

Screen Testing Test Driving: Research as a Place Apart

The popularization of terminology associated with “testing,” “experiment,” and “research” in recent discourse signals an increasing valuation of the intermediary products between ideation and construction as conventionally understood. In the traditional design process thought from scale-less sketch to scale model, the latter serves as proof of concept in educational and professional realms, and the former is now acquired into museum collections. Applied research short-circuits the serial model of design production in favor of a parallel processing one, where problems that lie between initial strategy and final execution are figured as primary. For example, problems of environmental research, programming, social and labor organization, communication design, scripting and coding, and fabrication can and do support autonomous inquiries that seek immediate 1:1 demonstration. . . .

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The language of “testing” is also symptomatic of a desire by architects to enter into alternative power relationships where value is created, consensus debated, and epistemology developed – whether new markets, social practice and policy, forensics and cartography, artificial intelligence, data mining, or “life itself.”¹ By its nature, applied research permits technology transfer into and out of architecture, and qualifies the valuation of architecture against phylogenetic, social, cultural, and ethical capital, as well its more conventional financing and fees. By redeploying the “test” from a spectrum of practices adjacent to architecture, the architect emerges as an arbitrageur, double agent, or hacker, rendering architecture as the humanizing of technology and introduction of philosophical and moral issues into the instrumental relationship between human beings and the constructed environment.

Applied research is a form of labor that seeks to delay entry into the circuits by which architectural production is typically capitalized, distributed, and accumulated. This type of 1:1 activity produces spectacle and attention, forming temporary communities, or solidifying permanent ones, around the distribution of risk and the sensible. Applied research diagnoses and demonstrates, bringing truth and untruth into an encounter with the physical world and resetting the

conditions of possibility for quantitative and qualitative experience. In taking distance and measure, these applications insist that architecture is concerned with producing subjectivities, inventing mixed-media methodologies, and exploring the aesthetics of indeterminacy.

SCREEN TESTS

Andy Warhol's *Screen Tests*, produced between 1964-1966, are a series of nearly five hundred short films of Warhol's friends and muses seated in front of a stationary 16 mm film camera. Hal Foster has described these works as both "an initiation" and "a shield."² For the approximately three-minute long film recordings, recorded at the speed of sound film but projected at the speed of silent film, Warhol's "test subjects" were given neither instructions nor direction. This psychic and physical triangulation of self-object-apparatus tended towards physiological and psychological discomfort. *Screen Tests* both problematize the assumed role of photography as an objective form of documentation and force an alternative encounter with the technological apparatus. The ensuing endurance test guarantees, if not outright celebrity, then at least an initiation into a select community of the celebrated and notorious. In describing those who sit for the *Screen Tests* as a "quasi-double" for the artist, and in noting that "this self is subject to both alienation in the image and automatization in the process,"³ Foster draws attention to problems of identity, agency, and self-representation that reflect back onto the originator of the work. In addition, the sublimation of social relationships within a technical apparatus governed by frames per second anticipates future iterative technologies, the transfer of intelligence from man to machine (exemplified by something like the Turing Test or machine vision), the conflation of the technical and televisual image and the problems of identity inherent in a shift to Big Data and "selfie" culture.

When Foster notes that Warhol differs from his contemporary Marshall McLuhan who "viewed media technologies as prostheses,"⁴ the *Screen Tests* appear as that which aggressively shields and encloses, if only temporarily, "a place apart" in the Factory. McLuhan, in embracing the extension of sense and cognition through media technologies – an outward movement from a stable self, or selves, towards the world, privileges the structure of media over content. Warhol's obsession with image and self-image instead suggests a dissembling, a kind of camouflage through media technologies where an unstable self or social formation is protected from view.

The tenuous "closure" of the Factory to its outside is brought into relief by the story of Warhol's *The 13 Most Wanted Men*, a large-scale screen-printed mural bearing the mugshots of the New York City Police Department's most wanted criminals. Commissioned for the 1964 World's Fair in Flushing Meadows by Philip Johnson and Robert Moses, Warhol's only public art project was installed on the façade of the New York State Pavilion, but painted over a few weeks prior to opening. The scaled up criminal taxonomy on the Pavilion façade projected a foreign set of epistemological and aesthetic criteria into a space curated to showcase America's mid-20th-century technological achievements, its scientific and consumer culture. The ensuing censorship makes explicit that both applied science and applied art are governed in the world by designations of the lawful and unlawful, creating the possibility to extend what Richard Meyer calls, "outlaw representation"⁵ into these fields, and then into architecture.

