McLuhan's Environment: The End (and *The Beginnings*) of Architecture

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> He who engages in making articulate background realities that were previously kept in unspoken shared thoughts or knowledge—and even more in what is unthought or unknown—commits himself to a situation in which the stringency of what is required and kept silent is advanced and irresistibly endless.[1]
>
> —Peter Sloterdijk

> There is a built-in invisibility in all environments as such, and this is a mysterious thing that I would like to know more about.[2]
>
> —Marshall McLuhan

Marshall McLuhan's appearance within architecture's vanguard institutions in the mid-1960s might be seen, in retrospect, as a mere inevitability; he did seem to be everywhere after the 1964 publication of *Understanding Media: The Extensions of Man*. But his participation at venues like Constantinos A. Doxiadis's Delos cruises or the Graham Foundation, and his publication in *Perspecta 11*, for instance, mark a very particular juncture in the disciplinary development of architecture in the postwar period. For some historians, his arrival at this moment was a sign of the beginning of the end for a particular modernist conception of architecture and its subsequent colonization by the logic of communications, networks, systems, and signs. Mark Wigley, for one, has characterized this transition in the

following way: “The key move at Delos was to take the CIAM argument in the direction of electronics—starting with McLuhan’s announcement […] that electronics presents new challenges to planners because this latest prosthetic extension of the body defines an entirely new form of space.”[3] Likewise, Reinhold Martin has described McLuhan’s contribution to *Perspecta 11* (1967) as nothing less than posing “a challenge to the notion of architecture-as-such […].”[4]

No doubt, any conception of an autonomous “architecture-as-such” was already well on its way to obsolescence by the time McLuhan became obsessed with architecture and environment. But it was certainly not his intention to hasten architecture’s liquidation through digital or linguistic means (or “dematerialization,” as the parallel developments in artistic production were described). Somewhat in contrast to the strain of interpretation noted above, this paper proposes something of the inverse: that rather than predict the radical dissolution of architecture or matter to the dematerialized flows of media, what McLuhan sought from architecture was a method of describing a more visceral experience of the latter. This rather paradoxical, perhaps even archaic, position took something away from architecture, at the same time that it granted it a newfound operability, through the rubric of what came to be termed “environment.” His most explicit formulation of this newfound status for architecture can be found in a letter McLuhan wrote to the anthropologist Edward T. Hall: “When the environment itself is constituted by electric circuitry and information, architecture becomes the content of the new information environment. Architecture is the old technology which is automatically elevated into an art form.”[5]

McLuhan’s eschatological analysis of architecture may have had its eccentricities, but it nonetheless placed him in the midst, not only of architects and planners, but a host of other researchers seeking to account for what they felt were the profoundly altered conditions of contemporary existence; conditions with a visceral, yet elusive, spatial dimension. Within the context of these disciplinary transformations, the deceptively complex term *environment* became shorthand for evoking the totality of the psychological, somatic, cultural, technical, and natural aspects of these atmospheric shifts.[6] A large spectrum of practices and research initiatives would coalesce around this techno-epistemological project at the end of the 1960s and the beginning of the next decade. These included “environmental design,” “ecological psychology,” “critical geography,” “Proxemics,” and “nomadology,” not to rule out Western adaptations of Chinese *feng shui*, or any

number of attempts to, as Georges Canguilhem would describe it around this time, establish "milieu" as "a category of contemporary thought."[7]

Against the massive scope and nebulous contours of these disciplinary and historical formations, we can productively pose an example of extreme archival specificity (obscurity even): a copy of the final set of galleys for the second volume of Sigfried Giedion's *The Eternal Present: The Beginnings of Architecture*, appended by his friend Marshall McLuhan's marginalia. (When he was done with the manuscript sometime in 1963, McLuhan would pass it on to Edward T. Hall, in whose archive the artifact is now preserved.)[8] By all appearances, McLuhan read Giedion's book the same way he read many other texts: voraciously, and with an eye for appropriation rather than deep understanding.

