Reinventing the Map

Brooke Bulmash

Professor Christopher King

College Writing 1

22 April 2018

When we think of maps, undoubtedly, our minds shift to the large posters of the world pinned up in the school classrooms of our childhoods. We think of the first definition that Oxford Dictionary offers, “A diagrammatic representation of an area of land or sea showing physical features, cities, roads, etc.” Essentially, a piece of paper with signs and symbols that situate a place in fixed space. But a map has the potential to be much more than just that.

There are two fallacies in defining a map in such narrow terms. The first is the idea that a map is a value-neutral, unbiased object and thus should be automatically considered true. The second is that a map is no more than a representation of place. Neither of these ideas should be taken as fact. On the contrary, these notions should be taken as an invitation to consider a reimagination of the traditional understandings of cartography and mapping.

From a young age, I have been captivated by maps and geography. Perhaps my favorite birthday gift I ever received was a beautiful globe from my grandparents. This globe had a lightbulb in its hollow center and would illuminate the translucent material of the orb and mesmerize me for hours.

Somewhere along the way, I concluded that all maps had already been created. It was not until I entered the school of architecture and began reading critical architectural theory and about concepts of urbanism that I realized I could think of a map as anything other than the sum of its physical geographies. In the context of architecture and urban design, maps appear to be the synthesis of data and information pertaining to the experiential as well as the physical aspects of space. The emergence of this understanding of mapping, which is not necessarily a new concept, is grounded in critical theory. For the sake of clarity and consistency, I will refer to this school of thought as “Critical Cartography”. In addition to discussing the concepts of critical cartography, I will also highlight the emergence of Geographic Information Systems (GIS) in the world of urban planning and architecture.

This paper seeks to explore the means by which the forms, usages and making of maps exist in the context of architecture and develop a new methodology in which architects must utilize these tools to truly encapsulate the conception of making spaces and experiential landscapes for people through the act of design. In addition, it explores the nature of mapping as art, expression, and subversion.

Mapping itself has been around for thousands of years, but the notion that mapping could tell a story beyond geography emerged in 1854, with Dr. John Snow in London, England.[1] Snow was a doctor in London during a series of Cholera outbreaks. Notions of how disease spread did not sit well with the doctor, as the prevailing theory of how the disease spread was through the air via 'miasma' but he posited that the disease was spread through the contamination of the water.[2] Snow began to take into account variables like socioeconomics, the health of the neighborhoods, and the wells that the citizens were getting their water from. Snow took samples from the wells and examines them. He then assembled his data points consisting of deaths, the locations of the wells, and the most direct paths to the wells from each home of the dead.[3] Through his data and analysis, Snow was able to construct a map that lead to the starting point of the outbreak, and public officials were able to act quickly and stop the spread.[4] These methods are similar to the ones that Geographic Information Systems, the most modern conception of mapmaking using digital technologies, employ.

Geographic Information Systems are collections of spatial data and variables, usually spreading across a wide range of topics and disciplines, utilized to analyze a particular geographic location.[5] The late Ian McHarg, a brilliant landscape architect and theorist, is often credited with fathering the discipline of GIS. He began with a base map of a site and worked from the bottom up, starting with the bedrock.[6] From there, McHarg would add each horizontal layer of the area, "from low to high: geology, hydrology, soil layers, ground cover, shrubs, trees, wildlife, social value, recreation, history, scenery, etc."[7] Each of these individual layers would be its own layer on a transparent overlay on the base map.

In the year 1969, Ian McHarg published his seminal work, *Design with Nature.* This work is seen as the first articulation of the conceptual framework of GIS, particularly with respect to detailing the map overlay process.

Ian McHarg saw mapping as a way to observe the world and understand the workings of both the built and the unbuilt. He emphasized the importance of considering the natural conditions of a site before commencing the act of changing it. In McHarg's worldview, urban planning of a new site necessitated careful consideration of the processes and systems while urban planning of the existing urban fabric necessitated an understanding of the social pathologies, as in the rates of illness, literacy, life expectancy, homicides, and other factors pertaining to the 'health' of a population situated in a particular place, in order to properly understand what the community needs.[8]

The book, *Ian McHarg: Conversations with Students*, a compilation of McHarg's core philosophies and teachings such as his theory of creative fitting, which underlies his methodology for mapping and GIS, was edited by James Corner. A notable Landscape Architect and professor in the University of Pennsylvania's School of Architecture and Design, James Corner published his essay entitled "The Agency of Mapping: Speculation, Critique and Invention" in 1999, which is a thorough treatise on the potential for creativity and greater understanding through the use of a more critical model of mapmaking.

Corner asserts that our notions of landscape and space are "constituted, or 'formed' through our participation with things: material objects, images, values cultural codes, places, cognitive schemata, events and maps."[9] As such, we can draw the conclusion that each person experiences or perceives these things differently. If we begin to look at the creation of maps as the unfolding of a narrative process, we can see the act of cartography as a deeply personal act, while still maintaining a public applicability.