This "reality test" is less a cautionary tale than an acknowledgment that the

studio shares a similar inside-outside relationship as the lab-field of scientific research. In Bruno Latour's study of Louis Pasteur, experimental space moves from countryside farm to a laboratory at the École Normale Supérieure, and back again. Latour writes: "the very difference between the 'inside' and 'outside,' and the difference of scale between 'micro' and 'macro' levels, is precisely what laboratories are built to destabilize or undo."⁶ Warhol's *The 13 Most Wanted Men* and *Screen Tests* are forms of "artistic research," described by the recently inaugurated *Journal for Artistic Research* as research providing "an artistic and epistemic orientation that does not only give information but demonstrates engagement."⁷ Each work is part of a larger demonstration of engagement - "in effect, photo-booth, mug shots, and publicity images all rolled into one,"⁸ using disruptive techniques like filming and projecting at different speeds, installing in galleries versus at happenings, or in composing a subject through film versus as a combination of frontal and sagittal views.

For architecture, Warhol's works prioritize experimental methodologies of triangulation and their criteria of evaluation, rather than the psychodynamic concerns of subjectivity explored by Foster. What carries forward is the idea that a "screen test" exemplifies the "vicissitudes of self-imaging and the technological training of the modern subject."⁹ The screen test then is present in architecture from antiquity onward including: the myth of Dibutades' daughter and her lover¹⁰, Durer's wood cuts, the Ames Demonstrations in Perception, work by Ed Ruscha and Ant Farm, as well as the early visualization experiments of Lise-Ann Couture - which required a photographic darkroom, and Bernard Tschumi - who freely appropriated cinema for architecture. As such, we can expect that the articulation of the screen test continues to change over time with the reconceptualization of the body and subject, both politically and through techniques of self-imaging: including surgery, the x-ray, and the Human Genome Project, as well as technologies like LIDAR and simulation software packages.

THE TEST DRIVE

Avital Ronell defines the lure of the test as irresistible, irreducible and inescapable: "The need to define, the need to know, the need to be sure, and the need to establish rank [...] needs that press with the urgency of hunger." This urgency suggests that testing is an imperative prior to a method, emerging as a response to generalized conditions of uncertainty in a subject's worldview that may not yet be instrumentalized, intellectualized, or formulated as a problem of study. By the relational nature that allows testing to make "environment" explicit, it obtains to an ethical system prior to a theory. The physical and spatial relationship between tester and testee, a triangulation between self-object-apparatus, assumes a set of moral principles governing behavior that are the precondition to any system of ideas independent of things and environments. In this way, as Ronell writes:

Whether clearly stated or largely disavowed, models of testing inform diverse types of social organization, legitimating crucial and often irreversible discursive tendencies and mandating critical decisions. In terms of the political implications of testing, one need only consider the way wars are waged on material sites and objects, and the way the state uses drugs in order to take possession of the body.¹¹

It is these "political implications" which set up the possibility for the test that produces outlaw representation in architecture.

In Ronell's telling, *basanos*: "[...] a concept of enslavement [is] at the core of the experience of testing. It names the latency of truth in testing and the use of torture for which the slave body becomes emblematic." Beginning with the Athenian legal system, the embodiment of testing, its corporeality, is "sublimated into performative acts such as taking oath, swearing in, and contractual agreements." The theater of law then is the first apparatus that triangulates the self and object (here again a "quasi-double") through an ethical system predicated on witnessing. It is only in the 17th century, that scientific or "experimental culture provoked a crisis in witnessing." Of the relationship of art to science, or untruth to truth, Ronell reads Nietzsche to find that: "science assumes a relationship to scientificity that is linked to art and play. It at no point derives its authority from institutional divisions or scientific hegemonies but draws the possibility of its vitality strictly from art." Neither of these histories is intended to delegitimize science as a model for architectural research, but to establish that the philosophical conditions for invention lie in both Nietzsche's "cult of the untrue" and Derrida's claim that "an invention [...] always presuppose some form of illegality."¹²

By one measure, the test drive clarifies the relationship between modalities of testing. If the screen test is born of artistic practice, Ronell locates the origins of the endurance test in Kafka's fictional spaces of legal trials and cross-examinations, and of the reality test in Freud's gay science. Her theorization of the test drive too then operates through triangulation: an interdependence of art, law, and science, each constituted by a "vocabulary of doubt," and "community of verification."¹³ In its traditional concerns with sense, language, and calculation, architecture essentializes the interdependence of art-law-science. As a postmodern expert system that institutionalizes and transfer risks from the public, architecture qualifies and exceeds these vocabularies and communities by making its own faith-based guarantees.