But *The Eternal Present* would serve as more than the usual fodder for McLuhan's glosses. I speculate that, for McLuhan, it arrived at a pivotal juncture in the development of his thinking about space. By 1963, Giedion's ideas had been with McLuhan for two decades, but their influence intensified in the early 1950s thanks especially to the intercessions of Jaqueline Tyrwhitt, whom Giedion had recommended for McLuhan's interdisciplinary research group at the University of Toronto.[9] Giedion's manuscript also arrived at the very moment McLuhan was modifying his understanding of (the) media with an emerging conception of environment, which would find strong resonance, even a critical engagement, with Giedion's evocative descriptions of specific historic "space conceptions." Giedion's sweeping account of human history (and prehistory) provided McLuhan with a kind of spatial version—and vindication—of the historical model he had constructed for print culture in *The Gutenberg Galaxy: The Making of Typographic Man*; a model that would see modernity returned to a modified form of "primitive" social interactions.[10]

We can get a sense of the productive tensions involved in McLuhan's reading from one instance of concise marginalia. Describing a famous decorative limestone vessel from Uruk III, Giedion attempts to explicate the underlying "space conception" of the relief sculpture depicting two bearded men supported by (or wrestling with) two bulls. Here he writes: "With this first appearance of fully sculptural treatment of the human body, every effort was made to break free from the surface." McLuhan's marginal note reads, simply: "non-ecological."[11]

In this single instance we have the collision, or overlap, of two complementary intellectual traditions: a last gasp of the

Hegelian dialectic as translated by a specific arm of turn-of-the-century German art history, on the one hand, and, on the other, an emerging consciousness of (eco) systems and a concern for the interconnectedness of apparently disparate entities, whose material and energetic relationships could be described as environments. What for Giedion was a concrete historical example of a spatial will seeking some provisory form of individuation, for McLuhan signaled a kind of alienation of the object from its integral milieu, or ground.

McLuhan's seeming retort in Giedion's text was not that of a spatial neophyte. Indeed, Richard Cavell has recently argued that a kind of spatial theory "constitutes the single most consistent conceptual category" in his oeuvre.[12] Though at times McLuhan's apparent dilettantism made it seem as though he admitted influence from every conceivable source, architectural design and environmental theory were consistent touchstones. "Giedion influenced me profoundly," he said in 1967,

> *Space, Time, and Architecture* was one of the great events of my lifetime. Giedion gave us a language for tackling the structural world of architecture and artifacts of many kinds in the ordinary environment. […] He approached them not descriptively—not by classification—but structurally. Giedion began to study the environment as a structural, artistic work —he saw language in streets, buildings, the very texture of form.[13]

Arguably, studying "the environment as a structural, artistic work" was what McLuhan himself was attempting at the very moment he spoke these words. Theorizing environment was not simply a diversion from McLuhan's "main" body of thinking about media; rather, it was completely coincident with and integral to it. For several years, it would appear that he saw these terms as synonymous. As early as the *Gutenberg Galaxy* (1962), McLuhan said he could have used the term "environment" in place of galaxy.[14] As he wrote to Hall in 1964: "[t]o say that any new technology or extension of man creates a new environment is a much better way of saying the medium is the message."[15] He reiterated this idea in published form in one of two principal articles addressing his emerging environmental conceptions: "New media are new environments. That is why the media are the message."[16] "Medium," for McLuhan, designated not just a particular vehicle for a particular "message" or content, but rather the almost viscous, yet invisible, substance that made such transmissions possible. Like fish in water (a favorite

metaphor of McLuhan's), humanity was constantly, unconsciously immersed in the medium of its own technological contrivances. It is no exaggeration to say that McLuhan's entire intellectual project at this time involved raising awareness of this peculiar spatiotemporal condition. As Cavell writes: "Environment, in McLuhan's lexicon, has the force of 'episteme' in Foucauldian theory [...]."[17] McLuhan's conception of environment would even infiltrate one of his key concepts: extension. If older media had functioned primarily by extending or augmenting the functioning of a single sense organ (type, the eye; wheel, the foot; television, both the eye and, more importantly, the ear), the new electronic environment of networks and computation extended humanity in an entirely new way: "With circuitry we have, instead of extensions of hand or foot, or back, or arm, a kind of involvement of the whole nervous system, an extension of the nervous system itself, a most profoundly involving operation."[18]

