the early 1970s.

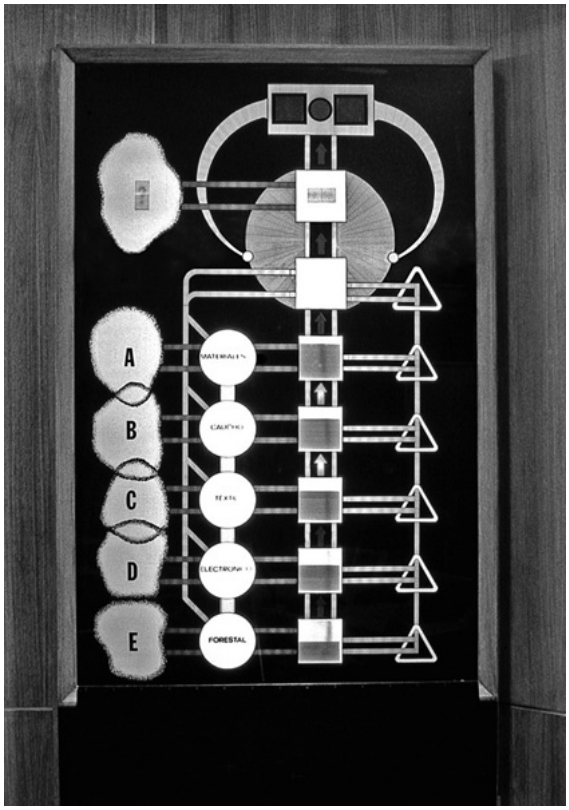
Notwithstanding such nods to masculine authority, the Opsroom would announce its democratizing premises in its plan, furniture, and five data displays, each consisting of multiple, interlinked elements in turn. Attention needs to be paid to the hardware of the room as the inaugural interface of what Beer would call "an environment of decision."[38] A semiregular hexagonal room provides open space and circulation as architectural analogue to the dream of communicational transparency it would announce; the larger plan would also include a kitchenette and maintenance areas outside the control chamber. Seven fiberglass swivel chairs (*sillones giratorios*) recalling Eero Saarinen's iconic tulip chair of 1957, if without the feminizing profile, are stationed at the center. "The 'chair' is the heart of [Cybersyn's] recursive system for collecting information," Maurice Yolles observes; and true to this point, its role goes well beyond mere furnishing.[39] Each sits on a round base, enabling a quick swivel for ease of neighboring discourse or relaxed contemplation; each is capacious with a burnt-orange cushion and backrest; each arm of the chair is outfitted to facilitate the room's operations. On the right arm, a keyboard is mounted with ten keys separated into three lines corresponding to DATAFEED, one of the display units. The left arm of the chair hosts a supporting, if far more quotidian, technology: an ashtray has been installed so that its user, occupying a nicotine-fueled seat of control, needn't hunt for the usual receptacles to catch the lengthening ash, a mundane distraction from the important decisions at hand. What is *not* provided in the room is as important as what is. The absence of desks (or any writing surfaces, for that matter) suggests that Cybersyn's vanguard modes of decision making would have scant use for such antique tools as pen and paper.

This is the fundamental architecture of the Opsroom, at least what's immediately visible in the images. The five information units arrayed on the walls are less obvious from Bonsiepe's photograph but are as much if not even more critical to the mission of Cybersyn in their projected visualizing of data streams in real time. In this regard, the room is wholly consistent with the multiscreen environments—not just control rooms—discussed by Beatriz Colomina, Reinhold Martin, and Fred Turner in the literature of Cold War architecture, aesthetics, and communications, if installed in ideologically disparate contexts (Turner, for instance, will address such environments relative to the construction of the liberal subject in the United States).[40] The Opsroom display units included: (1) DATAFEED, consisting of four acrylic screens housed in fiberglass cabinets, one large and three small; (2) a graphic model of Beer's "viable system model," a five-tiered system, based on the nervous system, describing "a management structure for the regulation of exceedingly complex systems" in the transmission of a message (it would come to be

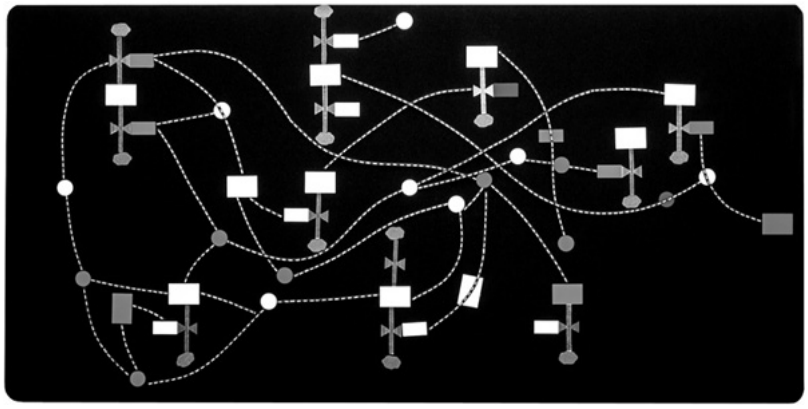
known among the team as “Staffy”);[41] (3) two backlit carousel projectors that, in the absence of a fully operational system, would simulate display panels by projecting hand-drawn images on the DATAFEED screens; and (4) an “algedonic” unit—a notion owing to Beer’s concept of the “Algedonode”—that would signal potential disturbances within the system, to be rectified by a higher order in the viable system model.[42] Finally, there was a “Panel of the Future”—a metallic board covered in felt with color-coded magnets intended to map the flow of information from one industry to the next. This frank simulacrum of a flow chart was born of the technical and material privations of early seventies Chile. In documentation for “Making Things Public”—the first appearance of the Opsroom at ZKM before or-am’s *Multinode Metagame*—Medina describes how the Opsroom “presented an *illusion* of socialist modernity and control that masked the difficulties of Chile’s economic transition and the precariousness of national order.”[43] The overarching goal, nonetheless, was to provide an immediately legible and graphic ordering of economic data delivering a visual punch, bold and impactful, equal to the vanguard politics it would advance.

3.10 Stafford Beer, Gui Bonsiepe, et al., Opsroom, Cybersyn, Santiago de Chile, 1973, detail.

3.11 Stafford Beer, Gui Bonsiepe, et al., data feed screens in the Opsroom, Cybersyn, Santiago de Chile, 1973, detail.



3.12 Stafford Beer, Gui Bonsiepe, et al., "Staffy," the viable system model, Opsroom, Cybersyn, Santiago de Chile, 1973, detail.



3.13 Stafford Beer, Gui Bonsiepe, et al., Panel of the Future, Opsroom, Cybersyn, Santiago de Chile, 1973, detail.

Describing these visionary new technologies and their appearance begs the question: How did this *almost* come into being? Medina powerfully narrates Cybersyn's evolution relative to Popular Unity, while Beer's legacy as a figurehead in the chronicles of cybernetics receives essential treatment by Espejo, Pickering, and David Whittaker, among others. For the interests of think tank aesthetics, the contours of Beer's background and management philosophy suffice as an artifact in their own right. By 1971, the year he was contacted by Flores, Beer had long enjoyed a successful career as the father of management cybernetics. Working largely in the private sector, he helmed Operational Research and Cybernetics at Britain's United Steel from 1956 to 1961 before assuming a codirectorship role with Roger Eddison at a new consulting firm called Science in General Management (SIGMA). It was there that the lessons of both OR and cybernetics might migrate to the interests of business; and it was around 1962 that SIGMA would be contacted by Chile's steel industry, leading to a project with the railways. As early as the 1950s, then, Beer's reach was considerable. He had been publishing since 1959, beginning with *Cybernetics and Management*, and proved a prolific and influential author, finding a welcome

audience in both private industry and academia, even as his formal education was limited.[44] Well after the demise of Cybersyn, he would continue his work in cybernetic management for the governments of Mexico and Venezuela. His archive overflows with extensive exchanges with the most important cyberneticians working in Britain, continental Europe, the United States, and Latin America, from his mentor, Warren McCulloch, to Heinz von Foerster to Ross Ashby to Humberto Maturana, and with admirers from far-reaching fields, including Brian Eno. As Morozov would later note, he would even have occasion to rub elbows with powerfully influential economists, thinkers of (neo)liberal stripe from Austria we'll encounter in short order.

Pickering contextualizes Beer's approach within the British cybernetic tradition. Compared to the military agendas of many, though by no means all, of their American counterparts, some of the most important British cyberneticians were involved in applications to postwar psychiatry. Describing British cybernetics as a "science of the adaptive brain,"[45] Pickering outlines the particular stress placed on the *performative* brain —its adaptive mechanisms—rather than on a stable representation of the brain ("representationalism") consolidated by modern science.[46] Performance rather than representation would guide Beer's undertaking. Pickering's consideration of this "protean" and interdisciplinary field of study engages its peculiar temporality as a result: it is "not of a world characterized by graspable causes but rather of one in which reality is '*always* in the making,'" and thus suggests "an evolutionary rather than causal and calculable grasp of temporal process."[47] Ross Ashby, who exercised a considerable influence on Beer, was to the point about cybernetic time. In *Design for a Brain*, Ashby underscores that such processes could not be reduced to teleology. "Never will we use the explanation that the action is performed because it will later be advantageous to the animal," he notes, emphasizing instead the "operational" method as party to the "art of survival."[48] Beer himself would emphasize the recursive ontology of the new socialist state as fundamental to questions of its growth and adaptation: "Recursively speaking, the Chilean nation is embedded in the world of nations, and the government is embedded in the nation"; he noted that "the time-scale of managerial problems is one of the most vital parameters involved."[49]

That Beer's work in the private sector might lead to such insights into government demands some explanation. For Beer, postwar management meant treating the "*brain* of the firm"—the title of his book of 1972, the first edition of which served as the playbook for much of Cybersyn, with the second edition extensively detailing Beer's role in the Chilean experiment after the fact.[50] Like any organism, a firm would need to adapt to the increasing complexity of the current business environment to survive. A holistic approach to management, one that stressed a balance between stability and adaptation, parts and whole, input and output, was fundamental. "When we come to management, whether of the firm, or of the country, or of international affairs, the same problem of adaptation exists," Beer wrote.[51] The problem was ultimately identified through the terms of variety, and its solution would come to be identified through Beer's five-tiered "viable system model." System Five, the final level of this system based on a neurological model, is not unlike the cerebral cortex, which interconnects millions of neurons with one another in the transmission of a message. This *multinodal* arrangement is a "redundant system of interconnectedness" that increases the system's viability.[52]

In this regard, Ashby's "Law of Requisite Variety"—in essence, the notion "that only variety can control variety"—would be internalized by the firm's control mechanism. The "viable system model" jibes with Ashby's notion of the brain and the "art of survival": a viable system is, as Beer simply puts it, "a system that survives. It coheres. It is integral. It is homeostatically balanced both internally and externally."[53]

We should pause on the equivalence Beer draws between ostensibly different systems: the portability of cybernetics in their respective management and analysis. *The firm, the country, and international relations* might all be submitted to a shared operational logic, such that what Beer accomplished at United Steel or SIGMA in the 1950s and 1960s might work in turn for a new government in the early 1970s. Taking seriously the principles of British cybernetics as a "science of the adaptive brain" (or its American variant, a theory of messages and control in the animal and machine), why shouldn't the self-regulating imperatives of business management find a comparable analogue in the behavior of other complex systems such as government? Wasn't systems theory generally about a principled isomorphism between different organisms and organizations? And what of adding ideology

to the mix, particularly at this critical juncture of the Cold War? Wiener, it happens, had visited the Soviet Union in 1960, where he was treated like a British rock star.[54] So why not Chile, as the inaugural laboratory for democratic socialism in the Southern Cone, where resisting the yoke of dependency was central to national autonomy and economic growth?[55]

The biological metaphor foundational to cybernetics enabled this possibility. Beer would describe his own approach as "a cybernetic model taken from neuropsychology" that "applies just as well to government," with important qualifications.[56] Cybernetics and systems theory advanced a theory of homeostasis in the organization of messages, after all; and Beer was explicit that the application of cybernetics to government was necessarily *without* hierarchy. As he saw it, the Chilean example—with the Opsroom as the center helming it—would ultimately afford workers far greater control of the economy than was previously imaginable in a nonhieratic system, as if this new cybernetic control room was the futurist analogue of laborers on the shop floor. Which is to say, his imagined application of cybernetics (if not the reality) would be *absent* the technocratic consequences of computing vehemently debated in the age of automation. Medina is clear that few Chilean workers from the period actually recall or were even involved with its implementation, but the populist ethos supporting it was in direct opposition to the usual dystopian scenarios, with Big Brother a gargantuan mainframe commanding the people from on high.

Flores understood this well when he wrote Beer on July 13, 1971. The letter is worth citing at length, as it telegraphs both the faith placed in cybernetics' uses to the new socialist state but also the near-insurmountable hurdles the state would have to overcome in its inaugural years. "As you may very well know there have been, here in Chile, some political changes that to the understanding of most are leading this country into a socialist state," he wrote. This understatement is trailed by the most formidable requests:

> An important immediate issue is the complete reorganization of the public sector of the economy. The Government is seeking to group the nationalized industries by branches of production and wants to control them through a centralized planning Agency. This Agency is CORFO (Corporación de Fomento de la Producción), which was created in 1939 as an instrument for long range planning and is now being converted and consolidated into a holding Corporation so as to assume the control function for the entire Public sector. . . . The starting point for constructing socialism in Chile could be thought of as rather good, since—prior to the advent of this Government—about 140 of the most important enterprises belonged to the public sector. . . .
>
> I have read with great interest many of your publications and have very carefully studied your book "Decision and Control." Some years ago, while forming part of the OR team of the Chilean State Railways, I have worked with two people that had been formed by you at SIGMA. I was impressed by the OR work of SIGMA, in which, later, when reading your books, I could distinguish many traits of your thinking. . . .
>
> Now I have been recently appointed to a position from which it is possible to implement, on a national scale—at which cybernetic thinking becomes a necessity—, scientific views of management and organization and that is why I would like you to become interested in the challenging projects just described.[57]

Cybernetic thinking manages complexity by embracing it, recursively. Flores is plainspoken in articulating his agenda, shaped by his nuts-and-bolts experience working on the railways with SIGMA. The motivation, however, is anything but business as usual, which is to amplify the faintly existential tenor underlying the engineer's message. The letter begs one of the central questions Medina poses in *Cybernetic Revolutionaries*: how does cybernetics *become* socialist, sustain a delicate balance between liberty and control?

Medina draws a parallel between the cybernetic systems proposed by Beer—his viable system model—and the democratic socialism of Popular Unity. Indeed she demonstrates that cybernetics was undertaken by engineers and social scientists of radically differing ideologies, and emphasizes the *disunity* and concomitant complexity of cybernetics' political applications in the global South, with the RAND Corporation its ideological opposite:

> Cybernetic approaches quickly spread outside academia and influenced U.S. government efforts to quantify the social in the 1950s and 1960s, albeit in different ways from those pursued by the Chilean government in the early 1970s. Institutions such as MIT and the defense think tank RAND applied techniques from cybernetics and operations research to managing complex social and organizational problems. At RAND these techniques were merged with fields such as game theory, probability, statistics, and econometrics to arrive at a more general theory of "systems analysis." RAND systems analysts sought to quantify the world by remaking complex social and political phenomena into a series of equations whose variables could be fed to an electronic computer.[58]

Cybernetics was precisely *not* a monolithic science servicing identical ideological and disciplinary mandates. Differing schools, generations, competing methodologies and nationalist outlooks—British, Soviet, German, American, Chilean—impacted its treatment in the decades following the popular reception of *The Human Use of Human Beings*. Whatever its claims as a universal science, there was no consensus about cybernetics' inherent politics, no verdict passed on its partisan inclinations much less its biological and psychiatric applications. Far more pressing, at least to the general public, were the anxieties about its overweening capacity for control, linked to larger narratives about postwar automation and their disabling and dystopian tropes.

The debates around Cybersyn in the British and Chilean press spar precisely over this potential for abuse. Beer was an autocrat and technocrat, some opined; Beer was an imperialist; Beer had developed "a powerful governmental tool which was 'Imposed from the top in secrecy.'"[59] Beer bristled at the accusations and the cloak-and-dagger machinations they insinuated. That he could claim to be "designing freedom" meant that even the notion of *design* acquired a specific cybernetic valence. As Pickering explains: "If our usual notion of design entails the formulation of a plan which is then imposed on matter, the cybernetic approach entailed instead a continuing interaction with materials, human and non-human, to explore what might be achieved—what might be called an evolutionary approach to design, that necessarily entailed a degree of *respect* for the other."[60]

Respect for the "other" meant the people Beer was ultimately designing *for*, an approach that emphasized continuing and sustained interaction. Whatever control he might initially exercise as the eccentric wizard-cum-management guru would be ceded to the literal conditions on the ground in Chile, the epochal shop floor of the worker in the Opsroom. Chile was a space of optimism, hope, and possibility, for one, but also a laboratory for managing yet unknown variables and extraordinary complexity. If only variety controls variety, per Ashby, then Allende's Chile—or Cybersyn's management of its economy—was the paragon of an experimental state. To one skeptical interlocutor, Beer remarked about the extraordinary possibilities on Chile's near horizon: "it is also true that I found in Chile one of the hopes of the world. It is a country in an experimental state: whereas so many countries are firmly locked onto the path of their own destruction—or so it seems to me."[61] Experimentation, for Beer, is cognate to something hopeful and productive, with Chile blazing a trail in the ways of both science and politics. The rest of the world, as he saw it, was careening down a nihilistic fast track, destruction its inevitable course.

In 1973, which direction would history go? Down the *Road to Serfdom* or the *Via Chilena*? A forking path calls for decision. To call this year the *arche* of neoliberalism might suggest an inevitable pivot or swerve—a crude telos—founded on a discrete causal mechanism. To answer in kind might seem a canned response to a limp rhetorical question. But back in 1971, and then 1972, and up to September 11 of the following year, things were neither so clear nor inexorable, even as the complications of cybernetic governance mounted exponentially, inflation skyrocketed, the streets thronged with strikers, and Beer and his colleagues grew increasingly frustrated with the usual entrapments of bureaucracy. Precarious as the times were, the evidence for the fate of Allende's presidency wasn't clear yet, least of all with regard to Project FUBELT, the extramural interventions on the part of the United States, which had effectively sought to quell Allende's rise. Like the Opsroom itself, then not yet operative but on the cusp of something world-making and monumental, things were historically undecidable.

Pickering calls British cybernetics an "ontology of unknowability," a phrase that will gain greater traction over the course of this chapter. It is the unknown that will motor the afterlives of the Opsroom as both history and something not yet out of date. And so if I've

dwelt longer on the rhetorical inflections of Flores's and Beer's statements than on the actuality of Cybersyn's technology, if I've worried about modernist aesthetics at the expense of the project's back channels, it is to underscore what Cybersyn could only *appear* to augur in the face of a history yet to come. In other words, appearances and form (as well as that which can't yet be seen) *will* count for something. They will prove formative to the politics of history that Cybersyn would tacitly assert, both within its time and well outside it.

Even a brief note from Allende to Beer, written in April 1972, seems to alternate between optimistic and cautious, as if straddling both possibilities:

> I thank you deeply in the name of the Peoples of Chile for the co-operation you have shown in our struggle to overcome underdevelopment, and I hope that I can count on your invaluable support in the future tasks that we shall start together.[62]

The prospect for overcoming underdevelopment and dependency exists, and Allende is nothing but gracious at Beer's support. It's a modest prompt, humble and a bit retiring in its tone. But the conditional request to the cybernetician ("I *hope* that I can count on your invaluable support *in the future*") reads ultimately less as polite speech than a hedge against what was to come. Allende would have his reasons, no doubt. In this period, history would have its reasons, too.

Artifact 3: History 1947/1991

Practically all governments in history have used their exclusive power to issue money to defraud and plunder the people.[63]

F. A. Hayek, *Choice in Currency*, 1976

History is ours, and people make it.[64]

Salvador Allende, last radio address delivered from La Moneda to the people of Chile, September 11, 1973

The two statements that open this section could not be more different in tone and tense, nor more opposed in their historical and ideological commitments. The first, by a Nobel prize-winning economist, reads history as a precipitous slide, twisting around governmental abuse of people and currency, a bankrupt, because fatal, narrative. The second, by the socialist president of Chile, broadcasts a calm, if defiant, farewell to his constituents short minutes before his death in the face of a military junta. His fate is now sealed, but even still he's ringing a note of optimism about the prospects of the future, a history of the people to come. The two statements bookend the prospects for *history* around 1973, but the first sends us backs in time to 1947, the year that named our last chapter. If either year reads as too punctual in an account motivated by a general claim to archaeology, the ambition is to understand the work that each date performs as discourse: something considered as self-evident and plainspoken as a calendar page but ensnared in its own vision of historiographic struggle.

Indeed, with the Opsroom we have leapt abruptly from 1947 to a year in the life of think tank aesthetics that names this chapter. We're bypassing two-plus decades' worth of case studies on the relationship between Cold War rationality and the history of art—studies that could fill the space of volumes. But the vectors issuing from a multinodal history organize this episode, as does the contradiction of reading these histories through the rhetoric of *arche*. We're trailing an interrupted path from Cold War technics to a neoliberal moment that would only appear a historical transparency, and pressing the case for what is contemporary about think tank aesthetics as a historically dispersed assemblage. To make this claim, history itself is taken up as an artifact of historiographic and epistemic analysis. "History" will be treated as an ideological contrivance. For work *on* history becomes the

prerogative of the research agendas taken up by think tanks and their cognate societies, study groups, and scholarly associations.

The last chapter considered a peculiar complex of objects, methods, and ideas—a pattern, as the period language would have it—associated with Margaret Mead, Ruth Benedict, and their many colleagues, supported in part by Project RAND, the pre- and postwar US military, together with a number of academic and cultural institutions including Columbia University and the Museum of Modern Art. What better object than a work of art—avant-garde painting, no less—to serve as a litmus test for the equally experimental modes of analysis formulated by the anthropologist and defense intellectual? Jackson Pollock's nonobjective works would recall the Rorschach tests that were among the most innovative psychodiagnostic technics available to anthropologists, sociologists, and psychotherapists at the time, including those seeking to chart the profiles of the authoritarian personality. But to say a Pollock was *like* a Rorschach test was only consistent with the interests of Cold War hermeneutics, its byzantine rituals of coding and decoding and the panoply of isomorphisms encouraged by systems discourse. It was to assign meaning to a raft of shadowy and otherwise obscure cultural patterns. It would internalize the isomorphic tendencies of systems theory as one of its fundamental principles.

Isomorphism will have other uses as we approach 1973. To that end, 1947 was also the year in which Friedrich A. von Hayek, Karl Popper, Milton Friedman, Ludwig von Mises, Michael Polanyi, and others would congregate as the Mont Pelerin Society in the eponymous Alpine resort near Lake Geneva, Switzerland. Not technically a think tank (at least not according to the most recent iteration of the "Global Go To Think Tank Index Report" published by the Think Tanks and Civil Societies Program at the University of Pennsylvania), the Society occupies a privileged place in the long and international genealogy of classical liberal and neoliberal thought. Its founding members are indelibly linked to a host of Cold War think tanks including the Institute of Economic Affairs, perhaps the most impactful British think tank relative to Margaret Thatcher's policies; the Heritage Foundation; the American Enterprise Institute; the Cato Institute, and the Centro de Estudios Públicos in Santiago.[65] Many of its members had been in discussion since at least the 1930s, gathering at the formative Colloque Walter Lippmann convened in Paris in 1938. Years after the fact, Lippmann would be remembered for popularizing the phrase "Cold War," while his then-novel conception of "popular opinion" would cement his future journalistic legacy. In the 1930s, however, Lippmann's closest readers met to discuss his book *The Good Society*, which inveighed powerfully against the waves of fascism and totalitarianism crashing across Europe. Close to a decade later, they would formalize these interests as the Mont Pelerin Society.

This group of economists and social and hard scientists, famously associated with the Vienna Circle, the London School of Economics, and the University of Chicago, met from April 1 to 10 in 1947 to discuss the embattled state of liberalism with the rise of state intervention and "planning"—barely veiled code for socialism. Notably, the economic interests of the latter were inextricably bound to a model of history the group would violently reject. In the "Statement of Aims" that introduces all of the Society's annual bulletins, the authors note:

> The central values of civilization are in danger. . . . The group holds that these developments have been fostered by the growth of *a view of history* which denies all absolute moral standards and by the growth of theories which question the desirability of the rule of law. It holds further that they have been fostered by a decline of belief in private property and the competitive market.[66]

Following a brief introduction, the statement outlines six points of interest for "further study," including "Methods of combating the misuse of history for the furtherance of creeds hostile to liberty."[67] It is, as Dieter Plehwe notes, a surprisingly terse recommendation given the society's ambitions. That *history*, of all things, made it to such a restricted list signals the urgency of the topic during the period—its critical analysis, elaboration, misrecognition, even demonization. History is not simply a matter of academic debate, the prerogative of cloistered intellectuals with their elbow patches and lengthening footnotes, but a contest of world-making import. For history itself would be an actor in the Cold War, playing two competing roles, their respective speeches delivered with different accents, priorities, and outlooks. On the one hand it could be the avatar of historical materialism, inflected in any number of uneven ways, from its negative and psychoanalytic dimensions in some chapters of Western Marxism to the catastrophic totalitarian imperatives of the

Eastern Bloc. On the other, it might be narrated as the prerogative of individual agents and their sovereign choices, determining the course of liberty just as surely as the invisible hand of the market.

3.14 First meeting of the Mont Pelerin Society, Switzerland, 1947, F. A. Hayek seated on far left. Courtesy the Hoover Institution on War, Revolution and Peace, Stanford, CA.

For the Mont Pelerin Society as for the many institutions that would follow its lead in the coming decades, it stands to reason that new methods would need to be elaborated in the analysis and production of history. Before the founding of the Society, Hayek—who served as its first president—joined the faculty of the London School of Economics in 1931, and engaged in a titanic showdown with John Maynard Keynes on the welfare state. He would also press the case for the uses of history beyond the ivory tower, in a lecture delivered to the Political Society at King's College, Cambridge, in 1944. In "Historians and the Future of Europe," Hayek considered the prospects for reeducating German citizens after the war and the enormous scope of the historian's task in their rehabilitation, turning to the potential interest of Lord Acton for German audiences. Hayek was emphatic about the stakes: "there is more than one reason why it seems likely that in the future the influence of history for good or bad will be even greater than it was in the past."[68]

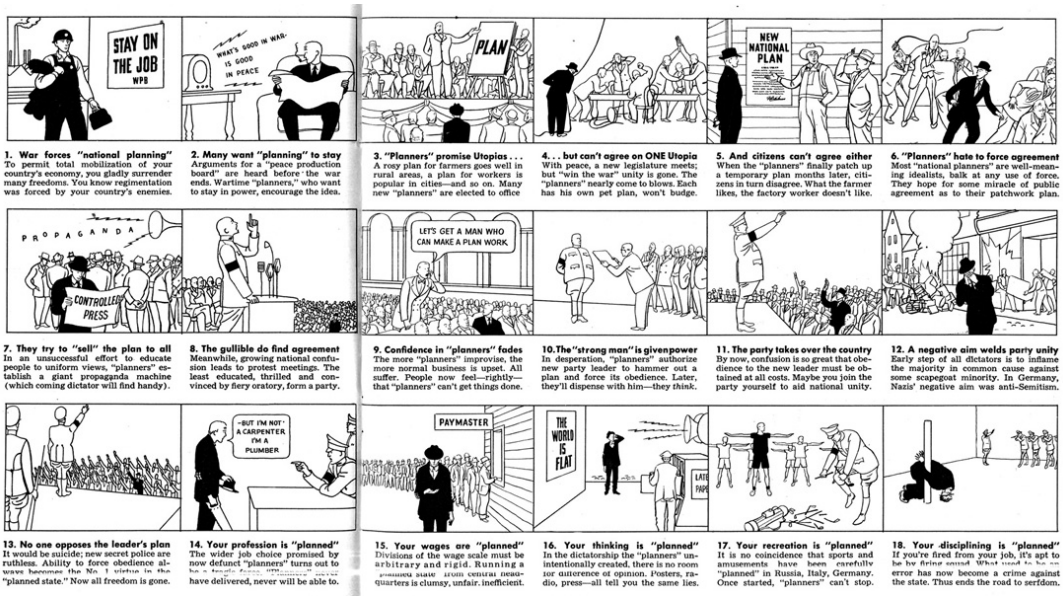
History would become the object of relentless critique and debate in a raft of now canonical texts in the genealogy of liberal thought—and of neoliberalism by proxy. In the short lead-up to the founding of the Mont Pelerin Society, and soon after, several publications by its members consolidated their own version of history, causally driven, even as they flattened the Marxist interpretation of history to caricature. With the friendship and institutional support of his Viennese compatriot Ernst Gombrich (another peculiar encounter between a major art historian and a cold warrior), Karl Popper would publish his two-volume work *The Open Society and Its Enemies*, followed by his abridged thesis "The Poverty of Historicism," inveighing against the historical methods of Hegel and Marx no less than of Plato.[69] In Friedman's 1951 essay "Neo-Liberalism and Its Prospects," he held that neoliberalism "offers a real hope of a better future," against a recent history of collectivism.[70] Hayek, for his part, helmed a meeting of the Mont Pelerin Society on "Capitalism and the Historians" on September 11, 1951, followed by the publication of several contributions. He published *The Road to Serfdom* with Routledge in 1944, followed by its American edition by the University of Chicago Press. In April 1945, *The Road to Serfdom* would be abridged and published by *Reader's Digest*; the same year, *Look* magazine distilled the essence of its thesis to a series of eighteen cartoons. The circulation of *Reader's Digest* at the time—some five million—guaranteed a wide, nonacademic readership that established Hayek's role as public intellectual, even as the Mont Pelerin Society and sympathetic think tanks continued their closed-door deliberations on the workings of history.[71]

The process by which these ideas were mediated, circulated, and transformed would effectively function as the veritable *arche* of ideology, dispensing a certain narrative of

history relative to other fields across the disciplinary cosmos. Ideas mattered—the modeling of history especially—and diverse experts would be called upon to assess such ideas as a virtual new genre of Cold War historiography. For our larger purposes, it is critical to note that the methodological principles of the Mont Pelerin Society are characterized in terms continuous with the Cold War think tank; we'll see shortly how the interests of order and complexity, stemming from the rhetoric of cybernetics and systems theory, inform Hayek's own thinking in his interactions with specialists outside economics. For Hayek and his colleagues, these interdisciplinary tendencies would license an upending of a certain historical dominant that Cybersyn would come to emblematize in the Opsroom. As Plehwe notes:

> The MPS community of neoliberal intellectuals was not restricted by a standard (pluralist, apolitical) understanding of a rigid separation of academic disciplines, or by the need to develop knowledge in a few restricted single-issue areas. Instead the collective effort can be described as transdisciplinary, interdisciplinary . . . and trans-academic (though the endeavors to connect to particular audiences and the public at large were in the main organized indirectly through think tanks and publishers).[72]

Following the spirit of this description, you could say that the Mont Pelerin Society promoted a *liberalization* of the disciplines continuous with their advancement of free market policies. Knowledge would cross any number of disciplinary boundaries so as to *deregulate* information—and history along with it. The analogy drawn between knowledge and economics is crudely overstated, there's little doubt, but it's offered to dramatize a point about the valuation (if not quite monetization) of knowledge as data. For a certain reading of history, misrecognized as the universalized and lockstep march of historical materialism, would necessarily be countered by an alternative version, in which the singular acts of individuals and the force of the market would pull the historical tides in a very different direction. Against a reductive and wholly deterministic account of the Marxist theory of history, confined to its application in the West and without historiographic or critical nuance, these protagonists would see history as a function of consumer choice and individual arbiters, a subject-centered history.



3.15 Fred Ludekens, illustration from F. A. Hayek, "The Road to Serfdom in Cartoons," *Look* magazine, February 1945.

This capsule history of the Mont Pelerin Society anticipates the rise of both Hayek and Milton Friedman as public intellectuals, ultimately coinciding with Pinochet's coup in 1973, Friedman's visit to Santiago in 1975, Hayek's visits to Chile in 1977 and 1981, and their respective Nobel prizes in 1974 (Hayek) and 1976 (Friedman). In 1947, Friedman had already taught for one year at his alma mater, the University of Chicago, in a department that would by the early 1950s be identified as a "school." If Friedman's increasing visibility contributed to the department's reputation for doctrinal homogeneity, the evolution of the program was one that, as Juan Gabriel Valdés notes, did not follow a "simple or mechanical

process," or take a necessarily "conspiratorial" turn.[73] But by 1991, when the Soviet Union held its only referendum leading to its dissolution in December of that year, Friedman would revisit his own historical projections in *Capitalism and Freedom* (1962), as a test case against the verdicts of the future.

In "Economic Freedom, Human Freedom, Political Freedom," he briefly considered the economics fortunes of Hong Kong, India, and—most pointedly—Chile. He was no supporter of the Pinochet government, that much he wanted to make plain, but he could only marvel, in the end, at the economic program the dictator was compelled to follow, and the progress for the country it would enable:

> Pinochet and the military in Chile were led to adopt free market principles after they took over only because *they did not have any other choice.*
>
> By accident, the only group of economists in Chile who were not tainted by a connection with the Allende socialists were the so-called Chicago boys.
>
> They were called Chicago boys because they consisted almost entirely of economists who had studied at the University of Chicago and had received their Ph.D. degrees at the University of Chicago. They were untainted because the University of Chicago was almost the only institution in the United States at the time in which the economics department had a strong group of free market economists. So in desperation Pinochet turned to them.[74]

There's almost too much to parse in this rhetorically impacted statement. Too much about the Chicago Boys and their "accidental" presence on the ground in Chile. Too much about the "taint" of anything other than free market economists: the notion of taint or stain appears twice in the space of three sentences. Too much about a murderous dictator's "desperation" leading inexorably to economic policy. Regarding this history as Cold War artifact, we need to stress how Friedman upends the terms of "choice" that otherwise guide his free market thinking. Pinochet *had no choice* in the matter but to go there.

Choice, it would seem, is paradoxically compulsory for dictators. It guarantees the movement of history as forced in one direction.

Artifact 4: *Multinode Metagame*, Part 2, 2002–

Un sistema auto-organizado debe estar siempre vivo y sin finalizar, ya que finalización es otro nombre para muerte.[75]

Stafford Beer

In 2010, nearly forty years after the destruction of Cybersyn, Enrique Rivera and Catalina Ossa gave a short talk at the 16th International Symposium on Electronic Art (ISEA), its meetings held concurrently in the cities of Dortmund, Essen, and Duisburg. Appearing on the panel "Media Art and Culture in Latin America," their presentation bore a cybernetic conundrum as its title: "*Absolutum Obsoletum:* If It Works It's Out of Date." As the epigraph of *Brain of the Firm*, this enigmatic phrase is a mantra of sorts for *Multinode Metagame*, the work Rivera, Ossa, and their collaborators would produce as or-am. It installs their position as contemporary media artists in Chile relative to Cybersyn and the peculiar sense of history and time their project both trails and enables.

In one of two publications on the project by the artists, Ossa and Rivera note, the *Multinode Metagame* took its titular inspiration from Beer's writings, including a lengthy and complex chapter in *Brain of the Firm* as well as the cybernetician's poetry: "Multinode," they offered, "refers to the need for organizational nodes in different geographical places in order to facilitate real-time communication," while Metagame is "a word Beer used in his poem to refer to man's ludic condition with a parallel cosmic space."[76]

The title of the contemporary work encapsulates the desiderata of the historical Opsroom. It advances one dimension of the unrealized dream of the 1973 prototype—decentralized, distributed communication on a "planetary scale," to borrow from Weibel—linking two far-flung sites in Santiago and Karlsruhe. It also recasts such work as a *game*, a ludic negotiation between the user and her information environment through recursive loops of feedback that could only have exceeded the earlier prototypes both technically and materially. While such playful associations might seem far from the original stakes of the Opsroom, the rhetoric is as historically accurate as its histories are deep, stemming from the cybernetic and OR inheritance of Cold War game culture. The wide and pervasive investment in postwar gaming—from military models and war games played within RAND, to the zero-sum exercises of game theory, to the odd performances of everyday citizens rehearsing for nuclear disaster—was foundational to Cold War governance, economic policy, and military strategy.[77] Such games had a deeply strategic value. To "play" them was to model forms of both individual and collective behavior as preparation for, and rationalization of, the most critical situations of Cold War decision making. A game was no mere game, in other words, no mere trifle. A *metagame* would be even less so.

A *meta*game, indeed, was by definition a game "about" such a game—a dynamic and self-organizing enterprise. The term connotes a recursive or autopoietic relation to system—a second-order system—that can adapt to, and hence manage, the complexity of a given environment.[78] In the case of the *Multinode Metagame*, played in both Chile and Germany, such a game would perpetually rebound on a prototype of the historical "past," with the construction and input of a vast network of contemporary actors recreating the work, in principle, *ad infinitum*. Both installations were to the point of such metahistorical reflections. At ZKM, for instance, a "digital book" enabled participants to leaf virtually through archival documents while an actual volume—Beer's *Brain of the Firm*—was enshrined in a neighboring vitrine. Meanwhile in La Moneda—that is to say, the location in which the disaster of September 11 took place some fifty years earlier—visitors assumed a site-specific relationship to the recent past.

