TASK ENVIRONMENT

An interview with Arindam Dutta

Architecture and the 'Creative Economy.'

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A new book edited by Arindam Dutta tracks the emergence of the 'Sponsored Research Complex' at MIT's School of Architecture and Planning after the Second World War. While architecture academies had long hosted experiments in construction and design theory,[1] research institutions in the era of Big Science seized upon state-led funding opportunities to craft a new image of the architectural expert. This new, professional researcher sought legitimacy from funding sources such as the World Bank, (D)ARPA and the Ford Foundation to, in turn, model architects as consultants—or "agents of the state"[2] —to ruling bureaucracies. Architects adopted the language of verification from the natural and social sciences, and applied cybernetic and systems theories to perceived problems of poverty and governance, often in defunded American cities and developing nations with strategic positions in the Cold War. [3]

A Second Modernism: MIT, Architecture, and the 'Techno-Social' Moment has been called an "institutional monograph" and a "protracted family reunion,"[4] but does not shy away from criticisms of the technocratic logic and pedagogical negligence perpetrated by the school. This nearly 1000-page tome includes essays, interviews, and archival material on activities of the Architecture Machine Group and the Media Lab, the Harvard-MIT Joint Center for Urban Studies, and the newly formed MIT's History, Theory, and Criticism Program, among many others.

ARPA Journal editor Janette Kim interviewed Dutta to examine the implications of MIT's history for research practice today, amidst an innovation economy structured by venture capital and private intellectual property.

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Janette Kim: You characterize the sponsored-research complex at MIT as a pursuit of technocratic legitimization. Researchers laid claim to expertise with the promise of verifiable observations, and relevance with a pragmatic focus on social "fixes." While it might be tempting to debate the validity of these pursuits on their own terms, A Second Modernism instead examines other forms of rationalization embedded within researchers' own techno-social thinking. To begin our conversation, could you speak to the terms of legitimacy sought by your protagonists, as well as the rubrics you and other writers use in A Second Modernism?

Arindam Dutta: I would like to start off with pointing out an inherent aporia between the two attitudes mentioned in your second sentence: verifiability and relevance. In Kantian terms, we can say that there is an irreducibility between a truth criterion (the subject of Kant's first Critique) and a pragmatics (the subject of the second Critique) or ethics. In that sense, in the Vannevar Bush report, which can be said to have created the defining rubric for the governmental funding of science in the postwar United States, what is critical is the manner in which the putative non-purposiveness of so-called "basic research" is rendered *functional* or purposive for capital accumulation. To wit: "Basic research is performed without thought of practical ends. It results in general knowledge and an understanding of nature and its laws. ... Basic research leads to new knowledge. It provides scientific capital. It creates the fund from which the practical applications of

knowledge must be drawn."[5] It is the mobilization of this *para-doxa* into a kind of supposed contrapuntal motor for accumulation—the creation and storage of capital—that the book is interested in; quite like the way in which management theory can affirm something like (Levi-Strauss's conception of) *bricolage* to underwrite a performance criteria by which workers can be hired or fired. The *bricoleur* is a figure of both bourgeois aspiration and of labor exploitation.

What looks like a mere hierarchy, emphasizing the importance of both sides, truth and practice, and the supposed primacy of "natural" facts over utility, in fact amounts to something like an ideological engine. Systems or engineering theories oscillate between some sorts of truth criterion and some sorts of performance criterion: between how the world is and how it ought to be, but on some level it is impossible to distinguish which is which, predictive statements can be posed as normative and vice versa. For Herbert Simon, finding out the determinants of "nature" as such was of little interest. He argued that no matter what, our construction of nature always constitutes something like a "task environment," a forum for action, for practice, which, furthermore, would only be invested in *transforming* that state of nature. Think of today's conception of "environment," for instance. *A Second Modernism* looks at this contrapuntal, two-stroke engine, the alternating pulsions of "basic" and "applied," and the corresponding moralities and practices of researchers and professors as workers, managers, and marketeers of knowledge. The premise is that the division is arbitrary in the first place and eventually undoes itself as the funding structure changes in the 1980s, but nonetheless explains the output of a host of actors and their premises of what constitutes proper knowledge, from Noam Chomsky to the behaviorists to Kevin Lynch to Peter Eisenman to Christopher Alexander to N. John Habraken to Hans Haacke, and so on.