But the fact that environment was the "extension of the nervous system itself" presented certain methodological difficulties. Observation of this environment became a central issue, in the sense that the object to be observed and the observing apparatus were essentially identical. McLuhan rhetorically fetishized this paradox with the phrase "invisible environment," which became the title of an essay published in *Perspecta 11* in 1967. Here, he argued that "[t]he really total and saturating environments are invisible."[19] Indeed, the only way to observe them (initially, at least) was indirectly, by observing the old environments they came to subsume (e.g., McLuhan's famous observation of the old movie becoming the "content" of television). These contents were thus rendered as "anti-environments," only perceivable, just like Walter Benjamin's industrial dream images, because of their outmodedness. (Thus, as above, "architecture becomes the content of the new information environment.")

In these various characterizations, we can discern that the invisibility of the environment implicated space as well as time. As continuum, it was all around, "saturating," but also transforming itself, too slowly to be perceived, like melting windows. It fell below the threshold of the human sensory apparatus. But the newest technological environment was different, for McLuhan. The electronic environment—the environment of the "circuit"—allowed change to accelerate so rapidly that it could finally be perceived, albeit in very particular ways. "As data can be processed very rapidly we move literally into the world of pattern recognition, out of the world of mere data classification." "If the environment or

process of change gets going at a clip consistent with electronic information movement, it becomes very easy to perceive social patterns for the first time in human history."[20] This mode of apprehension—pattern recognition—would become for McLuhan the only way to perceive the rapidly emerging electric environment, and the only way to resist its "brainwashing" effects. It is worth pausing here for a moment on what McLuhan considered a pattern, and how such a thing might be recognized. In the Cold War context, of course, the practice had a particular valence, as an intuitive means of "cracking" an already-existing code whose mechanics were meant to remain hidden.[21] For McLuhan, however, the practice was more creative than that—the patterns being recognized were not only out there, awaiting discovery; they were equally projections of the creative mind. McLuhan's most eloquent biographer, Philippe Marchand, describes his penchant for "perceiving patterns in whatever he saw," even to the point of outright paranoia.[22]

McLuhan's conception of pattern recognition, stimulus-driven, projective, and idiosyncratic, was bound up quite literally with urban experience. Early in his career, Marchand recounts, he and his colleague Edmund Carpenter would wander through the streets of Toronto analyzing everything, from the sartorial choices of inhabitants to the ads on the walls of streetcars. Indeed, McLuhan would continue to associate cultural patterning with the actual fabric of urban space, insisting that this was the locus of its haphazard appearance as well as its conscious reform.

But McLuhan did not arrive at this conception of environmental pattern recognition overnight. Much of it was based upon his theorization, a decade earlier, of "acoustic space." For McLuhan, acoustic space comprised a theory of spatial experience that ran counter to what he believed was the visual bias of modern Western culture, a bias he criticized in both *The Gutenberg Galaxy and Understanding Media*. Much of McLuhan's obsession with the human sensorium had to do with overturning this particular bias, which he felt alienated the modern subject into a world that was artificially linear, solipsistic, quantitative, logical, and specialized. Just as the written alphabet had subjected language to a singular, diachronic regimentation (a development intensified exponentially by the printing press), perspectival, visual space was the result of a particular form of spatial ordering that privileged clarity, clear distinctions among various objects (and the accompanying distinction between object and "empty" space), stable orientation, and the linear processing of spatial phenomena.

> We suppress or ignore much of the world as visually given in order to locate and identify *objects* in three dimensions. It is the objects which compel our attention and orient our behavior; space becomes merely that which must be traversed in getting to or from them. […]
>
> Auditory space has no point of favored focus. It's a sphere without fixed boundaries, space made by the thing itself, not space containing the thing. It is not pictorial space, boxed in, but dynamic, always in flux, creating its own dimensions moment by moment. It has no fixed boundaries; it is indifferent to background. The eye focuses, pinpoints, abstracts, locating each object in physical space, against a background; the ear, however, favors sound from any direction.[23]

Thus, for McLuhan, acoustic space was replete, multidimensional and omnidirectional, synchronous and, perhaps most importantly, it was close. It embraced the subject from all sides at all times, and had no use for the visual illusion of objective distance. Acoustic space was tactile space, somatic space. It was involving, interactive, and responsive.