An ontological question arises in keeping with the general stakes of media archaeology, given that Cybersyn was never technically *out* of date, never having completely worked in the first instance (*Absolutum Obsoletum!)*. A metagame based on this example would implicitly suggest that the game is itself without end—*sin finalizar*—in a dual sense: first, on account of the research still to be done; and second, with regard to the adaptive

principles that regenerate the game in real time, with the introduction and management of new variables and information. What follows from this recursive temporality could never be wholly stabilized, no matter how historically *past* the phenomenon being addressed. The game thus stages a historiographic trope in real time as a result: that history does not proceed from past to present, but is simultaneously a function of the present tense of its interpreters *and* their future speculations. Indeed, the flip side to Beer's *Absolutum Obsoletum* is Lisa Gitelman's formulation regarding the peculiar temporality of new media: that it is "always already new."[79]

Ossa and Rivera began their project around 2002 as part of a wider social milieu including artists, engineers, musicians, yoga teachers, and "autodidacts" in contemporary Santiago. Prior to the development of the *Multinode Metagame*, they had sought with their peers to create a hybrid space, equal parts gallery, "un observatorio de gestión de conocimiento" (i.e., an operations room or control room), and a yoga ashram, ultimately known as Galeria Persona.[80] The different functions of this space were not treated as separate hives, walled off as discrete and autonomous units of activity, but were understood holistically, even *synergetically* (to borrow the jargon of the era that would come to preoccupy their work). Here was an interdisciplinary network envisioned in architectural or spatial terms, in an old house on La Concepción, in Providencia: "Un espacio de interacción entre el arte, la ciencia, la espiritualidad y la tecnología, orientado a la realidad sociocultural chilena."[81]

A signal objective of the group was to research earlier projects within Chilean history that had brought together the interests of art, science, and technology. This in turn was a prompt for conceptual and methodological reflection that might lead to the establishment of a contemporary media lab, something like a "multidisciplinary convergence platform." The larger ambitions of what would officially become or-am would not reduce to the production of rarefied works of art, routinely exhibited in galleries or other market-driven venues, but were rather directed to a "collection of events, concepts and techniques," with the history of Chilean media its critical touchstone. "Extensive conversations and workshops" organized around themes of human/machine interaction, interactivity, and art would ground and further orient this "interdisciplinary research group." Like a think tank, but articulating vastly different agendas than its Cold War predecessors, their respective expertise in engineering, art, and "knowledge management" was compounded by the collective nature of their interactions.

One episode flags the contingent and multinodal dimension of their engagements as self-organized autodidacts, crafting a history of Chilean media that followed an alineal path. It's of no small importance that the group's first encounter with Cybersyn happened not by way of any of the surviving protagonists in Chile, nor as scripted by regional authorities in readily accessible books, nor taught in the lecture halls of Santiago. Instead, as MA students, Hervé Boisier and José Pedro Cordero attended a videoconference in which a Swedish professor of information and communications theory dropped a casual anecdote.[82] The remotely situated instructor spoke of an Englishman named Stafford Beer, a pioneering figure of management cybernetics, and then in passing mentioned the experiment that Beer designed for Allende's new socialist state: Cybersyn. Cordero immediately intuited a connection between the historical Chilean project and the World Wide Web, but the group could not have predicted just how salient the reference would be. "Of course, we had never heard of the Cybersyn project, and the first time we had a reference to it, we did not realize its real importance," or-am report.[83] But following endless rounds of discussion, reading, and research on the ground, they soon acknowledged "its enduring conceptualization and its relevance for initiatives occurring today."[84]

For or-am, the purging of such material from the official Chilean record stemmed from a culture that fetishized the immediacy of the present over its own history, even a very recent history. If a slightly earlier generation of Chilean artists was preoccupied by the historical trauma of the Pinochet era in work that confronted topics of memory, loss, and disappearance, thematizing the ghosts of recent history as shadow figures in the present, a group of younger artists and engineers would direct their questions specifically to such implications for media.[85] However innovative Cybersyn may have been in its time, however groundbreaking, it was

> over run by the "Immediacy," commercialization and commercial mutation that inundates the economy, through the demand of corporations and technocratic governments. This effect forces us to advance too rapidly in technological areas, and very slowly in the field of reflection and analysis of content, living uncomfortably with the models and effects of these Babylonian innovations in society.[86]

The artists link the rapaciousness of capitalism, always requiring new products and financial instruments, to the technologies that serve dual roles as both platform *and* object of consumption. Between the newness of media and the novelty of markets, a heightened temporal urgency subtends these dynamics.

Yet the speed with which markets and technocultures accelerate is, following or-am, inversely proportional to a mode of historical reflection that might critically analyze this phenomenon. In the case of the "socio-cultural reality" of recent Chile, the failed conjunction between markets, technology, and history identified finds a paradigmatic isomorph in Cybersyn, if with a strong military inflection. With Cybersyn, an extraordinary if inchoate communication technology was swept away in the same bloody coup that would bury Allende's socialist government. And what Pinochet's coup also precipitated—more accurately, what it *unleashed*—were those market-driven forces hell-bent on erasing certain models of history in a brutalizing claim to the story of individual freedom. The Mont Pelerin Society and its think tank legatees paved the way for those forces: Hayek, Popper, Polanyi, Mises, and Friedman. Listen again to Friedman, in 1991, on the sense of historical *inevitability* visited upon Pinochet's regime, with history announced by the Society as an interdisciplinary battleground well back in 1947. Ironically, given the group's stress on individual choice, Friedman's statement telegraphs a wholly passive relation to the historical forces that the dictator was compelled to accept as a matter of course, autonomy, choice, and free will be damned: *Pinochet and the military in Chile were led to adopt free market principles after they took over only because they did not have any other choice.*

or-am would reanimate the technological dimension of this history in light of the economic pressures of their own contemporary moment, engaged in what Sebastián Vidal Valenzuela called a "rescue operation,"[87] a gesture of recovery fundamental to students of media archaeology. It's a genealogical approach that advances counternarratives to mainstream histories of technology but, just as pointedly for our reading, pushes up against Cold War debates on history itself. In describing the animating conceits of the exhibition "YOU_ser: The Century of the Consumer," Peter Weibel acknowledges such genealogies as integral to the mission of exhibiting "new media" art at ZKM and justifies the interests of the *Multinode Metagame* in comparable terms:

> For years ZKM has devoted its efforts not only to the exhibition and development of the Information Society's most recent media and conceptual formats, it also places great emphasis on, and is extremely interested in, the historical knowledge of the forgotten origins of these devices and in bringing the public, in the widest sense of the word, together with the former and the latter. The historical perspective is an analytical requirement for the understanding of contemporaneity from a certain critical distance, and offers the possibility to relate what is contemporary with historical visions that were not possible in their time.[88]

The last line is consistent with the recursive turn in media-archaeological approaches to history. The *Multinode Metagame* demonstrates how relatively recent phenomena might well brush history against the grain, renovating such material in the present as an ersatz form of time travel. Cybersyn tells us the story of a network on the way, not quite fully realized, subject to the ruptures of history as a series of ideological paroxysms; while the *Multinode Metagame* returns these questions to us as a matter of contemporaneity. In taking seriously the notion that Cybersyn was mostly a prototype when it was destroyed—perpetually unfinished, designed to advance a history of the people to come—it becomes a paradoxical spur to remember the future.

The research and work contributing to the realization of the *Multinode Metagame* would both literalize these principles and iterate the processes Cybersyn was designed to perform. Its documentation describes the collaborative and interdisciplinary network of scholars, artists, engineers, and institutions that variously contributed to its dual realization in Santiago and Karlsruhe: they would include ZKM, Centro Cultural Palacio de la Moneda, Fondart 2007, Dirección de Asuntos Culturales del Ministerio de Relaciones Exteriores de

Chile, the British Council of Santiago, and the library at the Liverpool John Moores University.[89] An intergenerational, and international, steering committee offering both technical and historical support was composed of close associates and family of Beer, as well as archivists and cyberneticians (Raúl Espejo, Clive Holtham, Simon Beer, Humberto Maturana). Ariel Bustamente, a young sound artist, labored to get the software operational in a compressed amount of time. On learning of Medina's research, the group invited the scholar to come speak in Santiago.

The expanding web of relations the project instantiates mimes the organizational complexity of its prototype on an exponential scale. The *Multinode Metagame* advances the Opsroom's stillborn technology that was only then coming into being. This was most plainly and materially evident in the work's dual presentation in Santiago—in an exhibition devoted to issues surrounding the Chilean archive—and Karlsruhe, at a center for new media art. The exhibition of the *Multinode Metagame* was not understood as two separate works of art, or two versions of the same, but as the realization of a system now operational in real time, institutionally split between a European museum devoted to contemporary art and a center concerned with preserving the history of Chile. Together the two nodes generate a feedback loop between the contemporary, the historical, and the proleptic as indivisible and continuous. They materialize the shape-shifting character of the game as aesthetic remainder, historical document, and speculative work of art.

In the most extensive piece of art criticism on the *Multinode Metagame*, Sebastián Vidal Valenzuela parses this very condition, identifying the bivalent character of the work between the aesthetic and the documentarian and expanding upon the prospects of bringing these two conditions together, even confusing them, through the logic of new media. Valenzuela begins by describing the "double condition" of the game before posing a larger philosophical question regarding the "end" of art, indebted to the philosophical aesthetics of Arthur Danto:

> This device used for what we call this rescue operation and which we will refer to as a multimedia installation, would also be an aesthetic object. In this capacity, it triggers the double condition of *Multinode Metagame*; on the one hand, it is a piece of re-created design (an object); and on the other, an exhibit of archives and narratives (document).[90]

Each "side" of the game, installed at its respective site on different continents, traffics in simultaneously archival and aesthetic material, conditioned further by the site-specific agendas of either ZKM or La Moneda. But the relationship between these categories is neither stable nor wholly discrete insofar as the game itself "offer[s] the user the experience of communicating by means of software which operates under Internet rules and gives the exhibition its third feature: that of being net-art."[91] The work's tertiary status as *net art* prompts additional questions regarding its representational function—the generic status accorded conventional works of art—and the situation in which it is embedded and which it will shape and project. For the restaging of the Opsroom serves as both a theater for these aesthetic concerns as well as a locus to perform actions that its historical prototype could only project into the future. What might the control chair at ZKM, for instance, suggest about the "symbolic installation of a real object in a field habitually occupied by works of art—objects that remain in the field of representation"?[92] Meanwhile, at La Moneda, the work is presented in a "documentary space," such that its siting opens onto "the possibility of adapting to different media places . . . like a hybrid work that operates well in an exhibition hall, a library, or a corporate building, etc." "All it needs," he reminds us, "is an internet connection."[93]

Valenzuela stresses the mutability of the *Multinode Metagame* as exceeding such institutional categories, resisting the status of rarefied art object as irreducible to either projection or representation. The essay is forward-looking in this regard, as attuned to the game's structural logic as it is sensitive to the dynamics of media critical to an archaeological agenda. What the essay is *not*, on the other hand, is especially concerned with the *content or context* animating the game itself: the Opsroom as a socialist "environment of decision," and the political and economic implications of the moment in which the contemporary iteration was created. This is more or less consistent with or-am's own documentation of the project and its *raison d'être* in media, art, and its history. or-am trains its focus on Beer and management cybernetics, there's little doubt. The work and documentation flag the destruction of Cybersyn and what it represented on that fatal day of September 11, 1973, when the bombs dropped on La Moneda. The artists likewise condemn

the steady incursions of technocracy and the market within their own moment as contemporary artists. All the same, they are relatively quiet on the specific ideologies underwriting the prototype, and what the afterlife of Cybersyn insinuates about the politics of the recent past for the present.[94]

Of course, we shouldn't ask works of art to be all things at all times. They can't be *seen* at all times either. The notion applies equally to the artists who make such work. It would be misguided to impugn the artists for any perceived failings to confront the political afterlife of Cybersyn in any detail: the dynamics visited upon 1970s Chile as a different kind of laboratory than the one envisioned by Beer—a crucible for neoliberal experiment. You can speculate that the artists' silence on such topics registers something specific about the scene of contemporary art making in Chile and its recourse to recent politics, its themes and generational perspectives, even a certain ideological fatigue. Or maybe those topics were simply not part of their critical agenda, with so much enormously complex and technical material otherwise vying for their attention. It doesn't matter either way. The work is both foundation and command—an *arche*—multinodal in expansiveness and reach.

Indeed, that British cybernetics was an "ontology of unknowability" we can appreciate in this relative quiet as a placeholder for something to come. Of Cybersyn, Beer could proclaim that its relentless reception of information was among its principal features, suggesting the possibility of "being always alive and never ending" with the introduction of new knowledge-cum-data. *Sin finalizar*: other histories and artifacts in art and media converge here too. What might appear detours in the discussion of Cybersyn—perhaps better characterized as excursions—are pursued. Collectively they throw into relief the ideological stratifications of the prototype's aesthetic dimensions as networked, metahistorical, and, it turns out, without end.

Artifact 5: The Workers' Club, circa 1925

Consider this incongruous setting, encountered in museums and galleries around the world: Barcelona, New York, Athens, Berlin, Venice, St. Petersburg, Amsterdam, Chicago, many other places.[95] A red and black chess set, presented on a purpose-built table, is stationed within the white cube, not far from an adjacent speaker's podium, also sheathed in white. Both strike a decisive, modernist profile, clean, bold and sharp. Alongside there's a rack supporting last century's new media; and a long table, outfitted with modish if awkward chairs, for the gallery goer to catch up on old news. Here, the present-day scenes of modern and contemporary art that are museums—cathedrals of culture and bloated, neoliberal stockyards both—play host to another peculiar prototype, straddling the political and the aesthetic and shedding light on or-am's reconstruction of Cybersyn as a historical artifact about the future.[96]

Aleksandr Rodchenko's interior for the Workers' Club, produced for the Exposition Internationale des Arts Décoratifs et Industriels Modernes in Paris in the summer of 1925, is a distinctly modernist node in our time travels, a room in which collectivism took form as a theater of knowledge, media, praxis, aesthetics, even gaming. It consisted of a long communal table accommodating twelve chairs; a mobile speaker's rostrum (or orator's stand); multiple media display shelves designed to hold current news, images, and literature; and a "Lenin" corner—one of the small, popular memorial spaces that sprang up after Lenin's death in January 1924, this version complete with a neighboring chess set.[97] Given the recentness of Lenin's passing at an already tumultuous moment in the Soviet Union's young history, Rodchenko's contribution on the world stage would have to "project a confident, headstrong futurity." It would need to strike "a precarious balance between efficiency and utopia," as we read of the Opsroom's intended visual impact.

3.16 Aleksandr Rodchenko, Workers' Club, International Exhibition of Decorative and Industrial Arts, Paris, 1925. Courtesy A. Rodchenko & V. Stepanova Archive.

The Workers' Club more than satisfied such terms in its modular, stripped-down aesthetic, complementing the highly inventive and flexible forms its then-new media presented to its readers. To introduce it at this point in our wanderings—at considerable historical and geographical remove from both Cybersyn and or-am—is to expand the latter's discursive orbit in ways only consistent with their multinodal architecture and utopian promise. Several points of tangency constellate the three, dramatizing the temporal interests our reading of *arche* commands. To begin, Rodchenko's work was envisioned as a cutting-edge *media space*. It employed, as Leah Dickerman notes, "simultaneous information technologies" for workers to be equipped with the most current information in an ersatz environment of decision, not unlike the proto-digital shop floor announced by Cybersyn. Second, its ideological profile in socialism as vanguard and collective innovation anticipated the experimental Operations Room of Allende's Chile; and third, its modernist, specifically constructivist aesthetic, historically grounded in the work of Rodchenko and his colleagues, would bear indirectly upon the training of Gui Bonsiepe, the principal designer of the Opsroom.[98] Finally, we need to consider the multiple reconstructions of the Soviet prototype within the institutional context of contemporary art worlds. In numerous iterations staged long after its short existence, it would appear in museums and galleries and other disparate sites, a coda to its prospective futures as avant-garde museology.[99] Its afterlife, in other words, would converge in surprising ways with the prototype of an operations room both a world apart and decades away, as if the latter reached back into the art historical past, with or-am renovating its aesthetic prerogatives in the present and future.

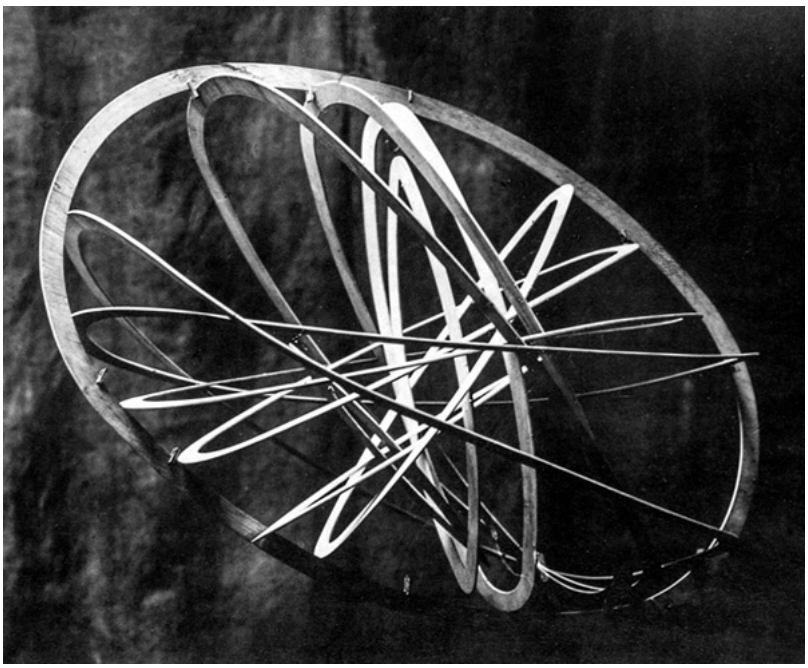
3.17 Aleksandr Rodchenko, reconstruction, Workers' Club, Kunstmuseum Liechtenstein, 2015. Photo: Stefan Altenburger Photography, Zurich, © Kunstmuseum Liechtenstein.

Dickerman notes that workers' clubs were a "new post-revolutionary entity, a communal site intended to offer both political enlightenment and renewal at the end of the working day."[100] Writing on Rodchenko's first and only visit to Western Europe, Christina Kiaer addresses the uncanny new world of commodities the artist encountered in twenties Paris to reflect further on the theory and history of the socialist object within constructivism: its mutation from experimental work of art to utilitarian—if also experimental—design. As befitting the tacit ideological charge of world's fairs and universal expositions, Rodchenko's interior for the Workers' Club telegraphed the Soviet agenda of collectivist progress in an international forum while other countries' displays were geared to bourgeois rituals of private consumption. Its public appearance signaled how leisure might be obtainable for the everyday worker, if with the qualification that such time be devoted to intellectual refreshment, through the circulation of media and acquisition of knowledge and through officially sanctioned pastimes such as chess, among Lenin's favorite games.[101] At all points the room's imagined "patron was conceived as a consumer of knowledge," as Dickerman notes, rather than of the raft of commodities circulating in the typical universal exposition.[102]

Keeping with this vanguard perspective, the Workers' Club would trade on the radical aesthetics of Rodchenko's constructivism, if in its later productivist phase. "Construction is the system by which an object is realized from the utilization of material together with a predetermined purpose," ran the general principle of the First Working Group of Constructivists.[103] Beginning in 1920, Rodchenko devised his series of spatial constructions, first exhibited at the Society for Young Artists (OBMOKhU) in Moscow in May 1921. Fashioned of plywood and painted silver to resemble metal, these abstract objects could be described as demonstration pieces in the dynamic relationship between form, materials, and the environment. They were exercises in systematic recursion both internally (that is, relative to their form and shape, which effectively motivated their inner structure) and externally (relative to the way they at once inhabited and were transformed by their immediate settings). "Concentric, geometrical shapes were cut from one single flat piece of plywood," Christina Lodder notes, and "these concentric elements were then arranged within each other and rotated from a two-dimensional plane to a three-dimensional space . . . held in position by the use of wire."[104] But in addition to serving as explorations of form and materiality (no matter the ersatz metallurgy, a function of the kind of material scarcity visited upon Chile at the time of the Opsroom's production), they advanced new modes of engagement with a viewer, ostensibly encountering the changing aspects of these works hanging in space in real time. As Kiaer notes of two different constructions in the series, each "begins its life as a flat, two-dimensional circular form with a series of concentric circles carved straight through its surface. . . . When each

concentric section is opened out to a different point in space and the structure is suspended from above, it is infinitely transformable within the logic of its own system."[105]

These modular constructions bear a systematic relationship to their site; they'll find their echo in the features comprising Rodchenko's later design for the Workers' Club. In her description of the elements comprising the prototype, the artist Varvara Stepanova (1894–1958) highlights the dynamic flexibility of such objects as workers might deploy them in real time, stressing the near-hyperbolic functionality of a new media environment. "A model set of equipment was devised for a corner devoted to Lenin," she notes:



3.18 Aleksandr Rodchenko, *Spatial Construction # 12, The Oval*, from the series *Surfaces Reflecting the Light*, 1920–1921, dimensions variable. Courtesy A. Rodchenko & V. Stepanova Archive.

> a movable wall-case for storing and displaying materials, documents, and photographs with room for headlines and theses, a movable display case for posters and slogans, a movable display case for exhibiting the latest photographic material. . . . An installation for meetings, rallies, and performances of the "live newspaper"; it consists of the following components: a platform for the speaker, a place for the chairman or newspaper editor, a pull-out wall-screen for the display of illustrative material, a revolving roll-screen for slogans and slides.[106]

Here, a cascade of transitive elements combines to form a larger system, an interface writ large and made environmental. Movement is the rhetorical constant, propelled by interactive features setting the room in play, a wealth of ever-changing, ever-updateable, ever-rotating media: newspapers, photographs, illustrations, slogans, and slides, rallying, revolving, noisy, and alive. The room is populated by the apparatus of new communications technologies. It stages a programmatic appeal to worker uplift through the transparent exchange of knowledge in a collective setting. Of course, it would be a stretch to call the Workers' Club proto-digital, and its ergonomics, such as they were, were criticized as poorly suited to the actual bodies whose leisure they were designed to enable (the chairs were described as uncomfortable, not supporting concentrated reading). As modern, cutting-edge, sleekly organized, and functional as the club appeared, it remained, like the Opsroom, another artifact never put into actual production, if long after remembered for its pathbreaking aesthetic.

Indeed, as design propositions go, the Workers' Club could not be called a "failure." "Failure" would suggest there existed a wholly instrumental criterion that a prototype, by definition, could never structurally approximate. Like the Opsroom, the interior of the Workers' Club represents an extraordinary node in the collectivist imaginary, a gathering place for leisure, solidarity, and instruction: a radical media space from the early twentieth century that simultaneously anticipated—but also rebounded—the systemic interests of the

Opsroom that emerged decades later. Meanwhile, in temporally reversed fashion, the Chilean example inflects the Workers' Club with a new technological and museological valence. Consider this peculiar genre of art as so much socialist "installation," a term I hasten to qualify for its frank anachronism. For an art historically charged genealogy emerges in the reconstruction of both rooms, in galleries and museums stretching around the world, as objects now enshrined, perhaps somewhat curiously at first, as historically rarefied design prototypes. To contemporary viewers, the two crystallize an aesthetic sensibility that instantiates *a history of the future* of the socialist past, renovating what Kiaer describes as a "socialist theory of the object" and collapsing the categories of art and design along the way.

And as much to the larger interests of this chapter, such objects stage the contest for history foundational to the *arche* of neoliberalism. That they do so in unremittingly aesthetic terms brings us to the figure of Gui Bonsiepe, and the training he received before he became involved in Cybersyn.

Artifact 6: Curriculum

The more the visual designers concentrated on the aesthetic perfection of their designs, the more effectively the dominance relationship intrinsic to the communications industry could be concealed. It is undoubtedly important to insist on the importance of aesthetic considerations as an aspect of design; and for years this was regarded as a crucial factor. But aesthetics does not hover aloft, somewhere above society, intact and apolitical. At one time it was seen as an anticipation of a hypothetical liberation from the bonds of causality. But then aesthetics suffered an unexpected fate. It became apparent that it is perfectly possible to apply it to repressive ends. The forms of dominance had become sublimated. In the wake of this sublimation, the aesthetic—which was and is a promise of human liberation—was taken over by power interests and thereby put into use for the acquisition and maintenance of dominance.

Gui Bonsiepe, "Kommunikation und Kunst," *Ulm 21*, 1968[107]

Gui Bonsiepe, born 1934, is sitting in his study in La Plata, Argentina, discussing the multiple reimaginations of the Opsroom as contemporary art and design. It's August 2016 and Bonsiepe nods patiently as an art historian and graphic designer prod him with questions about aesthetics and politics, cybernetics and systems discourse, design and instrumental reason. Since long before the *Multinode Metagame* would trade on Cybersyn's singular appearance, he's had decades to craft a response. Some fifty years have passed since he published "Kommunikation und Kunst," but the message—on the speculative fortunes and potential dangers that obtain between aesthetics, design, and the "communications industry"—has only grown more voluble over the years. In 1968 the article was a bellwether for this increasingly contested relationship, whether taking place in Germany or soon after in Chile. By 2016, the message is all but broadcast on a planetary scale.

Before he can make this point, however, Bonsiepe recounts his experience as the principal designer of the Opsroom and the alineal itinerary that brought him to Santiago in 1970. The industrial designer had followed a serendipitous path from Germany, where he was first student, then teacher, at the Hochschule für Gestaltung (HfG), colloquially known as the Ulm School. From there he made his way to Italy, working with his former mentor at Ulm, the Argentine painter and designer Tomás Maldonado: the two would collaborate on the identity of Milan's most famous department store, Rinascente, as well as on mainframe interface designs for Olivetti. Then he was off to Argentina, in part through Maldonado's sponsorship, then to Chile, following on such connections. He found a teaching position at the Catholic University in Santiago, and would also helm the Industrial Design Group at the State Technology Institute (INTEC), making formative contributions to its journal. Soon after, he was recruited by Fernando Flores to work on a cryptic new project for Unidad Popular involving novel forms of computation demanding an equally novel interface. Flores confirmed Bonsiepe's participation after seeing a copy of Beer's work in the designer's library. And so, with this encounter, the cybernetic dye was cast, so to speak.

Yet to trope a familiar conceit on how events unfold in time, the rest was *not quite* history, certainly nothing so routinized, unequivocal, or self-evident as this chain of events might imply. For the uses of such design, no less than of works of art, would be debated with particular vehemence in that charged geopolitical moment; and nothing about such discussion in early 1970s Chile, or 1960s Germany, for that matter, or anywhere within the geopolitical sweep of the avant-garde, was a foregone conclusion.

Meanwhile, Bonsiepe and his students set to work creating prototypes for Allende's Chile, trafficking between industrial and graphic design. The virtual split between futurist aesthetic, telegraphing industry and technology, and handmade object spoke to both material shortages, bureaucratic reality, and technological lag during the era. The young socialist state was beset by crises of privation, and any means to address material scarcity, minimize production complexity, and counter Chile's "technological dependency on imports" was encouraged.[108] In 1974, the year after the coup, Bonsiepe released "Design im Übergang zum Sozialismus," chronicling both the theory and practice of design on the ground in Chile, in three editions of the publication *Design Issues*. Some twenty-two objects were produced. The streamlined redesign of a "chopper," for example—a machine to cut forage for cattle—was one important prototype in the newly nationalized agricultural sector, a "top priority in reducing the ruinous dependency on food imports."[109] Modular furniture was a staple—simple, cheap, and faintly constructivist in treatment. There was also a set of interlocking and stackable faience dishes, reducing the usual twenty-five pieces to nine; and prototypes for a portable record player, ultimately deemed "unjustifiable" as a "a luxury project" during a period of food shortages. A self-reflexive attitude about design aesthetics *was* politics. Process would mirror the imagined destiny of the prototypes; theory would ground, if not wholly rationalize, such practices. Bonsiepe's mandate ran as follows: "the collectivisation, or 'socialisation' of the design process itself should enable a rational and interdisciplinary design that is closely oriented to the details and capacities of the production sphere and the needs of the people."[110] The language of dependency theory permeates, as designs for bathrooms, refrigerators, and baby chairs—all manner of workaday things—are meant to advance those on "the periphery of capitalist production."[111] The publication showcases the range of such quotidian props, which only makes the belated appearance of the Opsroom in its pages that much more striking, even a little weird. But there it is, sharing the same pages with the tools of everyday life, in Bonsiepe's by-now-familiar if no less fantastical photograph. Here we witness a highly futuristic set piece serving as the template for whatever may come, decades down the line.

In *Cybernetic Revolutionaries*, Medina cogently summons Bonsiepe's biography as her narrative progresses toward the final iteration of the Opsroom. She details the process and the many actors involved, culminating in its ultimate result. For Bonsiepe's contribution to Cybersyn, for example, she considers the recruitment of four women graphic designers from the School of Information at Catholic University—Eddy Carmona, Jessie Cintolesi, Pepa Foncea, and Lucía Wormald—who drew by hand many of the slides projected on the display panels in the Opsroom in the absence of a fully operational digital system.[112] Meanwhile, our alineal wandering compels us to turn *backward* again, to think of Cybersyn's afterlives through and as a network, one inclusive of a Soviet prototype, the Mont Pelerin Society, the travels of History itself.

An artifact that makes these connections emphatic, not just a distantly remembered signal, is the vanguard curriculum Bonsiepe absorbed as a student, taught at Ulm, and would disseminate, as design practice and theory, far beyond there. Like other artifacts already encountered, it appears to live at some geographic and discursive remove from 1920s Paris, post-Lenin Moscow, pre-Pinochet Santiago, or the neoliberal moment in which we're everywhere installed. But turning to Ulm, the conservative southern German town in which the influential design school flourished for some 15 years, we trace the dispersion of such aesthetic and medial interests as both curricular matter and theoretical debate and praxis, crossing back and forth between the historic and postwar avant-gardes in the anticipatory, recursive, and multinodal approaches of Cybersyn and the *Metagame*; and linking the modernist, cybernetic, systems-theoretic, as well as socialist ethos of an earlier historical moment.

3.19 Gui Bonsiepe, design prototype, Santiago de Chile, 1971–1972. Courtesy Gui Bonsiepe.

Indeed, Bonsiepe's networked prospects in Chile will find a prototype in Ulm's ideological and transnational outlook.[113] Spanning the years 1953–1968, Ulm was first sponsored through a private foundation named after siblings Hans and Sophie Scholl, both executed by the Nazis in 1943 for their resistance activities with the White Rose society. The school's "explicit antifascist intention," as Herbert Lindinger notes, drew significant attention during Germany's moment of postwar reconstruction.[114] As if to combat the virulent nationalism of the immediate past, the HfG seemingly cultivated a cosmopolitan student and faculty population: over the course of its existence, some 40–50% of those enrolled were foreign, from some 49 countries.[115] Ulm was, Bonsiepe notes, "a school in Germany but not a German school," with the diversity of its extramural influences resulting in a more broadly sociopolitical perspective on the part of faculty and student body.[116] As Gert Kalow observed, "the present day situation in Germany cannot profitably be viewed in isolation from the global situation."[117] By the time of its politically motivated closure in 1968, the school had become the object of much regional and national controversy, nominally swirling around its status as a private institution with public funding, but more likely due to misperceptions of its ideological leanings.[118]

Ulm was no one thing, of course—no pedagogical monolith—seeing the artisanal modes of craft making associated with the Bauhaus reoriented to postwar imperatives in industrial production. The "New Bauhaus," the shorthand by which it is sometimes referred, captures the inaugural claims and histories of its founders and its indebtedness to the prewar avant-gardes generally, whether constructivism, broadly treated, de Stijl, or, critically, the diversity of concrete art. The term also registers the impact of such storied Bauhaus figures as Josef Albers, Walter Gropius, and Johannes Itten in its earlier years. (All served as instructors and visiting lecturers in its inaugural moment; Gropius, in fact, suggested that the school be named "Ulm Bauhaus.")[119] To be sure, it was one singular Bauhaus alumnus—the Swiss artist and designer Max Bill—who was formative in Ulm's establishment, becoming its first rector in 1953.

Yet pedagogical and conceptual differences with the board prompted Bill's resignation soon after, coinciding with Bonsiepe's tenure there, first as a student and then as an instructor. Training under Maldonado, Bonsiepe's perspective on design (and on politics by

extension) would sharpen focus. Between 1944 and 1946, Maldonado was active in the Asociación Arte Concreto-Invención (AACI) in Buenos Aires, renovating with his colleagues modernist abstraction within the Latin American context. A Marxist critique of representation inspired nonfigurative works of "irregular frames"—breaking the traditional forms of painterly representation, as he put it, in the interest of bringing art into greater contact with material reality. In this regard, Maldonado and his colleagues were looking at constructivism in both its Russian and Western European forms—Malevich was a key figure. In 1948, however, he made his first trip to Europe where the concretism of Bill would exert its own impact. At Ulm, Maldonado would bring to bear such aesthetic interests alongside their sociocultural, technological, and semiotic complements. An almost homeostatic tipping point between theory and practice, aesthetics and politics, would become a critical preoccupation for Bonsiepe, anticipating its expression in early 1970s Chile.

On the speculative dimensions of the HfG curriculum, Bonsiepe notes, "one of the characteristics of the Ulm School was a high degree of sensibility for upcoming issues."[120] Things only then cresting the horizon of design discourse—often in tension with a practice grounded in the era's *Realpolitik*—characterized much of the curricular interests of the institution. The critical theory of the Frankfurt School, for one, was required reading in undergirding the ideological commitments of many participants; but so too was the *administrative* as well as technocratic logic continuous with the rhetoric of science and math after the war, advanced in systems, information, and game theory, in cybernetics, in operations research, and in the many other new languages consistent with the Cold War think tank. Still, the latter were not to be accepted whole cloth—they were "not . . . a fetish," Bonsiepe remarks. Such thinking was engaged, at least in part, because contemporary design discourse had yet to elaborate a self-reflexive relationship to the managerial language of postwar industry ("industrial culture") in which its practices were now wholly embedded. Under Maldonado's leadership along with a slate of influential faculty, Ulm's curriculum would come to embrace such new theories and methodologies. Only half-jokingly Ulm was called a "monastery of methodology," flagging a reverential, if not pious, attitude toward the epistemology of design across diverse media and industries.[121]

The HfG advanced an innovative and interdisciplinary curriculum built around four departments (Product Design, Visual Communication, Building, and Information) as well as its formative, if ever-evolving, "Basic Studies" course. Meanwhile, its film program, established in 1961, clamored for what Alexander Kluge, its founding instructor, called a "mental revolution."[122] That *mental* revolution would seem (at least by association) the function of the new sciences described through the terms of the adaptive brain. In the late 1950s and early 1960s, visiting lecturers to Ulm included Norbert Wiener, Buckminster Fuller, and Charles Eames. The post-Bill curriculum would increasingly reflect the contributions of such visitors in kind. As Kenneth Frampton writes, Maldonado's course in "Operational Research" took inspiration from the work of Anatol Rapoport, a pivotal mathematician in the development of game theory, a key thinker in the movement of general semantics and systems theory who was also (perhaps not surprisingly, at this point in the book) an influential presence at the RAND Corporation and a consultant to McNamara's Department of Defense (we'll run into him again in one of our recursive loops).[123] Three other instructors—Abraham Moles, Max Bense, and Horst Rittel—were likewise influential in reshaping the curriculum through such material. Moles's formative work on computer aesthetics, meanwhile, and Bense's courses within the Information program introduced students to cognate bodies of thought, with complementary syllabi on cybernetics and semiotics.[124]

What effects such rationalizing language had on the nuts-and-bolts practice of design and its aesthetics would prove a question of existential import for Bonsiepe and his colleagues. Bonsiepe's assimilation of both systems theory and the prewar avant-garde—of management cybernetics and the formal rigors of modernism's most radical experiments—found ample expression in publications in and around the HfG in the late fifties and early sixties. An article published in the Ulm journal dating from 1962 describes the design for modular component systems in the era's most advanced lingua franca:

> Sets of compasses, unit furniture, kitchen machines with one power unit and a series of attachments are common examples of modular component systems. Like systems in general, of which they form a subclass, they consist of elements. These elements must relate to each other, whether in their dimensional, formal or other properties. A system comes into being only when its elements are coordinated.[125]

Bonsiepe articulates the relational dimensions of Ulm design through the rhetoric of a system: a vision of an ecological coordination of once-autonomous elements, including furniture, power sources, and appliances. Such discussions would run concurrently with the continuing presence of concrete and modernist examples within the curriculum through Maldonado's influence, now updated through both the language of cybernetics and the Latin American transformation of those histories.[126] A genealogical kinship with Stepanova's description of the Workers' Club emerges on the grounds of this dimensionality, form, and "other properties," with both the pre- and postwar examples upholding the integration of such elements working together in functional concert. The work stemming from such directives was everywhere at Ulm, from stacking dishes to industrialized building, from wallpaper to ads for Lufthansa.

The look was high modern, streamlined and systematic. Matte surfaces in gray; radius corners precisely stamped: this is the look of midcentury to be domesticated and consumed. Such design indexed new modes of industrial production, baptized further in the discourse of systems, its aesthetics proving wildly attractive to international audiences —both middle-class consumers and erstwhile connoisseurs—in such iconic designs for Braun, Olivetti, and Kodak, many examples now populating the permanent design collection of the Museum of Modern Art in New York. Yet as appealing as such products were on aesthetic grounds, they could only flag a structural contradiction at the heart of the school's founding mission. As raised in his 1968 contribution to the Ulm journal, Bonsiepe would repeatedly confront the rifts such approaches laid bare. In servicing the needs of the "Communications Industry," the coinage recalling Adorno, Horkheimer, Kluge, and Hans Magnus Enzensberger, he asserted that the Ulm designer would by fiat stand in opposition to the progressive interests of the institution. Aesthetics, he argued, would effectively provide cover for domination.