CONTESTED ARCHITECTURE

Ronnell's provocation suggests that architecture not only evidences its original ties to art and engineering through the pedagogical models of the *École des Beaux-Arts* and the *École Polytechnique* (traditional signifiers for art practice and the scientific method, subjectivity and objectivity), but is also associated with law, religiosity, and torture. In many respects, it is self-evident that the architect is constructed through testing by the legitimizing machines of education and professional licensing. It is not only that architectural education is replete with trials and cross-examinations before juries, but it is also characterized by any number of psychological and physiological tortures, not least of all the all-nighter.

Through the licensing exam, the architect is initiated into an ethical and epistemological set of relationships to failure, illegality, and error (that constitute a profession liable for the production of space). Simply, these are to be avoided. From the prevention of structural failure (extending to the management of other material conditions including fire, egress, heating, cooling, and air circulation), to conformance with legal practices in the form of contracts, building codes, local law, and ADA, to control over errors in calculation and data processing (from cost control to unruly software to information management and retrieval), architecture emerges from institutionalized testing as a form of risk management.

On the other hand, applied research points beyond these ultimately conservative criteria. It is paradoxically a constant movement away from, rather than

towards, certainty, the knowable, and the sayable. It is those research practices that embrace failure, illegality, and error which produce the sort of outlaw representation required to test alternative futures. In the first case, failure may outline one criteria of evaluation for objects of research - such as those born of assembly and materials research, but also represents the ethics of "a noble loser," or "the noble traitor." While openness-to-failure was introduced into experimental culture by Robert Boyle in the 17th century as "proof of moral probity, of disinterested work,"¹⁴ it is also now a mantra of the Stanford d.school and other pedagogical models built around "innovation" which asks students to fail early and often. In the second case, the idea that the self is constituted before law informs not only the invention of participatory and spatial practices, but also techniques by which to bear witness to folds in sovereign power and wrinkles in the social contract. Lastly, the trial-and-error approach that has gained ascendancy with the iterative possibilities inherent to software and fabrication productively questions the authorial role of the architect. At the same time, the possibility of errors in structures of thought and in databases of information open onto the staging of cognition and intelligence, both sensorial and artificial.

THE AGE OF EXPERIMENT

Research systems, as "future-generating machines" and "tracing game[s],"¹⁵ presuppose triangulation: self-object-apparatus, art-science-law, failure-illegality-error, and tradition-discipline-practice. These diagrams do not categorize distinct types of research practices, but instead interweave into a shared tradition of investigation, a sort of architectural unconscious, of alternative value systems, future perfect technologies, and the uncanny and sublime. Ronell's case for testing, both its sober and heart-stirring manifestations, is totalizing: "everything from recent warfare [...] to urban planning, military strategy and national security, space, medical and reproductive technologies [...] ethics, drugs and polygraph testing."¹⁶ And a new "crisis in witnessing" is perhaps dawning: Big Data, its interrogation and circulation through digital media objects¹⁷ - coded in bits, pixels, and voxels, challenges conventions of drawing¹⁸ and making, as well as authorship and facts.¹⁹ Techniques of verification now include not only what is visible to the eye and its physical prostheses, but also techniques of the electromagnetic spectrum,²⁰ environmental sensors, and other forensic tools. The tenuous legitimization of an expanded sensorium has, without returning to architecture's metaphysical tradition, begun to undo modernity's hygienic division of the senses into five.²¹

Through its range of modalities: the diagnostic and instrumental screen test, the 1:1 reality test, applied research is uniquely situated to organize all of the above as constituent parts of contemporary society, epistemology, and subjectivity. The future of applied research is relational rather than of a fixed aim towards fact and truth; its research products take both legitimizing and non-legitimizing forms. Opportunities to produce new value are latent in contemporary networks of circulation, counter-mythologies regarding disciplinary origins, and alternative criteria of evaluation from parallel developments elsewhere.