Giedion's formulation of a primeval space conception was present from the very genesis of the idea of acoustic space. Tyrwhitt, McLuhan, and psychology student Carl Williams generated the phrase during a heated seminar discussion at the University of Toronto in 1954, the exact details of which have been obscured by time and by conflicting recollections. In any case, Williams' descriptions of psychological experiments dealing with the spatial perceptions of the blind ("auditory space") resonated with Tyrwhitt's descriptions of Giedion's research into the darkened environments of prehistoric caves first marked by the artistic activity of prehistoric man (where echoes and touch were just as reliable as flickering and fleeting light sources), or the burial chambers of Egyptian pyramids. The possibility of a haptic spatiality that could exist outside of or in addition to sight immediately struck McLuhan, who spontaneously changed Williams' "auditory space" into acoustic space, a reformulation that forcibly (and characteristically, for McLuhan) conflated insights from the fields of perceptual psychology, anthropology, philosophy of science, and architectural history.

Fittingly, Giedion published some of his first findings on primeval or pre-architectonic space in *Explorations*, the

journal founded by McLuhan's group at Toronto. There, his descriptions of the caves and their art seemed entirely compatible with McLuhan's acoustic space conception:

> Primeval art never places objects in an immediate surrounding. Primeval art has no background. This is apparent in such large murals as the ceiling of Altamira as well as in the small ritual objects of *art mobilier*. This is inherent in the prehistoric conception of space: all linear directions have equal right and likewise all surfaces, whether they be regular or irregular.[25]

For Giedion, exploring historical space conceptions was a part of a postwar research agenda that sought to ground modernist aesthetics in the most primal sources. Taken alongside *Mechanization Takes Command*, and *Architecture, You, and Me*, the volumes that would make up *The Eternal Present* appear as a kind of historical and anthropological archaeology of the modernist works explored in *Space, Time, and Architecture*.[26] Indeed, as Giedion's ideas were further elaborated in the A.W. Mellon Lectures in the Fine Arts of 1957, and subsequently published in the Bollingen volumes, McLuhan must have anticipated even more support for his own understanding of the *longue durée* of spatial experience from the architectural historian. His notes indicate that, indeed, he was especially inspired by Giedion's descriptions of prehistory and primeval conceptions of space and cosmos. This was a period, according to Giedion, of energetic and formal cosmic unity, in which magical animistic forces pervaded the surrounding world, and, according to Spyros Papapetros, constituted "an uninterrupted continuity between human, animal, vegetal, and mineral substances: Men and women turned into bulls and deer, just as their genitals and other body parts could transform into crystalline stalagmites and merge with the rock surface."[27]

It was this fluidity of cosmic forces, natural forms, and their interpenetration with humanity that appealed to McLuhan. Almost anytime Giedion mentioned "invisible forces" or cosmic unity, McLuhan underlined the passage. They fed his hope that prehistoric man, or "tribal man" (a phrase that sutured any disparities between the ancient civilizations described by archaeology, and those contemporary "indigenous" societies studied by anthropologists) as he would describe him in his most popular books, existed in a completely different sensorium than modern Elizabethan and industrial man. He also shared with Giedion a profound belief in a model of spiraling historical recurrence (what

Papapetros describes as a "pre/post/erous history in which the indistinct layers of prehistoric origins merge with the apocalyptic endings of *post-histoire*"[28]) that would see "electronic man" "re-tribalized," as he was fond of saying, involved once more in intimate social groupings, and ever-more intimately connected with his environmental extensions.[29] For Giedion, history's circular movement would return contemporary culture back to an "emanating" space conception. Just as the boundless space of the primeval art had connected individual and cosmos—and rejected the linear hierarchies of vertical, perspectival space—contemporary art and architecture were rediscovering this dynamic unity. "Buildings, like sculptures, radiate their own spatial atmosphere, and we have again become sensitive to the emanating powers of volumes in space."[30]