Aesthetics, in other words, could not hover aloft, lifted from the dross of industry and its *raison d'être* in the corporate shareholder. Aesthetics could not be apolitical. But aesthetics could also operate as a lever for complexity, as the lessons of systems would suggest, from a model of perception grounded in the discourses of information, to those who would war against that information in some enfeebled claim to the purity of art, and to others who might seize upon information as a tool within their own ideological arsenal. Indeed, while Bonsiepe addressed some of the most pernicious implications of current design, there were other paths opening onto its instrumental prospects. For the contradictions of design at Ulm would not stop there, from the stress placed on its quantifiable objectives to how aesthetic questions might outstrip the demands of postwar design. To put the problem another way: How to bridge the technical and immanent logic of industry and engineering and the outward-looking exigencies of sociocultural context?

3.20 TC 100, stacking catering service, 1959. Manufacturer: Rosenthal AG. Product design, diploma work. Student: Hans (Nick) Roericht. Photo by Wolfgang Siol. Courtesy HfG-Archiv/Ulm Museum.

Speaking of the teaching of Abraham Moles, for example, Bonsiepe considers how art might be subjected to the same rationalizing principles as its ostensible equivalents in language or communication. Moles's influential volume of 1959, *Théorie de l'information et perception esthétique*, was "trying to *calculate* the aesthetic quality of an object or . . . something you see."[127] The approach might bear upon the analysis of typographic design—particularly in its stress on communication, transparency, and order—but it could only fail to capture the workings of content as well as an aesthetic dimension long imagined to resist such calculations. Information theory itself, Bonsiepe opined, was by definition inadequate to meet such challenges, as suggested by two of its most formative thinkers:

> The weak point of the information theory, [in] Wiener and Shannon, was the complete exclusion of meaning. . . . They were also very credulous that we limit ourselves to quantitative non-meaning . . . [They were] not interested in meaning [but] . . . in the efficiency of transmissions of signals as the bearer of meaning.[128]

Information theory may have been equipped to contend with neither content nor meaning, but these epistemological shortcomings would prove salutary in other respects. "Shannon and Weaver were interested in the efficiency with which you transmit signals," Bonsiepe recalls, "as the bearers of the physical support of signs and meanings. But they did not get on to, perhaps fortunately . . . to calculate meanings or try to calculate meanings."[129] If the efficiency of the signal is key to the smooth operations of the "Communications Industry," Bonsiepe notes that the incalculability of either content *or* the aesthetic may well jam that industry's instrumental mandate, the obverse to a system in which domination could be the only logical end game.

In practice, the designer might steer such aesthetics toward competing ideological interests, as Bonsiepe would do in Santiago. This is hardly a surprising insight to anyone tutored in the most rudimentary lessons of the avant-garde; but it's an observation with signal implications for our case study. As Morozov reminds us, *Today, one is as likely to hear about Project Cybersyn's aesthetics as about its politics*. For some readers, the remark might seem to invalidate Cybersyn's aesthetic interests as so much gloss and window dressing, especially compared to the hard business of politics and planning. On the

other hand, the aesthetic might, in actuality, *enable* the recovery of Cybersyn's political gambit as a matter of something approaching (art) history.

Decades later, cybernetics will be read as an "ontology of unknowability," a ready-to-hand mantra for the multinodal and uncertain histories around which Cybersyn would circulate. But at Ulm, from the late 1950s up to its closure in 1968, who could possibly have known—who could have foreseen—the strange turn such theoretical engagements would take in the decades following, including their pragmatic implications for design, media, and art and the questions of economy and history that Cybersyn would come to emblematize today? Maldonado, speaking on the Frankfurt School and the conflicting interests of design at Ulm, offers a retrospective glance at how such possibilities might have gone either way, given the formative if unknown impact of a technology mediating the then and now: "We did not have what we have today: the personal computer."[130] Ulm was no digital Bauhaus, that's for sure, but it wasn't an analogue backwater, either.

For Bonsiepe, at Ulm and elsewhere, the formative lesson that remains is in mediating the aesthetic dimension relative to sociopolitical and technocultural context. In August 2016, he's speaking to his foreign guests about contingency and utopia, citing Alain Badiou on what it might mean to imagine communism in the future. But for the same industrial and interface designer, working in postwar Germany and Allende's Chile, a far more mundane but critical principle drawn from cybernetics anticipates the wildly contingent turns a system might take: "Every system has the intrinsic possibility of a breakdown, and to know where these breakdowns can occur, and to answer this, this is good management."[131]

Artifact 7: Hayek's Network

CATO INSTITUTE

1700 MONTGOMERY/SAN FRANCISCO, CA 9411

June 13, 1977

Professor F. A. Hayek
c/o Institute for Humane Studies
1177 University Drive
Menlo Park, CA 94025

Dear Professor Hayek,

It was truly a great pleasure to meet with you last Friday night, to speak with you, however briefly, and to learn of your good spirits. I must add that your speech was really astonishing. Preparing myself for a rather interesting after-dinner talk, I found myself listening to one that contained a number of generally profound insights, regarding, for instance, the relationship between different socioeconomic systems and different systems of ethics. My reaction, I may add, was shared by a number of younger scholars with whom I talked afterward. . . .

Finally, we are forwarding to you . . . some materials concerning the Chilean dictatorship. They have been collected and published by Amnesty International, a highly intelligent, very widely respected and essentially nonpartisan group. This material, I feel, contains information which you may wish to consider in relation to your proposed trip. It seems to me that in view of what is now known about the junta, the visit to Chile of an internationally renowned liberal scholar will inevitably raise certain questions in the world press.[132]

Most sincerely yours,

Ralph Raico

Oily words on onionskin paper. A history professor named Ralph Raico writes his old University of Chicago PhD advisor on behalf of a newish think tank named the Cato Institute. Established in 1974, it was first called the Charles Koch Foundation after one of its three founding members, a Kansas-born billionaire in the making. Koch is cochair with his brother, David, of a multinational conglomerate trafficking in petroleum, fertilizer, finance, and paper products—Dixie cups and such—among other things. The Charles Koch Foundation was then rebranded in 1976 in homage to "Cato's Letters," a series of classic liberal essays published by British writers John Trenchard and Thomas Gordon in the 1720s. These in turn were named after the Roman statesman Cato the Younger, republican combatant against tyranny and storied enemy of Julius Caesar.

With the Cato Institute we reach a new moment in our treatment of the Cold War think tank, the point at which the military investments of the immediate postwar era shade into the think tank's irredeemable economic inheritance.[133] Compared to its institutional antecedents, Cato's program is less steeped in the rigors of defense analysis, game theory, and nuclear strategy than in advancing the language and historical narratives promoting ideology as policy. Put differently, the once-cryptic operations of an institution like RAND now begin to see the light of day in activities approaching public discourse. Magazines, radio broadcasts, educational initiatives, and a ballooning pundit class making Sunday morning TV appearances will constitute the archaeological record. "To originate, disseminate, and increase understanding of public policies based on the principles of individual liberty, limited government, free markets, and peace" is the Cato Institute's mission; so naturally Hayek, being the gray eminence of such initiatives as a polyglot intellectual, should have some role within it. The Cato Institute will formally ask Hayek to serve as Distinguished Senior Fellow a few years after his first trip to Chile, an invitation he gratefully accepts with some qualification.[134] He's already an Honorary Fellow at the Hoover Institution, for one thing, and enjoys an earlier association with the Heritage Foundation in Washington as well. He's also been named the Honorary President of the Centro de Estudios Públicos, a recently formed Chilean think tank larded with free market economists.[135] Plus he's getting old. He can't travel as much as he used to. But no matter the cautionary note issued by Raico—equal parts sound advice and PR management—Hayek will make it to Santiago not once but twice, in November 1977 and a few years later in 1981. Meanwhile a regional meeting of the Mont Pelerin Society will gather in Viña del Mar in the latter year. The founding president of the neoliberal thought collective will not attend.

In the decades since we last encountered the economist, Hayek's message has traveled far beyond the subscription list of *Reader's Digest* in the 1940s. His orbit exceeds the "study group" of liberal thinkers associated with the Mont Pelerin Society, and his itinerary has grown longer in the ensuing years. In a word, he's famous, cultivating his own planetary network. Yet a trip to Pinochet's Chile represents an especially controversial stop on his travels, a visit of deeply strategic and symbolic consequence for his detractors and supporters alike. Invited by a business school in Valparaiso—in the picturesque coastal region north of Santiago from which the junta launched its attack on Allende, from Viña del Mar—he will receive an honorary doctorate from Universidad Técnica Federico Santa María. His arrival will mark other things. His presence on the ground in Chile effectively consecrates the free market economic path now taken by the military dictator, one that, as Friedman would claim, Pinochet "had no choice" but to follow.

Friedman, we earlier noted, visited Chile in 1975 and would come to discuss Pinochet's economic prerogatives in fatal terms. The "Shock Doctrine" was imagined to supply vital blood to an economic system left anemic by the physician president's national planning, although the record shows powerful, extramural forces were at work to debilitate the system. Artifacts of Friedman's Chilean visits are relatively plentiful compared to those for Hayek's travels, with thick sheaves of yellowed newspaper clippings, many from the student paper at the University of Chicago, protesting his trips, and windy recordings of the economist pontificating about rocketing inflation in Chile and the vacuum of its domestic economy. Take note of a striking letter from Friedman to Pinochet too, dated May 1975. It

asks after the wherewithal of no less than one Fernando Flores, who would endure three brutal years as a political prisoner under Pinochet before coming to Palo Alto.[136]

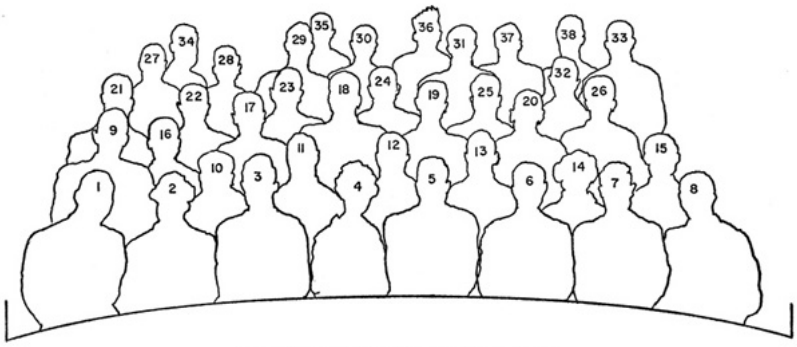
Hayek's archive is quieter on the subject of his Chilean travels, save for a good dozen articles lionizing his visit in *El Mercurio*, the newspaper of record. (*El Mercurio*, one is not surprised to learn, was the implacable mouthpiece blasting Allende's presidency, heavily financed by the Nixon White House and the CIA.)[137] By these official accounts, the tour was a great success, including a visit with Pinochet on November 5.[138] Vignettes of the economist collecting honorary degrees in Chile attest to the coming-of-age story that his reading of history had stubbornly proposed for decades. Critical here, though, is that such episodes complement and are mediated by another network, largely forgotten, that Hayek had long wandered among and helped forge, certainly more impactful for its intellectual and systemic reach—and its consequences for history—than his individually tailored flight plan would suggest. That network was flagged by Ralph Raico in his letter from the Cato Institute. Praising his former advisor, the younger historian will invoke his mentor's research into socioeconomic and ethical *systems*.

On this point, Morozov mentions an unsettling node in Hayek's network in a blog post following his essay "The Planning Machine." By now we can appreciate how Morozov identifies *aesthetics* as tending to lead in general appraisals of Cybersyn—at least as much as the politics behind its creation (although there's the suggestion this tendency is of little consequence). Morozov's larger thesis concerns the dystopian prospects of Cybersyn: that the socialist revolution it was designed to enable might well have presaged the insidious economy motored by Big Data, with Google, Amazon, and Facebook, not the proletariat, as its dictatorial heirs apparent. As the engine of contemporary capitalism, the hyperbolic automation of the algorithm effectively trumps the socialist imperatives of cybernetic planning as so much dead history.

All the same, this does not quite prepare us for his discovery: that Hayek and Beer apparently *knew each other*, and well enough for the management cybernetician to pen a few words about the economist in his diary.[139] Consider the group photograph taken from "Principles of Self-Organization," a conference held in June 1960 sponsored by the University of Illinois, featuring a number of individuals whose names have turned up in this chapter and book: Ross Ashby, Warren McCulloch, Anatol Rapoport, Ludwig von Bertalanffy. Hayek and Beer are there too, along with their colleagues, striking the standard pose at such scholarly gatherings. The legend beneath the image clearly identifies the two among the cybernetic ranks.

What does this image license with regard to the *arche* of neoliberalism? Is this a mere souvenir of the elbow-rubbing coteries of Cold War intellectuals? A cybernetic artifact-cum-fetish? What historical work does this document perform? Many of us, after all, have attended such symposia, played for the academic camera in the same fashion, traded pleasantries with other scholars, never to cross paths again. On the other hand, a midcentury convention, elaborated by no less than Margaret Mead and Paul Byers, an artist colleague, sheds light on such rituals for the period under discussion. In *The Small Conference*, Mead and Byers analyze the "small interdisciplinary and international conference" as a particular "innovation in communication."[140] Byers, a photographer and lecturer in the School of the Arts at Columbia University, took pictures of such events to document their methodological innovations and the behaviors and nonverbal communications of their actors *in situ*. The period document recovered by Morozov allows us to probe a bit deeper into the image of Hayek's network: for surely it satisfies the terms of such intellectual and historiographic innovations at a structural level. Hayek's orbit exceeds, there is no doubt, the disciplinary protocols of the scholar's usual habitus while conforming to the scripted politesse of standard academic behavior of that time. And it also accommodates the accidental encounters generated by such intellectual gatherings. Organization and organism will themselves be at the crux of this exercise. From the time of the neoliberal thought collective that was the Mont Pelerin Society, Hayek would have decades to prove himself in this regard.

3.21 Photograph of participants, symposium on “Principles of Self-Organization,” June 8–9, 1960, Allerton House, University of Illinois.



THE PARTICIPANTS AT ALLERTON HOUSE
1 Saul Amarel, 2 Gordon Pask, 3 Manuel Blum, 4 Kathy Forbes, 5 Peter Greene, 6 Ross Ashby, 7 Jack Cowan, 8 Heinz Von Foerster, 9 Alfred Inselberg, 10 Ludwig von Bertanffy, 11 Scott Cameron, 12 Murray Babcock, 13 John Tooley, 14 Cornelia Schaeffer, 15 Stephen Sherwood, 16 George Jacobi, 17 Hans Oestreicher, 18 John Bowman, 19 Jack Steele, 20 Friedrich Hayek, 21 Hewitt Crane, 22 Anatol Rapaport, 23 Raymond Beurle, 24 Jerome Elkind, 25 John Platt, 26 Charles Rosen, 27 Roger Sperry, 28 Frank Rosenblatt, 29 Joseph Hawkins, 30 Albert Novikoff, 31 Stafford Beer, 32 Paul Weston, 33 David Willis, 34 George Zopf, Jr., 35 Albert Mullin, 36 Warren McCulloch, 37 Marshall Yovits, 38 Leo Verbeek

3.22 Legend to photograph of participants, symposium on “Principles of Self-Organization,” June 8–9, 1960, Allerton House, University of Illinois.

The network fostered an approach to gathering and assimilating information, enlarging one’s usual intellectual horizon, and mediating the inputs and outputs of vast bodies of disparate knowledge as a genre of comparative analysis, formalized well before the events in Chile were treated as a *fait accompli*. Recall Plehwe’s earlier observation on the habits of the Mont Pelerin Society as facilitating what are effectively multinodal approaches:

> The MPS community of neoliberal intellectuals was not restricted by a standard (pluralist, apolitical) understanding of a rigid separation of academic disciplines, or by the need to develop knowledge in a few restricted single-issue areas. . . .
>
> Instead the collective effort can be described as transdisciplinary, interdisciplinary . . . and trans-academic (though the endeavors to connect to particular audiences and the public at large were in the main organized indirectly through think tanks and publishers).[141]

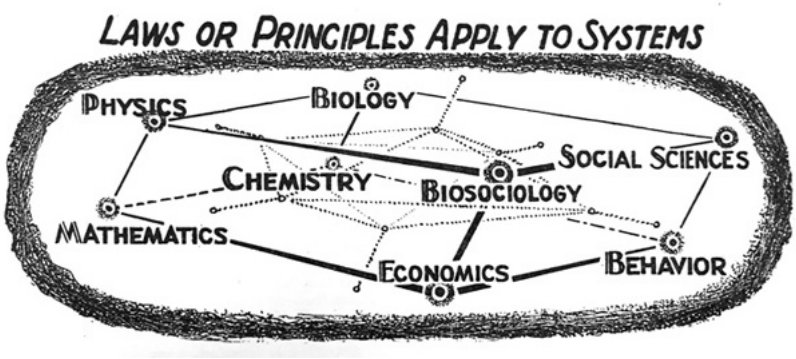
In 1947, the Society made these interdisciplinary encounters structural to the group, a function of a mixed membership including scientists and historians, including the physical chemist Michael Polanyi. Polanyi’s formulations concerning the “spontaneous order,” stemming from a longer debate within scientific cultures of the 1920s, led to his subsequent treatment of “adaptive systems,” the notion of which would resonate with Hayek’s own approach.[142] In discussing Hayek’s network relative to Cybersyn and the *Multinode Metagame*, one point needs to be stressed: in dialogue with associates hailing from across the disciplinary spectrum, Hayek forged a sustained engagement with systems

thinking, directed to different ideological purposes than Beer and the architects of Cybersyn.

Take, for example, his publication of 1952, *The Sensory Order,* with an introduction by Heinrich Klüver, the pioneering psychologist of the Macy Conferences, those formative meetings in the history of cybernetics. Subtitled *An Inquiry into the Foundations of Theoretical Psychology*, the book initially seems an outlier to his financial prognostications, but the topic speaks to Hayek's larger methodological ambitions: as he put it himself in the preface, the work began with youthful research in psychology and behaviorism dating from the 1920s at the University of Vienna, in tacit dialogue with his later Mont Pelerin Society colleague Michael Polanyi and within the larger spheres of influence around the Unity of Science movement. Consider also his 1952 essay "Within Systems and about Systems: A Statement on Some Problems of a Theory of Communication." An abstruse analysis about causality and mental phenomena, it takes methodological cues from the general systems theory of his compatriot Ludwig von Bertalanffy.[143]

Beginning in 1947, an epistolary trail runs between Hayek and Bertalanffy, in both German and English, from London to Montreal to Surrey to Ottawa to Chicago to Palo Alto to Freiburg. Not just an impressive archive of letters, it reveals a network exercising the principles of interdisciplinarity formalized within the Mont Pelerin Society and Bertalanffy's general systems theory. Steeped in both the Unity of Science movement and a broad appreciation of Gestalt theory (not unlike Wohlstetter, Mead, and other Cold War intellectuals we have long since encountered in this book), Bertalanffy promoted the study of biological organisms that would bear institutional repercussions for the analysis of social organizations, addressing "the appearance of structural similarities or isomorphisms in different fields."[144]

In 1955, writing from the Center for Advanced Study in the Behavioral Sciences (CASBS) in Palo Alto, which saw scholars such as Meyer Schapiro gracing its midcentury corridors, Bertalanffy invited Hayek to become a founding member of the Society for the Advancement of General Systems Theory, along with two other fellows in residence: the economist K. E. Boulding and a mathematician we have met elsewhere in our travels, both at RAND and Ulm: Anatol Rapoport.[145] Hayek's artifacts of this specific exchange include the Society's first publication, an introductory pamphlet dispatched from CASBS. The one illustration in the text is as crude as its message is fundamental, rendering in stark visual terms the orbit of the economist's and biologist's intellectual network. The image was introduced at the beginning of this book (figure 0.9). Looping back to it near the end enlarges our understanding of think tank aesthetics and the wages of history it troubles along the way. "Laws or Principles Apply to Systems" reads the banner above. Below, a lozenge contains an abstracted multiverse, a roughly sketched interdisciplinary galaxy.[146] Here, then, is a cosmic perspective on the myriad links between the sciences and social sciences that Hayek and countless others would trail, vectors going this way and that, extruding forward and receding into deep space and time, as a closed if ever-generative and multinodal system. Interconnected disciplines are boldfaced in this galaxy: Physics, Biology, Chemistry, Biosociology, Mathematics, Behavior, Social Sciences, Economics. Laws and *first principles*—that is to say, an *arche*—connect the diverse elements comprising this system, like stars in a constellation determining the course of human action down below.



3.23 Ludwig von Bertalanffy, detail of brochure, Society for the Advancement of General Systems Theory, 1954. Courtesy The Bertalanffy Center for the Study of System Science, Vienna.

What's missing, on the other hand, is as important to our reading as what is represented. History, not unsurprisingly, has no place in this chart. Aesthetics is nowhere to be seen. And whatever philosophy subtends this cosmos lies elsewhere, too, as that subterranean network cycling through and around the space of the midcentury think tank. By the same token, the question of just where ideology gets mapped in this universe (not to mention something as banal as politics, nor so venal as a *coup d'état*) sends us crashing down to earth.

Arche is a first principle. It is also primordial substance: land, sky, and between.

Artifact 8: Cosmos and Bones

The signal takes time to arrive.[147]

Gaspar Galaz, astronomer interviewed by Patricio Guzmán, *Nostalgia de la luz*

The present is a fine line.[148]

Patricio Guzmán, *Nostalgia de la luz*

Arche is first principle, cosmos, power and command. This is what Hayek's planetary network tacitly illustrates. The *arche* of neoliberalism, emblematized by the Opsroom and the *Multinode Metagame*, sees time and history slip in and out of concordance, both outpacing and falling behind one another in intractable cycles of acceleration and outmodedness.[149] So how is *arche*—admixture of cosmos, primordial substance, power, and control—captured on the ground in Chile, with Cybersyn as one of its principal nodes? How do the terms of *arche* apply in this historical and site-specific context, given the universalizing and timeless associations the term "cosmography" brings to bear?

Perhaps this reads as a counterintuitive question due to the old-school aesthetics with which Cybersyn is generally associated. Take the catalog of space race descriptors that seem to confirm its wholly dated status, references we've summarily brushed off for most of this chapter but which are unavoidable now. There's the control room's unabashed sci-fi utopianism; the habitual references by critics to *Star Trek* and Kubrick's *2001: A Space Odyssey* or the same director's earlier *Dr. Strangelove*, a murky parody of the nuclear age, with a hybrid protagonist imagined somewhere between Albert Wohlstetter and Herman Kahn. All these references are very much of their time; all seem perfectly relevant for the early 1970s. Of course, many involved with the design of the Operations Room would deny that there were any such influences. Some argued that "there was no reference point for the project."[150] But this is also to admit that such allusions seem technologically as well as

aesthetically exhausted, done. They're as spent as the business of history that would conventionally underwrite them.

That these references are so much *of that time* would seem to make the Opsroom's aesthetics less cosmos than postwar kitsch. And so out to the dustbin of history Cybersyn goes, along with the dream of Allende's Chile that promoted it. You could show Bonsiepe's photograph of the Opsroom to a tech-minded friend (as I once did) and chances are it might elicit a chuckle or snort, as if its once-futuristic technology—laughable to some—recalled the stagecraft of so many erstwhile Trekkies. "Of course, we all saw *2001: A Space Odyssey*," Bonsiepe recalls of the 1968 masterpiece, if resisting any implications that a causal influence determined the later design of the Opsroom.[151] He's more than aware of the popular references, no doubt. But this is by no means the same thing as copying the movie's production design in an inexorable line of influence. Miming such popular sources was not part of Bonsiepe's process, in any case: to believe so is to misrecognize the Opsroom's speculative aesthetic as well as the modernist genealogy it both brokers and inverts. It is also to misrecognize the history informing the actual production design of those Hollywood classics to which it's often compared. Ken Adams, the legendary German set designer of *Dr. Strangelove* and a host of James Bond films featuring futuristic control rooms, grew up in Berlin, inspired by the lessons of the Bauhaus.[152] Kubrick consulted closely with NASA in creating Hal's interface. Matt Jeffries, the designer of *Star Trek*'s starship *Enterprise*, was an aviation engineer. Science fiction itself enjoyed an extraordinary vogue within socialist and avant-garde circles of the early twentieth century, as the utopian literary genre *par excellence* for the young Soviet Union: a mode of what the critic Darko Suvin calls "cognitive estrangement."[153] In other words, these pop-culture touchstones very much banked on the interdisciplinary mingling of their respective eras, between technology, science, design, literature, art, architecture, and aesthetics.

But outside the walls of the think tank, the small conference, the Operations Room, museum, and gallery lies another universe: the actual *cosmos* to which these institutions bear an abstracted and isomorphic relation. Outside these Cold War spaces—generative, creative, innovative, *lethal*—is a desert replete with the history that Cybersyn and its present day reimaginings will prompt, sustaining that history's fallout and sheltering its remains. Earth and sky together make an *arche*. Art will deliver us there.

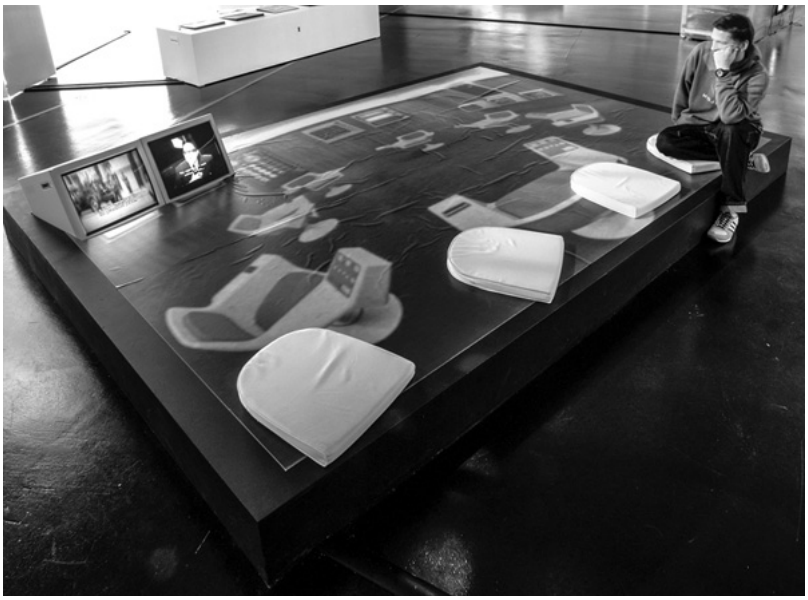
In 2005, back at the digital Bauhaus that is the ZKM, Eden Medina, working with exhibition architects Nikolaus Hirsch and Michel Müller, would prepare the ground. They were contributing to Peter Weibel and Bruno Latour's sweeping group show called "Making Things Public," the exhibition in which Medina's research on Cybersyn got its first art world airing through the braided rubrics of media, thing theory, and critical publicity.[154] "In addition to presenting a brief written history of the project," Medina initially suggested, "I propose that ZKM construct a full or partial reproduction of the operations room open to public exploration and manipulation." An interactive slide show would feature dual displays screening "competing images of order and chaos, challenging the efficacy of this control system." On the one hand viewers might see "flow diagrams of the industrial processes Cybersyn sought to control"; on the other, "images of the strikes, protests and consumer shortages that were not included in the Cybersyn models."[155]

When the full reconstruction proved unfeasible on budgetary grounds, an economic solution was realized in collaboration with Hirsch and Müller. Their contribution is *Opsroom 1973*, another homage to *Cybersyn* that takes Bonsiepe's photograph as its organizing image. Its presentation is more direct than the *Multinode Metagame*, but it raises similar questions regarding its prototype's history, and necessarily (or rather more explicitly) delves into the era's politics. The work consists of a platform supporting Bonsiepe's photograph as its horizontal ground plane, a few cushions welcoming spectators to take a seat, and a split monitor screening slides explaining the historical interests of Cybersyn ("order"). But it also shows sections of Patricio Guzmán's three-part film *La Batalla de Chile*. Released in installments between 1975 and 1979, *La Batalla de Chile* is a wrenching, black-and-white documentary of Unidad Popular under Allende. It showcases the joyous prospects and murderous futures of his scant three years in office, from raucous student marches, to man-in-the-street interviews, to CIA-backed truckers striking, to the fatal strafing of La Moneda.

Decades later, Guzmán would revisit this theme as cosmos and artifact in *Nostalgia de la luz* (2010), a devastating film that mines astronomical and archaeological terrain as a paean to time, collective remembrance, and the fortunes of history as shattered by

Pinochet's atrocities. In the opening sequence ("Childhood") the filmmaker draws a historical parallel between revolution and cosmos. Of Allende's Chile and Guzmán's own stakes in that history as a *santiaguino*, he announces: "A revolutionary tide swept us to the center of the world," before stating, "around the same time, science fell in love with the Chilean sky. . . . A group of astronomers . . . found they could touch the sky in the Atacama Desert."[156] To touch the sky, as the film goes on to narrate, is to touch history.

Set neither in the streets of Santiago nor the ports of Viña del Mar, *Nostalgia de la luz* travels north to the remote Atacama Desert, a landscape of thin air and scant life. "There is nothing—no insects, no animals" according to the film's narration, "and yet it is full of history." It is also rife with literary and popular allusion: think Moses in the desert, Arrakis, Tatooine, otherworldly landscapes recalling both biblical narratives and science fiction. Meanwhile in the desert, tourists are bused to volcanoes and primordial salt flats where flamingos stand motionless amidst the glistening crystal. But it is the Atacama sky that is especially revered as the destination itself. In the daytime, the sky is a relentless dome of blue; in the nighttime, absent light pollution, it chokes on galactic effluvia. Astronomers from all over the world make their homes in Atacama, for the desert is ringed with the most powerful and advanced telescopes, "windows of the cosmos" offering glimpses into the depths of space and time.[157]



3.24 Installation view of Eden Medina (with Nikolaus Hirsch and Michel Müller), *Opsroom 1973*, in exhibition "Making Things Public," ZKM, Karlsruhe, Germany, March 20–October 23, 2005. Foto: © ZKM | Zentrum für Kunst und Medien Karlsruhe, Foto: Franz Wamhof. (Also plate 1.)

Guzmán interviews an astronomer devoted to such cosmographic speculation, one Gaspar Galaz. Sounding like a poet, philosopher, and theologian, he stakes his own interdisciplinary claims long after the events of 1973:

3.25 Patricio Guzmán, still, *La Battala de Chile: La Insurrección de la Burguesía*, 1975. © Patricio Guzmán, Atacama Productions. Courtesy Icarus Films.

> Where do we come from, where we are and where we are going? It has always been at the core of our civilizations. As for religion, the world of science tends to separate science from religion, and yet the fundamental questions posed [by science] . . . are of religious origin and motive. . . . All these questions about origins we astronomers try to answer.[158]

Following his lead, Guzmán asks about how studying the cosmos alters the appreciation of time. The speed of light is a singular vector driving historical and temporal consciousness. "All our life experiences, including this conversation, happened in the past," the astronomer responds, "the signal takes time to arrive." "We don't see things at the very moment we look at them?" Guzmán continues. "No, that's the trap," Galaz replies without pause, before flatly stating, with a smile, "The present doesn't exist."

3.26 Patricio Guzmán, still, *Nostalgia de la luz*, 2010. © Patricio Guzmán, Atacama Productions. Courtesy Icarus Films. (Also plate 2.)

Discussing the time traveled between the sun and the optic nerve, between synapses firing and messages shuttling across neural networks, the astronomer explodes the self-certainty of the present through the deep time that is his scientific métier. "The past is the astronomer's main tool," he avers, "we are used to living *behind* the times." Galaz finds scholarly isomorphs in the archaeologists, historians, and geologists who also populate the desert. If working on vastly different time scales, and with different tools and media, all "manipulate the past" in their respective investigations of time and history.

The scale and reach of such observations outstrips the interdisciplinary network forged by Hayek and confreres in the Cold War think tank, while flagging the recursive temporality that is the *Multinode Metagame*. This is physics as metaphysics; science as philosophy; astronomy as history; nodes purged from Bertalanffy's diagram of general systems theory. But it is ultimately the sublime aesthetics of the cosmos that prompt these reflections on time and history, taking up the escalation, dilation, concordance, and discordance of both. Which will serve to broker another vital conjunction for our concerns: archaeology with politics. That is to say, *arche* as politics.

Time lives up there, Guzmán shows us, but history falls back to earth. The desert houses its remains. So dry is the Atacama that the mummies of "pre-Columbian shepherds" lie desiccated beneath the sand in uncanny states of preservation. In the storeroom of a regional museum, witness the gothic remains of one such figure shrouded in tissue paper, garments still freshly pigmented, hair loosely plaited. In the very same desert, on the other hand, lies the more proximate history that the afterlives of Cybersyn crack open. It's much closer to the present but somehow seems more distant, inaccessible. "We've kept our recent past hidden," states the anthropologist and archaeologist Lautaro Núñez, whose reflections on Atacama follow on the astronomer's. He's nodding to the marginalization, dislocation, and repression of Chile's Indigenous peoples, the Mapuche, as well as the imperial spoils around nineteenth-century copper mining and the nitrate industry, but it's clear he's also talking about a more recent history. Variously deemed "post-histoire" or "the end of history," it's one that Hayek, Friedman, and others of their network might just as soon have us forget, particularly in the desert of Chile.

For the bones of those murdered by Pinochet—students, workers, protestors, the countless and nameless tortured and disappeared—emerge from the sand from time to time, as little more than splinters and shards. This is not due to a degrading landscape, subject to the laws of entropy, or the accidental fallout of contemporary Chilean development, whether sponsored by the tourist or mining industries. The bones come to light because of the ceaseless labor of women once allied with the group Las Mujeres de Calama.[159] The group had "searched for 28 years, until 2002" for loved ones killed, buried, and then disinterred, whose remains were unceremoniously dumped across the desert or in the sea to cover Pinochet's atrocities. Although Las Mujeres de Calama officially disbanded, a handful of aging participants once belonging to the group soldier on, excavating the truth of history as mournful if defiant archaeologists. Day after day, year after year, they sweep the sands with the crudest tools in search of such artifacts. Vicky Saavedra, sister of José, recovered some of his teeth, part of his bullet-shattered skull, his foot still encased in a shoe with a burgundy sock. The remains of a young woman—a nameless someone in the movie, a student most likely—are unearthed during the making of Guzmán's film.

3.27 Patricio Guzmán, still, *Nostalgia de la luz*, 2010. © Patricio Guzmán, Atacama Productions. Courtesy Icarus Films. (Also plate 3.)

3.28 Patricio Guzmán, still, *Nostalgia de la luz*, 2010. © Patricio Guzmán, Atacama Productions. Courtesy Icarus Films. (Also plate 4.)

3.29 Patricio Guzmán, still, *Nostalgia de la luz*, 2010. © Patricio Guzmán, Atacama Productions. Courtesy Icarus Films. (Also plate 5.)

In *Nostalgia de la luz*, personal relics are the grimmest form of historical evidence, and individual memory and collective history mirror one another as traumatic isomorphs. Another isomorph of this relationship is articulated as a cosmic reflection, flipping between sky and earth. Violeta Berríos—some 70-odd years of age at the time of Guzmán's filming, grieving her lost Mario, disappeared nearly 40 years earlier—will say:

> I wish the telescopes didn't just look into the sky but could also see through the earth so we could find them. We could sweep the desert with a telescope and give thanks to the stars for helping us find them.[160]

She's described, in so many words, the *arche* of neoliberalism as a multinodal, planetary network, a cosmos alternately sheltering and oppressive. History remains both on the ground and off-site, at once too close and too far.

Artifact 9: Last Word/Last History

Para los compañeros:

Son los pueblos, todos los pueblos al

sur del Río Bravo que se yerguen para

decir:

¡Basta!

¡Basta a la dependencia!

¡Basta a la presiones!

¡Basta a la intervención!

Salvador Allende, cited in frontispiece to Gui Bonsiepe, *Designtheorie 1*, 1974[161]

Somehow it would appear that the last word on CyberSyn has not yet been written.[162]

Raúl Espejo, in or-am, *Cybersyn, sinergia cibernética*

For all the words lavished on the Opsroom and the *Multinode Metagame*, the last history has yet to be written. Words count for something. They're points in the neoliberal cosmos that the Opsroom would lay bare as history. The *last* history, it bears saying, is not the same thing as the end of history.

In a parodic appropriation of Francis Fukuyama's thesis, Lisa Gitelman writes of the "end of new media history" and asks after the "oddly perennial newness of today's new media."[163] She challenges those media narratives proposing a "coherent and directional" path, directed "toward a not-so-distant end." The approach is explicitly connected to her larger methodological project, aligned with the nonteleological drive of media archaeology and the temporal asymmetries that its study enables: to understand media as historical subjects. To do so in the present is to recognize the intertwined interests of contemporary media and *liberal* democracy: in a word, *economy*. (By "liberal" Gitelman is clear that she means "an open, laissez-faire market.")[164]

> Today the imagination of that end point in the United States remains uncritically replete with confidence in liberal democracy, and has been most uniquely characterized by the cheerful expectation that digital media are all converging toward some harmonious combination or global synergy.[165]

The forces that momentarily converged as cybernetic synergy give the lie to such blithe expectations. The *Multinode Metagame* exposes temporal asymmetry as that history's foundation. How could it be otherwise if Cybersyn is, as Beer puts it, *sin finalizar*? *If it works it's out of date*? Which is to say, there is no end of words; no end of history; no end of the art that would mediate these forms of media in the present. A present that, as an astronomer will caution us, doesn't really exist.