Perhaps most essential to Corner's essay is his definition of mapping operations. He asserts, "The operational structure of mapping might be schematized as consisting of 'fields', 'extracts' and 'plottings'"[10] thus breaking down the operations as a three-part process. The field is likened to 'the analogical equivalent to the actual ground'[11]. It may be useful to think of the field as the site itself, referred to by Corner as the "graphic *system"* the 'extracts' will be organized within. This system contains the technical aspects readily associated with a map, "the frame, orientation, coordinates, scale, units of measure and the graphic projection (oblique, zenithal, isometric, anamorphic, folded, etc.)" [12]Extracts are the actual objects, data, conditions, events and concepts then added to the graphic field. Corner names them 'extracts' because "they are always selected, isolated, and pulled out from their original seamlessness with other things; they are effectively 'de-territorialized'" to be studied and manipulated alongside the other aspects and figures within the field.[13]

In *the Agency of Mapping,* the author introduces four separate techniques for engaging with a more dynamic method of cartography. Drift, Layering, Game-Board, and Rhizome are the names that Corner assigns these four techniques.

Drift is a concept stemming from a movement of French artists and activists that called themselves the Situationists. Guy Debord, the man that much of the Drift theory is attributed to, spent his time with his fellow Situationists wandering around the streets and alleys of Paris, taking an inventory of sensory elements. Corner calls the method, "the dream-like drift through the city, mapping alternative itineraries and subverting dominant readings and authoritarian regimes."[14] Debord himself titled this practice 'psychogeography', which he defines as "the study of the precise laws and specific effects of the geographical environment, consciously organized or not, on the emotions and behavior of individuals."[15] Additionally, he defines the dèrive as "a technique of rapid passage through varied ambiances."[16] Drift theory is grounded in human experience and the map-maker's individual

interpretation of the area they 'map'. Debord makes the argument in his writings that some people get so discouraged by the reputation of certain neighborhoods, they fail to even visit them to make up their minds themselves, and additionally, people make judgements of the quality of an area based on aesthetics[17]. This idea reminded me a lot of the places in St. Louis that we as students at Washington University often are urged to avoid at night because they are defined as 'bad areas'. From the drift theory, however, Debord concludes that simple aesthetics and "qualitatively or quantitatively different influences of diverse urban decors cannot be determined solely on the basis of the era or architectural style, much less on the basis of housing conditions."[18] The solution, he suggests, is to embrace in the experience of the spaces. The map itself becomes a means of artistic performance, as even people 'drifting' together would have different maps. Corner views these types of maps as "an ambition to contest and destabilize any fixed, dominant image of the city by incorporating the nomadic, transitive and shifting character of urban experience into spatial representation."[19] Figure i in the appendix is an image of one of Debord's maps, "*Discours Sur Les Pasions de L'Amour (1957)."*

Layering is a form best compared to McHarg's theory of mapping, the concept of overlays and of each layer being its own. There is a captivating synergy to the way these layered maps come together: as each of the layers "dismantle the programmatic and logistical aspects [of a site]" and possess "an internal logic, content and system of organization to each layer, depending on its function or intended purpose,"[20] essentially, each layer is its own thing, but when put together, one can find an overall image of the whole, which Corner describes as a "mosaic-like field of multiple orders, not unlike the combination of different colored paint delineations for the playing of games superimposed on a gymnasium floor"[21]. This structure leaves the door open for possibility, allowing an additive and subtractive quality to the overall map. Corner then goes on to reaffirm his interpretation of a map as being a tool with infinite possibility, "maps are not prescriptive but infinitely promising. Thus, as

constructed projects, mapping strategies propose organizational field-systems that both instigate and sustain a range of activities and interpretations in time."[22] This reminded me of the way we approach floor plans and plan drawings in architecture. Our professors emphasize the importance of separating different aspects via layer so we might be able to observe the scene with or without certain features, thus giving a more powerful understanding of what we are designing. An example of the layers is figure ii in Appendix A, Rem Koolhaas and his firm the Office for Metropolitan Architecture's (OMA) *Layer Diagrams for la Parc Villette (1983).*

The Game-Board theory that Corner offers pertains to the mapping of contested sites. It is similar to the layering theory but also combines aspects of drift theory. Corner says of this theory, "Conceived as shared working surfaces upon which various competing constituencies are invited to meet to work out their differences. As a representation of contested territory, the map assumes and enabling or facilitating status for otherwise adversarial groups to try and find common ground while 'playing out' various scenarios. Ideas of drift and layering are developed here, as the former allows for personal engagement between mapper and constituents, while the later permits the analytical separation of multiple issues and agendas."[23] He mentions Raoul Bunschoten, a London-based architect with experience in a number of arenas in terms of dealing with complex and contentious urban areas in Europe. The synthesis of the drift and layering theories come together to display flows of movement, relationships between space and between occupants, and provide the platform for reworking the way these spaces interact contingent on the complex and dynamic relationships in the ever-changing urban venues in which they are situated[24]. Raoul Bunschoten and his firm CHORA's "Four Planning Fields for Bucharest, Romania" (1996) which James Corner presents as an example of Game-Board theory can be found in the Appendix as figure iii.