McLuhan embraced this return to primeval spatial emanation wholeheartedly, but by the time he was reading *The Beginnings of Architecture*, his understanding of the phenomenon had morphed from acoustic space to all-encompassing environment; environment as ethereal but nonetheless graspable material, and totalizing extension of the entire perceiving apparatus of the human subject. In this sense, he went far beyond Giedion's contemporary space conception, which, as Henri Lefebvre would charge, implicitly relied upon "a pre-existing space—Euclidean space—in which all human emotions and expectations proceed to invest themselves and make themselves tangible."[31] Even emanation, in other words, had to play out *in* some space. Environment was, by contrast, space itself as emanation. If, in the past, cosmic forces had filled the vacuum of space weaving disparate entities together into a sacred fabric of subject, object, and interval, McLuhan believed that electronics were making such unities possible once more. To be more precise, such unities were immanent. They were forming and reorganizing social life whether or not the affected (or effected) subjects were aware of it. The capacity of electronics to register these systemic changes provided, for McLuhan, an opportunity—not a guaranty—of phenomenological access and a degree of technical manipulability. In this sense, we can discern the peculiar ambivalence of McLuhan's environment. It was a space of ecstatic perception—a phenomenological space of "embodied," reintegrated sensation. By the same token, it was an "apparatus"; a biopolitical suite of conditioning technologies.[32]

It was therefore inevitable that the Cartesian and Euclidean voids that had once ensconced the subject were being sutured into tightly knit assemblages capable of resolving

artificial modern hierarchies of inside and out, foreground and background, mind and matter. "For twenty-five hundred years of artistic history," McLuhan would say later in the sixties, "the arts have been engaged in separating man from his environment. Now, suddenly, the western world plunges with this new technology into a state in which man is once more engaged in merging with his environment."[33] Of course, architecture as an autonomous entity would become superfluous in this merging. At best, it would be rendered as art, as the "content" or "anti-environment" of the new involving, saturated spaces of technology. But these spaces would take on, for McLuhan, a very particular set of characteristics, their own textures and patterns. Perhaps most importantly, they would also yield to the will of the environmentally aware, pattern-recognizing subject. Electronics would render space itself as a kind of proprioceptive substance, malleable and "programmable." McLuhan saw immediate benefits to this type of environment and understood it as the next stage of architecture and planning activities.

First, he allowed this new conception of an emanating programmable space to impact his understanding of pedagogy (a perennial concern of his during the height of the counterculture especially). Taking the example of childhood development, McLuhan describes the child's entry into the linguistic world as synesthetic and "totally involving." The child does not learn language by reading grammatical lessons, but by constantly interacting with its surroundings. This is a level of experiential immersion that McLuhan hoped to bring to everyone:

> It will be possible in this generation, I hope, to *program the environment* in such a way that we can learn a second language as we learned our mother tongue, rapidly and totally, as a means of perception and of discovery.[34]

In a letter to Hall, he elaborated a bit more on the specific functionality such an environment might entail:

> It is possible to design a computer-controlled space in which the geometry of the room, as well as all its other sensory components, could be precisely varied. Groups of students could be taught various types of problems under these controlled conditions. Depending on their cultural and perceptual bias, one could discover exactly the focus for the various senses which would enable them to learn any given

> problem in math or biology or language at maximal speed. These levels would in turn reveal the sensory parameters of the culture. A Chinese could be provided with an environment which would enable him to see the West as if it were the East.[35]

But an experimental classroom was only the most immediate, realizable application. He soon extended propositions about this total environment to all levels of design activity. Here, in a letter to Jaqueline Tyrwhitt: "My own phrase for city planning is that the city has become a teaching machine. The planner's job is to program the entire environment by an artistic modulation of sensory usage. Art is a CARE package dispatched to undernourished areas of the human sensorium."[36] Architecture, planning, and art find a new and strange form of synthesis here, meeting each other in a resonant space in which the specificity of each is sublated into generalized aesthetic interaction with everything: "The art object is replaced by participation in the art process. This is the essential meaning of electric circuitry and responsive environments. The artist leaves the Ivory Tower for the Control Tower, and abandons the shaping of art objects in order to program the environment itself as a work of art."[37]