On the other hand, there are *last* words stemming from the Cold War hangover we still endure in the throes of neoliberalism. Last words, indeed. There are sure to be more.

Basta.

4

Open Secret: The Work of Art between Disclosure and Redaction

> Rand was a different world. You would rarely walk down the hall with a Top Secret document in your hand, except to or from the Top Secret Control Office. You couldn't leave it on your desk or even locked up in your secret file safe when you left the room. You couldn't let it out of your sight at all unless you had a top secret safe to lock it up in, and not many people had. Those who didn't had to read top secret documents in the Top Secret Control Office or return them there when they left their offices. That was a drag if you dealt with top secret papers more than occasionally, but most people didn't; if they did, they tried to get their own top secret safes. They were heavier than the secret safes and had a different kind of combination lock. There weren't enough for all those who wanted them. A top secret safe was something of a status symbol; it could be spotted immediately in someone's office because it was black instead of gray. Most of them were two-drawer. Mine had four drawers, all full.
>
> Daniel Ellsberg, *Secrets*[1]

Ellsberg's Safe/Assange's Leaks

Daniel Ellsberg could be forgiven for anointing Julian Assange as his heir apparent. In December 2010, the former RAND analyst defended the WikiLeaks impresario against accusations of treason, comparing his own Cold War history to the contemporary prospects of the embattled digital publisher. As the central catalyst behind the 1971 release of the Pentagon Papers—the Defense Department's classified "secret history" of McNamara's war—Ellsberg's exposure of systemic governmental deceit regarding the war in Southeast Asia earned him the split reputation as the most principled defense strategist associated with the RAND Corporation *and* an enemy of the state. He had been at RAND as a "Cold War Democrat" since the early days, after all—recall his photograph in the 1959 *Life* feature "A Valuable Bunch of Brains," a young analyst at a simulation table. He worked closely with McNamara and with Alain Enthoven and Charles Hitch, two fellow RANDites, at the Pentagon, spent two years in South Vietnam with the State Department, and then returned to RAND in 1967.[2] For years Ellsberg elaborated rigorous protocols for decision making under conditions of military ambiguity and risk, parsing rational choice and game theory, even strategies of blackmail as negotiation.[3] By 1969, however, there was nothing ambiguous about the situation on the ground. Ellsberg's faith in the war effort—and the government—had collapsed. Together with Anthony J. Russo, another policy analyst from RAND who had also been stationed in South Vietnam, he would copy and leak classified information to the *New York Times* and the *Washington Post*, among other media outlets. By 1973, both would be charged with treason and conspiracy by the federal government, charges that were ultimately dropped due to the corrupt machinations of Nixon's White House.

For his part, Assange would launch WikiLeaks in 2006, but it wasn't until 2010—when he published Chelsea Manning's vast cache of leaks over the wars in Iraq and Afghanistan—that his would become a household name. A request for extradition would be brought against Assange to face charges of sexual assault in Sweden; after breaching bail in London, where he fought this extradition in court, he was granted asylum by the Ecuadorian embassy in 2012 until being ousted in April 2019. By 2017, on the other hand, the considerable respect accorded Assange as journalist-whistleblower of the digital age would be irredeemably compromised by less salubrious associations and patterns of self-aggrandizing behavior. Networking with Kremlin-adjacent associates and Trumpian

affiliates, amid accusations of information warfare (including acutely timed leaks meant to undermine Hillary Clinton's candidacy for the United States presidency), he would earn no small share of opprobrium among former supporters.

All the same, it stands to reason that Ellsberg would regard Assange as a staunch crusader for the freedom of information, carrying the torch for a new generation of antisecrecy advocates. But tracking the historical distance between the moments in which they each worked proves instructive as we near the end of this book. Ellsberg and Russo's activities reflected a long tradition of journalistic muckraking built on the distribution of old-school media. Together they would laboriously submit sections of a top-secret, 7,000-page governmental document—a covert history narrated in no less than forty-nine volumes—to the analog flash of the Xerox machine. Page by page they copied the papers after hours at an ad agency managed by Russo's girlfriend. A cardboard template devised to "fit over the margins at the tops and bottoms of the pages where 'Top Secret' was normally stamped" would mask the think tank's clandestine imprimatur.[4]

For his part, Assange's trove of digital leaks, dispatched without paper and irrespective of place, paradoxically satisfies the media's voracious demand for content. His gesture is consistent, in other words, with a media culture long habituated to the routines of overexposure. Whether the relentless bleating of the 24-hour news cycle, the nonstop Twitter-feed dispatch, the blow-by-blow reportage of the Facebook insurrectionist, or the genre of confessional parody called reality television, the mass disclosure of information is the rule that governs the exception within the universe of contemporary communications. What constitutes a genuine notion of secrecy these days must be measured against this world, hallucinating as it does a dream of transparency in which the mythologies of instantly accessible information shore up a foundering belief in the public sphere.

This is not, it bears saying, to dismiss the contributions of WikiLeaks out of hand. The revelations of Manning and Edward Snowden are integral to a sustained discourse on the criminality of endless war in the twenty-first century, the *matériel* of principled journalism, critique, and activism. But we do need to stress that the relationship between disclosure and redaction is not simply one of spilling secrets—of prying back those conspiratorial cover-ups that obscure the innumerable smoking guns of the world. The contemporary secret does not inhabit one of two registers exclusively: known or unknown, illuminated or obscure. It functions, rather, as an ideological toy and performative gesture both: its *visible* withholding is as critical to its power as whatever content we might imagine the secret contains. As we draw down this reading of think tank aesthetics, I argue that ours is a peculiar visual economy twinning concealment and hypervisibility as strategically continuous, two sides of the same coin, serving notice to the stockpiling of information as power. The *open* secret, as I'll call it, announces its clandestine bona fides by virtue of its appearance while propelling the fantasy of a media trafficking in the free exchange of information. It's a dynamic fundamentally troubled by a public sphere compromised by both the quantity and quality of its revelations, and no less by the systems of control that govern such revelations.

In this sense the relationship between the culture of the contemporary leak and the Cold War think tank is not just isomorphic. The historical example prefigures the recent phenomenon through a paradoxical logic of figuration. The Cold War think tank, I noted in the introduction of this book, strikes a balance between "mystification and Enlightenment," limning cloak-and-dagger secrecy with the transparency of science. It operates at the intersection of what can and can't be seen, recruiting this uncertainty for both tactical and strategic purposes. Take the description that opened this chapter for its acute relevance to our present situation. Ellsberg's consideration of the "different world" at RAND offers a Kafkaesque allegory sliding between the affective powers of visibility and invisibility, reducible to the image of a safe. At RAND, he observes, there is "secret" and there is "top secret." There are desks where you can read secret documents; and there is a Top Secret Control Office where such documents might otherwise be surveyed and stored. An explicit hierarchy is pegged to the possession of a safe, where the "secret" version suggests one thing about its user and the "top secret" version another, prized as a status symbol among the population of analysts walking the corridors at RAND. Status, after all—a modality of power—capitalizes on appearances, and assumes the visual literacy of subjects that can read the signs. The artifacts enshrining such secrets are continuous with that power, like a Cold War reliquary housing a sacred fetish, charged with its ineffable force by proxy. Of the top-secret safe, Ellsberg describes its visual punch before exercising his own bragging rights about its possession: *it could be spotted immediately in someone's*

office because it was black instead of gray. Most of them were two-drawer. Mine had four drawers, all full.

You spot the safe immediately, even from a distance, in the corner of a colleague's office, its color and number of drawers signaling the importance of the secrets within. Your access to those secrets is restricted, but you're all too aware that they exist. Ellsberg's safe could be read as a metonym for the think tank itself, in which the second term, "tank," telegraphs fortress-like concealment, while the first—"think"—dramatizes the imaginative projections about the material contained inside it. The safe is a think tank; and the think tank brokers its secrets. The cold warrior, following Ellsberg, is a secret keeper.

Not unlike a work of art, you could say, whose aesthetics lie somewhere between disclosure and redaction.

Redaction and Countersublime

> History is not a cold case investigation.
>
> Manning Marable, *Malcolm X: A Life of Reinvention*[5]

Consider the way the distinct practices of contemporary artists including Jamal Cyrus, Jill Magid, and Trevor Paglen converge around this logic, in the process bearing a subterranean relationship to the interests of the think tank if interrogating its motivations and protocols.[6] All treat the mechanisms of contemporary secrecy as signatory of the mechanisms of contemporary power; all take up the interests of form as mediating these relations. In *Cultr-Ops on Wax* (2015) Jamal Cyrus offers a figure/ground analysis of the surveillance techniques of COINTELPRO, the FBI's illegal Counterintelligence Program founded to disrupt and infiltrate domestic subversion before training its lethal gaze on the diverse movements of civil rights and black liberation. In *Authority to Remove*, her 2008 mixed-media project staged at the Tate Modern in London, Magid charts her long involvement with the Dutch secret service, or AIVD (*Algemene Inlichtingen- en Veiligheidsdienst*), which culminated in the redaction of a novel based on years of interviews with intelligence agents. Paglen's work in experimental geography mines the photographic calibrations between the visible and invisible, training its sights on cryptic installations of the American military on the ground and in the sky, tethered to a darker genealogy of image production and secret law. The implicit thesis advanced by these artists is that, like Ellsberg's safe, the secret possesses a form—an aesthetic, even—if not representation as such. The artists assiduously unpack the secret's organizational and performative logic, murky procedural techniques, and the alternations between the open and the occult that sponsor its occasional emergence into public view. But perhaps what they ultimately reveal, if in different ways, is that lies and truth claims occupy surprisingly proximate territory on the mediated spectrum of redaction and disclosure; and that the very notion of evidence as "fact" undergoes a radical mutation where the blurred interests of contemporary publicity, hyperbolic media, and secrecy are concerned.

This book has traced the myriad approaches and dimensions of think tank aesthetics. I conclude with disparate artistic responses to the problem of giving form to secrecy itself. For some artists, visualizing redaction amounts to monumentalizing such censorial gestures, escalating and exposing them to the clear light of day as representation. Jenny Holzer's series of *Redaction Paintings*, begun in 2005, is emblematic of such projects. Large canvases are silkscreened with redacted governmental documents made available through the Freedom of Information Act. The documents concern the "war on terror," the Patriot Act, and associated covert operations post-9/11, meshing language with abstraction. Paintings are presented as fields of smudged ink and black bars; Courier type blown up to portrait scale transmits the official record, although much of its content remains concealed. Robert Bailey has convincingly discussed Holzer's work in light of the genre of history painting, anchored in Donald Rumsfeld's mangled trope of "unknown knowns"—that tortured formulation regarding the logic of the "war on terror."[7] Holzer, briefly put, exhibits the redaction itself *as* disclosure *as* painting.

The art considered in this section, on the other hand, confuses neat oppositions between redaction and revelation, much as the "space of the think tank" acquires its power through instrumentalizing ambiguity, making the interdisciplinary and extra-institutional

structural to its research agenda. In this section, such tendencies are treated as a kind of counter*sublime*, a notion that would seem far removed from the hard analytics of the think tank but in fact conforms to its shape-shifting operations. In deploying this most overcharged conceit of philosophical aesthetics, I hold the term's romantic associations in check. Nor will I take up the Cold War iconography linked to sublimity's terms, as when Robert Oppenheimer, on seeing the first atomic bomb detonated at the Trinity site in July 1945, channeled the *Bhagavad Gita* in musing, "Now I am become Death, the Destroyer of Worlds." Following a certain literary treatment of Kantian aesthetics, on the other hand, my interest lies in the relative capacity to grasp such phenomena as objects of thought, of representation—indeed, of terror—that resist the work of figuration and the concomitant sense of clarity that figuration would provide.[8] For the sublime tests the limits of what can be represented and perceived, and thus instantiates a relationship of *power* with the subject that would attempt to consolidate that vision as a legible and containable image. Consider the famous Kantian allegory of the sublime in the third *Critique*, describing the "veil of Isis" not just as accessory to this power but as formative to its workings: it offers an important model for how we might conceive this dynamic within the think tank.[9] As the personification of both nature and moral law, the goddess Isis is shrouded in a veil that can never be hoisted by mortal hands. The figuration of power, in other words, always remains inaccessible behind the veil despite the subject's attempt to lift it.

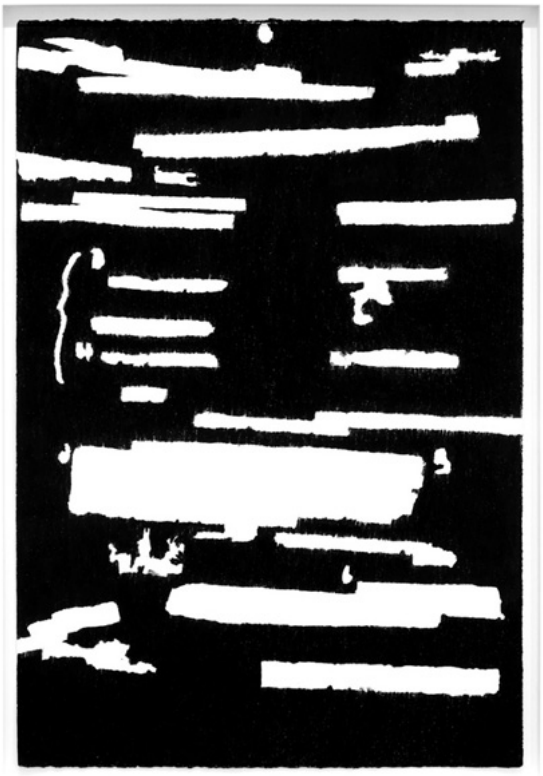
4.1 Jenny Holzer, from series *Redaction Paintings*, 2005–ongoing. © Jenny Holzer, member, Artists Rights Society (ARS), New York.

Redaction is a mode of veiling suffused with this negative power. Its cancellation is a form of editing; its work is as productive as it is censorial. Within genres of textual criticism, the term "redaction" has decisive theological connotations. Given the Kantian metaphor of Isis's divine power, it's not surprising that "redaction criticism" is an exegetical method in which the redactor is treated as de facto author of, say, a Pauline narrative, or a few lines in the King James Bible. The Cold War, occupying a vastly different register of power, would occasion the redactor's public outing as a matter of politics and the highly qualified presumptions of transparency during that era. The Freedom of Information Act, grudgingly signed into law by Lyndon Johnson in 1966, is commonly regarded as "the law that keeps citizens in the know"—but *only* to a point. For in the documents, and the art, that concern us, a black bar blocks access to some information while quite literally stamping the authority of the redactor on the page.

We'll return to the question of the law and secrecy at the end of this chapter; here the structural dimensions of the countersublime pave the way. The question posed of the artist is the extent to which such censorial mechanisms license a stealth response in turn, acts of creativity and political engagement by implication that flourish under the logic of repression. In the case of Jamal Cyrus's works on COINTELPRO, *Cultr-Ops* (2008) and *Cultr-Ops on Wax* (2015), the will to render the redacted legible—to lift the veil, so to speak—is indeed complicated by the production and composition of both works, suggesting a different tack to the revelation of secrecy in keeping with histories of African American culture from the Cold War to the present. Cyrus mines the traditions of black cultural nationalism in his art with an emphatic interest in music, a legacy, it turns out, with no small relationship to the Cold War secret.[10]

Cultr-Ops on Wax consists of black wax crayon on paper, dimensions 44 by 30 inches. A drawing of considerable scale, it would seem to grant little in the way of enlightening the viewer on the topic it ostensibly addresses: Cyrus will conceive of the work as "like a musical score." Both *Cultr-Ops* and *Cultr-Ops on Wax* are based on redacted sections of the FBI's COINTELPRO file on Malcolm X, but go well beyond the act of re-presenting these documents in their suggestive allusions to black aesthetics in the 1960s. To understand the gesture of inversion Cyrus puts into play, consider the FBI's online brief on COINTELPRO with a capsule history of its activities:

> The FBI began COINTELPRO—short for Counterintelligence Program—in 1956 to disrupt the activities of the Communist Party of the United States. In the 1960s, it was expanded to include a number of other domestic groups, such as the Ku Klux Klan, the Socialist Workers Party, and the Black Panther Party. All COINTELPRO operations were ended in 1971. Although limited in scope (about two-tenths of one percent of the FBI's workload over a 15-year period), COINTELPRO was later rightfully criticized by Congress and the American people for abridging first amendment rights and for other reasons.[11]



4.2 Jamal Cyrus, *Cultr-Ops on Wax*, 2015. Courtesy the artist and Inman Gallery, Houston.

While the secretive COINTELPRO would exercise a catastrophic and pernicious influence, the FBI description of its work is anodyne and generic. It means to diminish the role of COINTELPRO by suggesting the program was "limited in scope" relative to the

Bureau's other activities, and fails to capture the program's vehement efforts "to expose, disrupt, misdirect, miscredit or otherwise neutralize" civil rights and black nationalist groups, such that in 1967 the initiative "officially extended," the program to what it called "Black Nationalist Hate Groups."[12] Throughout its history, COINTELPRO infiltrated and spied on both communist and socialist organizations, later expanding its operations to include antiwar and feminist groups, leftist intellectuals, and even the KKK. But its most egregious and destructive activities were trained on black liberation movements, with thousands of pages specifically name-checking (or generally implicating) Martin Luther King, Malcolm X, Huey Newton, Angela Davis, Stokely Carmichael, Fred Hampton, H. Rap Brown, Assata Shakur, and thousands of others. The Southern Christian Leadership Conference (SCLC), Black Panther Party of Self Defense, the Nation of Islam, the Organization of African American Unity, countless Black Student Unions in universities across the country: all were subjected to COINTELPRO's surveillance, interference, violence. One month before Martin Luther King was assassinated in April 1968, an infamous FBI memorandum from Hoover, with proper names redacted, outlined five long-range goals for COINTELPRO, including "prevent the rise of a 'messiah' who could unify and electrify the militant black nationalist movement." It has been noted that the names "Malcolm X" and "Martin Luther King" "fit perfectly in the spaces censored by the bureau" in this same document.[13]

The virulence of Hoover's racism reminds us of an incontrovertible fact: that for many activists, the Cold War was fought on the color line *and* the Iron Curtain, with black radicals steeped in the philosophy of Mao Zedong, protesting the Vietnam war as a last-gasp imperialist escapade and standing in solidarity with Castro, Nehru, Nkrumah, Sukarno, and Lumumba among other contemporary and historical revolutionaries.[14] For their part, radicals of color in the United States took up "Third-Worldism" in keeping with traditions of Pan-Africanism from the early twentieth century, meshed with the politics and praxis of postwar movements of decolonization.[15] Indeed Malcolm X would call for "a Bandung Conference in Harlem," confirming the importance of this signal Afro-Asian gathering of 1955, in which representatives from 29 African and Asian countries converged in West Java to discuss economic, cultural, and political cooperation, in transnational solidarity against shared histories of colonialism.[16] For his part, Malcolm X's travel in Africa and the Middle East in 1964, as well as his heightened global profile, brought him into contact with some of the era's most visible Third World dignitaries, including Sékou Touré, Gamal Abdul Nasser, and Che Guevara.

In collapsing Cold War technics with allusions to Malcolm X's life, Cyrus's drawing tacitly returns us to this history without recourse to the textual substrate beneath the redactor's bar. The work refuses to picture the bar, to give it presence. In contrast, he enlarges our understanding of the mechanics of redaction—and the countersublime—through a canny set of reversals of figure and ground; by incorporating other forms of notation into the composition, with distinct references to black music in the 1960s and its continuing impact for hip-hop in the present; and through the building up of pictorial surface so as to telegraph both the physical labor of redaction, the weightiness of the documentation accumulated, and the material culture of sound recording. Rather than illustrate the redacted portions of the Malcolm X documents, the process entails different modes of editing than blunt cancellation: cutting, excising, composing, montage. First researching the history of the Black Panthers, Cyrus encountered documents on COINTELPRO, which led him in turn to the FBI Freedom of Information Act reading room online. It was there that he began his engagement with the Malcolm X memoranda, struck by the tension between legibility and illegibility the scanned documents made plain.[17] He then cut out the redactions from the texts, "arranged them into a sheet music of a sort, worked the entire paper over with black wax crayon, and then removed the cutouts."[18] What remains is a black field across which white abstract forms appear to float, reversing the conventional compositional values assigned to the registers of figure and ground. The figure, imagined as proximate to the viewer, conventionally seen as the subject of the work, is an absence, a literal extraction. The background, suggesting distance and stage setting, assumes the material and visual weightiness of something closer to hand. The result, at first glance, is an abstract field ripe for art historical projection. For some viewers it may well recall a work of abstract expressionism, somewhere between gesture and color field painting, conjuring a nocturnal and wordless ambience. Not incidentally, that is an aesthetic that is commonly deemed "sublime."

From figure to ground, text to abstraction: what do these reversals signify? "The mass disclosure of information is the rule that governs the exception within the universe of contemporary communications," we noted earlier. But disclosure itself is not always or wholly continuous with transparency or enlightenment; and the adverse condition of this phenomenon—mass surveillance, stemming from anti-black racism—radically exacerbates this condition. The very existence of COINTELPRO was discovered in March 1971 by the Citizens' Commission to Investigate the FBI. In the same year that the Pentagon Papers were leaked, this group of peace activists, led by William Davidon, a physics professor from Haverford College, broke into the local FBI office in Media, Pennsylvania and made off with some 1,000 classified documents, which they proceeded to leak to the press.[19] In 1973, a lawsuit was brought against the FBI by the Socialist Workers Party and the Young Socialist Alliance to force the disclosure of COINTELPRO's archive. Nearly fifty years later, with reams of redacted pages floating around the Internet (some 3,600 pages comprise the file on Malcolm X alone), the documentation has acquired the status of something ubiquitous if abstract: it exists and it's out there—a monumental record of the FBI's criminality—but the sheer volume of such documentation is no guarantor of legibility, to say little of justice or truth. There is still no consensus on the details behind the assassination of Malcolm X, after all, specifically the extent of FBI involvement in his death.[20] Malcolm X was murdered by three members of the Nation of Islam, but conflicting accounts of those who were at the Audubon Ballroom on the afternoon of February 21, 1965—and those who fled the scene—continue to pile up. To add to the confusion, surveillance reports on Malcolm X by the New York Police Department—not subject to the federal Freedom of Information Act—remained sealed, with not even the redactor's bar available for closer investigation. The rule that governs the exception, then, grants us a deeply hedged, highly qualified access to these vast troves of information. The sliding scale between redaction and disclosure internal to any one individual document is conditioned by their mass exposure, a function of this ballooning media ecology.

This is not to suggest that Cyrus's work assumes anything like a quiescent position relative to the secret contained, or merely aestheticizes its structural logic as a formal exercise. Not that form is without importance, particularly when it troubles the logic of figuration that is continuous with accounts of blackness and black art, aesthetics and debates on representation and visibility.[21] Distilling the redactor's gesture to pattern, to the inversion of figure and ground and to apparent silence (or at least to nonlinguistic form), Cyrus grants insight into the *operational* dimension of culture and the histories of the Black Arts movement in the 1960s, both inspired by Malcolm X and implicated in COINTELPRO's surveillance.[22] The title *Cultr-Ops on Wax*, after all, puts operational aesthetics back in the mix as its own politics. It motivates these redactions to historically different ends than mere censure, as it tracks their repetition in the present day.

In this regard, Cyrus's engagement with experimental and contemporary music—Chicago's multigenerational Association for the Advancement of Creative Musicians (AACM), on the one hand, hip-hop on the other—is critical. Founded by Muhal Richard Abrams, Jodie Christian, Steve McCall, and Phil Cohran, the AACM was formative in the free jazz movement, crystallizing diverse strands of black cultural nationalism emerging in the late 1960s and 1970s. Its first meeting—in May 1965—took place just a few months after the assassination of Malcolm X, as if to assert that his silencing would not go unanswered by artistic communities.[23]

For Cyrus's purposes, the work of Anthony Braxton provides critical if oblique instruction on these connections; for it complements the AACM's "strong sense of the need for a radically new visual identity" as it also recodes the aesthetics of silence.[24] Braxton's longstanding dialogue with John Cage—as suggested by his voluminous *Tri-Axium Writings*, and a singular track dedicated to the composer—might be said to *operationalize* silence relative to black creativity and cultural politics.[25] Braxton's graphic scores, complex systems of musical notation, alternate between hieroglyphic code and swooping cursive, meshing the interests of the visual with the aural. A cryptic dimension underwrites these notations. They refuse easy legibility, like so much code, but push against the redactor's own censorial gestures. For Cyrus, treating the redaction drawing "like a score," in part inspired by the example of Braxton, Wadada Leo Smith, and Cage, brings the historical operations of black culture into contact with COINTELPRO's agenda "to expose, disrupt, misdirect, miscredit or otherwise neutralize" movements of black liberation.

The work of the score does not stop there, at that moment when COINTELPRO crashes up against Malcolm X and AACM. The medium of wax links the drawing with the material presence of a record—and the replaying of histories and cultures resonant for new audiences in the present. Manning Marable describes the "the renaissance of Malcolm's popularity in the early 1990s" as "largely due to the rise of the 'hip-hop nation,'" with Public Enemy and Gang Starr incorporating the minister's iconography into their own visual presentations.[26] That there are FBI files on two of the most storied hip-hop artists of the 1990s (Tupac Shakur and Biggie Smalls) suggests the repetition of such concerns in the recent past.[27]

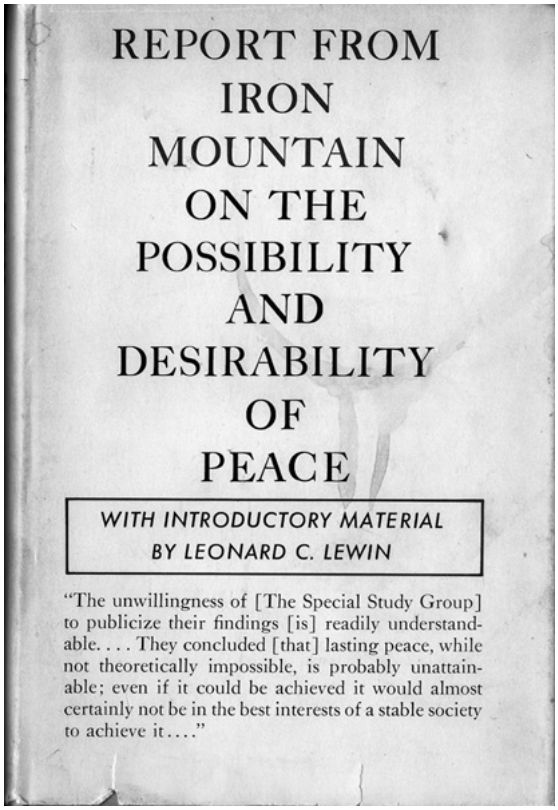
Like a solarized picture or photographic negative, *Cultr-Ops on Wax* limns the space of the redactor's gesture. It puts pressure on the countersublime, traces the contours of its power without giving it intelligible form, acknowledges its limits to disclose that message. It operationalizes culture as politics on the ground—even as, *especially* as, it literally reverses the logic of figure/ground relations that instantiate the redactor's power, surfacing the ground itself into view. The ground is a history of black cultural politics that the bar would otherwise mask. It sustains that history in the present, if in negative relief.

Learning from Iron Mountain

The countersublime teaches us past is prologue, as the mechanisms of the Cold War secret still function today. As *Cultr-Ops on Wax* makes plain, a prehistory of the open secret in contemporary art bears a critical relation to work on surveillance, domestic espionage monitoring our quotidian and not-so-quotidian comings and goings. As the history of COINTELPRO shows, the most extreme and punitive episodes of such activities were visited overwhelmingly on black subjects. Today surveillance, through our smart phones, online searches, fitbits, and the so-called Internet of things, is a matter of course, the horizon of the world. Loss of privacy, some say, is the price one pays for security or convenience, shrugged off as something arcane, a predigital relic. A labyrinthine history underwrites this narrative. In the late 1980s and early 1990s, the exploding landscape of CCTVs and the emergence of an insidious new digital tool called "spyware" seemed to confirm the dark prognostications of the control society, of which we were forewarned in Foucault's *Discipline and Punish* on the one hand and by a recently birthed generation of cyberpunk theorists on the other.

Where think tank aesthetics are concerned, an even earlier example, the so-called *Report from Iron Mountain,* is suggestive for the thematic of surveillance that has preoccupied critics over the past few decades. Some might be hard pressed to call this example "art" at all. Still, the rancorous debates that followed its 1967 publication lay the ground for something *artful* about the mechanisms of contemporary secrecy. Indeed, the controversy swirling around the *Report* fits squarely within the terms of think tank aesthetics: the sense of what can and cannot be seen relative to the protocols governing these cryptic institutions, and the imaginative projections they prompt regarding their authority and power. An obscure episode from the chronicles of the Cold War establishes the parameters for treating the dynamics between disclosure and redaction in recent art.

Four years prior to Ellsberg's revelations out of the RAND Corporation or the burglary of the FBI files in Media, Pennsylvania, a shocking book was published by the venerable Dial Press entitled *Report from Iron Mountain: On the Possibility and Desirability of Peace*. Introduced by the journalist Leonard C. Lewin, the report was said to have been leaked by a nameless academic ("John Doe") spurred by a crisis of conscience. An interdisciplinary Special Study Group—a murky commission of defense strategists, policy wonks, and academics—had convened from 1963 to 1966 to produce the collective document. The group met repeatedly at "Iron Mountain, NY" (somewhere near the Hudson), called together at the behest of an unspecified federal agency. Its task was to offer a systematic analysis of the implications of war and peace for American economics and society.



4.3 Cover, Leonard C. Lewin, *Report from Iron Mountain*, 1967. (Also plate 6.)

The Special Study Group, in other words, checked all the boxes of the Cold War think tank as a hothouse for defense intellectuals—logicians, computer scientists, engineers, mathematicians, systems and game theorists, behavioral scientists, semioticians, and anthropologists. Their combined authority, as we have long noted, was meant to address the most pressing questions of national security from a range of disciplinary perspectives. But while the collective ambition behind such institutions was ostensibly in the service of the larger good—and its innovations profound—the shadowy constitution of the think tank and its top-secret research initiatives communicated something far more sinister to the broader public.

This background telegraphs the scandal *Report from Iron Mountain* generated as the closest thing to a tell-all to have emerged from the think tank's depths. Its fatalistic outlook suggested that "lasting peace, while not theoretically impossible, is probably unattainable; even if it could be achieved it would almost certainly not be in the best interests of a stable society to achieve it."[28] The overarching message was that peace was neither economically sustainable nor ideologically desirable; and that should the militarization of contemporary life be eliminated with the end of armed conflict, the results would be globally catastrophic. The proposed solutions were equally dystopian. Only an equally radical social phenomenon—such as indentured servitude—could make up for the projected losses in the economic realm.

Released during the height of the Vietnam era, the book drew near-instantaneous media attention, with an article appearing on the cover of the Sunday edition of the *New York Times* in November 1967.[29] Reviewed not once but twice by that newspaper, it landed on its best-seller list at sixth place in the general-interest category, sandwiched between John Kenneth Galbraith's *The New Industrial State* and Eisenhower's avuncular *At Ease: Stories I Tell to Friends*. Reception ranged from the mortified—it was deemed "a roaring scandal"—to the flat-out confused. The Orwellian tenor of its analysis prompted many to question the motivations of think tanks more generally; others played a guessing game as to the identity of its authors. More than a few detected a hoax. But if this was hoax or satire, it hewed a little too closely to both the methods and interests of a RAND Corporation or Hudson Institute. According to a press spokesman for the State Department Arms Control and Disarmament Agency, "whoever did it has an appreciable grasp of the disciplines involved." A fellow at the Institute for Policy Studies in Washington

was surprised to see "one of his privately circulated reports" mentioned in the book and suggested that perhaps someone in the CIA had a role in the affair. Herman Kahn repeatedly denied he had any hand in the report, calling the whole affair "sinister."[30] Perhaps the bluntest appraisal was issued by an individual whose stock in trade was state secrets. "Whoever wrote it is an idiot," Henry Kissinger was reported to have said.[31]

Report from Iron Mountain was, in fact, an elaborate hoax perpetuated by Lewin: The author would finally cop to his subterfuge in 1972. Still, the artifice behind the "leak" begged the question of the secrets otherwise concealed in those institutions after which Iron Mountain was modeled. As Lewin noted, "government spokesmen were oddly cautious in phrasing their denials" of the book, or their role in its making. Another think-tanker said that, while he disagreed with the general drift of the argument, it was nevertheless "the best case I've ever read on the other side. . . . It gives me very tough arguments to answer." The fact that analysts were compelled to make such statements, let alone take the report's outrageous claims at face value (or even more cynically, not take them seriously), is a trenchant indictment of the nature of the information redacted or concealed; of the disturbing proximity between what constitutes "truth" and fiction in this context. John Kenneth Galbraith, the storied Harvard economist who some suggested was behind the writing of the book, would spin this in a different light. "Some things are so far removed from reality," he noted, "that they can't be commented on." In fact, it is not the distance these secrets maintain from "reality" but their *proximity* that seems very much the point of Lewin's action.

Secret Agency

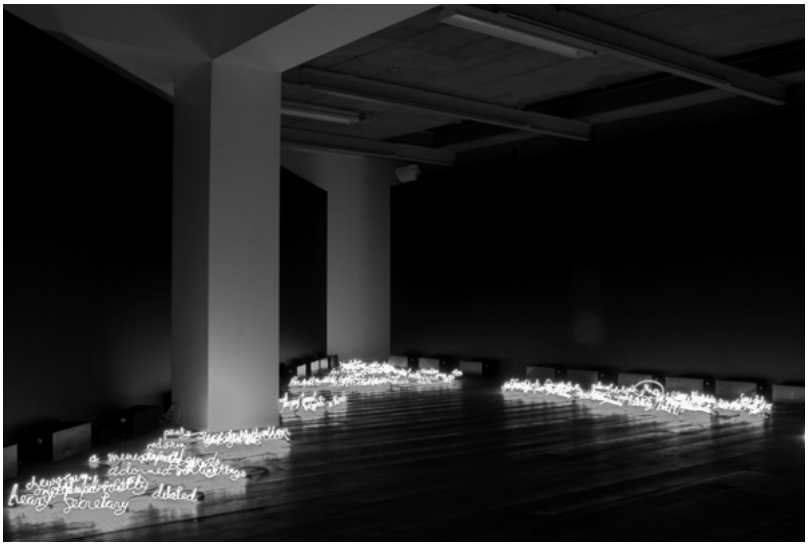
Report from Iron Mountain prefigures the concerns of both Magid and Paglen as a parable of a culture in which the existence of such secrets demands the analysis of their production, management, and circulation. Straining the limits of the imagination—of what can and cannot be thought or visualized relative to issues of security as its own countersublime—the *Report* is a piece of fiction that gives the lie to what too often passes for fact. Magid's collaboration with the Dutch secret service (AIVD) follows a similarly disturbing trail for its failure to reveal the secret in question. In walking a fine line between art and the interests of covert intelligence, she forces the question of the equivalence between redaction and censorship and the correlative tensions between secrecy and agency. Organized by Amy Dickson, an assistant curator at the Tate Modern, *Authority to Remove* was an extended reflection on Magid's work with the AIVD and what would become an accidental collaboration.

The relationship between Magid and the AIVD started reasonably enough in 2005, when the Brooklyn-based artist was hired to produce art for their new headquarters in The Hague. The arrangement is perhaps not as unorthodox as it sounds: the construction budget of each publicly funded building in the Netherlands allows for a small percentage to commission new art. In the case of the AIVD, the charge was to make work that addressed its "mission . . . in investigating threats to 'democratic order'" and to "find the human face of the organization."[32] Magid seized on "Article 12" in the "Kingdom of the Netherlands Bulletin of Acts, Orders and Degrees" as the basis for her work, a clause that restricts the government from following the religion, health status, or sex lives of its employees. Testing the peculiar dynamics between the private lives of individual agents and the covert activities with which they were engaged, her multimedia project would build from long interviews with such personnel on topics of a more intimate nature. That information would then be issued as a report-cum-novel, and the art that grew out of this information would be displayed onsite in the new Hague building as well as in that city's Stroom Gallery. The proviso, of course, was that the artist would keep the identities of those interviewed concealed, and that she could neither photograph nor record them.

For some this description might recall standard-issue institutional critique, a legatee of 1960s conceptualism, in which organizations commission an artist to facilitate what amounts to a self-reflection from within. The artist plays the role of participant-observer in interviewing the employees of a given institution; and said institution gets to exhibit the results of those exchanges, as if to showcase the openness of the organization to criticism and, by extension, its public face and largesse. But when the institution under scrutiny is an intelligence agency, the very notion of this "openness" is fundamentally tested if not

flagrantly compromised—especially for an organization devoted to protecting "democratic order." Magid's work is implicated in this dynamic. The details of its unfolding inadvertently ironize the agency's motivation for the work, that it should "find the human *face* of the organization."