As for the protagonists in *A Second Modernism*, in my introduction I argued that if there is one defining trait for their various practices, it is that they sought legitimacy by dint of a disciplinary trait–a "basic" paradigm–that inevitably lay elsewhere. The diverse articles in the volume point to various sites of disciplinary envy: Hashim Sarkis writes of Kevin Lynch's relationship to behaviorism; others (Felicity D. Scott, Catherine McMahon, Alise Upitis) speak of architecture's relationship to computation and artificial intelligence. Caroline Jones's and Matt Wisnioski's pieces speak to the considerable crossovers between art practice of this period and systems theory. Ijlal Muzaffar speaks to urban planning's considerable reliance on economic theory and the social sciences. In other words, architecture is strongly beset by a derivative creole derived through multiple analogies with this or that discipline. This is because, to the extent that it remains inherently a field of craft or aesthetics, in the parameters created by the "research-industrial-academic complex," it is always vulnerable to the greater rhetorical weight of truth criteria or performance criteria, neither of which it can adequately imbibe. (It is not a coincidence that for Kant the aesthetic required yet another critique, the third Critique on beauty and the sublime, followed by the critique of teleology.) Even what the little Eisenmanians call "autonomy" is in fact borrowed in its totality from Chomsky's argument for generative grammar: the claim of autonomy is through and through a sign of architecture's inherent non-autonomy, the pure absence of a knowledge paradigm at its core. The autonomy crowd, in other words, simply amounts to a self-appointed bureaucratic committee that seeks authority (and administrative positions) that can pronounce on what counts as architecture and what doesn't.

JK: Do you agree that this book is what Hashim Sarkis has called "a mass grave of MIT"?[6] Is this a story of failure?

AD: I would like to preface this question by saying that one cannot adopt a global criteria for success or failure—failure can only be related to a task environment, and in the context of institutions it is hard to discern exactly what the task environment may be, except that of a transactional forum between different interests. Bureaucracies exist not because they are successful or are failures, but rather because they act as transitive mechanisms of power through which various kinds of consensus operations between different forms of power-knowledge couplings are carried out. MBA types and economists may well scream about efficiencies in institutions (by which criteria, they should probably first fire themselves, given the broad record), but as a historian, I do not think this is a very useful interpretive tack to take. Why did the Byzantine Empire last for eleven hundred years, with no discernible rhyme or reason, or for that matter, without a

particularly definitive ideology at its core? We call the Bauhaus a "success" story. Pop quiz: name three great *students* of the Bauhaus. Yeah, I thought not. It is problematic to adopt a kind of Bernard Williams–type theory of "moral luck" to judge the behavior of an institutional system. Modernity, if it should survive (and there are doubts about whether it will) must also be seen in this vein: not a story of "successes" but a random concatenation of events for which we adopt the term *modernity*, a selective story defined as much by its narrative exclusions as by its inclusions. It is, quite simply, there since we call it such, and one day we will decide to call it something else, and that will be the end of modernity, so to speak.