If the televised Presidential Address to the Nation, broadcast live at 8:30 PM EST on 9/11/2001, included this statement of mourning: the resolve of our great nation is being tested - we will pass the test," we see that applied research remains vital in initiating and shielding its test subjects within a society of risk. Architecture's occupation of spaces simultaneously regulated by failure, illegality,

and error situates its practices, particularly after 9/11, as spectral figures within and around what Peter Sloterdijk refers to as the primary explicative models of the last century:

[...] he practice of terrorism, the concept of product design, and environmental thinking. With the first, enemy interaction was established on a post-militaristic basis; with the second, functionalism was enabled to re-connect to the world of perception; and with the third, phenomena of life and knowledge became more profoundly linked than ever before.²²

Here, we not only recognize that the art-science-law triangle undergirds Sloterdijk's four categories, but also that each can be thought through testing – the screen test, reality test, and contested desires of the market, as well as air quality tests and the contested rhetoric of sustainability surrounding our poorly-tempered environment. Yet as we have seen in architecture's real and metaphorical function as house and apparatus, and now the structure of computation, it is everywhere implicated in this gambit. In actuarial terms, architecture's ubiquity across Sloterdijk's categories is a result of its simultaneous function as both a method and object of insurance. The (service) profession of architecture cannot fail, err, or cross over the line of legality; professional practice and buildings themselves are redundantly insured to hedge against risk.

Through research, architecture also occupies a place apart, creating contaminated laboratories and instrumentalized natures. In the triangulation of self-object-apparatus, the researcher collaborates with her "quasi-double" to extract signal from noise - what is perceptible to sense, and what is latent in horizontal and vertical technologies of command and control. In producing outlaw representation, the implications of the lawful and scientific cannot be divorced from the artifacts of architectural research techniques. Architecture's abilities to simultaneously negotiate quantitative and qualitative information, and organizational and statistical complexity, allows its practices to affect subjectivities that are organized by cognitive capitalism, as well by older industrial and financial forms. Architectural research is simultaneously an archaeology and futurology. In moving backwards and forwards, it at once qualifies tradition, acclimatizes its test subjects to technology, and produces new aesthetics of indeterminacy. Research produces the architect as not only opportunist and arbitrageur, in the lineage of postwar research practices, but also as now a hacker and double agent.

CODA

Though the disciplinary self-test is perhaps now more individuated as the "selfie," it may be possible to speculate on certain common relationships in contemporary research based on shared criteria of evaluation, mythologies, and models of circulation.

For example, Reyner Banham's *Architecture of the Well-Tempered Environment* and Alessandra Ponte's "Desert Testing," come into view as retroactive manifestos for Wren's atmospheric intervention. Banham argues that architecture is inseparable from environmental technologies – the arts of light and air, and has too easily abdicated its ethical responsibility to problems of energy. In Banham's history of passive to mechanical ventilation, we move from Wren's apparatus that merely measured pneumatic facts to the air conditioner that produces its own climate. Ponte describes the ethical anxiety of artistic and scientific production when confronted with the nuclear tests. This "crisis of witnessing" is

predicated on the ultimate spectacle of the annihilating environment made explicit by an apparatus that transforms states of matter and energy. In the movement of artistic practice from the studio to the desert (in evidentiary photography and land art intervention) to the museum, a newly alert “quasi-double” joins the heroic experimental explorer as the test subject of an atomic sublime. Reflected through these texts, the nuclear moment, and the end of the Cold War Space Race, the research of contemporaries like Kiel Moe, Philippe Rahm, *The Living*, and others – while representative of a range of research modalities: the diagnostic, the instrumental, and the 1:1 demonstration, is brought into relief as part of an architectural tradition that adjudicates pneumatic and other environmental facts through the deployment of measuring, conditioning, and energetic – if deadly, apparatuses.