The actual appearance of that "face" may well be beside the point—a red herring, in the language of the classic mystery novel. For it's a face that resists direct or figurative representation, consistent with the aniconic tendencies of Magid's practice in general, and a countersublime that resists lifting the veil. Take the process by which Magid extracted the information about the intelligence agents. After gaining security clearance through the AIVD (she herself requested the vetting) and then circulating a call for volunteers on the agency's intranet, Magid had a third party arrange meetings between the artist and the intelligence agents, who met with her in a variety of nondescript settings, from cafes to hotel lobbies to airport lounges. The performative dimension of these arrangements sees the artist in a role that at once mimes and transitions into that of her subjects, who themselves engage role playing as far more than an occupational hazard: quite literally as a matter of life and death. Magid's agency as an artist, now subjected to the protocols of Dutch intelligence, is a type of *secret* agency, the pun capturing the bleed between an individual's seeming autonomy and the institutional demands required by the exigencies of covert operation. And just as Magid assimilated the peculiar rhetoric associated with such work ("to burn a face," for instance, means to expose the identity of a spy), she began to learn more personal details of the subjects' lives.



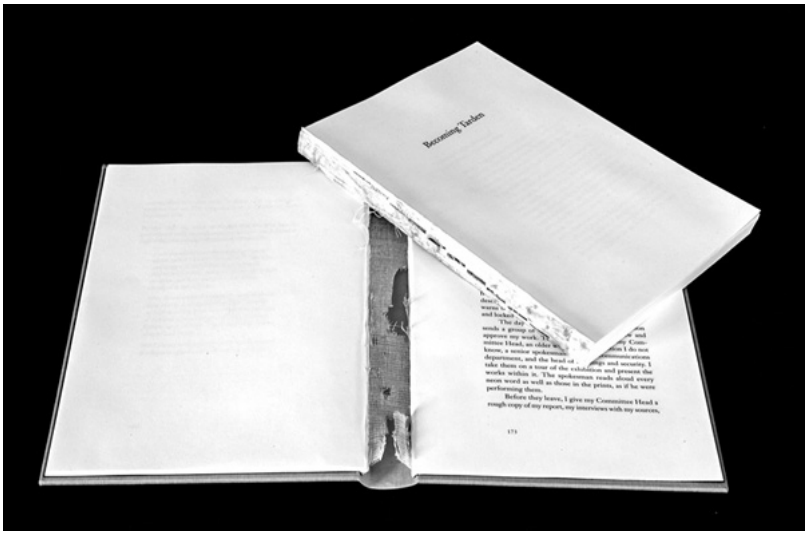
4.4 Jill Magid, installation view from "Article 12," neon and transformer, Stroom Gallery, The Hague, 2008. Image courtesy the artist, LABOR, Mexico City, and Until Then, Paris. (Also plate 7.)

4.5 Jill Magid, *I Can Burn Your Face*, 2008. Image courtesy the artist, LABOR, Mexico City, and Until Then, Paris. (Also plate 8.)

For this reason, it's fitting that the objects resulting from such interactions are both exceedingly plainspoken and frustratingly elliptical. A series of glowing red neon sculptures, entitled *I Can Burn Your Face*, reproduce notes taken from Magid's interviews in her own cursive: they are brief descriptions of the agents whom she encountered over a period of several years. Sitting directly on the floor, they collectively amount to a nonfigurative portrait gallery, betraying just enough information about each agent to be suggestive if hardly revelatory. "Loud, squeaky voice" and "dark, puffy bob," for example, were two of the descriptions that served as surrogates to "the human face of the organization." Here Magid's aesthetic telegraphs Chelsea Manning as if by way of Bruce Nauman. Actual data on these agents was not "leaked" but communicated through a self-consciously oblique medium.

When Magid first showed this work in her exhibition "Article 12" at the Stroom Gallery in 2008, alongside drawings and prints, officers from the AIVD visited prior to the opening to vet the work. If they were concerned that some of the pieces took untoward liberties regarding the identities of their operatives, the last episode in the history of the collaboration only reinforced these suspicions. Indeed, the copious notes the artist used as the basis of her sculpture were likewise being submitted to a different kind of transformation. The character of this information as so much raw data would itself "go undercover" in novelistic form: Magid's ambition was to publish the information as fiction in a book to be called *Becoming Tarden* (named after the ex-CIA agent/protagonist at the center of Jerzy Kosinski's 1975 vignette *Cockpit*), an account of her own interactions with agents in part prompted by her growing skepticism about the nature of her interactions (did she really have "security clearance"? was she really "vetted"?). Considered in light of the controversy erupting around *Report from Iron Mountain,* Magid's reverse transformation from "fact" to fiction is critical to the logic of the open secret. The secret depends on such border crossings in order to maintain its cryptic power.

Magid gave the officers a draft of the book manuscript for their review, which set off a round of missives replete with obscure references to the Dutch penal code and not-so-veiled recriminations. Having returned to New York, the artist was accused of risking state secrets by potentially compromising the identities of the agents. She was forbidden to publish the book; some of her print work from the series *18 Spies* was confiscated. In August of 2008, a representative from the Dutch embassy paid her Brooklyn home a visit in a black sedan. He delivered the manuscript in a discrete brown envelope. Forty percent of it had been redacted, with signatures ripped from the volume's binding. Large swathes of the text were rendered provocatively silent.



4.6 Jill Magid, detail, *Hacked Book*, unredacted copy of *Becoming Tarden* exhibited under glass as part of *Authority to Remove* at Tate Modern, 2009. Image courtesy the artist, LABOR, Mexico City, and Until Then, Paris. (Also plate 9.)

While redacting *Becoming Tarden* may have been warranted in light of the information involved, the status of the gesture is perhaps less clear than it would originally seem. Redaction is inextricable from artistic censorship in this instance, as are the oscillations Magid stages between data and fiction, artist and agent, visibility and the invisible. As Magid and the AIVD continued their discussions about the manuscript, Amy Dickson's invitation from the Tate Modern offered a larger stage on which to exhibit work that would seem, by definition, resistant to exhibition. Ultimately, the deal brokered between Magid and the AIVD only dramatized the project's performative dimensions: in a dark gallery, the manuscript was displayed in a vitrine, open to pages that could not be read, physically withheld from the spectator. One day after the exhibition closed, the AIVD effectively completed the performance. Visiting the Tate, they removed the book, which then became the property of the AIVD.

With all the twists and reversals of a good spy story, Magid's project culminates with an open secret. A manuscript is displayed at the Tate Modern, a museum emblematic of public spectacle, but the contents of that manuscript are rendered as opaque as the work's exhibition would seem transparent.

Secret Law

> The Freedom of Information Act (FOIA), which can be found in Title 5 of the United States Code, section 552, was enacted in 1966 and generally provides that any person has the right to request access to federal agency records or information. All agencies of the Executive Branch of the United States Government are required to disclose records upon receiving a written request for them, except for those records (or portions of them) that are protected from disclosure by the nine exemptions and three exclusions of the FOIA. The right of access is enforceable in court. The FOIA does not, however, provide access to records held by state or local government agencies, or by private individuals.
>
> US Department of Justice[33]
>
> The immoral cannot be made moral through the use of a secret law.
>
> Edward Snowden[34]

Fundamentally, Magid's engagement with the AIVD turns on an ethnographic, as well as site-specific, dynamic. Long hours spent interviewing her Dutch informants produce research with culturally acute implications. Meanwhile the law underwriting art commissions in government buildings reflects the liberal values of the Netherlands, as if to acknowledge the public work that the visual arts perform beyond mere decoration. Government and the law solicit the visual publicity of art, even for an agency devoted to

covert intelligence. Magid draws power from this contradiction: the human face of the secret agent remains behind the veil.

In the case of Trevor Paglen, a question of the law and surveillance—its militarization, mechanization, and secrecy—slides between the accessible and inaccessible and the equal but opposite registers of mass disclosure and mass surveillance. The foundation of such connections reaches back to the Cold War, when it acquires legal and institutional status, but they have an even earlier history in the chronicles of American empire. The Freedom of Information Act, passed as the Vietnam era was coming to full boil, grants citizens access to federal records which may or may not implicate them in whatever activities are described in the bureaucratic record: such access is "enforceable in court," provided that the documents do not meet the criteria of the "nine exemptions and three exclusions of the FOIA." We noted that Lyndon Johnson resisted signing this Cold War bill into law; since its enactment over five decades ago, it has undergone multiple revisions, most recently with regard to digital privacy after 9/11 and the "war on terror." Such exemptions and exclusions are typically justified through national security interests and the "privacy" of those either named or implicated therein. But prompted by Jamal Cyrus's work, we've intuited at least two names as ghostly traces under the sign of redaction—Martin Luther King and Malcolm X—that flag both legal and ethical conflicts around the constitution of such privacy.

The Freedom of Information Act—the citizen's "right to know"—is itself deeply compromised by military agencies engaged in mass surveillance, working cooperatively with the FBI: in particular, by the National Security Agency (NSA) of the Department of Defense. Here the Department of Justice and the Department of Defense intertwine to produce an intractable knot: the marriage of law and warfare. Established in 1952 under Truman, the NSA is a Cold War invention. It evolved out of the military's cryptanalysis unit and has weathered considerable controversy over its history, including its implication in illegal surveillance during the Watergate era. Today, of course, these three letters telegraph the sublime breadth of governmental surveillance disclosed by NSA contractor Edward Snowden in June 2013, bulk data involving millions of phone calls of American citizens as well as unencrypted messages via Google or Yahoo. His WikiLeaks contribution exposed the far-reaching and egregious interests of secret law to the wider public. Executive Order 12333, a relic of the Reagan presidency, authorized the mass expansion of data collection by various intelligence agencies.

With Paglen's work, consider how the open secret twists around secret law, which is in turn nested around secret military operations. The interests of visibility and publicity play a critical share in this inverted relationship. Snowden's *illegal* act was transparent, cast widely across the Internet as an act of civil disobedience, while the *law* functions by means of its obscurity. As William Scheuerman notes:

> In striking contrast to the open character of his actions, Snowden asserted, the secrecy of the NSA's activities "corrupts the most basic notion of justice—that it *must be seen* to be done. The immoral cannot be made moral through use of secret laws." Publicity is fundamental to the rule of law and constitutional government.[35]

Paglen's work variously tangles with such associations, even as descriptions of his art suggest a reckoning with franker, or at least more recalcitrant, subjects. There are pictures of the Western landscape, fabled American deserts; the blunt apparatuses of the military and their embedded sites; astronomical and aeronautical instruments such as satellites and drones and their technics. Paglen is renowned for his explorations of the "black sites" of such covert landscapes as well as for monitoring the omnipresence of classified spacecraft indivisible from these terrestrial installations. But he also flags the mechanization of vision enabled by such technologies, pressing the question of human agency relative to the constitution of these images.

In exposing the dark corners of the military landscape to wider spectatorship, Paglen's work might seem like an unalloyed gesture of visual disclosure, its aims contiguous with what is typically called the "politics of representation." It would be willful to deny the art's motivation in charting such sites: it draws its power in no small measure from its ferocious commitment to parsing these dark worlds, whether through exacting archival research of the declassified record or the situational demands placed upon its maker. This is, however, only part of the equation—the most graspable part. Indeed, the work's conflicted visual economy troubles the self-evidence and immediacy of appearances, taking on the ideology of communicational transparency through steady recourse to the genealogies and

aesthetics of photographic media. Together this complex of interests at once dwells on the visual mechanisms of the open secret as it approaches something closer to its law.

Take as law the fundamentals of the artist's process and the web of relations they establish beyond the face of the image. The sociologist Niklas Luhmann might call what Paglen does "second-order observation"—observing the act of observation and necessarily interrupting the seamlessness of that process even as he reproduces its mechanisms. Paglen's *Limit Telephotography* series, for example, looked at classified military installations in the southwestern United States. The inaccessibility of these sites required the use of high-powered binoculars and telescopic lenses to capture their distant representations, strikingly hazy images that provide little in the way of evidence of the internal workings of each site. Any number of pictures of airplane hangars, proving grounds, or flight test centers, some shot from as far away as 26 miles, are more connotative than denotative, shifting between the evocative and instructive. Paglen's work does not merely disclose information in this regard—this is far from reportage in any journalistic sense. But you couldn't call it the latest installment in the chronicles of contemporary surveillance art either, the narratives of which often reduce to monolithic analyses of power and the rhetoric of "the gaze" that underwrite its politics.

4.7 Trevor Paglen, *Detachment 3, Air Force Flight Test Center #2, Groom Lake, NV, Distance—26 Miles*, from *Limit Telephotography Series*, 2008. Courtesy the artist and Metro Pictures, New York. (Also plate 10.)

Rather, the coming into view of the *appearance* of secret law is registered by the images' murky sensibility. To call such images "strikingly hazy," after all, is to identify their animating contradiction: Paglen's efforts are as occult and abstract as they are revelatory, and as beautiful as they are menacing. A disquieting tension emerges between what the images disclose as military information and the aesthetic traditions Paglen's medium evokes, a history in which issues of photographic visuality are indivisible from the mechanical processes of the apparatus. It's this knife-edge relationship to the phenomena Paglen observes that cues the precarious nature of the enterprise. An untitled C-print of a Reaper drone, for example, is a luxurious study in blossoming red, an effect that has been likened to color field painting. Elsewhere, as in his ongoing series of classified spacecraft *The Other Night Sky*, a field of geostationary satellites scintillates, the arc of their paths competing with the dead light emanating from stars. The work trades in a kind of glacial visuality evocative of the word "sublime." As noted earlier, the term conjures extravagances of nature and art historical touchstones both in modernist abstraction and nineteenth-century romantic landscape—both of which Paglen's work references. But more to the point of this sublime allusion is something of the *elusiveness* of his subject matter, of what the photographs can't quite capture even as they lay claim to describing actual phenomena in the world. This, again, is a question of what the open secret licenses relative to what can or can't be thought—because of what can or cannot be represented. If the philosophical

traditions around the sublime, from Longinus to Kant to Lyotard to Jean-Luc Nancy, speak to the limits of ontology and the failure of the imagination to close the gap between reason and sense, Paglen tracks these issues as a function of a military-aesthetic complex continuous with the law. It is a view to such conditions that could only be partial, never fully disclosed, because organized around the requirements of secrecy.

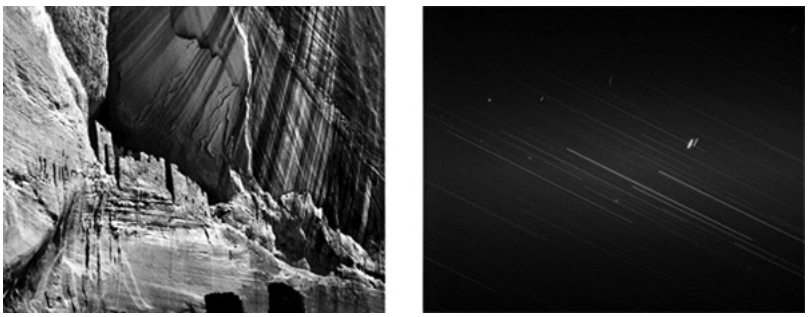
Such conditions find a genealogical touchstone in a diptych called *Artifacts,* a work that departs from the history of photography as a means to anchor Paglen's contemporary observations. On the left is a black-and-white image of the remains of an Anasazi cliff dwelling at Canyon de Chelly, Arizona. Referencing an inaugural moment of photography in the nineteenth century, it calls on the ghost of Timothy O'Sullivan, whose canonical images of the Southwest supported photography's progressive claims to the status of art. On the right is a picture soliciting more contemporary associations: of the night sky showing classified spacecraft in "perpetual geosynchronous orbit." The long exposure time required to track these instruments results in a field of black laced with luminous white streaks, inverting the formal characteristics as well as topological interests of the image on the left. The geological striations at Canyon de Chelly, dark against light, find a figure/ground reversal in the photograph of the night sky. Likewise, the earthbound image reflects its binocular complement in the extraterrestrial representation.

4.8 Trevor Paglen, *Untitled* (Reaper drone), 2010. Courtesy the artist and Metro Pictures, New York. (Also plate 11.)

The intertwining does not stop there, however, as the diptych also invokes both the peculiar histories and temporalities that structure the emergence of these images and their generative logic. O'Sullivan's work, after all, was sponsored by the US Geological Survey, rationalizing hitherto "unknown" territory in the interests of Western expansion. By now, the aesthetic dimensions of such images have largely outstripped their motivations in Manifest Destiny and genocide; they have virtually congealed into an image as seemingly self-evident as the monumental rock face of Canyon de Chelly. The picture on the right, then, reproduces this process as if in slow motion—or slow orbit—but through new technological mediations. An image of astronomical duration, it follows the trail of the earlier history—it literally elevates it—and cedes the task of the photographer to instruments without human agency.

4.9 Trevor Paglen, from *The Other Night Sky*, 2010–2011. Courtesy the artist and Metro Pictures, New York. (Also plate 12.)

Paglen's work doesn't traffic in the performative fictions of Magid's project with the AIVD, but it betrays a particular attitude to photographic evidence and its truth claims that announces its own mode of fiction. Recent art criticism has dwelled on the fictive dimension of contemporary art and politics, having recourse to the formative analysis of Jacques Rancière: aesthetics is that peculiar delimitation of spaces and times, of making the possible visible, by which history itself becomes "a form of fiction." The open secret represents the dark underbelly of these powerful accounts, which tend to sponsor work addressing progressive politics and the potential for collective imaginaries. But as the *Report from Iron Mountain* demonstrated—and as Cyrus's, Magid's, and Paglen's work does more recently—the very existence of the secret is wholly complicit with such fictions.



4.10 Trevor Paglen, *Artifacts (Anasazi Cliff Dwellings, Canyon de Chelly, Spacecraft in Perpetual Geosynchronous Orbit, 35,786 km above Equator)*, 2010. Courtesy the artist and Metro Pictures, New York. (Also plate 13.)

It is the secret law with a hidden face, concealed behind a veil and redactor's bar. It is the image of the think tank, as impenetrable as a safe but as transparent as a photograph. What might disclose the secret's workings at this historical moment, one that seems nothing if not geared to the excesses of communication, in which information is capitalized as surplus value? For Cyrus, Magid, and Paglen, in their respective ways, institutional histories that have remained off-site, stemming from Cold War prerogatives long ago forgotten, continuously perpetuate their secrets in the clear light of day.

CODA

Cato at the Met

I

There are no portraits of the Roman statesman Cato the Younger (95–46 BCE) on view at the Metropolitan Museum of Art in New York. At least none you could spy at a quick glance. The galleries of classical sculpture where you might expect to encounter his likeness stage a different kind of *arche* than that considered in chapter 3, a cosmology of power fashioned in marble and bronze, sovereign media for the ages. The rooms are populated with Olympians and patricians, idealized youths and imperial arrivistes, but there is no obvious sign of the fabled Republican. His non-appearance at the museum begs the question of think tank aesthetics in the here and now, in realms of artistic spectacle seemingly removed from such covert operations. Cato will be heralded across the centuries for his storied opposition to tyranny, his principled resistance to taxes, his seething oratories against government corruption.[1] The Internet will tell you Cato is an icon of liberty. Cato is that libertarian attaché whose republican virtues bear indelibly on the stakes of contemporary neoliberalism.[2] For nearly fifty years, after all, he's been the titular inspiration for a Cold War think tank operating in the present.

Still, if you go online to the Met's collection database and type in the word "Cato," some 23 results pop up. None of the objects are currently on display and some

seem to have little to do with the senator, apart from nominal coincidence. The English portrait painter Lowes *Cato* Dickinson, for example—engraver by appointment to Queen Victoria—gets a few hits on our search. (Perhaps the ancient Roman served as Dickinson's partial namesake, though Cato's later recruitment by capitalist ideologues would hardly sit well with Dickinson's socialism.) Nearly all the works in the collection linked to "Cato" are on paper, most dating from the seventeenth to the nineteenth century. This stands to reason. By the early eighteenth century Cato's name was in Whiggish rotation as a peculiar avatar of political Enlightenment. In 1712 Joseph Addison would write the play *Cato, a Tragedy*, centering on the statesman's failed and fatal campaign against Caesar in Utica, precipitating an operatic demise at his own hand. The production met with great success across Europe and indeed across the Atlantic: as we learned in chapter 3, *Cato's Letters* would be penned in the play's wake by liberals John Trenchard and Thomas Gordon. Meanwhile George Washington would call for a production at Valley Forge, a crucible of the American Revolution. Cato's suicide—a mangled Roman take on *seppuku*, a ritual disembowelment gone horrifically wrong—would inspire a grim iconographic program by artists, with overwrought deathbed scenes called up in the Met's database and seen elsewhere online. Such images feature the hyperbolically ripped senator—neoclassical catnip, the morphology *du jour*—writhing in agony as his progeny look on in horror. As aesthetics go, we're far from the dignified sangfroid associated with the Met's most famous allegory of the individual and political revolution. Jacques-Louis David's *The Death of Socrates* (1787) takes pride of place in the European galleries upstairs, a stony harbinger in paint of *le quatorze juillet*.

5.1 Pierre-Narcisse Guérin, *The Death of Cato of Utica*, 1797. © Beaux-Arts de Paris, Dist. RMN-Grand Palais / Art Resource, NY. (Also plate 14.)

Which is to say, actual depictions of Cato at the Met will only get us to a point. Compared to a monumental sculpture of the Stoic at the Louvre, or a noseless portrait bust in marble at Copenhagen's Glyptotek, his representation at the Met is literally flat. It's as scant and as thin as those eighteenth-century broadsides telegraphing his name to the lettered elite—the Edmund Burkes of the world, to identify one such famous reader—but also to a cadre of American revolutionaries then in the making: Patrick Henry, Nathan Hale. From this evidence alone, it would seem Cato's museological legacy is caught in a hedged, in-between space. The image circulates between database, archive, and storage, the professional *habitus* of art historians little visited by the Met's general public. What to make of this nether world in which Cato's representation would seem obscure and submerged? What makes his *relative* visibility at the Met any more significant than the thousands of images of ancients swirling about in the museum's virtual depths?

And what, finally, does this have to do with the Cold War think tank? The work it continues to perform in the neoliberal present?

We have considered the space of the think tank throughout this book as an animating, "structural blurriness" (Thomas Medvetz), a dynamic field of relations that capitalizes on its shape-shifting prowess, somewhere between closed intellectual fortress and vaporous, phantom redoubt. This is a field of power whose borders are enlarged under the rubrics of interdisciplinarity, operating adjacent to governments, universities, and other such institutions. At the Metropolitan Museum of Art, to this very point, Cato will show his hand, if not his face, in a wholly different register than his catalogue of likenesses in print, textile, and ceramic. For Cato will paradoxically trade on art's publicity—its capacity *to be seen*—both as shield and as weapon. He emerges into visibility in the present from behind the think tank's walls.

II

PRESS RELEASE

David H. Koch Elected a Trustee at The Metropolitan Museum of Art

(New York, November 13, 2008)—David H. Koch has been elected to the Board of Trustees of The Metropolitan Museum of Art, it was announced today by James R. Houghton, the Museum's Chairman. Mr. Koch's election took place at the November 12 meeting of the Board.

Mr. Koch is an executive vice president and a board member of Koch Industries, Inc., based in Wichita, Kansas. . . .

His philanthropic interests include cancer research, medical centers, and arts, educational, and cultural institutions. . . .

In addition, he has been active in public policy, serving on the boards of the Cato Institute and the Reason Foundation—organizations that apply market-based concepts to issues of peace, prosperity and social progress.[3]

In 2012, the Cato Institute will undergo a seismic rift, with the board and the Koch brothers in litigious upheaval.[4] The ideological soul of the think tank will be up for grabs. The brothers will clash with other stakeholders regarding their control and priority as the institute's founding officers. But that's some years off in the future; we're still in November 2008. The Great Recession is in full swing and art is the least of anyone's concerns. Aesthetics count for nothing when your retirement, life savings, and insurance are instantly gone, along with your job, home, and health benefits. Strange to say, then, that 2008 is far from the worst of times at the Met—it will be a couple of years before it will be forced to lay off dozens of staff, a few years more before it will begin charging twenty-five bucks a head for what was once a "pay as you wish" general admission ticket. For now, at least, the museum can enjoy the vaunted support of David H. Koch, billionaire, as its newly elected trustee.

Koch's financial generosity can only impress other board members at the museum. He's been active with the Met since 1982, one of several founders of the Chairman's Council. Imperial sums have been disbursed to the Textile Conservation Laboratory, the Costume Institute, the acquisitions fund, and a newly endowed position in the Museum's Department of Scientific Research (the "David H. Koch Scientist in Charge"). You can imagine this last role held considerable interest for the philanthropist, although we'll have to qualify how those interests operate elsewhere. Though trained as a chemical engineer at MIT, he'll ultimately denigrate the hard objectivity of science relative to the iron laws of the market. Koch Industries, marketing petroleum as well as paper goods, will serve as among the greatest "philanthropists" of the anti–climate change campaign, donating millions to other think tanks of egregious climate deniers.[5]

The set piece of the billionaire's largesse at the Met is the David H. Koch Plaza, to be opened a few years later, on September 10, 2014, at a cost of some $65 million dollars, all his own. The renovated plaza is touted as an "open" space—a place for the *public* to enjoy—with sparkling new fountains framing the historic Beaux-Arts façade, and gracious *allées* and *bosques* of trees welcoming visitors as they mount the Fifth Avenue beachhead.[6] (The Frenchifying is part and parcel of the Met's promotional rhetoric, no doubt imparting an air of European gentility.) Koch's name scintillates in gold on the side of both fountains so no one can fail to miss his institutional imprimatur. Gold equals seriousness of intent and moneyed commitment, no less than plutocratic ambition. According to the press release, though, Koch had nothing to do with this gesture of gilded recognition, making no demands on the museum for such a lavish public shout-out. On the contrary, the narrative goes, this was simply the museum settling an outsized philanthropic debt. As the former director of the Met, Thomas J. Campbell, would note, when "the board reflected on the generosity and level of commitment that

David's gift represents, we thought it was the right thing to do."[7]

Where think tank aesthetics operate in the present, *the right thing to do* is indentured to an epistemic, ideological, and cultural tangle, a too-big-to-fail network in the service of both social *distinction* acquired at the Met, as a space of visibility (per Pierre Bourdieu), and strategic *indistinction* that rules life everywhere else (per Thomas Medvetz). Not that the historical figure of Cato maps easily onto such fuzzy conditions, that much we can say with confidence. Cato was a man of unstinting logic and even more stubborn principle, all or nothing as character types go. So ferociously held were his beliefs that he could bury a sword in his gut, a gesture inspiring latter-day insurrectionists along the lines of "give me liberty or give me death." Neither violence nor principled theatrics would happen at the Met, of course, and none of Koch's dealings there were redacted. No names were put under erasure. The opening ceremony of the plaza was just that—*open*—complete with a choir trilling an exuberant version of Pharell's "Happy" to the esteemed guests. All was exposed to the clear light of day, with a collective spirit as buoyant as the arcs of water sprayed from the plaza's updated fountains.

5.2 David H. Koch Plaza, Metropolitan Museum of Art, New York. Photo: Geoff Kaplan. (Also plate 15.)

On the other hand, a tragic choir offers a counterpoint to such jubilation, in protests mounted both in real life and online. Occupy Museums was there front and center, fomenting the crowds and educating the public about environmental devastation wrought by Koch Industries. Meanwhile the blogosphere declaimed against the plaza as so much pomp for the 1%. In the few years since its opening, the tenor has grown exponentially louder and increasingly urgent, as more multinodes in the neoliberal *arche* are connected and tracked by scholars, artists, journalists, and activists. "Arts groups can no longer afford the Koch brothers' money" given the planetary catastrophe at hand, wrote a journalist in the *Washington Post*.[8]

Too many other looming catastrophes also get name-checked in Koch's ideological arsenal. They stem from a proliferating network of contemporary think tanks in excess of Cato's historical fortunes, together making for a virtual army of deregulation machines. *Citizens United* is enshrined as doctrine. The erosion of net neutrality comes with the elevation of the Mercatus Center, an

abundantly funded think tank, nearby the Federal Communications Commission. Attempts to gut health care and Social Security run parallel to the destruction of the environment. The water in Flint runs poisonous, consumed by poor communities of color.[9] The last, in no small measure, comes courtesy of a Koch-funded think tank called the Mackinac Center, helped along by the likes of the billionaire DeVos family.

The list of such disasters rattles on. Consider the rise of Mike Pence, the latest figurehead of the Koch brothers' imperial pretensions.

Behold the disembowelment of democracy as its progeny looks on in horror.

III

You could argue that what happened at the Met is really no news. Since the historical establishment of the museum as the Enlightenment institution *par excellence* —both aesthetic enclave and platform for the nation-state's civilizing mission—art washing has been a trusted technique in burnishing the profiles of its benefactors. The histories of the Morgans, Carnegies, and Rockefellers, for instance, include deeply conflicted narratives of both the Gilded Age and the Cold War, of bad domestic labor and finance conditions—to say nothing of earlier histories of slavery—and egregious colonial exploits. But we continue to visit the museums and institutions to which they were donors, just as we will continue to be edified and thrilled by the art on display at the Met. We can appreciate such remedial lessons in the lengthening chronicles of institutional critique while ruing the *Realpolitik* that orders our encounters within such spaces. Let's push this imaginary protest even further. If someone happens to have donated millions to the cause of cancer research in addition to prettifying the virtual welcome mat of a museum: well, all this finger pointing and pearl clutching about *aesthetics* can only come across as the stuff of

privilege, so many churlish, finally irrelevant complaints when more serious business remains to be done, the very stuff of life and death. There are ideological purity tests for art lovers, after all, and there's doing good works for the rest of humanity. Perhaps it's for this reason that the Met's press release mumbles an oddly elliptical remark about the Cato Institute while trumpeting Koch's philanthropy. *In addition, he has been active in public policy, serving on the boards of the Cato Institute and the Reason Foundation—organizations that apply market-based concepts to issues of peace, prosperity and social progress.*

Parse this language a bit, stay with it just a little longer. The think tank is now just a mere "organization," free of its partisan, certainly Cold War implications. Market-based concepts advance the interests of peace and social progress, a statement buried deep within the museum's press release so as not to draw attention to its mordant irony: a *public* plaza becomes a sanctuary from a billionaire's caustic mission *against* the notion of the public itself. But when the operational logic of the think tank gets restored to the historical mix—that is, when it's recognized as having a deep history with long-term goals, agendas, and impacts, and no less sustained aesthetic interactions—things become that much more complicated and insidious. This is no innocent story of one powerful actor with deep coffers and an infinitely open hand, in other words. This is not just a Wohlstetter and his love of Le Corbusier, the Bauhaus, and art history, if not his dead reckoning with strategic defense, even as Cato trails such lineaments in the present. This is not just a Mead or a Benedict tracing the patterns of midcentury abstraction to save the world from the authoritarian personality, even as Cato's "market-based solutions" are alleged to solve the problems of peace and social progress. Most certainly it is nowhere close to a Beer or a Bonsiepe turning to the avant-garde in the collective striving toward utopia, even if the Opsroom's technologies of decision have been inverted in the rapaciousness of algorithmic capitalism and the mass capture that is the contemporary data set.

This is someone else's utopia.

This is different in degree and kind from the earlier Cold War think tank, even as the Cato Institute was hatched within its orbit, tutored in its rhetoric, baptized within its historical legacies, operationalizing the ethos of liberty. More irony still, as sick as it is fundamental: how to *instrumentalize* freedom—weaponize it—let alone freedom of expression? Cato has now made it to the front of the house, the house being a museum. The museum is now a laboratory; the laboratory a university; the government sits adjacent to the think tank; the think tank is now arbiter of the media. The think tank is that allover, ambient state—a *sensibility*—writ large, at planetary scale.

Call out this feeling for what it is. Not just a pattern or network, it's an aesthetic.

Notes

Introduction

1 The classic account of instrumental reason at midcentury is Max Horkheimer and Theodor W. Adorno, *The Dialectic of Enlightenment* (Stanford, CA: Stanford University Press, 2007); the book was first published in 1947. See also Max Horkheimer, *The Eclipse of Reason* (Eastford, CT: Martino Fine Books, 2013), published in 1947, in which Horkheimer describes the phenomena around contemporary accounts of reason through the logic of "means and ends." For a contemporary treatment of the topic during the Cold War, see the collected essays in Patrick Erickson and Judy L. Klein, eds., *How Reason Almost Lost Its Mind: The Strange Career of Postwar Rationality* (Chicago: University of Chicago Press, 2015).

2 Biographies on Robert McNamara include Deborah Shapley, *Promise and Power: The Life and Times of Robert McNamara* (New York: Little, Brown, 1973); Paul Hendrickson, *The Living and the Dead: Robert McNamara and Five Lives of a Lost War* (New York: Vintage, 1997); and the book on which Errol Morris based his influential film of 2003, James G. Blight and Janet M. Lang, *The Fog of War* (New York: Rowman and Littlefield, 2007). The standard volume on McNamara's circle and the "Whiz Kids" is David Halberstam, *The Best and the Brightest* (New York: Ballantine Books, 1992). For McNamara's own recollections of the war—and his controversial and defensive mea culpa—see Robert McNamara, *In Retrospect: The Tragedy and Lessons of Vietnam* (New York: Vintage, 1996).

3 Pablo Neruda quoted in Peter Kornbluh, *The Pinochet Files: A Declassified Dossier on Atrocity and Accountability* (New York: New Press, 2003), xiii. Kornbluh (84) will describe the efforts of Henry Kissinger, in contact with the World Bank, to delay loans to Chile in November 1970.

4 Paul Hendrickson, *The Living and the Dead*, 10.

5 Ibid.

6 On art activism in the 1960s, see Julia Bryan-Wilson, *Art Workers: Radical Practice in the Vietnam War Era* (Berkeley: University of California Press, 2011); Francis Frascina, *Art, Politics and Dissent: Aspects of the Art Left in Sixties America* (Manchester, UK: Manchester University Press, 1999); and Matthew Israel, *Kill for Peace: American Artists against the Vietnam War* (Austin: University of Texas Press, 2013). On the uses of midcentury abstraction as propaganda during the Cold War, see, among others, Serge Guilbaut, *How New York Stole the Idea of Modern Art* (Chicago: University of Chicago Press, 1985); Frances Stonor Saunders, *Who Paid the Piper? The CIA and the Cultural Cold War* (London: Granta, 2000); and essays by Max Kozloff and Eve Cockroft, among others, in Francis Frascina, ed., *Pollock and After: The Critical Debate* (London: Routledge, 2002).

7 As in, for example, the story of Sir Anthony Blunt, the influential art historian who spied for the Soviet Union before the war. See Miranda Carter, *Anthony Blunt: His Lives* (London: Pan, 2002). On the Rockefeller Foundation, Pan-American development, and the postwar cultures of Latin America, see Claire F. Fox, *Making Art Panamerican: Cultural Policy and the Cold War* (Minneapolis: University of Minnesota Press, 2013).

8 On the Cold War university see Noam Chomsky et al., *The Cold War University: Toward an Intellectual History of the Postwar Years* (New York: New Press, 1998); and Rebecca S. Lowen, *Creating the Cold War University: The Transformation of Stanford* (Berkeley: University of California Press, 1997). For specific histories of disciplinary fields critically impacted by the Cold War, see among others David H. Price, *Cold War Anthropology: The CIA, the Pentagon, and the Growth of Dual Use Anthropology* (Durham, NC: Duke University Press, 2016); and George A. Reisch, *How the Cold War Transformed the Philosophy of Science* (Cambridge: Cambridge University Press, 2005).

9 The rhetoric around the "Crisis in the Humanities" debates the implication of statistics registering ten consecutive years of declining degrees in liberal arts majors and plunging enrollments in humanities courses. In 2015, the number of such degrees hit an all-time low—below 12%—"for the first time since a complete accounting of humanities degree completions became possible in 1987." See "Bachelors Degrees in the Humanities," in *Humanities Indicators: A Project of the American Academy of Arts and Sciences*, accessed November 12, 2017, https://www.humanitiesindicators.org/content/indicatordoc.aspx?i=34. The accompanying efforts on the part of politicians (as well as corporations) to shift the goals and interests of higher education, from acquiring a well-rounded liberal arts education to the call for "more practical degrees" in securing gainful employment after college, are well recorded. See, for example, Gary Gutting, "The Real Humanities Crisis," *New York Times*, November 30, 2013, accessed March 17, 2017, https: // opinionator. blogs.nytimes.com /2013/11/30/the-real-humanities-crisis/. Others argue for a less fatalistic and long-range historical perspective on this crisis, as in Blaine Greteman, "It's the End of the Humanities as We Know It, and I Feel Fine," *New Republic*, June 13, 2014. Note, however, that the language of crisis informing these debates has been in circulation for decades at this point. See J. H. Plumb, ed., *Crisis in the Humanities* (New York: Penguin, 1964).

10 Sharon Ghamari-Tabrizi, *The Worlds of Herman Kahn: The Intuitive Science of Thermonuclear War* (Cambridge, MA: Harvard University Press, 2005).

11 "Articles of Incorporation," printed in *The RAND Corporation: The First Fifteen Years* (Santa Monica, CA: RAND Corporation, 1963), frontispiece, n.p. For mainstream histories of the RAND Corporation, a standard text is Fred Kaplan, *The Wizards of Armageddon* (Stanford, CA: Stanford University Press, 1991); also see Alex Abella, *Soldiers of Reason*: *The RAND Corporation and the Rise of the American Empire* (New York: Harcourt, 2008). Scholarly accounts on RAND include Martin J. Collins, *Cold War Laboratory: RAND, the Air Force and the American State, 1945–1950* (Washington, DC: Smithsonian Institution Press, 2012); and David R. Jardini, *Thinking Through the Cold War: RAND, National Security and Domestic Policy* (Amazon Digital Services, LLC, Kindle edition, 2013).