The fourth and final model that James Corner offers and seems to champion, is the Rhizome theory. This theory itself is grounded in the logic and writing of the French postmodern philosophers Giles Deleuze and Felix Guattari, particularly with respect to their seminal texts, *A Thousand Plateaus,* and *Anti-Oedipus.* It is also important to note that these writings were intended in the context of an anti-capitalist methodological model. Deleuze and Guattari begin to define the rhizome, "unlike trees or their roots, the rhizome connects any point to any other point… it has neither beginning nor end, but always a middle (*milieu*) from which it grows and overspills, [constituting] linear multiplicities."[25] Corner further extrapolates on this understanding of the rhizome, "In contrast to centric or tree-like, hierarchical systems, the rhizome is acentered, non-hierarchical and continually expanding across multiplicitous terrains."[26] He continues on to assert there is a difference between 'tracing' and 'mapping', suggesting that tracing is just reproducing past biases of older maps, while mapping suggests a new representation of place and of information. Corner asserts, "Several different graphic and notational systems have to come into play so that diverse and even 'unmappable' aspects of a milieu are revealed. All of this must be brought to bear on one plane, one fully inclusive, nondifferentiated surface (as many architects are fond of saying, if one cannot see it all right in front of one's eyes, as a visual synthesis, then one cannot properly formulate a proposition). The devised systems of collection and array cannot be closed; they must remain open, fostering endless chains of possibility and insight."[27] When talking about maps that open up possibilities, the map becomes a site for displaying a variety of factors, both the physical geography of a map, but also the infrastructural and social implications of a space. The contention here is that the map can become and inclusive site then, a site where information about poverty and the population of the community can be represented alongside the physical geography. The Rhizome model also gives the possibility for adding a narrative to a map, contextualizing space beyond the physicality, really telling a story of a site. The process of making these maps is also more creative in terms of the integration of a base map, such as a United States Geographical Survey

topographical map, representing elevations on a space, with “the codes and conventions of maps (frame, scale, orientation, colour-separation, numerical coordinates, grid measures and indexes) are co-opted, enhanced and subverted”[28] and thus, this allows for maps “that present analytical information while also allowing for suggestive read-ings/projections. They 'draw out' of common maps and landscapes certain figural and processual relationships that might occasion new landscapes.”[29]

James Corner emphasizes throughout his essay the importance of embracing “inclusion and incorporation (synthesis) of diverse kinds of information and possibility, as well as their utilization and subversion of dominant conventions”[30] in order to get away from the traditionally static methods of interpreting space. The rhizomatic map, and other examples of critical cartography offer the possibility of creating maps that become as dynamic as the spaces they represent. Corner combines a plan-view (birds’ eye view of site) with an integrated section cut (side view of site; another point of view), taking traditional architectural drawing conventions and making them responsive to one another. They suddenly allow a mapped site to be more than flat, to be multi-dimensional. An example of one of James Corner’s maps is depicted in figure iv in the appendix.

Another model of mapping stems from the cartographer Denis Wood, known for his mapping of the ordinary: the neighborhoods; the postman’s route; the light cast by streetlamps; the motion of the windchimes. In a 1998 interview, Wood said, “there isn't anything that you can't map. There isn't anything that doesn't have some kind of spatial dimension or spatial character.”[31]

Wood’s captivation with the poetics of spaces, with the beauty to be discovered in the ordinary, really struck me as a quality I wanted to emulate in my work. Though his map work may not have the large, overarching social implications of the maps of James Corner, I still think it is important to acknowledge Wood’s mapping as significant in its own way, and as an alternative to traditional understandings of mapping.

By restricting mapping to “empirical data-sorting and array” we destroy the potential to reshape space and redefine social strata. Maps can be a site for collecting observations and drawing connections between various indicators of health in an urban area. Certainly, we can’t abandon the consensus and collective responsibility in the power of ‘objective analysis’ for free-form subjectivity. There is a validity to maintaining the “analytical measure of factual objectivity” (Corner) in mapping. The models that critical cartographic theory presents give a starting point for data visualization and analysis. Beyond the basic data, individuals need to see the connections between the layering of different elements and be able to draw their own conclusions about what that indicates about a population, place or situation. Each of these theories offers a subversive paradigm with tremendous power and potential. The emergence of Geographic Information Systems is only the beginning.

Following my exploration on the critical theories of cartography and maps in the context of city planning and architecture, I decided to conduct an experiment myself, utilizing the four different thematic approaches that Corner mentions in *The Agency of Mapping*: drift, layering, game-board, and rhizome. To do so, I spent a lot of time wandering around campus, taking note of sensory experiences such as smell, sight, and sound; of the paths I frequently found myself taking; of the flows of crowds moving through campus, in between classes; of the things that made my walks pleasant and the things that made them unpleasant; and of possible changes to the prescribed program of campus’ design that might make it a more ideal journey to the place that I spend the majority of my time: Givens Hall.

I tallied how many times I visited certain locations on campus and I spent some time working from a base map of campus, determining places I automatically considered comfortable or uncomfortable and keeping track of my moods and emotions during the tally for a particular building. I divided the categories into ‘stressed’, ‘excited’, ‘happy’, ‘sad’, ‘frustrated’, ‘confused’ and ‘neutral’. Each category had a particular color assigned to it and each time the emotion or feeling occurred, I added a

dot in that color in the place it occurred. Ultimately, while this mapping felt especially pertinent to my life, I found two other maps that meant more to make than just my frequency and comfort maps. I sought also to emulate the work of Denis Wood in his mapping of the ordinary, to embrace the poetic quality of the map, so I produced a sort of a drift map of the freshman studio space in architecture - building, depicted as figure vi.

Per the drift theory usage of scent as a powerful aspect of understanding of movement through a space, I noted the strange and powerful scents often found in the studio space. As strange as that might sound, scent happens to be an incredibly prevalent sense in the studio space. I wanted to try and emulate Denis Wood's methods of mapping places in his neighborhood. On the map, I have labelled my desk, both my space this semester, and my space last semester. I worked from my own observations of the space, without using a base map to construct this, thus truly embracing the hand-drawn aspects of Denis Wood's maps.

On March 28th, 2018, I had the opportunity to interview associate professor of landscape architecture at Washington University in St. Louis, Jesse Vogler. The interview highlighted many important aspects of landscape architecture as a discipline. Professor Vogler is an example of how truly interdisciplinary the architecture program is, and his variety and depth of work truly reflects that.