But I completely agree with Sarkis in one particular aspect, and there I do think the MIT record is damning, since in some ways it speaks to the total abdication of a pragmatic/ethical responsibility when it comes to the behavior of a school: the realm of pedagogy. This is where I believe that the "research-industrial-academic" complex outlined in the book extracts its greatest cost, *precisely in some "systematic" construct of efficiency:* in trying to tie their outlook to various kinds of relevance-frameworks outlined in various forms of funding, what the faculty ended up with was a good deal of hobbyhorsing and autarkic idealisms, all of which inveighed against the construction of a "standard" curriculum. The least a professoriate may be expected—what they're paid to do—is to clarify concepts, and in the MIT case, the desire to add on complexity (in imitation of the systems theorists) militated against investing in something quite so basic as teaching students to draw. It was not just that MIT students really were not taught to draw; some faculty (Maurice Smith, for instance) saw drawing itself as the problem, as interfering in some more profound, "deeper" access to architecture as experience. This kind of dogmatism, mixed with the usual dose of the pompous moralism in which it was couched was, through and through, destructive, for students as well as faculty alike. Of course, there were other circumstantial factors, like the high level of radical student activism to which the faculty further (often willingly) abdicated their institutional charge owing to their "bottom-up" conception of systems. Two factors, seemingly opposed, mutually militated at MIT against an interest in more formal pedagogy: one, a kind of research industry-inspired "think tank" model, driven by an interest in multidisciplinarity and therefore against any singular conception of discipline; and two, a kind of architectural sensibility that emphasized the experiences of "the below," (the poor, the unmodern, the primitive or nativist, the subconscious, etc.) for which any disciplinary emphasis would be seen as *disciplining* and therefore inherently oppressive.

JK: The concept of creativity plays a central role in A Second Modernism, whether as a foil to mechanistic thinking or its apotheosis. You write that the hacker is a "managerial alibi" who cuts through this binary opposition and "develops the system's ability for control by exacerbating its tolerance." What does the hacker suggest for research practice today?

AD: Let me address this through an analogy. The concept of freedom in liberal thought envisages law—the guarantor of rights—as the frame by which agreements regarding freedom become "universally" viable, which is to say law attempts to ensure that everybody respects everybody else's freedom. But freedom is an *a priori*, not the object of an agreement; it is the premise of the law, not its effect. In that sense, a proper exercise or practice of freedom must "hack" the law, i.e., abuse it, in order to actuate its premises: mere obedience to the law is no freedom at all. We cannot call that kind of hacking mere creativity—it is often driven by political or economic necessity and therefore may in fact be completely mechanical in its demands, even boring by aesthetic criteria, but necessary and imperative nonetheless.

I am interested therefore in this substitution of the discourse of rights by the discourse of creativity as auguring a clandestine but truly despotic order. Mind you, creativity has nothing to do with better or beautiful design (the so-called "creative industries," including architecture, turn out perfectly useless or ugly stuff; in fact, the bulk of their output could be described that way) but acts, rather, as a criterion of dismissal in a global industrial condition that emphasizes flexible accumulation. The creativity criterion refers the above dialectic of obedience and abuse to a kind of exacerbated arbitrariness, where managerialism no longer has to appeal to any criteria of justice in order to dismiss workers, since in the realm of creativity, the worker's dismissal must be construed as her own fault, as a consequence of her failure to be creative enough to warrant the value of her own wage.

The hacker is an interesting figure in this context since she represents a crossover between industrial and political realms. Just as creativity has nothing to do with beauty or efficiency but rather represents a new dynamic of workplace discourse and following orders, the hacker, strictly speaking, does not have anything particularly to do with research; as I said, she expresses either a political or a managerial model. On the one hand, the hacker represents herself as a model of abusive citizenship in the above sense; on the other hand, as defined by an extreme standard of industrial performativity in the sense that she offers her labor gratis in further exploring and exposing a system's limitations. In the second case, for instance, it is quite common, as we know, for software companies to tolerate a certain level of piracy or smuggling of their own products since piracy, in effect, builds greater dependence on a given technology over the long term. All the software company has to do is to continue upgrading its systems so that at some time one has to buy the real thing, simply because it is too difficult to both pirate and maintain a technological system, and at some point it just becomes more efficient to buy the official versions in order to get on with one's business. *Corporations also hack*, as do governments ("cybersecurity" today is a euphemism for cyber warfare).