12 See, for example, "Think Tank Search," Harvard Kennedy School, accessed August 17, 2017, https://guides.library.harvard.edu/hks/think_tank_search.

13 For example, the history of the Cato Institute and the Koch brothers as described in Jane Meyer, *Dark Money: The Hidden History of the Billionaires behind the Rise of the Radical Right* (New York: Anchor, 2017). On the other hand, consider the Joint Center for Political and Economic Studies, founded in 1970 to elaborate policy for new black elected officials with the rise of Civil Rights in the 1960s.

14 The artist Anita Glesta, an instructor in the School of Visual Arts, New York, founded a program called "Reconfiguring Site," described as a "think tank" for public art. See Anita Glesta, "This Interdisciplinary Think Tank Pushes Public Art beyond the White Cube," *Metropolis*, August 16, 2013, http://www.metropolismag.com/ideas/arts-culture/interdisciplinary-public-art-think-tank/. Note also the "Contemporary Art Think Tank" cofounded by the art historians Suzanne Hudson and Joshua Shannon. For a different approach to shared questions, consider the work of Feel Tank Chicago, a group of activists and academics devoted to the principle that "public spheres are affect worlds." One of its founders is Lauren Berlant, the renowned University of Chicago scholar and among the most important thinkers on affect theory. On Feel Tank Chicago, see http:// feeltankchicago.net, accessed May 12, 2017.

15 See the website of the Think Tank and Civil Societies Program at the University of Pennsylvania, http://repository.upenn.edu/think_tanks/.

16 See the work of James G. McGann, the director of the Think Tank and Civil Societies Program at the University of Pennsylvania, *The Fifth Estate: Think Tanks, Public Policy and Governance* (Washington, DC: Brookings Institution, 2016).

17 Thomas Medvetz, *Think Tanks in America* (Chicago: University of Chicago Press, 2012), 34.

18 Medvetz advances a reading of the "space of think tanks" in part to nuance general assumptions about their organizational insularity. Ibid., 16.

19 Ibid., 47–79, and McGann, *The Fifth Estate*, 22–31. Earlier literature includes Paul Dickson, *Think Tanks* (New York: Atheneum, 1971); James A. Smith, *The Idea Brokers* (New York: Free Press, 1991), and more recently Andrew Rich, *Think Tanks, Public Policy and the Politics of Expertise* (Cambridge: Cambridge University Press, 2004).

20 Medvetz, *Think Tanks in America*, 8.

21 The Air Force was not an autonomous branch of the military until after the war, when the National Security Act of 1947 was passed. See Charles R. Shrader, *History of Operations Research in the United States*, vol. 1: *1942–1962* (Washington, DC: Office of the Deputy Under Secretary of the Army for Operations Research United States Army), 59. A biography of Hap Arnold is Dik Alan Daso and Richard Overy, Hap Arnold and the Evolution of American Airpower (Washington, DC: Smithsonian Institution Press, 2001).

22 Shrader, *History of Operations Research in the United States*, 1:59.

23 *The RAND Corporation: The First Fifteen Years*, 2.

24 Ibid. (my emphasis).

25 Ibid.

26 Ibid.

27 Ibid., 3 (my emphasis).

28 In a review of Erika Doss, ed., *Looking at Life Magazine* (Washington, DC: Smithsonian Institution, 2001), Mark Rice cites the following: "One study revealed that in a given thirteen-week period in 1950, 'about half of all Americans, ten years and older, had seen one or more copies' of the magazine (p. 42), suggesting the range and scope of the magazine's potential audience." Mark Rice, review of Doss, *Looking at Life Magazine*, H-Amstdy, H-Net Reviews, January 2003. The images in the feature on RAND have been published in Abella, *Soldiers of Reason*, and Ghamari-Tabrizi, *The Worlds of Herman Kahn*.

29 In an anthology devoted to the architecture of science, Caroline Jones and Peter Galison describe the converging interests of the laboratory and the artist's studio in the postwar moment. See Peter Galison and Caroline Jones, "Factory, Laboratory, Studio: Dispersing Sites of Production," in Peter Galison and Emily Ann Thompson, eds., *The Architecture of Science* (Cambridge, MA: MIT Press, 1999). Also see Jones's monograph on the changing identity of the artist's studio in the 1960s relative to industry, the art world, and technology: Caroline A. Jones, *Machine in the Studio: Constructing the Postwar Artist* (Chicago: University of Chicago Press, 1997).

30 John Williams cited in "Buildings for RAND," p. 16, from M-6870, Memo from Bob Specht to Jim Digby, S. P. Jeffries, R. C. Levien, H. E. Miller, May 16, 1963, in Box 21, Brownlee Haydon Papers, RAND Corporation, Santa Monica, CA, accessed July 2009. (N.B.: at time of inspection the Haydon Papers were largely unorganized and unnumbered.) For an in-depth study of the architecture of the original building see Michael Kubo, "Constructing the Cold War Environment: The Architecture of the RAND Corporation, 1950–2005," MArch thesis, Harvard Graduate School of Design, Spring 2006.

31 On the associations between RAND and *Dr. Strangelove*, see Ghamari-Tabrizi, *The Worlds of Herman Kahn*, 275–278, 304–305.

32 On the RAND protests by the Artists' Protest Committee, see Israel, *Kill for Peace*, 28–35.

33 Here, the impact of rational choice theory, as described in my earlier book *New Games*, is also to the point. On the history of rational choice theory, particularly the contributions of the economists Kenneth Arrow and James Buchanan, both associated with RAND, see S. M. Amadae, *Rationalizing Capitalist Democracy: The Cold War Origins of Rational Choice Liberalism* (Chicago: University of Chicago Press, 2003).

34 Richard Florida, *The Rise of the Creative Class* (New York: Basic Books, 2003). For a critique of Florida, see Andreas Reckwitz, *The Invention of Creativity: Modern Society and the Culture of the New* (London: Polity, 2017), 5–6, 78–84.

35 Reckwitz, *The Invention of Creativity*, 6.

36 Ibid., 7 (my emphasis).

37 Ibid.

38 See Benjamin H. D. Buchloh, "Conceptual Art 1962–1969: From the Aesthetic of Administration to the Critique of Institutions," *October* 55 (Winter 1990), 105–143.

39 Ghamari-Tabrizi, *The Worlds of Herman Kahn*, 204–235.

40 Ludwig von Bertalanffy, *General System Theory* (New York: Braziller, 1968), 33.

41 On the reasons why game theory is not a matter of chance, see John von Neumann and Oscar Morgenstern, *Theory of Games and Economic Behavior* (Princeton, NJ: Princeton University Press, 1944), 87: "We wish to mention that the extensive literature of 'mathematical games,'" they write, "which was developed mainly in the 18th and 19th centuries—deals essentially only with an aspect of the matter which we have already left behind. This is the appraisal of the influence of chance. . . . Consequently we are no longer interested in these games, where the mathematical problem consists only in evaluating the role of chance—i.e. in computing probabilities and mathematical expectations."

42 A nontechnical introduction to game theory in general, and the prisoner's dilemma specifically, is William Poundstone, *Prisoner's Dilemma: John von Neumann, Game Theory and the Puzzle of the Bomb* (New York: Anchor, 1993); textbooks and introductions on the subject include Stevens Tadelis, *Game Theory: An Introduction* (Princeton, NJ: Princeton University Press, 2013); and Sean Hargreaves-Heap and Yanis Varoufakis, *Game Theory: An Introduction* (London: Routledge, 2004).

43 Thomas C. Schelling, *Strategy of Conflict* (Cambridge, MA: Harvard University Press, 1981).

44 With his own peculiar interest in systems theory, George Maciunas would describe his proposed school for Fluxus in New Marlborough, Massachusetts as a think tank in the "study, *research*, experimentation *and development* of various advanced ideas and forms in art, history, design, and documentation." Given Maciunas's highly vocal antiwar position, referring to an educational model in such terms could only read as a provocation. More pointedly, it is also an appropriation—a veritable gaming of what RAND had come to represent for many artists in the period. See Craig A. Saper, *Networked Art* (Minneapolis: University of Minnesota Press, 2000), 117 (my emphasis).

45 George Brecht, *Chance-Imagery* (New York: Great Bear, 1966), 14

46 The RAND Corporation, *A Million Random Digits with 100,000 Normal Deviates* (Glencoe, IL: Free Press, 1955).

47 Brecht, *Chance-Imagery*, 16.

48 Ibid., 16.

49 I am hardly the first to use this phrase, which has been deployed extensively in cinema and game studies. Tom Gunning elaborates the notion relative to early Hollywood

comedy, borrowing the phrase in turn from Neil Harris, who used it in his work on P. T. Barnum. See Gunning, "Crazy Machines in the Gardens of Forking Paths," in Kristine Brunovska Karnick and Henry Jenkins, eds., *Classical Hollywood Comedy* (New York: Routledge, 1995), 87–105; Neil Harris, *Humbug: The Art of P. T. Barnum* (Chicago: University of Chicago Press, 1981). Within game and media studies, Shane Denson acknowledges this earlier work in his discussions of seriality and action sequences within games. See Shane Denson and Andreas Jahn-Sudmann, "Digital Seriality: On the Serial Aesthetics and Practice of Digital Games," *Euladamos: Journal for Computer Game Culture* 7, no. 1 (2013): 1–32.

50 An exhaustive reading of OR from the military perspective is Charles Shrader's three-volume *History of Operations Research in the United States*. An important history of computer science and discourse as it relates to OR is Paul N. Edwards, *The Closed World: Computers and the Politics of Discourse in Cold War America* (Cambridge, MA: MIT Press, 1997); also critical is Peter Galison, "The Ontology of the Enemy: Norbert Wiener and the Cybernetic Vision," *Critical Inquiry* 21, no. 1 (Autumn 1994): 228–266. On the relationship between OR and interdisciplinary thought, see Harvey J. Graff, *Undisciplining Knowledge: Interdisciplinarity in the Twentieth Century* (Baltimore: Johns Hopkins University Press, 2013), 91–124. For chronicles of OR's development, see Saul I. Gass and Arjang A. Assad, *An Annotated Timeline of Operations Research: An Informal History* (Boston: Kluwer, 2006)

51 Shrader, *History of Operations Research in the United States*, 1:3.

52 Ibid., 10.

53 P. M. S. Blackett, "Scientists at the Operational Level," in *Studies of War* (New York: Hill and Wang, 1941), 176.

54 Shrader, *History of Operations Research in the United States*, 1:v.

55 Ibid., v.

56 Philip M. Morse and George E. Kimball, *Methods of Operation Research* (unclassified version) (Cambridge, MA: Technology Press; New York: John Wiley & Sons, 1951).

57 For example, a recent article about philanthropy in Silicon Valley had one expert describe charitable giving in the following terms, with the role of art occupying an ambiguous position: "'It's hard to raise money for the arts,' said Ben Mangan, the executive director of the Center for Social Sector Leadership at the University of California, Berkeley's Haas School of Business. 'The arts don't fall neatly into a category of a problem to solve.'" Mike McPhate, "California Today: $8 Million in Tech Money for the Bay Area Arts," *New York Times*, January 10, 2017.

58 Paul Baran, "On Distributed Communications: 1. Introduction to Distributed Communications Networks," Memorandum RM-3420-PR, August 1964, RAND Corporation, Santa Monica, California.

59 For example, as in Saper, *Networked Art*. Also see Paul Jagoda, *Network Aesthetics* (Chicago: University of Chicago Press, 2016). At the time of this writing, Steven Henry Madoff is completing a manuscript based on his PhD thesis in the Program of Modern Thought and Literature at Stanford University, 2014, that also historicizes "network aesthetics" as it advances a theory of its applications for art, music, philosophy, and visual culture.

60 The classic text is Norbert Wiener, *Cybernetics: or, Control and Communication in the Animal and the Machine* (Cambridge, MA: Technology Press, 1948). An earlier, coauthored essay of 1943 signals the priority of Wiener and his colleagues. See Arturo Roseblueth, Norbert Wiener, and Julian Bigelow, "Behavior, Purpose and Teleology," *Philosophy of Science* 10, no. 1 (January 1943): 21.

61 Peter Galison, *Image and Logic: A Material Culture of Microphysics* (Chicago: University of Chicago Press, 1997), 830.

62 Louis Althusser, "Philosophy and the Spontaneous Philosophy of the Scientists," in *Philosophy and the Spontaneous Philosophy of the Scientists* (London: Verso, 2011), 95.

My thanks to Amanda Beech, whose own art practice engages technologies and protocols of the Cold War—the Delphi method, for instance—for this reference.

63 Jean-François Lyotard, *The Postmodern Condition: A Report on Knowledge* (Minneapolis: University of Minnesota Press, 1984), 16.

64 Graff, *Undisciplining Knowledge*, 5.

65 Ibid., 93. For an argument upholding the continued interests of the disciplines in light of the "interdisciplinary turn," see Jerry A. Jacobs, *In Defense of Disciplines: Interdisciplinarity and Specialization in the Research University* (Chicago: University of Chicago Press, 2014).

66 On this count, the most powerful statement is Stefano Harney and Fred Moten, *The Undercommons: Fugitive Planning and Black Study* (New York: Autonomedia, 2013).

Chapter 1

1 An earlier version of this chapter, published in *October* in 2011, was written before the Department of Art and Art History at Stanford University moved to its current location, the McMurtry Building, at 355 Roth Way in fall 2015. The circumstances leading to the construction of the new art history building are themselves involved in some of the historical dynamics that concern me: namely, the vast expansion of the think tank on the Stanford campus and its greater proximity to both the Old Quad, the main library, and History Corner, critical locations in the University's humanistic culture. This expansion came in part with the Hoover's substantial financial support for a new art complex designed by Diller Scofidio + Renfro and funded principally through the generosity of Bert and Dede McMurty. The Hoover's largesse came in exchange for the central campus real estate that the former Nathan Cummings Art Building once occupied. The Cummings building was razed to accommodate the Institution's expanding new footprint, whereas the new McMurtry building serves as an important hub in the University's new "arts district," an increasingly visible new feature of campus planning in its own right, which speaks to the attractions of art and the "creative industries" for academic boards, trustees, donors, and alumni.

2 A highly instructive account to this end is S. M. Amadae, *Rationalizing Capitalist Democracy: The Cold War Origins of Rational Choice Liberalism* (Chicago: University of Chicago Press, 2003).

3 Albert Wohlstetter, "The Delicate Balance of Terror," in *Foreign Affairs*, reprinted in *Nuclear Heuristics: Selected Writings of Albert and Roberta Wohlstetter*, ed. Robert Zarate and Henry Sokolski (Carlisle, PA: Strategic Studies Institute, US Army War College, 2009), 177–213.

4 McNamara's Department of Defense, in particular his creation of the Planning Programming and Budget System, relied upon such RAND "whiz kids" as the economist Alain Enthoven. Enthoven was at RAND from 1956 to 1960, after which he moved to the DoD and was later appointed Assistant Secretary of Defense for Systems Analysis in 1965. Other RAND associates, among them Harold Brown, Henry Rowen, Charles Rossotti, and William Kaufmann, would also support McNamara's Pentagon.

5 Roberta Wohlstetter, *Pearl Harbor: Warning and Decision* (Stanford, CA: Stanford University Press, 1962). On the intellectual partnership of the couple see Ron Robin, *The Cold World They Made: The Strategic Legacy of Roberta and Albert Wohlstetter* (Cambridge, MA: Harvard University Press, 2016).

6 For example, the global survey organized by Okwui Enwezor, Katy Siegal, and Ulrich Wilmes at Haus der Kunst, Munich, 2017, "Postwar: Art between the Pacific and Atlantic."

7 Sharon Ghamari-Tabrizi, *The Worlds of Herman Kahn: The Intuitive Science of Thermonuclear War* (Cambridge, MA: Harvard University Press, 2005).

8 David R. Jardini, *Thinking Through the Cold War: RAND, National Security and Domestic Policy* (Amazon Digital Services, LLC, Kindle edition, 2013), n.p.; referenced in the section "Chapter 9: Vietnam's Impact on RAND, 1962–1966."

9 Wohlstetter discusses his admiration for Schapiro in his unpublished oral history with James Digby and Joan Goldammer, "Oral History: Albert Wohlstetter," July 5, 1985, Archives of the RAND Corporations, Santa Monica, CA. The relationship first came to light to a wider readership in Alex Abella, *Soldiers of Reason*: *The RAND Corporation and the Rise of the American Empire* (New York: Harcourt, 2008), 68; it is also acknowledged in Robert Zarate, introduction to Wohlstetter and Wohlstetter, *Nuclear Heuristics*, 8.

10 Meyer Schapiro, "On Some Problems in the Semiotics of Visual Art: Field and Vehicle in Image-Signs," *Semiotica* 1 (1969): 223–242.

11 David Rosand, "Semiotics and the Critical Sensibility: Observations on the Lessons of Meyer Schapiro," *Social Research* 45, no. 4 (Winter 1978): 39.

12 In his oral history Wohlstetter attests that his "ideal was the *huomo universale*, you know, the Burckhardtian version of the Renaissance man." References to the "*huomo universale*" will crop up in his papers, as in his multiple allusions to Leonardo da Vinci in his unpublished manuscript on prefabricated housing, written during the time of his leadership at the General Panel Corporation. See Digby and Goldammer, "Oral History: Albert Wohlstetter." Also see Wohlstetter's unpublished manuscript on prefabricated housing, Albert and Roberta Wohlstetter Collection, Hoover Archive, Hoover Institution on War, Revolution and Peace, Stanford, CA, Box 147, folder 10.

13 Albert Wohlstetter, unpublished manuscript on prefab housing, ibid.

14 On the modernist architecture of the RAND Corporation itself, see Michael Kubo, "Constructing the Cold War Environment: The Architecture of the RAND Corporation, 1950–2005," MArch thesis, Harvard Graduate School of Design, Spring 2006.

15 Abella, *Soldiers of Reason*, 67.

16 The difficulty in establishing decisive historical parameters to this correspondence rests with the fact that over 61 boxes of Albert and Roberta's Wohlstetter's papers at the Hoover Institution were restricted at the time of this research. While correspondence is scattered throughout this voluminous archive, the nature of these letters tends to the bureaucratic; there is little in the way of early personal communications available to the researcher. In my work with this collection, I found no letters at all from Schapiro. The correspondence has thus been reconstructed from materials in the Meyer Schapiro Collection, Rare Book and Manuscript Library, Columbia University in the City of New York.

17 As recorded by Abella, *Soldiers of Reason*, 68, as well as mentioned by Zarate in his introduction to *Nuclear Heuristics*, 8.

18 Digby and Goldammer, "Oral History: Albert Wohlstetter."

19 Henry Rowen, Wohlstetter's colleague at RAND, was forthcoming about Wohlstetter's political commitments in the 1930s. Rowen, in conversation with the author, May 9, 2011, Stanford University, Stanford, CA.

20 Digby and Goldammer, "Oral History: Albert Wohlstetter."

21 Letter from Albert Wohlstetter to Meyer Schapiro, undated (1938?), Correspondence: Box 177, Folder 4, Meyer Schapiro Collection, Rare Book and Manuscript Library, Columbia University.

22 C. P. Snow, *The Two Cultures and the Scientific Revolution* (Cambridge: Cambridge University Press, 1998).

23 Editorial, "The War of the Neutrals," *Partisan Review* (Fall 1939): 5.

24 Alan M. Wald, *The New York Intellectuals: The Rise and Decline of the Anti-Stalinist Left from the 1930s to the 1980s* (Chapel Hill: University of North Carolina Press, 1987), 107.

25 Robin, *The Cold World They Made*, 44.

26 On the right turn of the New York intellectuals, see the film directed by Joseph Dorman, *Arguing the World* (Riverside Film Productions in association with Thirteen/WNET, 1997).

27 S. I. Hayakawa, "The Meaning of Semantics," *New Republic* 99, no. 1287 (August 2, 1939): 355.

28 Ibid., 356.

29 Albert Wohlstetter and M. G. White, "Who Are the Friends of Semantics," *Partisan Review* (Fall 1939): 50. See also Robin, *The Cold World They Made*, 43–45.

30 Wohlstetter and White, "Who Are the Friends of Semantics," 51.

31 At the time these archives were originally searched, few of Wohlstetter's early written notes were accessible at the Hoover Institution. A rare accessible file ("semiotics") includes handwritten notes on the work of American semiotician Charles Morris; another one of Wohlstetter's early publications is a review of a book about C. S. Peirce. Wohlstetter, "Charles Peirce's Empiricism," Wohlstetter Collection, Hoover Archive, Box 111.14, Box 147.1.

32 Among the classic texts are Rudolf Carnap, *The Logical Structure of the World* (1928; Berkeley, CA: Open Court Classics and University of California Press, 2003); Carnap, *The Unity of Science* (London: Kegan Paul, Trench, Trubner, 1934); and essays collected in Otto Neurath, *Empiricism and Sociology*, ed. M. Neurath and R. S. Cohen (Dordrecht: Springer, 1973). Also see Peter Galison, "Introduction: The Context of Disunity," in Peter Galison and David J. Stump, eds., *The Disunity of Science: Boundaries, Contexts and Power* (Stanford, CA: Stanford University Press, 1996), 1–37. This section draws as well from the excellent distillation of the movement by Jordi Cat, "The Unity of Science," *The Stanford Encyclopedia of Philosophy* (Fall 2017 Edition), ed. Edward N. Zalta, accessed September 7, 2016, https://plato.stanford.edu/archives/fall2017/entries/scientific-unity/.

33 Other members of the group, as listed in their manifesto, include Gustav Bergmann, Herbert Feigl, Hans Hahn, Viktor Kraft, Karl Menger, Marcel Natkin, Olga Hahn-Neurath, Theodor Radakovic, and Friedrich Waismann. See Otto Neurath, "Wissenschaftliche Weltauffassung: Der Wiener Kreis" (1973), in Neurath, *Empiricism and Sociology*, vol. 1. In economics, as we shall see in chapter 3, the Vienna Circle would become synonymous with the work of Ludwig von Mises and his student Friedrich Hayek; while a new generation of art historians trained in the 1920s and early 1930s—including Ernst Gombrich—would follow in the nineteenth-century traditions set by Franz Wickhoff and Alois Riegl.

34 This is the general point of departure for the historiographic appraisal of the Vienna Circle and its philosophy, treated in terms of the "disunity" of science or what will also be called "scientific pluralism." See, for example, the essays collected in Galison and Stump, *The Disunity of Science*.

35 Neurath, "Wissenschaftliche Weltauffassung."

36 Cat, "The Unity of Science."

37 Peter Galison, "Aufbau/Bauhaus: Logical Positivism and Architectural Modernism," *Critical Inquiry* 16 (1990): 709–752. Also see Nader Vossoughian, *Otto Neurath: The Language of the Global Polis* (New York: D.A.P., Distributed Art Publishers, 2011).

38 On Neurath's politics, see Jordi Cat, Nancy Cartwright, and Hasok Chang, "Otto Neurath: Politics and the Unity of Science," in Galison and Stump, *The Disunity of Science*, 347–370.

39 Cat, "The Unity of Science."

40 George A. Reisch, *How the Cold War Transformed the Philosophy of Science* (Cambridge: Cambridge University Press, 2005).

41 For example, Margaret Mead and Rudolf Modley, Neurath's Isotype collaborator, would together establish Glyphs Inc. in 1966 in an attempt to standardize graphic symbols. See Margaret Mead and Rudolf Modley, "Communication among All People, Everywhere," *Natural History* 77, no. 7 (August-September 1968): 56–63.

42 Correspondence: Otto Neurath, Series II: Correspondence, Box 152, Folders 5 and 6, Meyer Schapiro Collection, Rare Book and Manuscript Library, Columbia University; Reisch, *How the Cold War Transformed the Philosophy of Science*.

43 Series IV: Writing, Box 238, Folder 3, Meyer Schapiro Collection, Rare Book and Manuscript Library, Columbia University.

44 See, for example, Correspondence: Otto Neurath, Series II: Correspondence, Box 152, Folders 5 and 6, Meyer Schapiro Collection, Rare Book and Manuscript Library, Columbia University.

45 Letter from Albert Wohlstetter to Meyer Schapiro, undated (1938?), Correspondence: Box 177, Folder 4, Meyer Schapiro Collection, Rare Book and Manuscript Library, Columbia University.

46 Letter from Meyer Schapiro to Hubert Damisch, January 6, 1973, Series II: Correspondence, Box 121, Folder 12, Meyer Schapiro Collection, Rare Books and Manuscript Library, Columbia University.

47 Albert Wohlstetter, "Theory and Opposed-Systems Design" (1968), in Wohlstetter and Wohlstetter, *Nuclear Heuristics*, 123–165.

48 "Articles of Incorporation," printed in *The RAND Corporation: The First Fifteen Years* (Santa Monica, CA: RAND Corporation, 1963), frontispiece.

49 Jardini, *Thinking Through the Cold War*, makes this point about "signaling" relative to Thomas Schelling's influential RAND study, *The Strategy of Conflict*. Warfare is conceived as a form of violent bargaining: the context and contingency of bombing—when, where, how, and how often it occurs—"signal" one's position at the bargaining table.

50 Paul N. Edwards, *The Closed World: Computers and the Politics of Discourse in Cold War America* (Cambridge, MA: MIT Press, 1997), 115.

51 Geoff Bowker, "How to Be Universal: Some Cybernetic Strategies, 1943–1970," *Social Studies of Science* 23 (1993): 107–127. Also see Fred Turner on Bowker and Peter Galison's discussion of "contact languages" in Turner, *From Counterculture to Cyberculture: Stewart Brand, the Whole Earth Network, and the Rise of Digital Utopianism* (Chicago: University of Chicago Press, 2006), 25.

52 Wohlstetter, "Theory and Opposed-Systems Design."

53 Max Kozloff, "The Multi-Million Dollar Art Boondoggle," *Artforum* 10, no. 2 (October 1971): 72.

54 Brownlee Haydon papers, RAND Corporation, Santa Monica, CA (boxes and files unnumbered at time of consultation).

55 Matthew Israel, *Kill for Peace: American Artists against the Vietnam War* (Austin: University of Texas Press, 2013), 23–35.

56 Yuri Lotman, *Universe of the Mind: A Semiotic Theory of Culture* (Bloomington: Indiana University Press, 2001).

57 See Barthes, "The Semiological Adventure," in Roland Barthes, *The Semiotic Challenge* (Berkeley: University of California Press, 1994). As for Eco's engagement with chance and art, recall the example of George Brecht's well-known 1957 tract on "chance imagery," which engaged RAND's study in random numbers. A subsequent version of the essay describes Brecht's meeting with John Cage; Brecht writes that he "had not yet seen clearly the most important implications of chance lay in his work." George Brecht, *Chance-Imagery*, 13, 15.

58 On the interests of the Ford Foundation and the RAND Corporation in establishing such research institutions, see Rebecca S. Lowen, "Private Foundations and the 'Behavioral' Revolution," in Lowen, *Creating the Cold War University: The Transformation of Stanford* (Berkeley: University of California Press, 1997), 191–223.

59 Meyer Schapiro, *Romanesque Art: Selected Papers* (New York: George Braziller, 1977), 178.

60 Hubert Damisch, "Six Notes in the Margin of Schapiro's *Words and Pictures*," in "On the Work of Meyer Schapiro," *Social Science* 45, no. 1 (Spring 1978): 15–36.

61 Wohlstetter, "The Delicate Balance of Terror."

62 Robin, *The Cold World They Made*, 83.

63 Wohlstetter, "The Delicate Balance of Terror," 188.

64 Ibid., 205.

65 Claude E. Shannon and Warren Weaver, *Mathematical Theory of Communication* (Urbana: University of Illinois Press, 1963).

66 Roberta Wohlstetter, *Pearl Harbor*, 387.

67 Wohlstetter, "Notes on Signals Hidden in Noise," April 6, 1979, Albert J. Wohlstetter Collection, Hoover Institution, Box 115, file 40.

68 Schapiro, "On Some Problems in the Semiotics of Visual Art," 224.

69 Ibid.

70 Ibid., 229.

71 Ibid., 225.

72 Albert Wohlstetter, letter to Meyer Schapiro, May 10, 1963, Box 177, Folder 4, Meyer Schapiro Collection, Columbia University.

73 Wohlstetter, "Scientists, Seers and Strategists," *Foreign Affairs*, reprinted in Wohlstetter and Wohlstetter, *Nuclear Heuristics*, 468.

74 Ibid., 469.

75 Ibid.

76 Meyer Schapiro, "Humanism and Science: The Concept of the Two Half-Cultures," in Schapiro, *Worldview in Painting—Art and Society: Selected Papers* (New York: George Braziller, 1999), 158–160.

77 Ibid., 160.

78 Schapiro, "On Some Problems in the Semiotics of Visual Art," 223.

Chapter 2

1 The art historian was Ernst Kris. On a "curious assortment of individuals," see Frank Collbohm, "Introduction," in *Project RAND Study* (Santa Monica, CA: RAND Corporation, 1947), 2.

2 The extensive literature on Cold War anthropology and social science includes such recent contributions as David H. Price, *Cold War Anthropology: The CIA, the Pentagon, and the Growth of Dual Use Anthropology* (Durham, NC: Duke University Press, 2016). Price has written several accounts of the relationship between anthropology and the military, including *Anthropological Intelligence: The Use and Neglect of American Anthropology in the Second World War* (Durham, NC: Duke University Press, 2008).

3 Indeed, in 1946 the Electronic Numerical Integrator and Computer (ENIAC) was unveiled as the first electronic, general-purpose computer, constructed at the Moore School of Electrical Engineering at the University of Pennsylvania. Conceived in 1943, ENIAC made its more public debut in 1947 at the Aberdeen Proving Ground in Maryland. See Thomas Haigh, Mark Priestly, and Crispin Rope, *ENIAC in Action: Making and Remaking the Modern Computer* (Cambridge, MA: MIT Press, 2016).

4 Leonard Uhr is widely recognized as a pioneering figure in the science of pattern recognition as it develops within computer science in the 1960s and evolves further into the interests of machine learning. See Uhr, *Pattern Recognition* (New York: John Wiley and Sons, 1966). The phrase "pattern recognition" also recalls the notion of "pattern seeing" elaborated by Reinhold Martin in his formative book *The Organizational Complex: Architecture, Media, and Corporate Space* (Cambridge, MA: MIT Press, 2003). Martin is concerned with the work of Gyorgy Kepes at the Center for Advanced Visual Studies, MIT. Read alongside Martin's work, this particular chapter demonstrates the pervasiveness of the notion of "pattern" as a period dominant or conceit.

5 Clement Greenberg, "The Present Prospects of American Painting and Sculpture," in Greenberg, *The Collected Essays and Criticism*, ed. John O'Brian, vol. 2: *Arrogant Purpose: 1945–1949* (Chicago: University of Chicago Press, 1986), 166.

6 The classic texts are Serge Guilbaut, *How New York Stole the Idea of Modern Art* (Chicago: University of Chicago Press, 1985), and Frances Stonor Saunders, *The Cultural Cold War: The CIA and the World of Arts and Letters* (New York: New Press, 2001). Revisionist articles include Max Kozloff, "American Painting during the Cold War," and Eva Cockcroft, "Abstract Expressionism, Weapon of the Cold War," both in Francis Frascina, ed., *Pollock and After: The Critical Debate* (London: Routledge, 2000).

7 During World War II and its immediate aftermath, groundbreaking developments in cryptanalysis succeeded in identifying all manner of behaviors and codes, advancing the theory and practice of information technology in the process.

8 Between 1943 and 1945 Benedict headed the Basic Analysis Section of the Bureau of Overseas Intelligence in Washington, while a few years earlier she and Mead formed the Committee for National Morale, on which Mead's husband, anthropologist Gregory Bateson, also served. See Dolores Janiewski and Lois W. Banner, eds., *Reading Benedict/Reading Mead* (Baltimore: Johns Hopkins University Press, 2005), 74. On Mead's study of morale and postwar liberalism, see Fred Turner, *The Democratic Surround: Multimedia and American Liberalism from World War II to the Psychedelic Sixties* (Chicago: University of Chicago Press, 2015).

9 There is no room here to discuss the subsequent controversy over Mead's research in Samoa and the sexual behaviors she ascribed to its prepubescent demographic. The debate concerning her anthropological legacy commences with Derek Freeman, *Margaret Mead and Samoa: The Making and Unmaking of an American Myth* (Cambridge, MA: Harvard University Press, 1983).

10 Benedict's correspondence with Joseph Goldsen of Douglas Aircraft Company—one of the first corporate sponsors of what would become the RAND Corporation—offers her justification for the continuation of projects that started before the war: "I am enclosing, for your preliminary consideration and for possible submission to PROJECT RAND, the draft of a project which has been drawn up along the lines of our recent exploratory conversations. The proposed study is the type which was used during the war in the research divisions of OSS, OWI and the War and Navy Departments, Department of State, etc., as background for our relations with enemy and allied peoples. . . . Such a study would produce results of the sort which went into my Japanese study, *The Chrysanthemum and the Sword*, which, during the war, provided background etc. for the solution of such varied problems as methods of undermining Japanese morale, methods of obtaining surrender of prisoners, predictions of Japanese behavior after surrender and, most notably, the advisability of preserving the Emperor's role in the surrender situation." Letter from Ruth Benedict to Mr. Joseph Goldsen, Douglas Aircraft Company, Santa Monica, CA, April 27, 1948, Box G76: Projects in Contemporary Cultures, Folder 3, Margaret Mead Papers, Library of Congress. See also the correspondence between Benedict, the Office of Naval Research, and Frank Collbohm establishing contacts with RAND as well as the Society for Applied Anthropology at Yale University. Box G76: Research in Contemporary Cultures, Folder 7: RAND CORPORATION 1947–8, and Box G77, Folder 1: RAND Corporation, Margaret Mead Papers, Library of Congress.

11 Margaret Mead and Rhoda Métraux, eds., *The Study of Culture at a Distance* (Chicago: University of Chicago Press, 1953). See also Métraux's later reflections on Research in Contemporary Cultures at Columbia University, "The Study of Culture at a Distance: A Prototype," *American Anthropologist* 82, no. 2 (June 1980): 362–373. On the various methods deployed in the book, which owed to the working group Research in Contemporary Cultures, see the letter from Mead to Zanetti (Provost at Columbia University) cc'ed to Leila Lee, Research on Contemporary Culture, November 8, 1949: "The methods used in Research in Contemporary Cultures are those of social anthropology, clinical psychology and psychiatry and depend upon the specialized skills of the investigator in a somewhat different fashion from the usual expertise of the historian or political scientist who has specialized in a country's history and institutions. They are meant to supplement the work of the more usual type of expert and not to replace it." Box G76: Research in Contemporary Cultures, Folder 5, Margaret Mead Papers, Library of Congress. Also see Mead, quoted in *The Study of Culture at a Distance*, 3: "Opposition to these studies comes from several sources, from the entrenched expert who objects to the entry into his field or someone whose training is quite different and who has not devoted his entire life to the study."

12 Gregory Bateson, "Some Systematic Approaches to the Study of Culture and Personality," in Douglas G. Haring, ed., *Personal Character and Cultural Milieu* (Syracuse: Syracuse University Press, 1948), 71–78.

13 Margaret Mead, *Soviet Attitudes toward Authority: An Interdisciplinary Approach to Problems of Soviet Character* (New York: McGraw-Hill, 1951).

14 Meyer Schapiro was also in contact with Leites, as registered by a letter in his archive dated from 1949. Correspondence, Box 143, Folder 13, Meyer Schapiro Collection, Columbia University.

15 See Peter Galison, "Image of Self," in Lorraine J. Daston, ed., *Things That Talk: Object Lessons from Art and Science* (New York: Zone Books, 2007), 257–297.

16 The term pseudomorphism—visually equating two different things on the basis of morphology—was elaborated by Erwin Panofsky, *Tomb Sculpture: Four Lectures on Its Changing Aspects from Ancient Egypt to Bernini*, ed. H. W. Jansen (New York: Harry N. Abrams, 1992). Yve-Alain Bois has renovated the notion with respect to the history and historiography of abstraction, as in his "On the Uses and Abuses of Look-Alikes," *October* 154 (Fall 2015), as well as "François Morellet / Sol LeWitt; a Case Study," *October* 157 (Summer 2016): 161–180.

17 Among the most rigorous accounts of what is "visual" about visual culture is Whitney Davis, *A General Theory of Visual Culture* (Princeton, NJ: Princeton University Press, 2011).

18 Thomas Hess, “Pollock: The Art of Myth,” *Art News* 62, no. 9 (January 1964).

19 A brilliant essay tracking the relationship between cybernetics, semiotics, and structuralism is Bernard Dionysius Geoghegan, “From Information Theory to French Theory: Jakobson, Lévi-Strauss and the Cybernetic Apparatus,” *Critical Inquiry* 38 (August 2011): 96–126.

20 Harold Rosenberg, “The American Action Painters,” in David and Cecile Shapiro, eds., *Abstract Expressionism: A Critical Record* (Cambridge: Cambridge University Press, 1990), 78.

21 Emily Genauer in the *New York Times*, reprinted in Pepe Karmel and Kirk Varnedoe, eds., *Jackson Pollock*: *Interviews, Articles and Reviews* (New York: Museum of Modern Art, 2000), 49.