In particular, Professor Vogler's "One Tree Project" struck me as a brilliant starting point for my investigation into mapping. The premise of this studio course, offered prior to the beginning of the construction of the East End transformation, was to archive the importance of the 50 hundred-year old white oaks comprising the landscape outside of Brookings Hall. The concept spawned from Vogler, and his colleague, Ken Botnick, posing the question, is anyone really considering the act of tearing down these trees, what Vogler and many others consider, to be the centerpiece of campus? The answer was no, no one had articulated Vogler and Botnick's concerns about the trees. In the interview, something

that Vogler said really struck me, “recognizing that moment of transformation and in this case, destruction, perhaps as a fundamentally landscaped condition, and landscape as embedding itself into transformation and change in time, maybe even this process of unbuilding could be seen as a landscape act.” In the further synthesis of my own research, looking into Denis Wood, Ian McHarg, and James Corner’s work, I could see the “One Tree Project” as a convergence of all these theories. Extrapolating further on Vogler’s words, he described the studio’s work, “in the months leading up to the cutting down of the trees, we took a deep dive into the biological functioning, the ecological relationships but then also the poetics, the cultural meaning, the native American meaning” of the trees. Ultimately, the studio did not seek to ‘save’ the trees, but rather, “a project that could recognize the trees for their years of service” to Washington University.

In that premise, there is something poetic in the use of mapping and archival data, to ground the existence of these trees in the story of the university. The acknowledgement of their roles in the history and their contribution to the overall aesthetic and symbolic value of the centerpiece of campus, is a beautiful thing. While I wracked my brain to come up with a map that could truly prove the power and importance of maps, at least in my life, I thought more about trees.

I chose to map the trees outside of Givens Hall, the building that houses the majority of the architecture program. One day, during the fall 2017 semester, I arrived to my studio as usual to work, only to see that many of the beautiful trees lining the paths had been cut down. I was shocked and horrified, unaware of the impending expansion of the East End Transformation. For a program so consistently claiming to champion the protection of the environment, the act of culling those trees felt like a betrayal of the ideology they had espoused. While it was something mentioned from time to time in passing, it was a topic few of my peers acknowledged. Admittedly, it was not until my conversation with Jesse Vogler that I even remembered my strong feelings about the destruction of the trees outside

my most-frequented university space. There, I found a starting point. Interestingly enough, the Google Earth images and maps of Washington University still show Givens Hall and its trees prior to the disruption by the construction site now consuming the east end of campus. Between the image taken from Google Earth and my own observation and recording of the existing trees presently located around Givens Hall, I was able to reconcile the difference through my map. On the map, the trees that are depicted in grey are the trees no longer present, while the green trees represent the trees still alive.

Both forms of the trees are depicted by hand using colored pencils and art markers. The collage aspects of James Corner's map and of his Rhizome theory of mapping interested me greatly, so I decided to incorporate some of those elements in my own experimentation of mapping. In figure vii, my map, created in the program Adobe Illustrator, referencing a map of the Washington University in St. Louis Danforth campus, with the usage of hand drawn elements.

The observation of the changes between the present and the past on the East End fail to convey the practical hardships that the expansion of the construction zone has created. Currently, there is no direct route from the center of campus to the Sam Fox complex, where the college of art and architecture houses its program. The most direct route from the residence halls is to take the sidewalk on Forsyth to the buildings, but at one point during first semester, construction inhibited even that, and posed a threat to the safety of the students. One of my peers in architecture got into a biking accident in which he lost several teeth due to the obstruction of the path due to the construction along Forsyth. The mapping of the paths of several students might create a way for the administration of the university to visualize the impact that the construction zone has on its students.

I do not think that I have succeeded in creating a new model of mapping for architects. That ambition has proven far larger to tackle than what a month and a half of research allows. However, I have found a starting point for that investigation. This project has aided in my ability to observe the

world around me and the things that make places unpleasant or pleasant. The process of mapmaking is exciting and interesting, though at times, tedious and frustrating. Reading several different examples of cartographic theory gave me an even greater appreciation for the potential that maps possess. In the coming years, I can see myself finding new ways to create data for my own maps, as well as working to create a framework to refocus architecture as a more people-centered act. At the end of the day, a map is a limitless platform waiting for a new generation of architects, engineers, environmentalists, scientists (including the social scientists), students, doctors, and many others to redraw the borders and boundaries that stratify us and confine us.