I am nonetheless interested in the hacker's relationship to politics and to law. When I was writing the passage that you mention, I had at the back of my mind the Aaron Swartz case, the hacker-activist arrested and indicted for wire fraud by federal prosecutors after he had downloaded millions of JSTOR articles from an MIT computer and made them freely available on the Internet, and who subsequently committed suicide. So, on the one hand, there is this naiveté of a political liberalism that crimes or thefts ("civil disobedience") committed in favor of what one unilaterally deems as the public good will not result in the police coming after you—which sort of ends up in the argument that some forms of theft are more worthy or necessary than others. What is much more fascinating is the way in which MIT's conflicted responses to the case somewhat "outed" the contradiction between a "basic science"—affiliated liberalism, exemplified in its much-touted "open access" agenda, and the way in which research-driven industry is fundamentally proprietorial, a new evacuation of the commons or epistemic land-grab, as it were.

JK: What distinguished research practice from historical scholarship at MIT after the war? How do you draw the distinction today?

AD: I'm not sure that I completely understand the question: historical scholarship *is* a form of research practice. I think it would be much more productive to examine the way in which "history" as a field emerges in the postwar as a validatory argument for the humanistic claims of architecture, claims by which architecture claims a certain legitimacy within the university. Both John Harwood and Reinhold Martin, in addition to Anna Vallye, have contributed excellent essays to the volume that describe the peculiar prerogatives that humanities was charged with in postwar America, a charge that today seems to be wearing out its ideological use. Harwood's essay points to history as taught and researched within architectural schools as driven by the question of what should *count* as history, which is to say that history is through and through permeated by questions (and doubts) of its ideological and practical relevance. It is here, in this affirmation of relevance, that the pragmatism of the "research-industrial complex" secures its strongest hold. At MIT, for instance, if one looks at the work of Stanford Anderson, after writing his doctoral dissertation on Behrens at Columbia, the majority of his subsequent output is in the direction of arguing modalities by which architects should draw from history—the monograph on Behrens would only appear in 2002, a good forty years or so after the dissertation. In the 1960s and 1970s, Anderson's output—as with Zevi, Eisenman, Rowe, etc.—has more to do with somehow "settling" the mode of using historical precedent rather than writing the historiography itself. The effort there has less to do with questions of how history should be written, and rather with *what kind of architecture one prefers*, and for which history can appear as a convenient alibi. (It is interesting that people like Rosalind Krauss and Benjamin Buchloh found a refuge at MIT—the only institution where art history was taught within an architecture school—from the preoccupations of traditional art history.) In Anderson's case, this translates into a kind of anti-avant-gardist, anti-postmodern position, and for a middling modernity that is responsive to some conception of context (however defined). In the late 1960s, this spills over, for Anderson, into proper behaviorist territory, with books with titles like *Planning for*

Diversity and Choice, *Form and Use in Architecture*, *People in the Streets*, and then the book *On Streets*, where the historical input is provided by Tony Vidler!

To answer your second question, about today, I think it would be necessary to understand what kind of current "uses" knowledge-based capitalism has yet—if at all—for old-style humanism. Humanism has by no means disappeared; only it is by no means clear whether the university is any longer the central and powerful ideological apparatus that it was charged with in the context of the postwar. In the sciences, faculty at many institutions are now hired or fired based on their ability to bring in funding, which *ipso facto* erases the premise of epistemology as a kind of reserve from which knowledge can be validated or weighed. What kind of history or historiography will survive this evisceration of institutional reserve, the evacuation of the university's legitimacy—i.e., its power of censorship—in establishing truth criterions? What is history's relationship to the formulation of truths: is history a narrative (of what happened) or a narrative about narratives (one way of telling stories, among others)? To what degree is that relationship subject to the relative power of other institutions and corporate entities? How will other, competing forms of memory (digital, sectarian, corporate, statist, nationalist, crowdsourced) affect that institutionalized criterion, i.e., the academic production of history; what kind of interference or devalidation might they produce for academic histories in their own, alternative, conjurations of "a people" and of relevance? It is well-known that in the sciences, researchers tend not to cite sources that date back more than five or ten years. At a corporation like Arup Associates, designers and engineers keep an active archive of technological solutions that date back twenty or twenty-five years. This two-decade frame represents, for them, the historical "present," an interregnum defined by criteria of relevance. Information preceding that period is considered obsolescent: it belongs to "history" and the historians. On the other hand, architectural design practice tends to decontextualize historical references as so many grammars of forms to be reworked into contemporary arguments: how can historiography's inexorable impetus for context-setting relate to that? These, in my view, present the challenges of historical research in an era where the humanities are being pressed more and more to present its credentials as a "creative" front.