22 Pollock’s famous quote runs “I’m very representational some of the time, and a little all of the time. But when you are painting out of your unconscious, figures are bound to emerge. We’re all influenced by Freud, I guess. I’ve been a Jungian for a long time.” The Jungian reading of Pollock has been well rehearsed, culminating in a controversy that saw the exhibition and publishing of drawings produced for therapeutic purposes. See Claude Cernuschi, *Jackson Pollock: Psychoanalytic Drawings* (Durham, NC: Duke University Press, 1992).

23 Ann Gibson, “Abstract Expressionism’s Evasion of Language,” *Art Journal* 47, no. 3 (Autumn 1988): 208–214.

24 T. J. Clark, “Jackson Pollock’s Abstraction,” in Serge Guilbaut, ed., *Reconstructing Modernism: Modernism in New York, Paris, and Montreal 1945–1964* (Cambridge, MA: MIT Press, 1990), 176.

25 Ibid., 179.

26 Ibid., 180.

27 On Native American art and modernism, see W. Jackson Rushing, “Ritual and Myth: Native American Culture and Abstract Expressionism,” in *The Spiritual in Art: Abstract Painting, 1890–1985* (New York: Abbeville Press; Los Angeles: Los Angeles County Museum of Art, 1986); and W. Jackson Rushing and William H. Goetzman, eds., *Native American Art and the New York Avant-Garde: A History of Cultural Primitivism* (Austin: University of Texas Press, 1995). The exhibition which prompted many of the period clichés around Indigenous art and modernism was “Indian Art of the United States” (1941, Museum of Modern Art), organized by Fredric H. Douglas, René d’Harnoncourt, and the Indian Arts and Crafts Board of the United States Department of the Interior.In the context of this chapter it is imperative to note the signal contributions of the “Navajo Code Talkers” during World War II. Navajo Marines produced a system of code that remained unbroken in the Pacific theater, a critical step in ensuring victory over the Japanese. A popular memoir of such developments is Chester Nez (with Judith Schiess Avila), *Code Talker* (New York: Penguin, 2011).The bibliography on modernism, primitivism, and anthropology could fill volumes. Two examples confront both the colonial and gendered dimensions subtending the relationship: James Clifford, *The Predicament of Culture: Twentieth-Century Ethnography, Literature, and Art* (Cambridge, MA: Harvard University Press, 1988); and Micaela Di Leonardo, *Exotics at Home: Anthropologies, Others, American Modernity* (Chicago: University of Chicago Press, 1998).

28 Edward Allen Jewell, “Art: Briefer Mention,” *New York Times*, reprinted in Karmel and Varnedoe, *Jackson Pollock*: *Interviews, Articles and Reviews*, 49.

29 Pollock’s penchant for assigning literary titles to his work—“pretentious” by Greenberg’s lights or “purely cryptic understatement” according to another earliest critic —has also been widely analyzed. See, for example, Howard Devree, *New York Times*, 1945, reprinted in ibid., 52.

30 Robert Coates, *The New Yorker*, 1948, reprinted in ibid., 59.

31 Parker Tyler, “Jackson Pollock: The Infinite Labyrinth,” reprinted in ibid, 65–66.

32 The image was first reproduced in Richard D. McKinzie, *The New Deal for Artists* (Princeton, NJ: Princeton University Press, 1973), 168. A more recent essay is Lisa Saltzman, "'Mysterious Writings': On Lee Krasner's 'Little Images' and the Language of Abstraction," in *From the Margins: Lee Krasner/Norman Lewis, 1945–52* (New York: Jewish Museum, 2014), 68–77. Saltzman reads cryptography and writing in a complementary (but not overlapping) way to my interests in Cold War technics; she is not engaged by the mediatic questions that concern me. Photographs of the entire series, which no longer exists, can be consulted at the Archive of American Art, Smithsonian American Art Museum, Washington, DC, Box 13 of 18, Series 2: Lee Krasner Papers, Lee Krasner Artwork from the WPA (unscanned), circa 1940–1942.

33 Erik Erikson, *Childhood and Society* (New York: Norton, 1953). Themes of identity, personality, subjectivity, and alienation were popular in the contemporary literature, as for example in David Riesman, *The Lonely Crowd: A Study of the Changing American Character* (New Haven: Yale University Press, 1950). For the best analysis of this genre within art history, referred to as "modern man discourse," see Michael Leja, *Reframing Abstract Expressionism: Subjectivity and Painting in the 1940s* (New Haven: Yale University Press, 1997).

34 The major biography on the subject is John Lewis Gaddis, *George F. Kennan: An American Life* (New York: Penguin, 2011).

35 Nathan Leites, *The Operational Code of the Politburo* (New York: McGraw-Hill; Santa Monica: RAND Corporation, 1951).

36 Culture and personality studies did not represent a school as such, but some of the most influential figures of American anthropology at midcentury were variously involved in the topics broadly classed as "C&P," including Mead, Bateson, Clyde Kluckhohn, Edward Sapir, and many others. An important early, edited volume on the topic is Haring, *Personal Character and Cultural Milieu*.

37 See David H. Price, *Cold War Anthropology*, on Boas's condemnation of anthropologists using their academic credentials as cover for their activities as spies. In 1919, Boas singled out several American anthropologists on this count. The institutional retribution by the American Anthropological Association was swift: Boas was censured and pressured to resign from the national research council.

38 On Boas and the concept of culture, an instructive essay is George W. Stocking, Jr., "Franz Boas and the Culture Concept in Historical Perspective," in Stocking, *Race, Culture, and Evolution: Essays in the History of Anthropology* (Chicago: University of Chicago, 1982), 195–233.

39 Franz Boas, "Museums of Ethnology and Their Classification," *Science* 9 (June 17, 1887): 589. Ira Jacknis's scholarship on Boasian classification, museology, and visual culture includes his "Franz Boas and Exhibits: On the Limits of the Museum Method and Anthropology," in George W. Stocking, Jr., ed., *Objects and Others: Essays on Museums and Material Culture* (Madison: University of Wisconsin Press, 1985). See also Susan Hegeman, *Patterns for America: Modernism and the Concept of Culture* (Princeton, NJ: Princeton University Press, 1999). Hegeman's book rigorously historicizes the notion of "cultural relativism" in the early twentieth century with respect to recent generalizations of the concept associated with postmodernism.

40 Margaret M. Caffrey, *Ruth Benedict: Stranger in This Land* (Austin: University of Texas Press, 2013), 214.

41 Ibid. An instructive textbook outlining these definitions and principles is Jerry D. Moore, *Visions of Culture: An Introduction to Anthropological Theories and Theorists* (Plymouth, UK: AltaMira Press, 2012), 81.

42 Virginia Heyer Young in *Ruth Benedict: Beyond Relativity, beyond Pattern* (Lincoln: University of Nebraska Press, 2005), 10.

43 Ruth Benedict, *Patterns of Culture* (New York: Mariner Books, 2005), 46.

44 Theodor Adorno, "Freudian Theory and the Pattern of Fascist Personality" (1951), in Andrew Arato, ed., *The Essential Frankfurt School Reader* (New York: Bloomsbury Academic, 1982), 118–137.

45 Caffrey, *Ruth Benedict*, 154.

46 On Greenberg's intensive therapy with the Sullivanians (disciples of Harry Stack Sullivan), see Caroline A. Jones, *Eyesight Alone: Clement Greenberg's Modernism and the Bureaucratization of the Senses* (Chicago: University of Chicago Press, 2008).

47 See Margaret Mead, in Mead and Ruth Benedict, *An Anthropologist at Work*: *The Writings of Ruth Benedict* (New York: Transaction Books, 2011), 207.

48 Benedict, *Patterns of Culture*, 51.

49 For an important book on the concept of "pattern seeing" within midcentury architecture, design, and corporate culture—and a chapter on the work of Gyorgy Kepes at MIT in particular—see Reinhold Martin, *The Organizational Complex* (Cambridge, MA: MIT Press, 2003).

50 On the Macy Conferences, the major accounts are Steve Joshua Heims, *Constructing a Social Science for Postwar America: The Cybernetics Group, 1946–1953* (Cambridge, MA: MIT Press, 1993); and N. Katherine Hayles, "Contesting for the Body of Information: The Macy Conferences on Cybernetics," in Hayles, *How We Became Posthuman: Virtual Bodies in Cybernetics, Literature, and Informatics* (Chicago: University of Chicago Press, 1999), 50–83.

51 Norbert Wiener, *The Human Use of Human Beings: Cybernetics and Society* (Boston: Da Capo, 1988). See also Turner, *The Democratic Surround*, and Martin, *The Organizational Complex*.

52 Mead and Benedict, *An Anthropologist at Work*, 207.

53 Ibid., 208.

54 Benedict, *Patterns of Culture*, 51.

55 An additional literary reference was Amy Lowell, "Patterns" (1917). Mead will recount Benedict's great admiration for the poem as it related to her analysis of cultural patterns.

56 See Mead's essay on anthropology and photography in Haring, *Personal Character and Cultural Milieu,* 78–106. On visual anthropology and the uses of photography in particular see Ira Jacknis, "Margaret Mead and Gregory Bateson in Bali: Their Use of Photography and Film," *Cultural Anthropology* 3, no. 2 (May 1988): 160–177.

57 Sharon Ghamari-Tabrizi, *The Worlds of Herman Kahn: The Intuitive Science of Thermonuclear War* (Cambridge, MA: Harvard University Press, 2005).

58 Geoffrey Gorer on study of graphic arts and comic strips, Box I-62, Folder 2, Margaret Mead Papers, Library of Congress.

59 "Suggested Materials for Training of Regional Specialists Army Program" by Margaret Mead; "A Proposed Wartime Regional Materials Unit to be Set Up in The Museum of Modern Art"; "Suggested Materials for Regional Training" by Gregory Bateson, in Early Museum History Administrative Records I.3.e. Armed Services Program, Gregory Bateson and Margaret Mead Proposals½"incl. correspondence, Museum of Modern Art Archive, 1943. Bateson had organized a show of his photographs and objects from Bali at MoMA in 1943 to raise awareness of Balinese life after the Japanese occupation.

60 Nicolas Calas, "Précis for a Cultural Analysis of Modern Art," p. 3, in Box I-63: Studies of Culture at a Distance, Folder 5, Margaret Mead Papers, Library of Congress.

61 Ibid.

62 Ibid.

63 Historians of science have done the most important work on this material, including Daston, *Things That Talk*, and Rebecca Lemov, *Database of Dreams: The Lost Quest to Catalog Humanity* (New Haven: Yale University Press, 2015). See also Lemov's excellent, "X-rays of Inner Worlds: The Mid-Twentieth Century Projective Test Movement," Journal of the History of the Behavioral Sciences 47, no. 3 (June 2011): 251–278.

64 A recent account of Hermann Rorschach and the inkblot is Damian Searls, *The Inkblots: Hermann Rorschach, His Iconic Test and the Power of Seeing* (New York: Crown, 2017).

65 Lawrence Frank, *Projective Methods for the Study of Personality* (New York: Josiah Macy Jr. Foundation, 1939), 1.

66 Ibid., 2.

67 Theodor W. Adorno et al., *The Authoritarian Personality*, vol. 1 (1950; New York: Wiley, 1964), 16.

68 With his colleagues at the Berkeley Public Opinion Study, Adorno's occasional use of the Rorschach test and other projective methods would complement the study's infamous "F" scale—the barometer for registering racist and ethnocentric attitudes as a means to detect "anti-democratic forces" in contemporary society.

69 Theodor Adorno, "Freudian Theory and the Pattern of Fascist Propaganda," in G. Róheim, ed., *Psychoanalysis and the Social Sciences*, vol. 3 (Oxford: International Universities Press, 1951), 279–300.

70 Margaret Mead, review "Malinowski, Bronislaw, *Coral Gardens and Their Magic*," *Zeitschrift für Sozialforschung* 5, no. 3 (1936): 69. Mead would also publish on the "Institutionalized Role of Women and Character Formation," in *Zeitschrift für Sozialforschung* in the same year.

71 The Rorschach was administered as a means to compare Chinese attitudes toward American acculturation between men, women, boys, and girls. In the Chinese study, the captions given to such images—and the descriptions provided by their authors—are unsurprising in light of our previous discussion, reading like nationalist boilerplate illustrating the geopolitical motivations of pattern recognition. Chinese subjects variously entitled their drawings "Symbol of Truman's USA, the Atomic Bomb," or "The Chinese War, the Symbol of Unity." Meanwhile interpretations of the drawings might reference the traumas of the Japanese occupation of China. The study was undertaken by Mead's colleagues Theodora Abel and Frances L. K. Hsu and originally published as "Some Aspects of Personality of Chinese as Revealed by the Rorschach Test," *Rorschach Research Exchange and Journal of Projective Techniques* 13, no. 3 (1949).

72 Mead and Métraux, *The Study of Culture at a Distance*, 352. Though Mead expressed some reservations about the method during the period, she would publish her findings with the Rorschach test, as in *The Mountain Arapesh: The Record of Unabelin with Rorschach Analyses* (Garden City, NY: Natural History Press, 1968).

73 See Mead on the Horn-Hellersberg test and "adjustment to reality" in *The Study of Culture at a Distance*, 690.

74 Margaret Mead, *New Lives for Old: Cultural Transformation—Manus, 1928–1953* (New York: Harper Perennial, 2001).

75 On the many tests deployed by Mead and Ted and Lenora Schwartz, see Box N64, Folder 2, 8, and Box N63, Folder 4, Margaret Mead Papers, Library of Congress.

76 The drawings and accompanying statements are archived in Box N63, Folder 5: TS Rorschach, Margaret Mead Papers, Library of Congress. It is worth noting as well that Schwartz wrote her MA thesis on *Guernica* at the Tyler School of Art, Philadelphia: Box N64, Folder 10, Mead Papers.

77 Gregory Bateson, MoMA press release, 1943, Museum of Modern Art Archive.

Chapter 3

This chapter is dedicated to Gui Bonsiepe and Silvia Fernández.

1 Stafford Beer, *Brain of the Firm: A Development in Management Cybernetics*, 2nd ed. (London: John Wiley and Sons, 1982), dedication page.

2 On ZKM as a "digital Bauhaus," see, for example, Perla Innocenti, *Cultural Networks and Migrating Heritage: Intersecting Theories and Practices across Europe* (Routledge: London, 2016), 58. On another note, the "Digital Bauhaus Summit," under the patronage of the German Commission for UNESCO, has brought together designers and researchers "to update the philosophy of the Bauhaus and the political dimensions of design." See, for example, http://digitalbauhaussummit.de.

3 or-am (Catalina Ossa and Enrique Rivera), "Prologue," in *Cybersyn: sinergia cibernética, 1970–1973: multinodo metagame 2002–* (Santiago, Chile: Ocho Libros, 2008), 7.

4 Peter Weibel, quoted in or-am, *Cybersyn: sinergia cibernética*, 64.

5 On the Popular Front, the electoral coalition of leftist parties that preceded Popular Unity, see Pedro Aguirre Cerda, "'Progress for All Social Classes': Campaigning for the Popular Front," in Elizabeth Quay Hutchinson, Thomas Miller Klubock, Nara B. Milanich, and Peter Winn, eds., *The Chile Reader: History, Culture, Politics* (Durham, NC: Duke University Press, 2013), 301–304. See also Allende's famous speech delivered to the Chilean Congress, "The Chilean Road to Socialism" (May 21, 1971), in Michael Löwy, ed., *Marxism in Latin American from 1909 to the Present* (Amherst, NY: Prometheus Books, 1992), 226–228.

6 Eden Medina, "The October Strike," in *Cybernetic Revolutionaries: Technology and Politics in Allende's Chile* (Cambridge, MA: MIT Press, 2011), 141–169. A strike by truckers and retailers in October 1972, lasting nearly a month, was largely mitigated by Cyberstride's connection of the telex machines; some 2,000 messages transferred a day were critical in identifying alternate modes of transportation to keep the movement of goods and services flowing. Also see Alexie Barrionuevo, Santiago Journal, "Before '73 Coup, Chile Tried to Find the Right Software for Socialism," *New York Times*, March 28, 2008, accessed March 30, 2008, http://www.nytimes.com/2008/03/28/world/americas/28cybersyn.html.

7 Beer, *Brain of the Firm*, 168.

8 The indispensable history is Medina, *Cybernetic Revolutionaries*. The literature on, and by, Beer is enormous but an essential volume contextualizing his contribution within the history of British cybernetics is Andrew Pickering, *The Cybernetic Brain: Sketches from Another Future* (Chicago: University of Chicago Press, 2009). A journalistic account of Cybersyn describing its contemporary implications for Big Data and the potential contradictions of a socialist cybernetics is Evgeny Morozov, "The Planning Machine: Project Cybersyn and the Origins of Big Data Nation," *New Yorker*, October 13, 2014, accessed October 9, 2017, https://www.newyorker.com/magazine/2014/10/13/planning-machine. Morozov's subsequent blog post "Some Notes on My Cybernetic Socialism Essay" follows on his review, describing the lengthy process involved in his research—a blog that stemmed from a critical controversy erupting after the *New Yorker* publication. Many subscribers to the list of Special Interest Group Computers Information and Society (SIGCIS) charged Morozov with failing to cite Medina in any substantive way. He was also criticized for characterizing her work as "entertaining," as if to imply that her scholarship was less than serious or rigorous, perhaps even issuing a gendered verdict on her research. See https://evgenymorozov.tumblr.com/post/99479690995/some-notes-on-my-cybernetic-socialism-essay. An excellent blog post on this controversy within science and technology studies is Lee Vinsel, "An Unresolved Issue: Evgeny Morozov, the *New Yorker*, and the Perils of 'Highbrow Journalism,'" October 11, 2014, http://leevinsel.com/blog/2014/10/11/an-unresolved-issue-evgeny-morozov-the-new-yorker-and-the-perils-of-highbrow-journalism.

9 Beer, *Brain of the Firm*, 252.

10 Medina, *Cybernetic Revolutionaries*, 121.

11 On the mechanics of Cybernet, Beer wrote: "Cybernet was a system whereby every singly factory in the country, contained within the nationalized social economy, could be in communication with a computer. Now ideally, this computer would have been a small machine, local to the factory, and at best within it, which would process whatever information turned out to be vital to that factory's management. . . . But such computers did not exist in Chile nor could the country afford to buy them . . . therefore it was necessary to use the computer power available in Santiago; it consisted of an IBM 360/50 machine and a Burroughs 3500 machine." Beer, *Brain of the Firm*, 252.

12 Stafford Beer and Salvador Allende, cited in Enrique Rivera and Catalina Ossa, "Absolutum Obsoletum: If It Works It's Out of Date," in *Latin American Forum III: Recent Histories of Electronic Culture in Latin America* (conference proceedings), International Symposium of Electronic Art, Dortmund, 2010, 407.

13 On an early history of the copper industry in Chile, the role of American mining corporations such as Anaconda and Kennecott, and the drive to nationalization after World War II, see Theodore H. Moran, *Multinational Corporations and the Politics of Dependence: Copper in Chile* (Princeton, NJ: Princeton University Press, 1974). On the critical importance of nitrate within histories of the Chilean economy and foreign expropriation, see Xavier Ribas, ed., *Nitrate* (Barcelona: Museu d'Art Contemporani de Barcelona, 2014). My thanks to Kyle Stephan for her research on nitrate in the art of Juan Downey.

14 Nick Srnicek and Alex Williams, *Inventing the Future: Post-capitalism and a World without Work* (London: Verso, 2016), 149–150. Also see their *#Accelerationist Manifesto for an Accelerationist Politics* (Mexico City: Gato Negro Ediciones, 2014), 39, which on the one hand refers to Cybersyn as a failed but important model of technological planning, while on the other it considers the Mont Pelerin Society as a model of intellectual collectivity that a new left politics might emulate. A dystopian sci-fi novel on Cybersyn is Jorge Baradit, *Synco* (Santiago: B DE Books, Kindle Edition, 2013). One dissertation (inaccessible to public readership at the time of this writing), Karen Benezra's at Cornell University, explores the relationship between aesthetics, art, and industrial design in Latin America in the 1960s and 1970s; Benezra is now assistant professor in the Department of Latin American and Iberian Cultures at Columbia University. Also see Sebastian Vehlken, "Environment for Design: Die Medialität einer kybernetischen Untersuchung des Projekts Cybersyn in Chile 1971–3," MA thesis, Institut für Medienwissenschaften der Ruhr-Universität Bochum, February 4, 2004.

15 Eden Medina, "Democratic Socialism, Cybernetic Socialism: Making the Chilean Economy Public," in Bruno Latour and Peter Weibel, eds., *Making Things Public: Atmospheres of Democracy* (Cambridge, MA: MIT Press; Karlsruhe: ZKM, 2005), 708.

16 For example, Felix Huber's game *ops room* (2005) based on the Bonsiepe photograph (http://www.fshuber.net/projects/ops-room/ops-room_01.html), and the project *Situation Room* by Pablo de Soto and hackitectura.net, which tracks the development of control rooms to situation rooms (note that Medina collaborated with the group). See Pablo de Soto, *Situation Room: Designing a Prototype of a Citizen Situation Room* (Anman Grafigues de Valles, S.L, 2010). Chilean artist Mario Navarro would provide a critical perspective on Cybersyn in his work *Whisky in the Opsroom*, 2006. Medina would serve as a critical point of departure and information for many such projects. See Medina, *Cybernetic Revolutionaries*, 246n19.

17 Morozov, "The Planning Machine."

18 The long bibliography around Project FUBELT (the CIA's secret campaign against Allende), Pinochet's coup, the Chicago School in Chile, the plebescite that voted Pinochet out of office in 1989, and the protracted and international legal efforts to extradite him and bring him to justice includes the vast corpus of documentary material related to the CIA, Peter Kornbluh, *The Pinochet Files: A Declassified Dossier on Atrocity and Accountability* (New York: New Press, 2013); also see Roger Burbach, *The Pinochet Affair* (London: Zed Books, 1973); and Marcus Taylor, *From Pinochet to the Third Way* (London: Pluto Press, 2006). On the "Chicago Boys," see Juan Gabriel

Valdés, *Pinochet's Economists: The Chicago School in Chile* (Cambridge: Cambridge University Press, 1995). On Pinochet's role in Operation Condor, a program of state-sponsored terrorism that encompassed the dictatorial regimes of Argentina, Uruguay, Bolivia, Paraguay, Brazil, and Peru, and coordinated the assassination of former Chilean diplomat Orlando Letelier in the United States, see US Federal Bureau of Investigation, "Operation Condor and the Transnationalization of Terror," in Hutchinson et al., *The Chile Reader*, 465–467.On Allende, a text of the period is Regis Debray, *The Chilean Revolution: Conversations with Allende* (New York: Vintage Books, 1971). For Allende's speeches and writing, see James D. Cockcroft, ed., *Salvador Allende Reader* (Melbourne: Ocean Press, 2000). On culture and literature in the era of Chile's postdictatorship transition, see Francine Masiello, *The Art of Transition: Latin American Culture and Neoliberal Crisis* (Durham, NC: Duke University Press, 2001).

19 Two recent episodes underscore Chile's ongoing and traumatic confrontation with the Pinochet era. The first concerns the exhumation of Allende's body in 2011. This was conducted with respect to the continuing controversy over whether Allende committed suicide in La Moneda or was murdered by Pinochet's junta, with the deed made to appear as if he had killed himself. See, e.g., Agence France-Presse, "Chile Orders Exhumation to Settle how President Allende Died," *New York Times*, April 15, 2011, http://www.nytimes.com/2011/04/16/world/americas/16chile.html. A second example concerns the lawsuit and verdict on the part of Víctor Jara's widow to bring his murderer to justice in the state of Florida. See Jorge Poblete and Chris Kraul, "Florida Verdict in Victor Jara Case Resurrects Ghosts of Pinochet Era in Chile," *Los Angeles Times*, June 29, 2016, http://www.latimescom/world/ mexico-americas/ la-fg-chile-victor-jara-20160628-snap-story.html.

20 David Whittaker, "Chilean Beer," in or-am, *Cybersyn: sinergia cibernética*, 14.

21 David Whittaker, "Tigers at Play: Stafford Beer's Poetry," *Kybernetes* 33, no. 3–4 (2004): 547–553.

22 See, e.g., Naomi Klein, *The Shock Doctrine: The Rise of Disaster Capitalism* (New York: Picador, 2008). Austrian economist Joseph Schumpeter first theorized "creative destruction" in 1942. Joseph A. Schumpeter, *Capitalism, Socialism and Democracy* (New York: Harper Torch Books, 1962). Also see Taylor, *From Pinochet to the Third Way*.

23 Kornbluh, "Introduction," in *The Pinochet Files*, xv.

24 Francis Fukuyama, "The End of History," *National Interest*, no. 16 (Summer 1989): 3–18.

25 Milton Friedman, "Neo-Liberalism and Its Prospects," in *The Indispensable Milton Friedman: Essays on Politics and Economics*, ed. Lanny Ebenstein (Washington, DC: Regnery, 2012), 3.

26 Dieter Plehwe, "Introduction," in Philip Mirowski and Dieter Plehwe, *The Road from Mont Pelerin: The Making of the Neoliberal Thought Collective* (Cambridge, MA: Harvard University Press, 2015). Other monographs on the Mont Pelerin Society include the partisan R. M. Hartwell, *A History of the Mont Pelerin Society* (Indianapolis: Liberty Fund, 1995). An opposing perspective—to put it mildly—is David Harvey, *A Short History of Neoliberalism* (Oxford: Oxford University Press, 2007).

27 Use of the word "assemblage" here is meant to flag the interests of assemblage theory most famously described by Gilles Deleuze and Félix Guattari and elaborated by later thinkers ranging from Manuel De Landa to Aiwa Wong. On assemblage, see Deleuze and Guattari, *A Thousand Plateaus: Capitalism and Schizophrenia* (Minneapolis: University of Minnesota Press, 1987).

28 Michel Foucault, *The Archaeology of Knowledge and The Discourse of Language* (New York: Pantheon Books, 1972), 24.

29 The term *arche* has a long philosophical genealogy, following the standard Greek-English lexicon compiled by Henry George Liddell and Robert Scott. The most literal definition is "beginning" or "origin," but this should not necessarily be understood in the sense of telos or historical chronology: as discussed below, the associations suggested

here turn more on pre-Socratic conceptions of the cosmos as primordial and ordering substance. *Arche* also suggests "first principle" or "element" but might also imply "sum total," "method of government" (and empire or realm), "authority," "sovereignty," and "command," with the last definition associated further with "heavenly power." See Henry George Liddell and Robert Scott, *A Greek-English Lexicon, Revised and Augmented Throughout by Sir Henry Stuart Jones* (Oxford: Clarendon Press, 1968), 252.This chapter presses for the larger, interlinked valences of the term related to cosmology, power, and control, with the additional implication of *steerage*: a notion that connects fundamentally to the rhetoric and stakes of cybernetics. On the relationship between *arche* and cosmos, see G. S. Kirk, J. E. Raven, and M. Schofield, *The Presocratic Philosophers*, 2nd ed. (Cambridge: Cambridge University Press, 2007), 88–94. The key figures are Thales of Miletus and Anaximander and their treatment by Aristotle, in which *arche* is in part understood as "the original constituent material of all things" and a "persisting substrate" (91). A few observations on the life of Thales are instructive relative to the cosmographic principles argued in this context: traditionally considered the earliest Greek physicist, he was legendary for his work in astronomy, having predicted an eclipse. Herodotus noted Thales was also both *steersman and engineer*—avocations with strong cybernetic valences. Discussions on Anaximander, on the other hand, center on the relationship between *arche* and *apeiron* (generally understood as the boundless, indefinite, or even chaos). Here *arche*, treated as an "originative" substance, "steers all and controls all" (108–116).Departing from such classical touchstones, broader notions of *arche*—and the archive—have been taken up (in addition to the media-archaeological writings noted above) in literary criticism, Continental philosophy, and art history, as in Jacques Derrida, *Archive Fever: A Freudian Impression* (Chicago: University of Chicago Press, 1988); Foucault, *The Archaeology of Knowledge and The Discourse of Language*; Yve-Alain Bois, "Matisse and *Arche* Drawing," in *Painting as Model* (Cambridge, MA: MIT Press, 1993); and Hal Foster, "An Archival Impulse," *October* 110 (August 2004): 3–22.

30 The vast literature on neoliberalism describes multiple points of institutional origin, including the school of Ordoliberals associated with the "Freiburg School" at the University of Freiburg (and the journal *Ordo*) and, as above, the Mont Pelerin Society. See, e.g., Michel Foucault, "Governmentality," in *Power: The Essential Works of Foucault 1954–1984*, vol. 3 (New York: New Press, 2001), 201–222. For excellent readings of Foucault and the Ordoliberals, see Thomas Lemke, "The Birth of Bio-Politics: Michel Foucault's Lecture at the Collège de France on Neo-liberal Governmentality," *Economy and Society* 30, no. 2 (May 2001); Wendy Brown, *Undoing the Demos: Neoliberalism's Stealth Revolution* (New York: Zone Books, 2015); and Harvey, *A Short History of Neoliberalism*. Hayek, who admired Walter Eucken or the Ordoliberals in particular, would teach in the Department of Economics at the University of Freiburg from 1962 to 1968. A pointed recent contribution to the historiographic literature on neoliberalism is Daniel Zamora and Michael C. Behrent, eds., *Foucault and Neoliberalism* (London: Polity, 2015). The book makes a considerable case for Foucault's qualified and more-than-occasional affinities with some of the principles of neoliberalism.

31 Wolfgang Ernst, *Digital Memory and the Archive* (Minneapolis: University of Minnesota Press, 2012), 57 (my emphasis).

32 Jussi Parikka, "Operative Media Archaeology: Wolfgang Ernst's Materialist Media Diagrammatics," *Theory, Culture and Society* 28, no. 5 (2011): 52–74.

33 Erkki Huhtamo and Jussi Parikka, "Introduction: An Archaeology of Media Archaeology," in Huhtamo and Parikka, eds., *Media Archaeology: Approaches, Applications, and Implications* (Berkeley: University of California Press, 2011), 1–25.

34 Erkki Huhtamo, "Time Travelling in the Gallery: An Archaeological Approach in Media Art," in Mary Anne Moser and Douglas MacLeod, eds., *Immersed in Technology: Art and Virtual Environments* (Cambridge, MA: MIT Press, 1996), 233–268.

35 On the representation of networks and the interface, see Alexander Galloway, *The Interface Effect* (Cambridge: Polity Press, 2012). For an early account of interface design within industry, see the collected essays in Gui Bonsiepe, *Interface: An Approach to Design* (Maastricht: Jan van Eyck Akademie, 1999).

36 Medina describes a few iterations of the Operations Room before the designers settled on the version now enshrined in Bonsiepe's photograph. Medina, *Cybernetic Revolutionaries*, 114–133.

37 Grupo de proyecto Diseño Industrial, "Informe final: Diseño de una sala de operaciones," Intec: Comite de Investigaciones Tecnologicas—Corfo (Santiago de Chile, March 1973), 2.

38 On "environment of decision," see Beer, *Brain of the Firm*, 268.

39 Maurice Yolles, "Cybersyn, An Evolving Approach," in or-am, *Cybersyn: sinergia cibernética*, 19.

40 See, for example, Beatriz Colomina, "Enclosed by Images: Eames Multimedia Architecture," *Grey Room* 02 (Winter 2001): 6–29; Reinhold Martin, *The Organizational Complex* (Cambridge, MA: MIT Press, 2003); and Fred Turner, *The Democratic Surround: Multimedia and American Liberalism from World War II to the Psychedelic Sixties* (Chicago: University of Chicago Press, 2013).

41 Medina, *Cybernetic Revolutionaries*, 35–38. Medina offers a cogent breakdown of the viable system model as a biological metaphor for understanding communicative systems. System One is the "sensory level," consisting of limbs and bodily organs, members in immediate contact with the environment. System Two "acts as a cybernetic spinal cord" and enables "rapid lateral communication among different body parts and organs." System Three monitors the behavior of each organ (System One) and is likened to pons, medulla, and cerebellum. System Four ("equated to a combination of the diencephalon, basal ganglia, and the third ventricle of the brain") mediates voluntary and involuntary control. Finally, "just as the cerebral cortex interconnects millions of neurons with one another, System Five does not consist of a single manager . . . [but] a group of managers who communicate vertically to their immediate superiors and associates, laterally to managers who are outside their formal hierarchy, and diagonally to managers who are several levels above their position but outside the chain of command." This arrangement is referred to as a "multinode."

42 The "Algedonode" is a neologism coined by Beer that, as Medina notes, is formed by two Greek words meaning pain (*algos*) and pleasure (*hedos*). As part of the viable system model, an algedonic signal functions within System One (the limbs) as a spur to the larger system, alerting "higher levels of management to a discrete event . . . and thus minimize the effect of the emergency on the rest of the system." Medina, *Cybernetic Revolutionaries*, 39. Beer describes the algedonode in the following terms: "a decision element in a control system consists essentially of an input . . . and an output. . . . This decision element constitutes a node in a network making up the control system. . . . The whole of this package is the algedonode." Beer, *Brain of the Firm*, 67.

43 Eden Medina, proposal and various exchanges with Heike Ander Tasja Langenbach, Valérie Pihet, and Peter Weibel, "Making Things Public," archives of ZKM, Karlsruhe, Germany, 2003–2005 (my emphasis).

44 Beer was a student at University College London but dropped out in 1944 to join the army. See Stafford Beer obituary, *Guardian*, September 4, 2002, https://www.theguardian.com/news/2002/sep/04/guardianobituaries.obituaries.

45 Pickering, *The Cybernetic Brain*, 8.

46 Ibid.

47 Ibid., 18, 19 (my emphasis).

48 Ross Ashby, *Design for a Brain: The Origin of Adaptive Behavior* (Mansfield Center, CT: Martino Publishing, 2014). 9.

49 Beer, *Brain of the Firm*, 249 and 251.

50 The second edition, published by Wiley in 1981, included a new section, "Part 4: The Course of History," on Beer's involvement in the Chilean experiment.

51 Beer, *Brain of the Firm*, 21.

52 Ibid., 38.

53 Beer in Medina, *Cybernetic Revolutionaries*, 33.

54 On Wiener's travels to the Soviet Union in 1960, see Flo Conway and Jim Siegelman, *Dark Hero of the Information Age: In Search of Norbert Wiener the Father of Cybernetics* (New York: Basic Books, 2005). See also Slava Gerovitch, *From Newspeak to Cyberspeak: A History of Soviet Cybernetics* (Cambridge, MA: MIT Press, 2002), for a longer history of the Soviet context. Note Gerovitch's discussion of the Stalinist propaganda campaign against cybernetics and American cyberneticians as an "imperialist utopia" of the West or a "pseudo-science," in advance of its belated engagement with Wiener. On a more recent history stemming from Gerovitch's cybernetic thesis, see Benjamin Peters, *How Not to Network a Nation: The Uneasy History of the Soviet Internet* (Cambridge, MA: MIT Press, 2017).

55 "Dependency theory" describes the radically unequal economic relationship between underdeveloped countries of the global south and their industrialized northern counterparts, stemming not only from the dominance of world markets and multinational capitalism but a confluence of internal economic, social, and political factors. Standard accounts of dependency theory often deploy the language of the "periphery" to speak to underdevelopment within the modern period and processes of decolonization. Emerging in the postwar era in partial response to Marxian analyses of growth, as well as critiques of modernization, it found critical reception within Latin America in the 1960s and 1970s, in part through the Economic Commission for Latin America (ECLA or CEPAL) of the United Nations. For two classic accounts of dependency theory stemming from the Chilean (and Argentine) perspective, see Andre Gunder Frank, *Capitalism and Underdevelopment in Latin America* (New York: Monthly Review Press, 1967), and Fernando Henrique Cardoso and Enzo Faletto, *Dependency and Development in Latin America* (Berkeley: University of California Press, 1979).

56 Stafford Beer, letter to Fernando Flores, July 29, 1971, Box 55, Letters, Folder: Chile First Visit, Correspondence, Stafford Beer Collection, Liverpool John Moores University, consulted June 10–11, 2010.

57 Fernando Flores, letter to Stafford Beer, July 13, 1971, Box 55, Letters, Folder: Chile First Visit, Correspondence, Stafford Beer Collection, Liverpool John Moores University, consulted June 10–11, 2010.

58 Medina, *Cybernetic Revolutionaries*, 23.

59 "The Cybernetic Brain of Stafford Beer" (interviewer unknown), *Computing*, March 29, 1973, 14–15 (published weekly by Haymarket Publishing Limited for the British Computer Society), Stafford Beer Collection, Liverpool John Moores University.

60 Pickering, *The Cybernetic Brain*, 35.

61 "The Cybernetic Brain of Stafford Beer."

62 Salvador Allende, letter to Stafford Beer, April 1972, Stafford Beer Collection, Liverpool John Moores University.

63 F. A. Hayek, *Choice in Currency: A Way to Stop Inflation* (London: Institute of Economic Affairs, 1976), 16.

64 Salvador Allende, "Last Words Transmitted by Radio Magallanes: September 11, 1973," in Cockcroft, *Salvador Allende Reader*, 240.

65 Plehwe, "Introduction," in Mirowski and Plehwe, *The Road from Mont Pelerin*, 9.

66 "Statement of Aims," The Mont Pelerin Society (Printed for Private Circulation), 1948, Box 1, Folder 1, Mont Pelerin Society Papers, Hoover Institution Archives, Stanford University, Stanford, CA (my emphasis).

67 Ibid.

68 Friedrich A. von Hayek, "Historians and the Future of Europe: A Paper Read to the Political Society King's College, Cambridge, on 28th February, 1944," 2, in Friedrich

Hayek Papers, Box 61, Folder 6, Hoover Institution Archives, Stanford University, Stanford, CA.