For McLuhan, *The Beginnings of Architecture* lent credence to his conviction that electronic man was returning to prehistoric social formations thanks to a new form of sensory engagement. This implied a more visceral relationship with space itself, as a saturating, involving field, replete with the stuff of human perception and interaction. His was a rigorous explication of the "saturated latencies" of post-industrialism as "environment itself"; as the bringing forward of backgrounds and intervals that had previously remained moored in an invisible ether. In the end, he seemed to care little whether the environment comprised "the geometry of the room," its "sensory components," or the particular content of a linguistic, mathematical, or aesthetic situation. What mattered was its newfound visibility and viscosity; qualities that rendered it designable, and architectonic. With the environment brought forward in such a way, it could then perform its ultimate task of receding once again, making way for some kind of Dionysian–Joycean–post-industrial programmer. And herein lies the nostalgia of McLuhan's vision: that something still recognizable as architecture, or, for that matter, a self-determining subject, might survive the process of this environmental reintegration.

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✓ Transparent Peer Reviewed

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*Transparent peer-reviewed

1 Peter Sloterdijk, "Excerpts from Spheres III: Foams," trans. Daniela Fabricius, *Harvard Design Magazine* 29 (Fall-Winter, 2008): 39. ↑

2 Eli Bornstein, "An Interview with Marshall McLuhan," *The Structurist* no. 6 (January, 1966): 62. ↑

3 Mark Wigley, "Network Fever," *Grey Room* 4 (Summer, 2001): 96–97. ↑

4 Reinhold Martin, *Utopia's Ghost* (Minneapolis: University of Minnesota Press, 2010), 60. ↑

5 Letter from McLuhan to Edward T. Hall, June 22, 1965 (ETH Papers, Box 8, Folder 28). ↑

6 According to the eminent literary critic and philologist Leo Spitzer, the modern use in English of the word "environment" was coined by Thomas Carlyle in a translation of an essay by Goethe, in which the latter employed *Umgebung* in describing the poetic *topos* of the English heath. This usage, according to Spitzer, hinted at "a mid-term between natural and spiritual surroundings." Leo Spitzer, *Essays in Historical Semantics* (1948; New York: Russell & Russell, 1968), 232–233. I do not know that McLuhan was aware of this source, but he likely would have sympathized with the happy accident of this particular combination of British and German Romanticism at the dawn of the Industrial era. According to the *OED*, the usage "the environment," in which the definite article connotes nature writ large, was a product of the postwar period. It seems, in retrospect, to mark the twilight of any classical notion of nature, conjuring instead a prescient vision of the "Anthropocene." See, for instance, William L. Thomas, ed., *Man's Role in Changing the Face of the Earth* (Chicago: Wenner-Gren Foundation, 1956). ↑

7 Georges Canguilhem, "The Living and Its Milieu," in *Knowledge of Life*, trans. Stefanos Geroulanos and Daniela Ginsburg (1965; New York: Fordham UP, 2008), 98. ↑

8 University of Arizona Special Collections, Papers of Edward Twitchell Hall, Box 39. While I will not go into McLuhan's relationship with Hall in this essay, it is not immaterial that the two shared a fondness for Giedion's late work, as both were furiously working to explore the invisible environment. ↑

9 For an overview of the interactions of Tyrwhitt, McLuhan, and Giedion, see Michael Darroch, "Bridging Urban and Media Studies: Jaqueline Tyrwhitt and the Explorations Group, 1951–57," *Canadian Journal of Communication* 33 (2008): 147–169. See Also: Wigley, "Network Fever," 95–96, and *passim*. ↑

10 Marshall McLuhan, *The Gutenberg Galaxy* (Toronto: University of Toronto Press, 1962). ↑

11 Sigfried Giedion, galleys, *The Eternal Present*, vol. 2, *The Beginnings of Architecture* (c. 1963), Edward Twitchell Hall Papers, Box 39, p. 162. The pagination of these galleys is identical to the published version of Sigfried Giedion, *The Eternal Present*, vol. 2, *The Beginnings of Architecture* (New York: Bollingen Foundation, 1964). ↑