Appendix A: Images

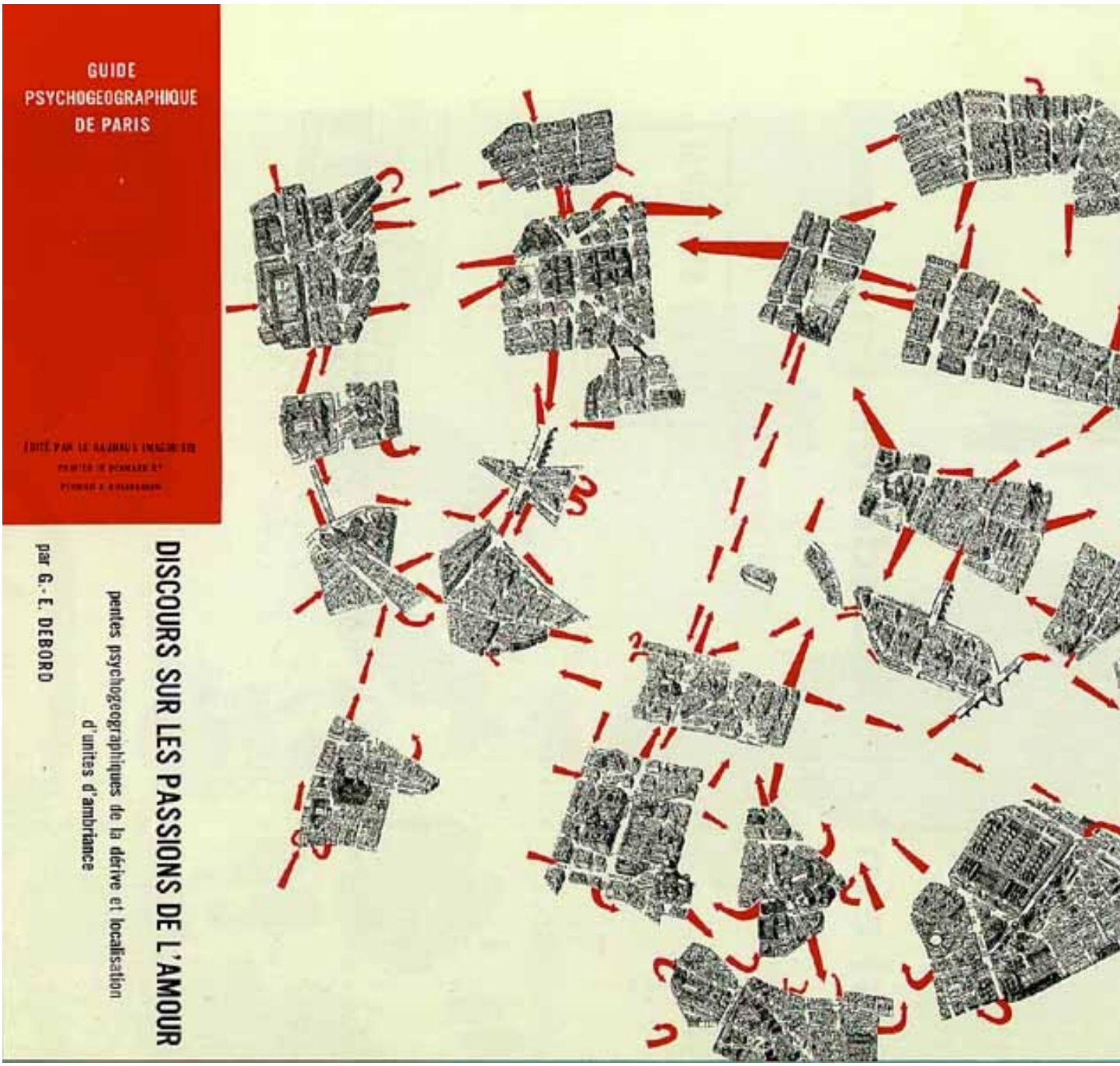
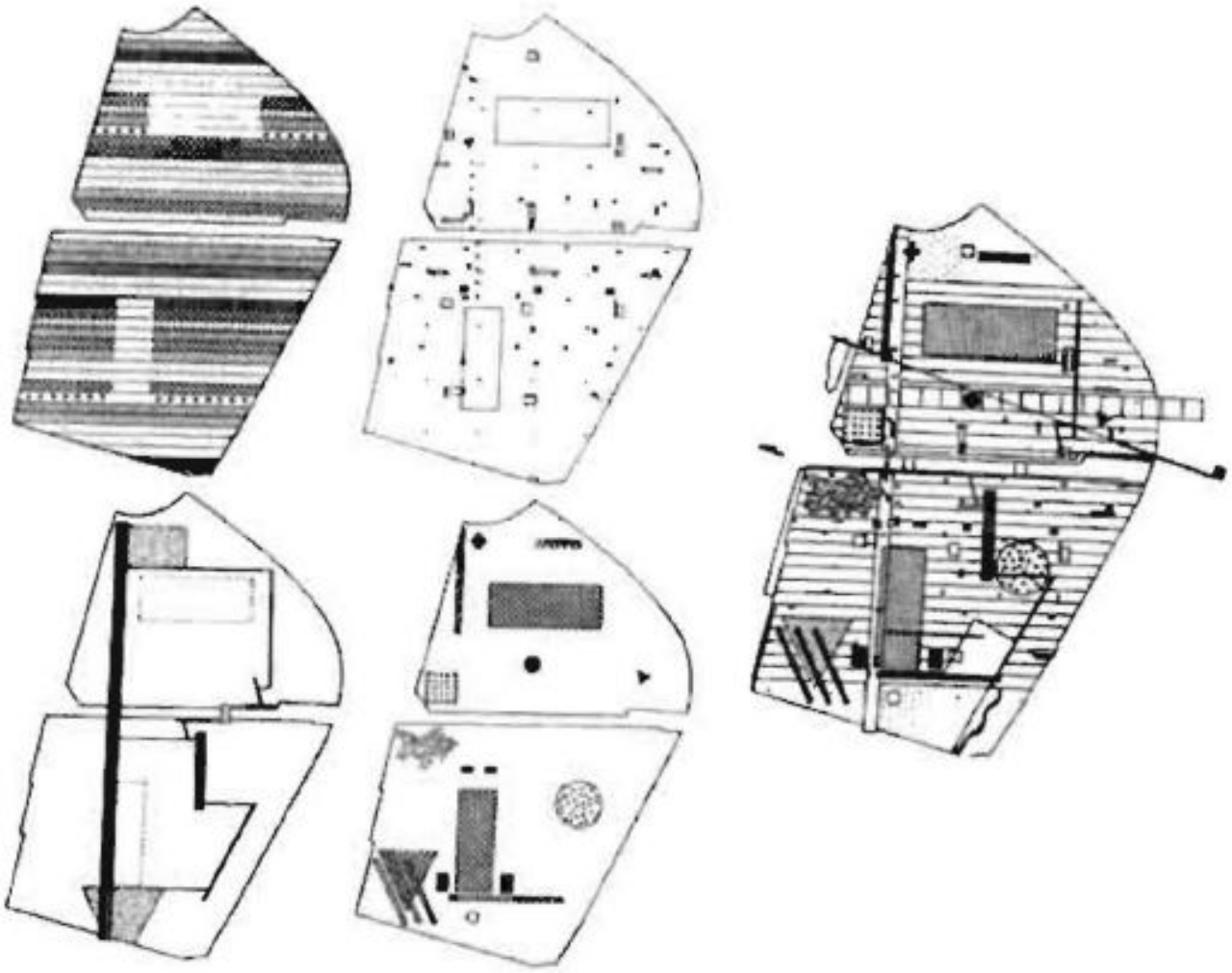