69 Karl Popper, "Introduction" and "Historicism and the Myth of Destiny," in *The Open Society and Its Enemies*, vol. 1: *The Spell of Plato* (Princeton, NJ: Princeton University Press, 1945), 1–11. Many of the ideas advanced in this multivolume work are distilled in Popper's later essay *The Poverty of Historicism* (London: Routledge, 1957).

70 Friedman, "Neo-Liberalism and Its Prospects," 3–11.

71 For example, the September 1951 meeting of the Mont Pelerin Society devoted to "Capitalism and the Historians." Some of the conference proceedings were published as F. A. Hayek, ed., *Capitalism and the Historians* (Chicago: University of Chicago Press, 1954). See also Mont Pelerin Society, Box 1, Folder 2, Hoover Institution Archives, Stanford University, Stanford, CA.

72 Plehwe, "Introduction," in Mirowski and Plehwe, *The Road from Mont Pelerin*, 9–10.

73 Valdés, *Pinochet's Economists*, 60.

74 Milton Friedman, "Economic Freedom, Human Freedom, Political Freedom" (1991), in Micheline Ishay, *The Human Rights Reader: Major Political Essays, Speeches and Documents from Ancient Times to the Present* (London: Routledge, 2007), 340–346 (my emphasis).

75 Stafford Beer, cited in or-am, *Cybersyn: sinergia cibernética*, 5.

76 or-am, *Cybersyn: sinergia cibernética*, 8. For Beer's discussion of the *Multinode* as "System Five," see Beer, *Brain of the Firm*, 201–225.

77 For a treatment of the interests of game theory, postmodernism, and its afterlives in discussions of "the contemporary" within art criticism, see Pamela M. Lee, *New Games: Postmodernism after Contemporary Art* (London: Routledge, 2012). Also see my *Cold War Historical Painting: Fählstrom against Monopoly* (Stockholm: Moderna Museet, 2017).

78 The qualifier "meta" bears significant associations for several generations of cyberneticians, including some of the most influential figures of both the early Cold War and the American counterculture. Famously Gregory Bateson theorized the notion of "metalogue" in his pivotal *Steps to an Ecology of Mind*—a dialogue on the structures and dynamics of dialogues that surpassed the occasionally antagonistic dimension inhering in such closed exchanges. Gregory Bateson, "Metalogue," in *Steps to an Ecology of Mind* (New York: Chandler Publishing, 1972); also see my "The Metalogic Imagination," an introduction to Saul Anton, *Warhol's Dream (*Zurich: JRP/Ringier, 2007).

79 Lisa Gitelman, *Always Already New* (Cambridge, MA: MIT Press, 2006).

80 or-am, "Introducción," in *Cybersyn: sinergia cibernética*, 7.

81 Ibid.

82 Ibid., 8 and footnote 1.

83 Ibid., 9.

84 Ibid.

85 Nelly Richard, editor of the influential journal *Revista de Crítica Cultural*, is perhaps the most prominent thinker on Chilean contemporary art, politics, and culture: her work addresses trauma, historical memory of the recent past, and the postdictatorship transition. The most important volume on contemporary Chilean art in English is her *Margins and Institutions: Art in Chile since 1973* (Melbourne: Art and Text, 1986). Also see Richard, *Cultural Residues: Chile in Transition* (Minnesota: University of Minnesota Press, 2004). For a more recent in-depth survey of contemporary Chilean art, see Gerardo Mosquera, ed., *Copiar el Edén: Arte reciente en Chile* (Santiago: Ediciones Puro Chile, 2006).

86 or-am, *Cybersyn: sinergia cibernética*, 9.

87 Ibid.; Sebastián Vidal Valenzuela, “Cybersyn y una tercera apologia de la muerte del arte,” in ibid., 75.

88 Peter Weibel, in or-am, *Cybersyn: sinergia cibernética*, 65.

89 Ibid.

90 Vidal Valenzuela, “Cybersyn y una tercera apologia de la muerte del arte,” 75.

91 Ibid., 76.

92 Ibid.

93 Ibid., 80.

94 In the volume in which Valenzuela’s essay appears, there are four brief and unexplored references to Pinochet in a book of some 117 pages. There are no extended references to socialism, Marxism, or neoliberalism.

95 In an unpublished lecture given at the Tate Modern, London, as well as in Łódź, Maria Gough notes that, as of 2017, there were “more than half a dozen” reconstructions of the Workers’ Club made since the 1970s. Gough’s lecture mostly concerns Rodchenko’s Spatial Constructions: her skepticism stems in part from the remaking of these works in media that represses the historicity of their production and the actual conditions under which the artist labored. Her perspective extends further to the reconstructions of the Workers’ Club as little more than “stage sets” or “event spaces” continuous with the experience economy. Gough questions “whether the museum visitor really learns anything from his or her phenomenological experience” in such reconstructions.

96 The term “installation,” which enters art criticism belatedly, demands qualification as it implies something like a paradoxically autonomous *and* immersive work of art, which the Workers’ Club, as a prototype for an actual media space, was most certainly not. (The same of course could be said for Cybersyn’s reimaginations in the present.) For this reason, the term “installation” is deployed here guardedly; it remains useful, nonetheless, in communicating the historiography of both the Workers’ Club and Cybersyn as progressively organized around aesthetic interests, as well as the jargon of contemporary art and museology. On the other hand, as Christina Kiaer notes, Rodchenko’s example cannot properly be called “interior design” given the socialist theories of the constructivist object she details as spurs to consciousness. Christina Kiaer, “Rodchenko in Paris,” *October* 75 (Winter 1996), 6.

97 Ibid.

98 Leah Dickerman, “The Propagandizing of Things,” in *Rodchenko* (New York: Museum of Modern Art, 1998), 75.

99 Rodchenko donated the prototype to the French Communist Party after the closing of the Exposition, but details regarding its storage, conservation, and eventual disappearance remain murky. The presumption that Soviet artists simply turned their backs on the museum is belied by the historical record concerning the avant-garde’s engagement with Soviet cultural bureaucracy. On this history, see Maria Gough, “Futurist Museology,” *Modernism/Modernity* 10, no. 2, (2003): 327–348.

100 Dickerman, “The Propagandizing of Things,” 72.

101 On the relationship between chess and the avant-garde, particularly in the Soviet context, see the exhibition catalog, Manuel Segade, *Endgame: Duchamp, Chess and the Avant-Gardes* (Barcelona: Museu Picasso, 2016).

102 Dickerman, “The Propagandizing of Things,” 72.

103 Christina Lodder, *Russian Constructivism* (New Haven: Yale University Press, 1983), 27.

104 Ibid., 24.

105 Kiaer, “Rodchenko in Paris,” 5.

106 Ibid.

107 Gui Bonsiepe, “Kommunikation und Kunst,” *Ulm* 21 (1968).

108 Gui Bonsiepe, “Design in Transition to Socialism. A Techno-Political Field Report from Unidad Popular’s Chile (1971–73),” reprinted in *Civic City Cahier 2: Design and Democracy* (London: Bedford Press, 2010), 5–29.

109 Ibid., 8.

110 Ibid., 7.

111 Ibid., 6.

112 Medina, *Cybernetic Revolutionaries*, 111.

113 Among the most useful volumes on the history of Ulm is Herbert Lindinger, ed., *Ulm Design: The Morality of Objects* (Cambridge, MA: MIT Press, 1990). See his introductory essay, “Ulm: Legend and Living Idea,” 9–16. An excellent study on the Information Department at Ulm is David Oswald and Christiane Wachsmann, “Writing as a Design Discipline: The Information Department of the Ulm School of Design and Its Impact on the School and Beyond,” AIS/Design *Storia e Ricerche* (2015).

114 Lindinger, “Ulm: Legend and Living Idea,” 9.

115 Ibid.

116 Pamela M. Lee and Geoff Kaplan, interviews with Gui Bonsiepe, La Plata, Argentina, August 22–25, 2016.

117 Gert Kalow quoted in Lindinger, “Information,” in *Ulm Design*, 172.

118 Bonsiepe recalls there was only one nominal communist at Ulm during the time but does not identify him/her. Lee, interview with Bonsiepe, August 22–25, 2016.

119 See Otl Aicher, “Bauhaus and Ulm,” in Lindinger, *Ulm Design*, 124.

120 Interviews with Bonsiepe, La Plata, Argentina, August 22–25, 2016.

121 Interview with Bonsiepe, August 22, 2016.

122 Alexander Kluge, quoted in “Filmmaking,” in Lindinger, *Ulm Design*, 183.

123 Anatol Rapoport, *Operational Philosophy* (New York: Harper and Brothers, 1953).

124 On Maldonado’s interest in operations research see Kenneth Frampton, “The Ideology of a Curriculum,” in Lindinger, *Ulm Design*, 130–148.

125 Gui Bonsiepe, in *Ulm* 6 (1962), quoted in Lindinger, *Ulm Design*, 88.

126 See, for example, *Tomás Maldonado in Conversation with María Amalia García*, with an introductory essay by Alejandro Crispiani (New York: Fundación Cisneros, 2010), 26–48. On the beginnings of neo-concrete art in Argentina, an excellent addition to the literature is “At Painting’s Edge: Arte Concreto Invención, 1944–46,” in Monica Amor, *Theories of the Non-Object: Argentina, Brazil, Venezuela, 1944–1969* (Berkeley: University of California Press, 2016).

127 Lee, interview with Bonsiepe, August 24, 2016 (my emphasis).

128 Lee, interview with Bonsiepe, August 25, 2016.

129 Ibid.

130 Tomás Maldonano in Lindinger, *Ulm Design*, 222.

131 Lee, interview with Bonsiepe, August 24, 2016.

132 Letter from Ralph Raico, Cato Institute, to F. A. Hayek, June 13, 1977, Box 14: 20, Cato Institute Hayek Papers, Hoover Institution Archives, Stanford, CA.

133 The RAND Corporation, as David Jardini writes, began expanding its research agenda to include social welfare research around 1960; Jardini identifies the years 1946–1960 as the “Golden Years” of RAND research. By the late 1960s/early 1970s the

focus begins to include domestic interests. David R. Jardini, *Thinking Through the Cold War: RAND, National Security and Domestic Policy* (Amazon Digital Services, LLC, Kindle edition, 2013), n.p.

134 Letter from Edward R. Crane, President, Cato Institute, to Hayek, January 30, 1985; Box 14: 20, Cato Institute, Hayek Papers, Hoover Institution Archives.

135 Valdés, *Pinochet's Economists*, 36. On the Centro de Estudios Públicos, see Bruce Caldwell and Leonidas Montes, "Friedrich Hayek and His Visits to Chile," CHOPE Working Paper No 2014-12, Center for the History of Political Economy, Duke University, August 2014.

136 Letter from Milton Friedman to Augusto Pinochet, August 7, 1976, Milton Friedman Papers, Box 188, Folder 13, Hoover Institution Archives, Stanford, CA.

137 The relationship between the publisher of *El Mercurio*, Henry Kissinger, the National Security Council, and the CIA is well documented, as in the files published in Kornbluh, *The Pinochet Files*, 138–140.

138 Hayek's meeting with Pinochet is recorded in the Chilean media, as in "Premio Nobel Friedrich von Hayek: 'Es notable la recuperación económica de este país,'" *El Mercurio* (Santiago), November 8, 1977, Hayek Papers, Hoover Institution Archives, Stanford, CA. On Hayek's two visits to Chile as well as the meeting of the Mont Pelerin Society, see, for example, Caldwell and Montes, "Friedrich Hayek and His Visits to Chile." Caldwell and Montes rebut earlier arguments around Hayek's visits, concerning, as one example, the Constitution of Chile under Pinochet. In the interests of transparency, Caldwell discloses his membership in the Mont Pelerin Society since 2010 while Montes is a council member of the Centro de Estudios Públicos. For conflicting perspectives (which Caldwell and Montes identify), see Klein, *The Shock Doctrine*; Greg Grandin, *Empire's Workshop: Latin America, the United States and the Rise of the New Imperialism* (New York: Holt, 2007); and Corey Robbins's excellent series "When Hayek Met Pinochet," http://coreyrobin.com/2012/07/18/when-hayek-met-pinochet/.

139 Morozov, "Some Notes on My Cybernetic Socialism Essay."

140 Margaret Mead and Paul Byers, *The Small Conference: An Innovation in Communication* (Paris: Mouton, 1968).

141 Plehwe, "Introduction," in Mirowski and Plehwe, *The Road from Mont Pelerin*, 10.

142 On a comparative reading of adaptive systems in Michal Polanyi and Hayek, see William N. Butos and Thomas J. McQuade, "Polanyi, Hayek and Adaptive Systems Theory," draft 2015, https://www.semanticscholar.org/paper/Polanyi-Hayek-and-Adaptive-Systems-Theory-Butos McQuade /d095107ce4b2459fa7fbe56301d266b9d0dc814b. Polanyi would later theorize the learning process in relation to such systems, as in his influential *The Tacit Dimension* (Chicago: University of Chicago Press, 1966). For an exacting *Bildungsroman* of Hayek's career, see Bruce Caldwell, *Hayek's Challenge: An Intellectual Biography of F. A. Hayek* (Chicago: University of Chicago Press, 2003).

143 See the letters between Ludwig von Bertalanffy and Hayek dating from 1947 to the mid-1950s in Hayek Papers, Box 12, Folder 4, Hoover Institution Archives, Stanford University, Stanford, CA.

144 Ludwig von Bertalanffy, *General System Theory* (New York: George Braziller, 1968), 33.

145 Ludwig von Bertalanffy, University of Ottawa, to Friedrich Hayek, University of Chicago, May 21, 1954 in Hayek Papers, Box 12, Folder 4, Hoover Institution Archives, Stanford University, Stanford, CA.

146 Ludwig von Bertalanffy, "General System Theory," brochure, Center for Advanced Study in the Behavioral Sciences, Stanford, CA, reprinted from *Main Currents in Modern Thought* 11, no. 4 (March 1955): 75–83, in Friedrich A. Hayek Papers, Box 12, Folder 4, Hoover Institution Archives, Stanford University, Stanford, CA.

147 Gaspar Galaz, interviewed by Patricio Guzmán in *Nostalgia de la luz* (2012).

148 Ibid.

149 I borrow the phrase "concordance of time and history" from David Scott's scholarship on the failed socialist revolution in Grenada of 1979. Scott describes the entangled and often contradictory valences of time and history in accounts of the recent postcolonial past, its contemporary afterlives, and the developing world. David Scott, *Omens of Adversity: Tragedy, Time, Memory, Justice* (Durham, NC: Duke University Press, 2014).

150 For example, as stated by Rodrigo Walker, in Medina, *Cybernetic Revolutionaries*, 121.

151 Lee and Kaplan, interview with Bonsiepe, August 22–25, 2016.

152 On the relation between science fiction set design and Cybersyn see Sebastian Vehlken, "Science Fiction vs. Science Fact—Interface-Visionen von Operations Rooms," in his thesis "Environment for Design: Die Medialität einer kybernetischen Untersuching des Projekts Cybersyn in Chile 1971–3," 108–111.

153 See the formative work of socialist science fiction critic Darko Suvin, "Cognition and Estrangement" (1979), reprinted in Suman Gupta and David Johnson, eds., *Twentieth-Century Literature Reader: Texts and Debates* (London: Routledge, 2005), 187–193.

154 See Medina, "Democratic Socialism, Cybernetic Socialism," 711.

155 Eden Medina, email exchange with Valérie Pihet regarding proposal for "Making Things Public" and ZKM's acceptance of the project, August 7, 2003, "Making Things Public," Archive, ZKM, Karlsruhe.

156 Guzmán, *Nostalgia de la luz*.

157 Ibid.

158 Ibid.

159 On the Women of Calama, see the Chilean archive available through the Centro de Estudios Miguel Enriques, http://www.archivochile.com/Derechos_humanos/calama/Las_Mujeres_de_Calama.pdf.

160 Violeta Berríos in Guzmán, *Nostalgia de la luz*.

161 Gui Bonsiepe, *Designtheorie 1: Design im übergang zum Sozialismus* (Hamburg, 1974).

162 Raúl Espejo quoted in or-am, *Cybersyn: sinergia cibernética*, 57.

163 Gitelman, *Always Already New*, 3.

164 Ibid.

165 Ibid.

Chapter 4

An earlier, abbreviated version of this chapter appeared as "Open Secret: The Work of Art between Disclosure and Redaction," *Artforum*, May 2011.

1 Daniel Ellsberg, *Secrets* (New York: Penguin, 2002), 300.

2 Ellsberg quoted in Joe Sandler Clarke, "Edward Snowden's Whistleblowing Predecessors," accessed September 10, 2017, https://www.theguardian.com/us-news/2015/jun/04/edward-snowden-daniel-ellsberg-thomas-drake-whistleblowers.

3 Daniel Ellsberg, "The Theory and Practice of Blackmail," RAND Corporation, Santa Monica, CA, 1968.

4 Ellsberg, *Secrets*, 300.

5 Manning Marable, *Malcolm X: A Life of Reinvention* (New York: Penguin, 2011), 13.

6 Other contemporary artists of note confront related questions around the aesthetics of secrecy and surveillance, perhaps most prominently including Mark Lombardi, whose "interlock" drawings meticulously document the associations between governments, corporations, and transnational finance, and Laura Poitras, whose principled filmmaking on many of the actors described in this chapter—including Snowden and Assange—has spurred her own practice as a visual artist. On Lombardi, see Patricia Goldstone, *Interlock: Art, Conspiracy and the Shadow Worlds of Mark Lombardi* (Berkeley, CA: Counterpoint, 2015); on Poitras, see Poitras and Jay Saunders, *Astro Noise: A Survival Guide for Living under Total Surveillance* (New York: Whitney Museum of American Art, 2016).An earlier generation of artists, many feminist, paved the way for discussions around aesthetics and surveillance technology. These include, among others, Julia Scher and Lynn Hershman Leeson. For longer histories and practices, see *Ctrl [Space]: Rhetorics of Surveillance from Bentham to Big Brother* (Karlshruhe: ZKM, 2001).

7 Robert Bailey, "Unknown Knowns: Jenny Holzer's Redaction Paintings and the History of the War on Terror," *October* 142 (Fall 2012): 144–161.

8 For example, Jean-François Lyotard, *Lessons on the Analytic of the Sublime* (Stanford, CA: Meridian: Crossing Aesthetics, 1993); also see the collected essays in Jeffrey S. Librett, ed., *Of the Sublime: Presence in Question* (Albany: SUNY Press, 1993).

9 "Perhaps nothing more sublime was ever said and no more sublime thought ever expressed than the famous inscription on the Temple of Isis: 'I am all that is, and that was and that shall be, and no mortal hath lifted my veil.'" Immanuel Kant, note 43, *The Critique of Judgment* (London: Dover Philosophical Classics, 2005), 120.

10 On the relationship between black bodies and surveillance, one that casts an earlier historical perspective on the usual Foucauldian tropes around the Panopticon, see Simone Browne, *Dark Matters: On the Surveillance of Blackness* (Durham, NC: Duke University Press, 2015); and Christina Sharpe's account of the slave ship, the Middle Passage, and surveillance, *In the Wake: Blackness and Being* (Durham, NC: Duke University Press, 2016).

11 FBI records: The Vault, "COINTELPRO," accessed September 11, 2017, https://vault.fbi.gov/cointel-pro.

12 Clayborne Carson, *Malcolm X: The FBI File* (New York: Skyhorse Publishing, 2012), 26.

13 Nelson Blackstock, *Cointelpro: The FBI's Secret War on Freedom* (New York: Pathfinder, 1988), 28–29.

14 The extensive literature on the relationship between African Americans and the Cold War includes Thomas Borstelman, *The Cold War and the Color Line* (Cambridge, MA: Harvard University, 2003); and, from a literary perspective, Vaughn Rasberry, *Race and the Totalitarian Century* (Cambridge, MA: Harvard University Press, 2016). For a

longer history on Afro-Asian solidarity, see Vijay Prashad, *Everybody was Kung Fu Fighting* (New York: Beacon Press, 2002). Note that the Nation of Islam had long regarded African Americans as "Black Asiatics."

15 On Third World movements and transnational solidarity, see Vijay Prashad, *The Darker Nations: A People's History of the Third World* (New York: New Press, 2007).

16 Marable, *Malcolm X*, 120.

17 Jamal Cyrus, email exchange with the author, September 15, 2017.

18 Undated press release (circa 2015) on Jamal Cyrus, Inman Gallery, Houston, courtesy Kerry Inman.

19 On the discovery of COINTELPRO and its illegal activities, see Betty Medseger, *The Burglary: The Discovery of J. Edgar Hoover's Secret FBI* (New York: Vintage, 2014).

20 See, for instance, Garret Felber, "Malcolm X Assassination: 50 Years On, Mystery Still Clouds Details of the Case," *Guardian*, February 21, 2015, accessed September 12, 2017, https://www.theguardian.com/us-news/2015/feb/21/malcolm-x-assassination-records-nypd-investigation.

21 As in, for example, the important work of Huey Copeland, *Bound to Appear: Art, Slavery, and the Site of Blackness in Multicultural America* (Chicago: University of Chicago Press, 2013). Copeland writes of the critical strategies of four contemporary artists—Renée Green, Glenn Ligon, Lorna Simpson, and Fred Wilson—that trouble stable categories of identity and representation as modes of "antiportraiture." As he writes, "blackness functions . . . as both a free-floating trace unmoored from individual subjects and as a concrete index of power relations" (Copeland, *Bound to Appear*, 11).

22 Among the most infamous examples, consider the COINTELPRO infiltration of the Watts Writers Workshop by FBI informant Darthard Perry. The Watts Writers Workshop was founded after the Watts uprising of 1965 as a means to support black cultural nationalism. On the documentation surrounding this episode and Perry's involvement, see Harold Weisberg, "FBI Perry Darthard M E," accessed September 10, 2017, https://archive.org/stream/nsia/FBIPerryDarthardME/nsia/FBI%20Perry%20Darthard%20M%20E%2001_djvu.txt.

23 Indeed, after Malcolm X's death, the outpouring on the part of the Black Arts movement included a tribute album ("The Malcolm X Memorial: A Tribute in Music") recorded by AACM associates Philip Cohran and the Artistic Heritage Ensemble, bodies of sculpture (the eponymous series of abstract work by Barbara Chase-Riboud), as well as many literary dedications and books of poetry. See the writings collected in the section "Malcolm" in John H. Bracey, Jr., Sonia Sanchez, and James Smethurst, *SOS—Calling All Black People: A Black Arts Movement Reader* (Amherst: University of Massachusetts Press, 2014), 309–327.

24 Dieter Roelstraete, "The Way Ahead: The Association for the Advancement of Creative Musicians and Chicago's Black Art Revolution," in *The Freedom Principle: Experiments in Art and Music, 1965 to Now*, exh. cat. (Chicago: University of Chicago Press, 2015), 25.

25 On the AACM, the indispensable history is George Lewis, *A Power Stronger Than Itself: The AACM and American Experimental Music* (Chicago: University of Chicago Press, 2009).

26 Marable, *Malcolm X*, 8.

27 On the Tupac Shakur file, see FBI, "the vault," https://vault.fbi.gov/Tupac%20Shakur%20/Tupac%20Shakur%20Part%201%20of%201/view, accessed September 12, 2017.

28 *Report from Iron Mountain: On the Possibility and Desirability of Peace*, with an introduction by Leonard Lewin (New York: Dial Press, 1971), 1.

29 John Leo, "'Report' on Peace Gets Mixed Reviews," *New York Times*, November 5, 1967, 1.

30 Ibid., 40.

31 Leonard Lewin, "The Guest Word: 'Report from Iron Mountain,'" *New York Times*, March 19, 1972.

32 Kelly Crow, "An Artist Delves into the Lives of Spies," *Wall Street Journal*, September 19, 2009, http://online.wsj.com/article/SB10001424052970204518504574420790269804328.html, accessed October 18, 2010.

33 Progressive Management, US Department of Justice, "21st Century Pocket Guide to the Freedom of Information Act (FOIA) and the Privacy Act," 3.

34 Edward Snowden, statement to human rights groups at Moscow's Sheremetyevo airport, July 12, 2013, https://wikileaks.org/Statement-by-Edward-Snowden-to.html, accessed August 20, 2017.

35 William E. Scheuerman, "Taking Snowden Seriously: Civil Disobedience for an Age of Total Surveillance," in David P. Fidler, ed., *The Snowden Reader* (Bloomington: Indiana University Press, 2015), 98–99 (my emphasis).

CODA

1 On the historical Cato and his reputation through the ages, see Rob Goodman and Jimmy Somi, *Rome's Last Citizen: The Life and Legacy of Cato: Mortal Enemy of Caesar* (London: St. Martin's, 2014).

2 If both libertarianism and neoliberalism advance ideologies of the free market, libertarianism can also be inclusive of social agendas that traditionally run counter to conservatism: hence the mounting disagreements between social conservative and libertarian platforms at the Cato Institute.

3 Press release, "David H. Koch Elected a Trustee at The Metropolitan Museum of Art," November 13, 2008, https://metmuseum.org/press/news/2008/david-h-koch-elected-a-trustee-at-the-metropolitan-museum-of-art.

4 Eric Lichtbau, "Cato Institute and Koch Brothers Reach Agreement," *New York Times*, June 25, 2012, accessed June 25, 2012, https://thecaucus.blogs.nytimes.com /2012/06/25/ cato-institute-and-koch-brothers-reach-agreement/.

5 For the most extensive discussion of the Kochs' political interests, see Jane Meyer, *Dark Money: The Hidden History of the Billionaires behind the Rise of the Radical Right* (New York: Anchor, 2017).

6 Press release, "Metropolitan Museum's New David H. Koch Plaza Opens to the Public, September 10," September 8, 2014, accessed June 1, 2017, https://www.metmuseum.org/ press/news/2014/plaza-opening.

7 Thomas Campbell quoted in Julia Friedman, "In Response to Controversial Funder, Protestors Rechristen Met Museum Plaza," September 14, 2014, accessed June 3, 2017, *Hyperallergic*, https://hyperallergic.com/148205/in-response-to-controversial-funder-protestors-rechristen-met-museum-plaza/.

8 Philip Kennicott, "With the Planet in Peril, Arts Groups Can No Longer Afford the Koch Brothers' Money," *Washington Post*, June 5, 2017, accessed June 5, 2017, https://www.washingtonpost.com/entertainment/museums/with-the-planet-in-peril-arts-groups-can-no-longer-afford-the-koch-brothers-money/2017/06/05/3e0307b4-4a07-11e7-a186-60c031eab644_story.html?utm_term=.7bfa66c5c9f5.

9 On these connections, see the Greenpeace press release, http://www.greenpeace.org/usa/what-do-the-koch-brothers-have-to-do-with-the-flint-water-crisis/.

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Plates

Plate 1 Installation view of Eden Medina (with Nikolaus Hirsch and Michael Müller), *Opsroom 1973*, in exhibition "Making Things Public," ZKM, Karlsruhe, Germany, March 20–October 23, 2005. Foto: © ZKM | Zentrum für Kunst und Medien Karlsruhe, Foto: Franz Wamhof.

Plates 2–3 Patricio Guzmán, stills, Nostalgia de la luz, 2010. © Patricio Guzmán, Atacama Productions. Courtesy Icarus Films.

Plates 4–5 Patricio Guzmán, stills, Nostalgia de la luz, 2010. © Patricio Guzmán, Atacama Productions. Courtesy Icarus Films.

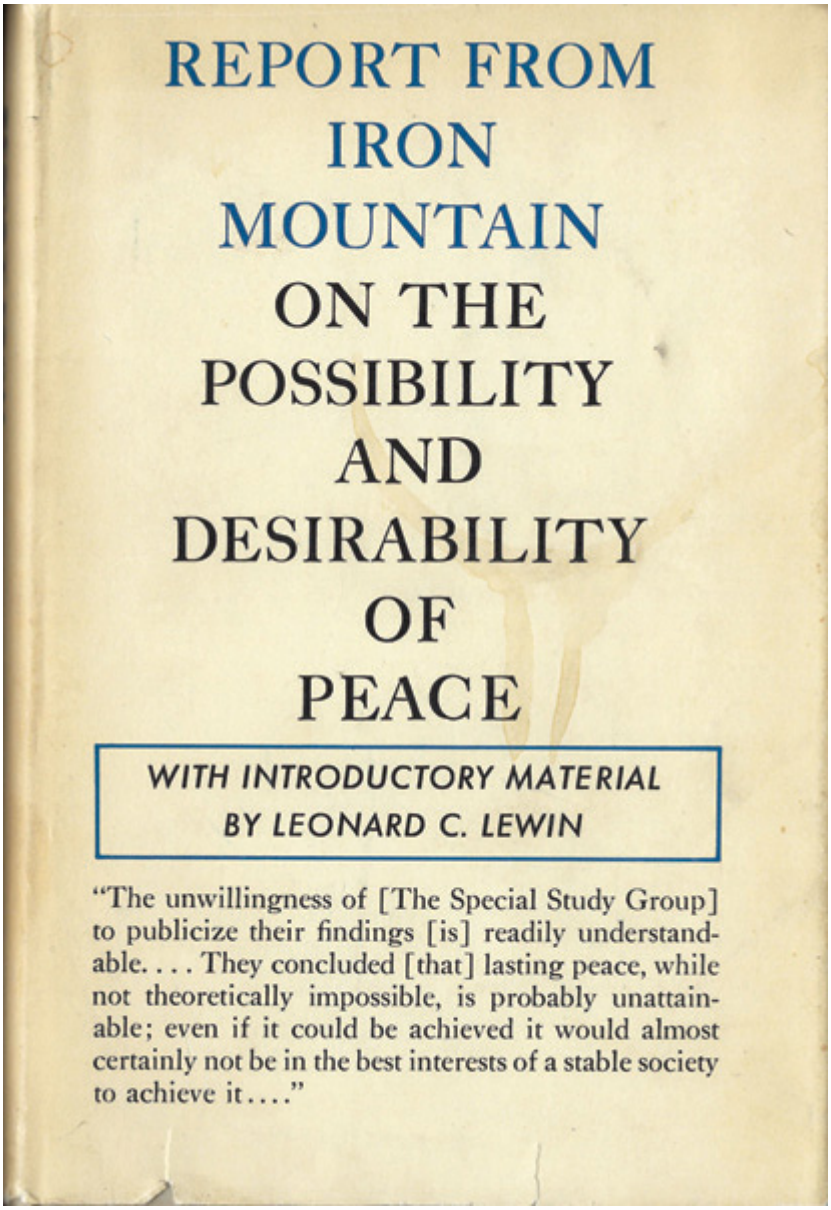

Plate 6 Cover, Leonard C. Lewin, Report from Iron Mountain, 1967.

Plate 7 Jill Magid, installation view from “Article 12,” neon and transformer, Stroom Gallery, The Hague, 2008. Image courtesy the artist, LABOR, Mexico City, and Until Then, Paris.

Plate 8 Jill Magid, I Can Burn Your Face, 2008. Image courtesy the artist, LABOR, Mexico City, and Until Then, Paris.

Plate 9 Jill Magid, detail, *Hacked Book*, unredacted copy of *Becoming Tarden* exhibited under glass as part of Authority to Remove at Tate Modern, 2009. Image courtesy the artist, LABOR, Mexico City, and Until Then, Paris.

Plate 10 Trevor Paglen, *Detachment 3, Air Force Flight Test Center #2, Groom Lake,* NV, Distance—26 Miles, from Limit Telephotography Series, 2008. Courtesy the artist and Metro Pictures, New York.

Plate 11 Trevor Paglen, Untitled (Reaper drone), 2010. Courtesy the artist and Metro Pictures, New York.

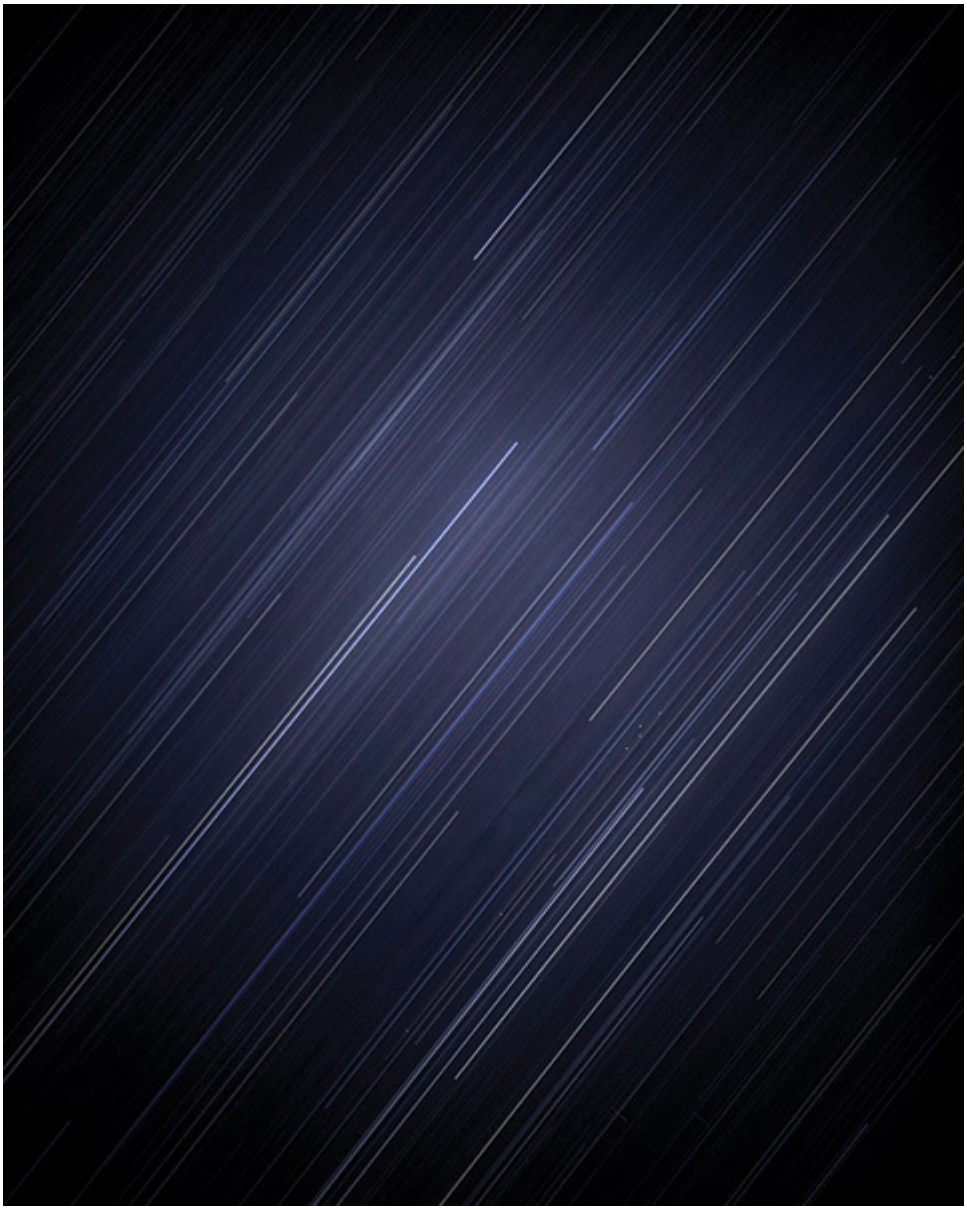

Plate 12 Trevor Paglen, from The Other Night Sky, 2010–2011. Courtesy the artist and Metro Pictures, New York.

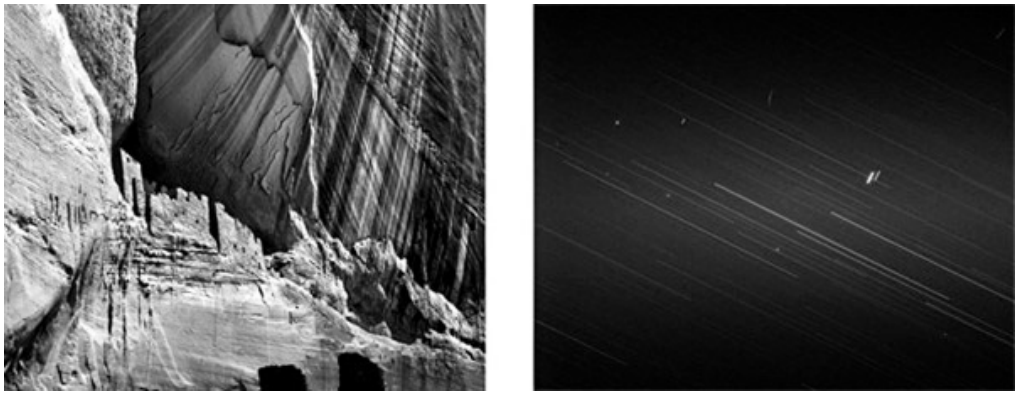

Plate 13 Trevor Paglen, *Artifacts (Anasazi Cliff Dwellings, Canyon de Chelly, Spacecraft in* Perpetual Geosynchronous Orbit, 35,786 km above Equator), 2010. Courtesy the artist and Metro Pictures, New York.

Plate 14 Pierre-Narcisse Guérin, The Death of Cato of Utica, 1797. © Beaux-Arts de Paris, Dist. RMN-Grand Palais / Art Resource, NY.

Plate 15 David H. Koch Plaza, Metropolitan Museum of Art, New York. Photo: Geoff Kaplan.