12 Richard Cavell, *McLuhan in Space* (Toronto: University of Toronto Press, 2002), xiii. ↑

13 Marshall McLuhan, "A Dialogue," in *McLuhan, hot & cool*, ed. Gerald Stearn (New York: Signet Books, 1967), 263. ↑

14 McLuhan, *The Gutenberg Galaxy*, 1. ↑

15 Letter from McLuhan to Hall, September 16, 1964, Edward T. Hall Papers, Special Collections, University of Arizona, Box 8, Folder 28. I discuss in detail McLuhan's relationship to Hall in my book manuscript, *The Responsive Environment*. ↑

16 McLuhan's thoughts on environment were published in several different iterations in 1966–67. According to Cavell, these began their life as a talk delivered in October of 1965 (just a year after the appearance of *Understanding Media*) at "Vision '65," a conference organized in Carbondale by the University of Illinois and the International Center for Typographical Arts. They were then published as: Marshall McLuhan, "Art as Anti-Environment," *Art News Annual* 31 (1966): 55–57 (this version was written at the behest of Harold Rosenberg); "The Emperor's Old Clothes," in *The Man-Made Object*, ed. Gyorgy Kepes (New York: George Braziller, 1966), 90–95; "The Relation of Environment to Anti-Environment," in *The Human Dialogue: Perspectives on Communication*, eds. Floyd W. Matson and Ashley Montagu (New York: The Free Press, 1967), 39–47; and "The Invisible Environment: The Future of an Erosion," *Perspecta* 11 (1967): 162–167. ↑

17 Cavell, *McLuhan in Space*, 52. As an addendum to this observation, it is interesting to note Foucault's own thinking about "environment" later in his career, where it functioned very much as an encompassing apparatus measured and manipulated only by an expanded understanding of the science of economics. Michel Foucault, *The Birth of Biopolitics*, trans. Graham Burchell (New York: Palgrave MacMillan, 2008), 260-261. Reinhold Martin discusses Foucault's notion of *environmentalité* in *Utopia's Ghost*, 49. ↑

18 McLuhan, "Invisible Environment," 166. ↑

19 McLuhan, "Invisible Environment," 164. ↑

20 McLuhan, "Invisible Environment," separate quotes from pages 164 and 165. ↑

21 It was also, as Orit Halpern has recently said, an integral part of a new regime of information "visualization." Orit Halpern, *Beautiful Data* (Durham: Duke UP, 2014). ↑

22 Philippe Marchand, *Marshall McLuhan: The Medium and the Messenger* (New York: Ticknor & Fields, 1989), 116. ↑

23 Edmund Carpenter and Marshall McLuhan, "Acoustic Space," in *Explorations in Communication*, eds. Edmund Carpenter and Marshall McLuhan (1960; Boston: Beacon Press, 1966), 67. Another source for McLuhan was Rudolf Arnheim's description of "spatial resonance" in his 1936 book *Radio*, trans. Margaret Ludwig and Herbert Read (London: Faber & Faber, 1936). Thanks to John Harwood for this reference. See also Emily Thompson, *The Soundscape of Modernity* (Cambridge: MIT Press, 2002), and Carlotta Daro, *Avant-garde sonores en architecture* (Dijon: Les Presses du Réel, 2013). ↑

24 For more on McLuhan's and Carpenter's conceptions of acoustic space, and actual spatial experience (in this case, of the vast spaces of Northern Canada) see: Alessandra Ponte, *The House of Light and Entropy* (London: Architectural Association, 2014), 135-168. ↑

25 Sigfried Giedion, "Space Conception in Prehistoric Art," in *Explorations in Communication*, eds. Edmund Carpenter and Marshall McLuhan (1960; Boston: Beacon Press, 1966), 86. ↑

26 Sigfried Giedion, *Mechanization Takes Command* (Oxford: Oxford UP, 1948); *Architecture, You, and Me: Diary of a Development* (Cambridge: Harvard UP, 1958). ↑

27 Spyros Papapetros, "Modern Architecture and Prehistory: Retracing the Eternal Present (Sigfried Giedion and André Leroi-Gourhan)," *RES: Anthropology and Aesthetics* 63/64 (Spring/Autumn, 2013): 185. Papapetros is speaking here of the first volume of *The Eternal Present*, but his characterization applies generally to the first sections of vol. 2 as well, for instance p. 53. ↑