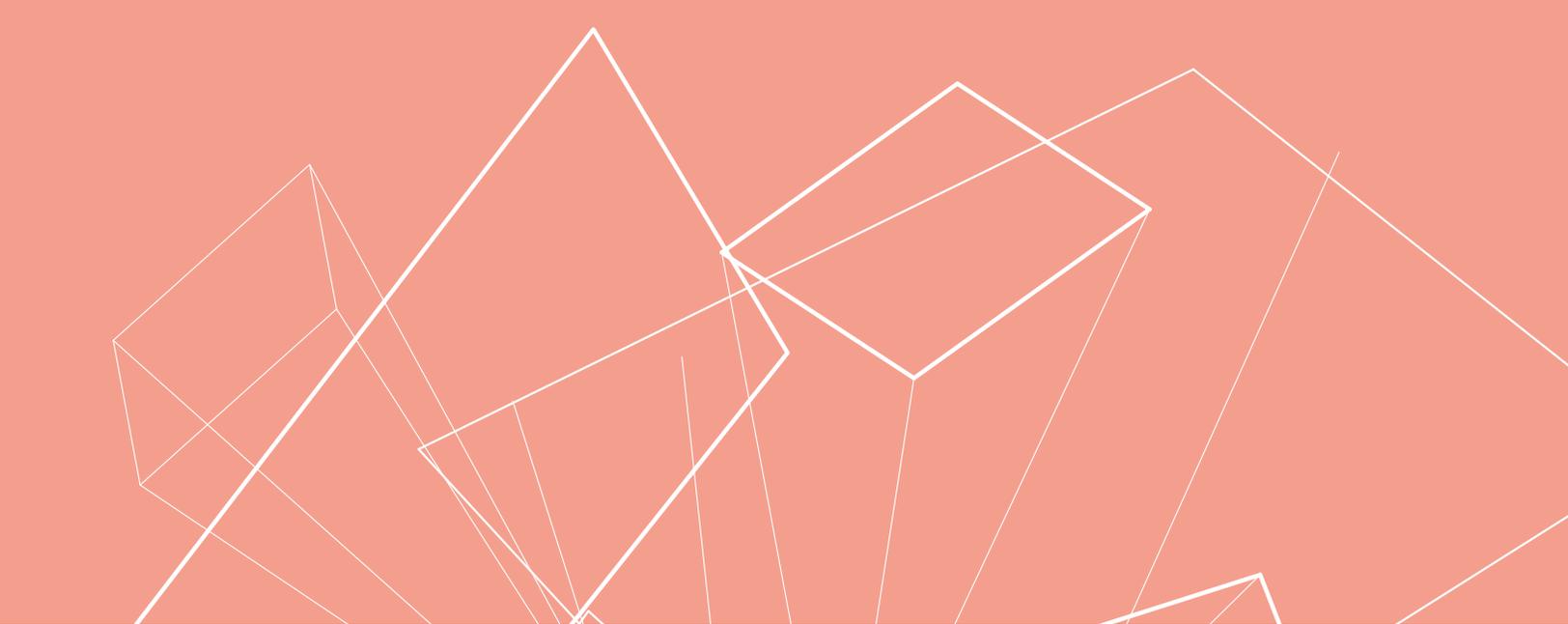
Reflecting broadly through Brunelleschi’s perspectival experiment to the computer screen, the gun sight, and contemporary interface design, we might locate an intermediary hybrid in Vannevar Bush’s 1945 “Memex.” A proto-hypertext system born of military-sponsored research, the Memex’s microfilm storage and display were integrated into a mid-century office desk. As Bush writes, “Thus science may implement the ways in which man produces, stores, and consults the record of the race.”²³ But the test drive problematizes science. For example, while concerned with the visual representation of populations at risk – diagnostic projects like Laura Kurgan’s “Million Dollar Blocks” and Eyal Weizman’s spatializing of the stateless cannot be thought without human rights and the counter-analysis of the statistical subject. By comparison, by instrumentalizing “nature,” Catherine Seavitt-Nordenson et al’s recent project on Palisades Bay expands the role of the architect, not only into landscape architecture, but also into policy, zoning, and building code that govern the housing of populations at risk from rising tides and climate change. And by training the sensorium via an encounter with technology, Aranda Lasch’s investment in the scalable fragment represents work that reaches back to architecture’s fascination with ruination while engaging with tooling, fabrication, and computation. Work by Kurgan, Seavitt-Nordenson, and Aranda Lasch have all been exhibited at the MOMA and thus evaluated or validated as conceptually and physically adjacent to art practice.