JK: While many MIT researchers had modeled their brand of expertise after government bureaucrats, others affiliated more with countercultural protesters who demanded autonomy from military-industrial funding interests. You argue that both approaches reinforce the same positivistic spirit. What would it mean to go beyond this opposition?

AD: I'm not sure, in the sense that I don't know if I share the imperative to "go beyond" this bind, although, in fact, various forms of practice escape this bind all the time. You do not specify who should get beyond this bind, on whose behalf, and to what end. Personally speaking, I'm not necessarily against certain forms of positivism—this is by no means an unambiguous term—in certain situations. (For instance, how else would we articulate a politics of the living wage?) Is bureaucracy unnecessary? The difference between a governmental bureaucracy and the kinds of "experts" described in *A Second Modernism* is that the experts want the bureaucrat's powers but are not responsible to their constituencies in the way that a governmental bureaucracy is or should be. For the itinerant expert, a failure becomes an experimental "case" to be totted up in a résumé—in the way that American undergraduates today routinely involve themselves in "developmental" missions in the Third World to demonstrate their crisis-management skills—to be traded up elsewhere as demonstrator of one's expertise. The political question should be, rather, to ask how a bureaucracy's operations can be reconciled with the premise of representative democracy in whose name it operates. I leave aside the question of whether such a politics can be effective at all given the inability of nation-states to dictate terms to the capital markets—the point is that a knee-jerk anti-bureaucratic fervor can itself be another form of anti-politics or depoliticization. It is no coincidence, therefore, that itinerant corporations seek to undo whatever bureaucratic powers they may be subject to in the name of liberalization, even as they extract huge direct and indirect subsidies from the state through tax relief, favorable tariff structures, not to rule out cheap liquidity and land. Bureaucracies are bad because they get in the way of "creativity" and "innovation."

To speak to the brunt of your question, theoretically speaking, it is less interesting to outline "clean" subject-positions that claim to get beyond various kinds of binds than to

acknowledge that the binds are there, that one is bound by contradiction through and through, and to work in the realm of strategy where the bind or contradiction is set to work. A politics of endless reading and decoding, in other words, and not a practice of solution-mongering. An architecture that dedicates itself merely to the latter will necessarily dissolve itself since there are always more powerful agencies that will trump the architect in the realm of pragmatics: the financier, the engineer, the hygienist, to name a few.

JK: How did researchers at MIT welcome or resist the influence of their contemporaries? Projects such as Learning from Las Vegas,[7] *Delirious New York,*[8] *and The New City: Architecture and Urban Renewal*[9] *have become canons of architectural research. How do you evaluate the legacy of these pursuits?*

AD: I would separate the last of your examples, *The New City*, from the other two. That project had more to do with a cultural corporation—MoMA—acquiring a kind of socialist cachet and exorcising its bad conscience by dint of a sudden concern for "society." (Although at MoMA, social concerns have been something of a recurrent affliction since the 1950s, if only to set its principal brief, that of curating early 1920s modernism, somewhat into relief. The recent *Rising Currents* exercises, where architects were invited to biomimic environmental crises, shows that this form of PR exercise is ongoing.) It is not coincidental that Stan Anderson felt that MIT—something of the card-carrying empathizer of the downtrodden—had been somewhat upstaged by what he saw as the competitive evangelism of *The New City* exhibition. For Eisenman, this really was a device to secure patronage, nothing more.