Figure i [32]

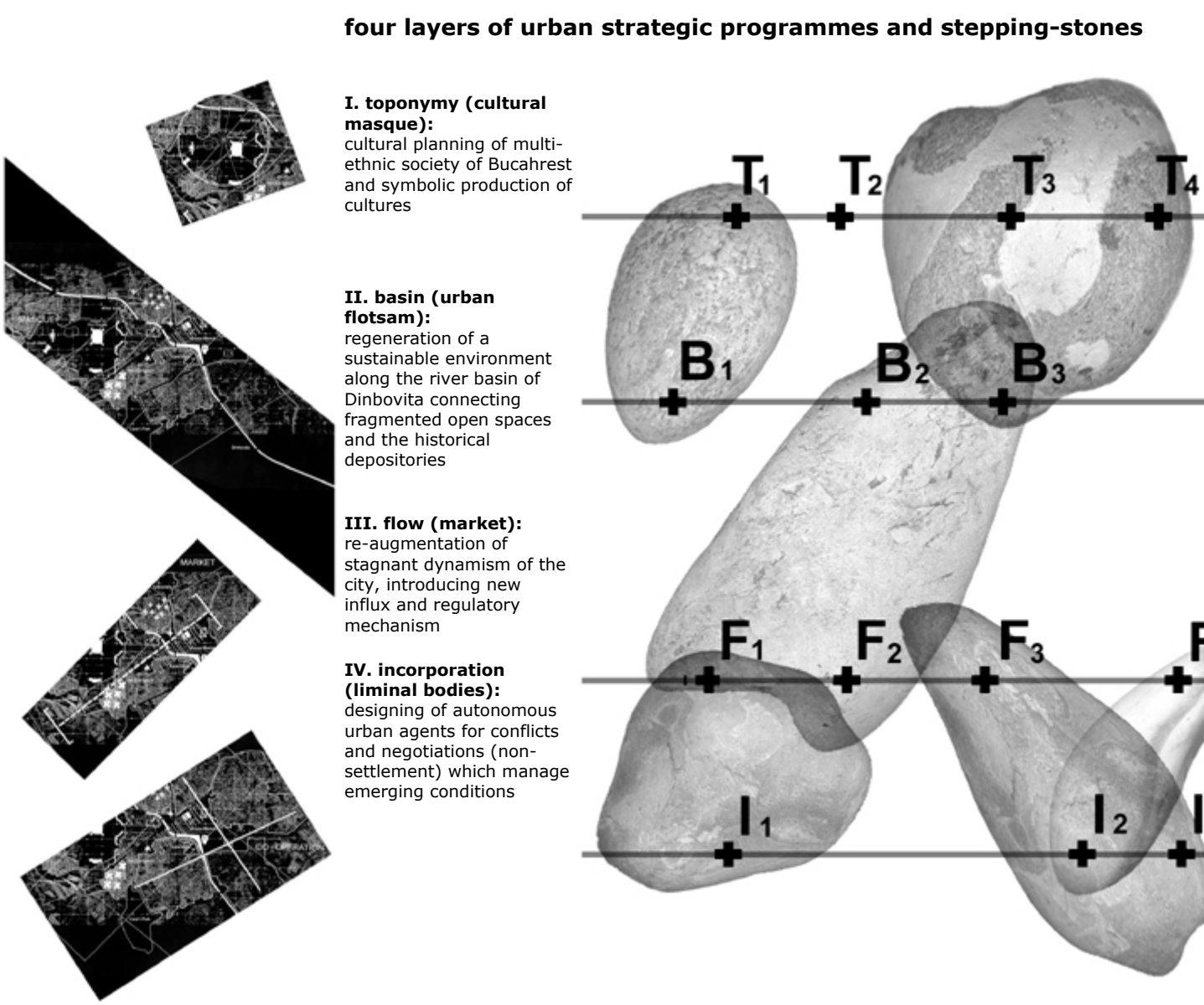


Rem Koolhaas/Office for Metropolitan Architecture, *Layer Diagrams for the Parc de la Villette*, 1983.