28 Papapetros, "Modern Architecture and Prehistory," 189. ↑

29 In the long run, however, Giedion resisted the most radical implications of acoustic space. According to Michael Darroch, when Giedion was in Toronto in 1955 he was reticent about engaging McLuhan on the subject. Tyrwhitt was likewise hesitant, telling McLuhan that "the only space architects can handle is physical space, which is basically visual space [...]." When broaching the subject in *The Beginnings of Art*, Giedion acknowledged that caves were in fact structured as acoustic spaces, but his contemporary correlative example was not McLuhan's acoustic environment, but rather Le Corbusier's "*espace indicible*" with its reverberating "plastic acoustics." Sigfried Giedion, *The Eternal Present*, vol. 1, *The Beginnings of Art* (New York: Bollingen Foundation, 1962), 526–528. ↑

30 Giedion, *The Eternal Present*, vol. 2, 525. ↑

31 Henri Lefebvre, *The Production of Space*, trans. Donald Nicholson-Smith (Oxford: Blackwell, 1991), 127. ↑

32 I use this litany of older and newer critical terms to indicate the futility of precisely identifying McLuhan's intellectual sources. Certainly, phenomenology was operative in his understanding of environment. He grants art a revelatory role very similar to the one Heidegger recognized (as an entity that might make a "world" available from the brute and inaccessible "earth"). Like Maurice Merleau-Ponty, he sought a reunification of the senses that scientific method and Cartesian thought had alienated from one another. But his understanding of the human sensorium *vis-à-vis* environment was equally informed by a certain positivism: the idea that certain social and natural "climates" would be determinative for different peoples. Given McLuhan's antipathy to Marxism, it is not surprising that he sought out other models for accounting for the ideological mechanisms of this relationship, from the American Transcendentalists to the biological theory of *milieu* as described by Claude Bernard. The postwar period provided a plethora of models for describing the ways in which human perception is shaped from "outside," from the writings on scientific method by Thomas Kuhn to the cultural economics of McLuhan's colleague Harold Innis to B.F. Skinner's behaviorism to the social linguistics of Benjamin Lee Whorf. One of the reasons McLuhan's relationship with Hall is material in this regard is that the latter was also seeking ways to measure and describe cultural patterns as both invisible spatial structures and potential objects of scientific and aesthetic perception. ↑

33 Eli Bornstein, "An Interview with Marshall McLuhan," *The Structurist* no. 6 (January, 1966): 61. ↑

34 McLuhan, "Invisible Environment," 167. Emphasis added. Even into the next decade, McLuhan continued to have enthusiasm for the types of experiences provided by cities: "The city is a place for the heightening of human awareness by providing the greatest possible range and diversity of space for dialogue." Marshall McLuhan and Barrington Nevitt, *Take Today: The Executive as Dropout* (New York: Harcourt Brace Jovanovich, 1972), 29. ↑

35 Letter from McLuhan to Edward T. Hall, August 24, 1964 (ETH Papers, Box 8, Folder 28). McLuhan was likely gearing this description toward Hall as he was obsessed with culturally contingent patterns of environmental interaction; patterns that were, unsurprisingly, invisible to those caught within them. See: Edward T. Hall, *The Silent Language* (New York: Doubleday, 1959); and *The Hidden Dimension* (New York: Doubleday, 1966). ↑

36 Letter from Marshall McLuhan to Jaqueline Tyrwhitt, May 11, 1964, in *Letters of Marshall McLuhan*, eds. Matie Molinaro et al. (Toronto: Oxford UP, 1987), 298–299. This thesis was most rigorously (if obtusely) explored in the image/text juxtapositions of McLuhan's collaboration with Harley Parker, *Through the Vanishing Point: Space in Poetry and Painting* (New York: Harper & Row, 1968). See also the 1973 film *Picnic in Space* where McLuhan and Parker have a dialog over a jazz soundtrack and montaged images of Piet Mondrian's *Broadway Boogie-Woogie*. ↑

37 Marshall McLuhan, "The Emperor's Old Clothes," 94–95. ↑