In my view, *Learning from Las Vegas* and *Delirious New York* by contrast are brilliant examples of polemics in architecture, exemplary not so much as "research" (what kind of truth criteria would confirm the kind of statements contained therein?) as in their imaginative and spectacular use of evidence. Their practice is more like of magic, and I am happy to confess that I am one of the bewitched. On the other hand, neither of them leave us a whit wiser about the actual dynamics of real estate, land acquisition patterns, capitalization, etc., whose effects they ostensibly portend to study and theorize, indeed celebrate. (Where is the Mafia in Venturi and Scott Brown's Vegas, or black Harlem in Koolhaas's New York?) What these books represent instead are magisterial curations of architectural impressions, word images concatenated into persuasive fictions such that more conventional historiography confronts its own truth-telling rhetoric as itself a kind of fiction. In that sense, they expose the vulnerabilities of "research" or truth criteria as founded, at their very inception, on one or the other grand narrative: what these books seek to change is the grand narrative, potentially allowing a million flowers to bloom.

On the other hand, what also dates these books, signals their redundancy today, is their profaning of the sanctimonious high humanism that constituted the *raison d'être* of architectural modernism (and the sacralizing fervor within academic institutions that sought to institutionalize it as such). In *A Second Modernism*, Reinhold Martin has contributed a brilliant essay on Saarinen's church and auditorium at MIT, i.e., on the manner in which the grand narratives of humanism and secularized religion were seen as a crucial alibi for the research-industrial-academic complex. For my generation and for that before mine, Venturi's and Koolhaas's polemics had resonances with the "critique of humanism" then being voiced in philosophy and theory. Certainly that is how we read them, as bearing something of a vulgarizing import, even as we well understood that the vulgar—and kitsch—had a strong recuperative role within high modernism. (That is why Koolhaas's more recent interest in trash seems a little stale.) But here is the more important question: how do these arguments stand up, given the very different standing of humanist discourse in global geopolitics and geo-economics today, not to say the functioning of institutions themselves? It is paradoxical that Venturi's most enduring career would be only that of a campus architect, where his repetitive parodies of collegiate styles would be more or less lost on university administrators. Koolhaas, on the other hand, can't appear to decide: at Strelka, he's gone into full "creative industry" mode like any average European culture minister or bureaucrat; and in the forthcoming Venice Biennale, he appears to wallow in full-scale mourning with his attempted "historicization"— one presumes yet another purification—of twentieth-century modernism. He laments today—actually Koolhaas's entire career as a writer is suffused with laments or moaning of one kind or another, if you think about it—that contemporary architecture is "gimmicky." Really? Who would have thought? Perhaps we should send

him a copy of *Learning from Las Vegas*. Or a monograph on the CCTV tower.

JK: Today, laboratories are proliferating at schools of architecture, including Columbia University's GSAPP (the host of this publication), Harvard University's GSD, the AA, and the ETH. How do you compare the institutional structure of labs today with MIT's postwar, sponsored research complex?

AD: My first response: we should look at the university as a workplace like any other and review the employment contracts that make up the workforce in these labs. If we do that, we will see that the lab is a device to ease the process of firing people when they fail to keep up with ideological currency. The structure of the lab therefore allows universities to subject knowledge production to tighter and tighter audits, on par with the private corporation, such that it becomes easier to dismiss clients whose output is deemed ideologically or monetarily unremunerative. On some level, one sees a kind of discursive "speeding-up" emanating from these labs, since a key strategy of survival in that fragile economy would be precisely to announce the next revolutionary advance or bravura concept that would warrant the extension of one's contract. On another level, labs also provide a legal framework to corner the multiple forms of funding that are swirling around the world to facilitate various kinds of ideological agendas: marketing money, money for what Robert Proctor has termed *agnotology*,[10] tax-fleeing money, lobbying money, not to rule out citizens' assets of some kind or the other in the form of land and other grants, subsidies, and other exemptions. It is not coincidental that "labs" and "creative industries" are a major front today for real estate speculation—which in a sense is *all they are*.