Finally, the movement from a pre-modern Albertian paradigm, to a cybernetic feedback model, to Department of Defense sponsored development of robotics and artificial intelligence, maps directly onto architecture’s social and labor relationships. We arrive ever closer to a post-human form of split agency between man-machine-animal, allowing process thinking, and a renewed vitalism and parliamentarism, to inform the possible futures imagined by architecture. By example, Gramazio and Kohler’s uncanny laboring robots as well as Future Cities Lab’s responsive architectural structures both answer the Turing Test through the distribution of (artificial) design intelligence. By comparison, Storefront for Art and Architecture Director Eva Franch’s “Storefront Series” tests the possibilities for social practice, witnessing, and new forms of engagement in the (embodied) intelligence of the design community. Lastly, Jenny Sabin’s research into applications of molecular form has evolved into an interdisciplinary partnership with the cell and molecular biologist Peter Lloyd Jones in a shared laboratory adjacent to both disciplines. The above work has not only sponsored new forms of collaboration, but has also expanded funding opportunities to include industrial contracts, corporate sponsorship, and a \$2 Million National Science Foundation EFRI grant awarded jointly to Sabin and Jones.

As many of the above are also educators, we are reminded that applied research has a contiguous relationship to education and pedagogy. Given higher education's construction through the testing regime, how will a form of matriculation that both prides itself on producing a generalist who is paradoxically a specialist, absorb research given its outlaw status vis-à-vis professional practice? Going forward, today's applied research will redefine agency for a next generation of designers with a next generation of spatial skills trained in virtual testing grounds like the video game "Minecraft" - an apparatus itself already adjudicated through intellectual property lawsuit and preemptively acquired by MOMA.

ENDNOTES

1. Haraway, Donna. "Deanimations: Maps and Portraits of Life Itself." *Picturing Science, Producing Art*. Ed. Peter Galison and Caroline A. Jones. New York, NY: Routledge, 1998. Print.
2. Foster, Hal. "Test Subjects." *October* 132 (Spring 2010). Cambridge, MA: MIT Press. 30-42. Print.
3. Foster 33.
4. Foster 31.
5. Meyer, Richard. *Outlaw Representation: Censorship & Homosexuality in Twentieth-century American Art*. New York, NY: Oxford University Press USA, 2002. Print.
6. Latour, Bruno. "Give Me a Laboratory and I Will Raise the World." *The Science Studies Reader*. Ed. Mario Biagioli. New York, NY: Routledge, 1999. 258-275. Print.
7. JAR. *The Journal for Artistic Research*, 2010. Web. 15 Apr. 2014.
- 8.. Foster 39.
9. Foster 38.
10. Robin Evans uses the architect Karl Friedrich Schinkel's version of "The Origins of Painting," to argue that drawing precedes architecture. In Schinkel's version, the mythological scene depicting Dibutates' daughter tracing the outline of her lover before his departure for battle, differs from its predecessors and contemporaries in depicting an outdoor scene, literally outside of and before architecture, rather than indoors, thus after architecture. Evans also uses Schinkel's version to differentiate a projection system based in sunlight, or parallel rays, versus one based in candlelight, or from a point source.
11. Ronell 66.
12. Ronell 46.
13. Ronell 64.
14. Ronell 99.
15. Ronell 45.
16. Ronell 18.
17. Krčma, Ed. "Cinematic Drawing in a Digital Age." *Tate. Tate Papers*, 2010. Web. 15 Apr. 2014.
18. The discretization of media challenges models of expertise and embodiment including Bruno Latour's "mobile immutables."
19. Laura Kurgan has also alluded to this in recent comments regarding the transition from "flying and seeing" to "saving and sharing."
20. Leung, Jennifer. "The Strategic City." *MONU 13: Most Valuable Urbanism* (2010). Rotterdam, NL: BOARD Publishers. 90-96. Print.
21. This is evidenced by comparing the CCA exhibition and catalogue *Sense of the City* (2005) which explores synesthetic experience in the contemporary city to Emily Thompson's *Soundscape of Modernity: Architectural Acoustics and the Culture of Listening in America, 1900-1933* (2004) which traces the history of sound made scientific and electrified.
22. Sloterdijk, Peter. *Terror from the Air*. New York, NY: Semiotext(e)/Foreign Agents, 2009. 9. Print.
23. Bush. "Memex." 1945



ARE WE STILL LEARNING FROM...?