At MIT and at Columbia alike, the buildings at the core are allowed to deteriorate—the elevator in my building hasn't been changed in fifty years; you can think of Avery as somewhat suffering the same fate. The periphery of the university—Cornell Tech, Harvard Allston, NYU Abu Dhabi, MIT Kendall, MIT SUTD, Columbia in Harlem—on the other hand, is full of shiny new speculation, branded buildings that promise new and imminent revolutions every day. From the standpoint of the university, what is most important to grasp here is the manner in which funds routed to labs *escape a disciplinary embrace*. Indeed, such is their calling card: to break down disciplines in the pursuit of what they construe as "innovation." To the extent that universities use labs as proxies to maximize their amenability to these multiple kinds of patronage, one can garner the extent to which the older model of humanism, ultimately only a model of providing subsidies, is now in peril. The older Ivy Leagues—Columbia, Harvard, Princeton, etc.—had the cash buffer of large endowments, where they could pretend to ignore this shift, likewise for state-funded universities such as UCLA, or, for that matter, Europe or Asia. MIT's rise to prominence after the Second World War, on the other hand, was entirely reliant on the exogenous infusion of federal funds, and so was simply exposed to these forces early—it is not coincidental, therefore, that present-day universities across the world are looking to it as a model to emulate in the era of market economies. It only signals that decisions for investment into research are even less and less located within the university itself.

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1. see Brandon Moran, "Research," in *Architecture School: Three Centuries of Educating Architects in North America*, ed. Joan Ockman (Cambridge: MIT Press 2012) ^
2. Arindam Dutta, ed., *A Second Modernism: MIT, Architecture and the 'Techno-Social' Moment*, (Cambridge: MIT Press, 2013): 5. ^
3. see Jeannie Kim, "C.A. Doxiadis and the Ford Foundation," *Hunch: the Berlage Institute report* 13 (Amsterdam: Berlage Institute 2009). ^
4. Sarah Whiting's book cover quote for *A Second Modernism: MIT, Architecture and the 'Techno-Social' Moment*, ed. Arindam Dutta (Cambridge: MIT Press, 2013). ^
5. Vannevar Bush, "Science the Endless Frontier: A Report to the President by Vannevar Bush, Director of the Office of Scientific Research and Development". United States Government Printing Office, Washington: 1945. link. ^
6. "A Second Modernism: Roundtable," MIT TechTV video (November 7, 2014), accessed April 15, 2014, link. ^
7. Robert Venturi, Denise Scott Brown and Steven Izenour, *Learning from Las Vegas* (Cambridge: MIT Press, 1972). ^
8. Rem Koolhaas, *Delirious New York: A Retroactive Manifesto for Manhattan* (London: Academy Editions, 1978; republished by Monacelli Press, 1994). ^
9. Museum of Modern Art, *The New City: Architecture and Urban Renewal* (New York: Museum of Modern Art, 1967). ^
10. *Agnotology: The Making and Unmaking of Ignorance*, edited by Robert N. Proctor and Londa Schiebinger (Stanford, Calif: Stanford University Press 2008). ^

Arindam Dutta is Associate Professor of Architectural History and Theory at the Department of Architecture, MIT. He directs the History, Theory, Criticism Program in

Architecture and Art, and the Master of Science in Architecture Studies (SMArchS) program at MIT. He is the author of *The Bureaucracy of Beauty: Design in the Age of its Global Reproducibility* (2007), and the editor of *A Second Modernism: MIT, Architecture, and the "Techno-Social" Moment* (2013).

Janette Kim is Editor-in-Chief of *ARPA Journal*. Janette is an architectural designer, researcher and educator based in New York City. She is principal of All of the Above, a design practiced based in Brooklyn, and a faculty member at the Columbia University GSAPP, where she directs the Applied Research Practices in Architecture initiative and the Urban Landscape Lab.