Figure ii


FLOW
Opera
University
Mihai Voda
House of the People
South Bank
TOPONYMY
Unirea Market
INCORPORATION
Radu Voda
Obelisk
Gara de Nord
Carol I Park
Dimbovita
BASIN

Figure iii



Raoul Bunschoten/CHORA, Four Planning Fields for Bucharest, Romania (1996)[34]

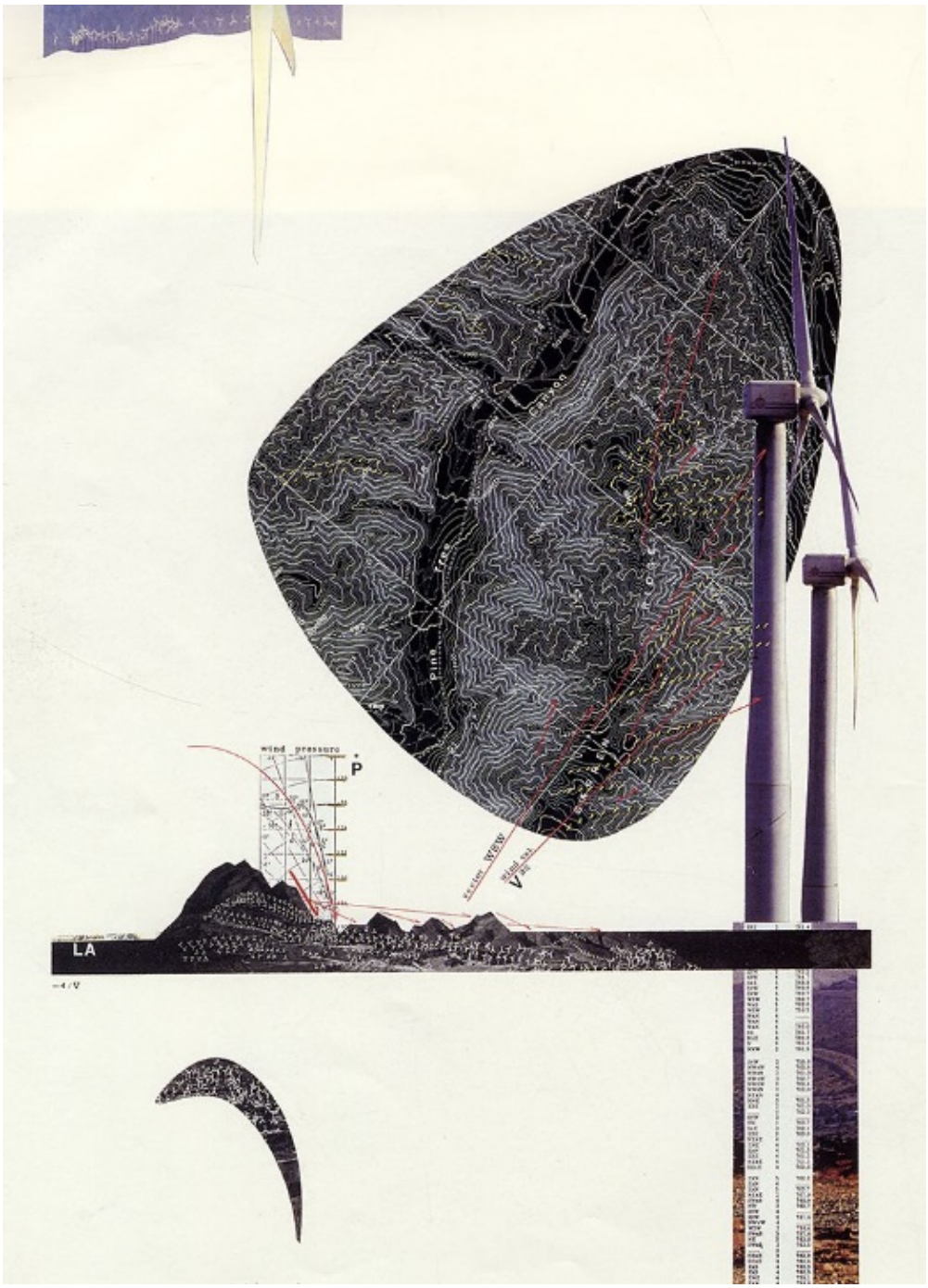


Figure iv

James Corner, Taking Measures Across the American Landscape

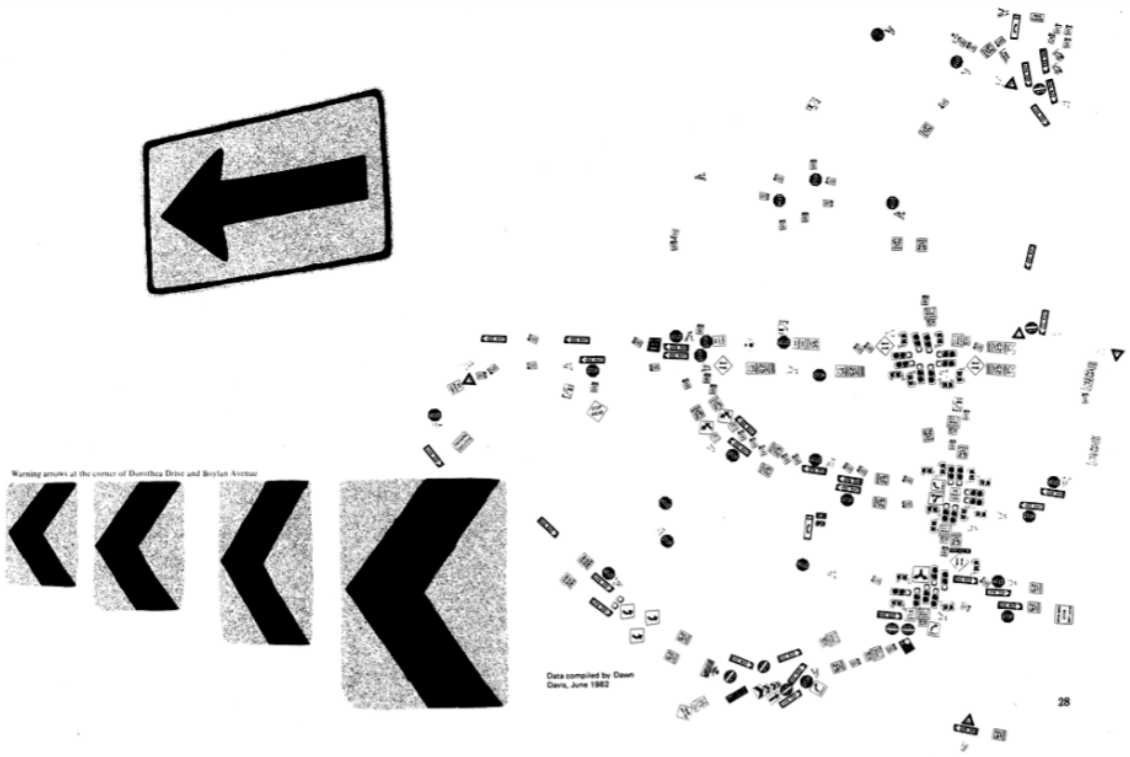
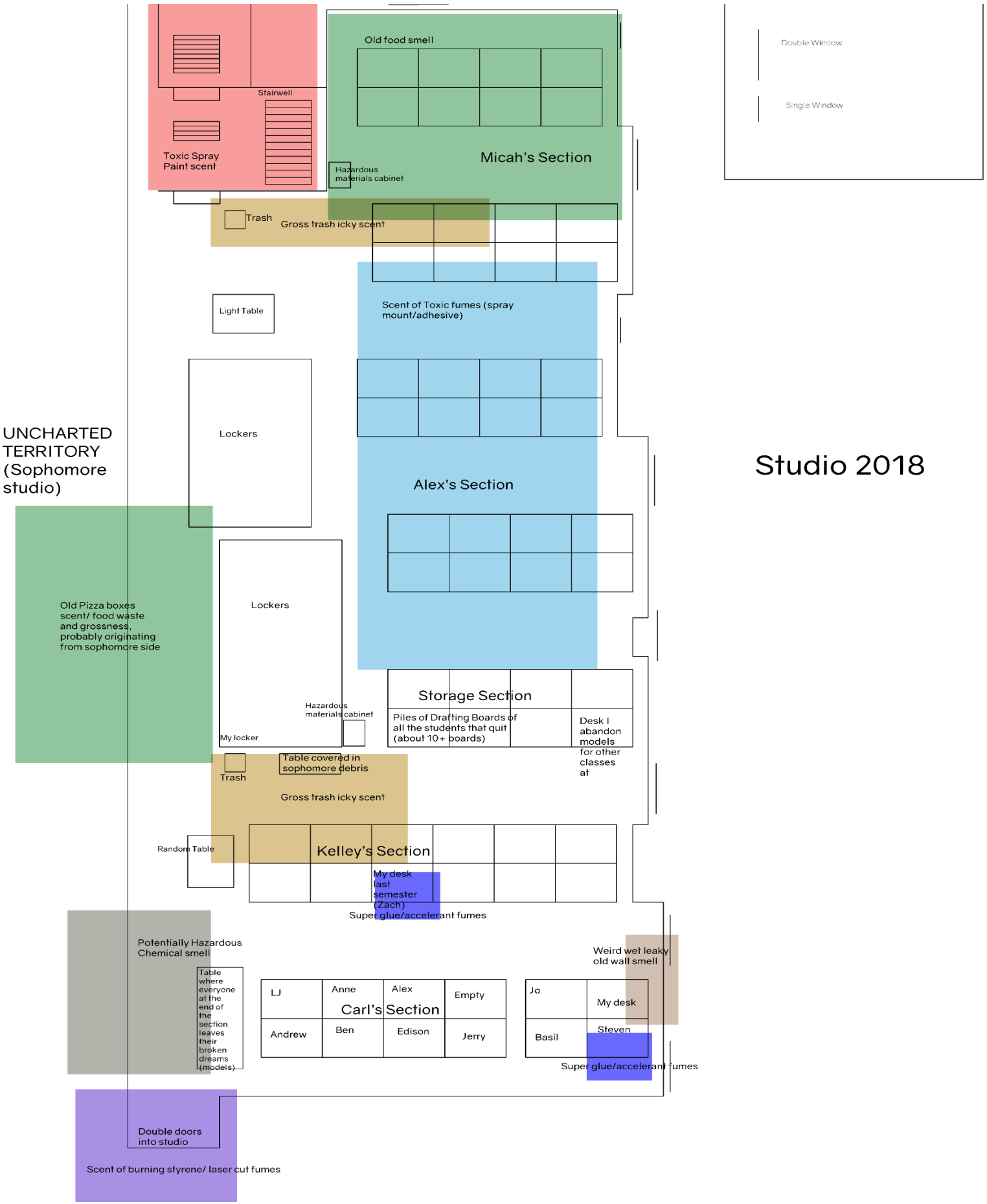


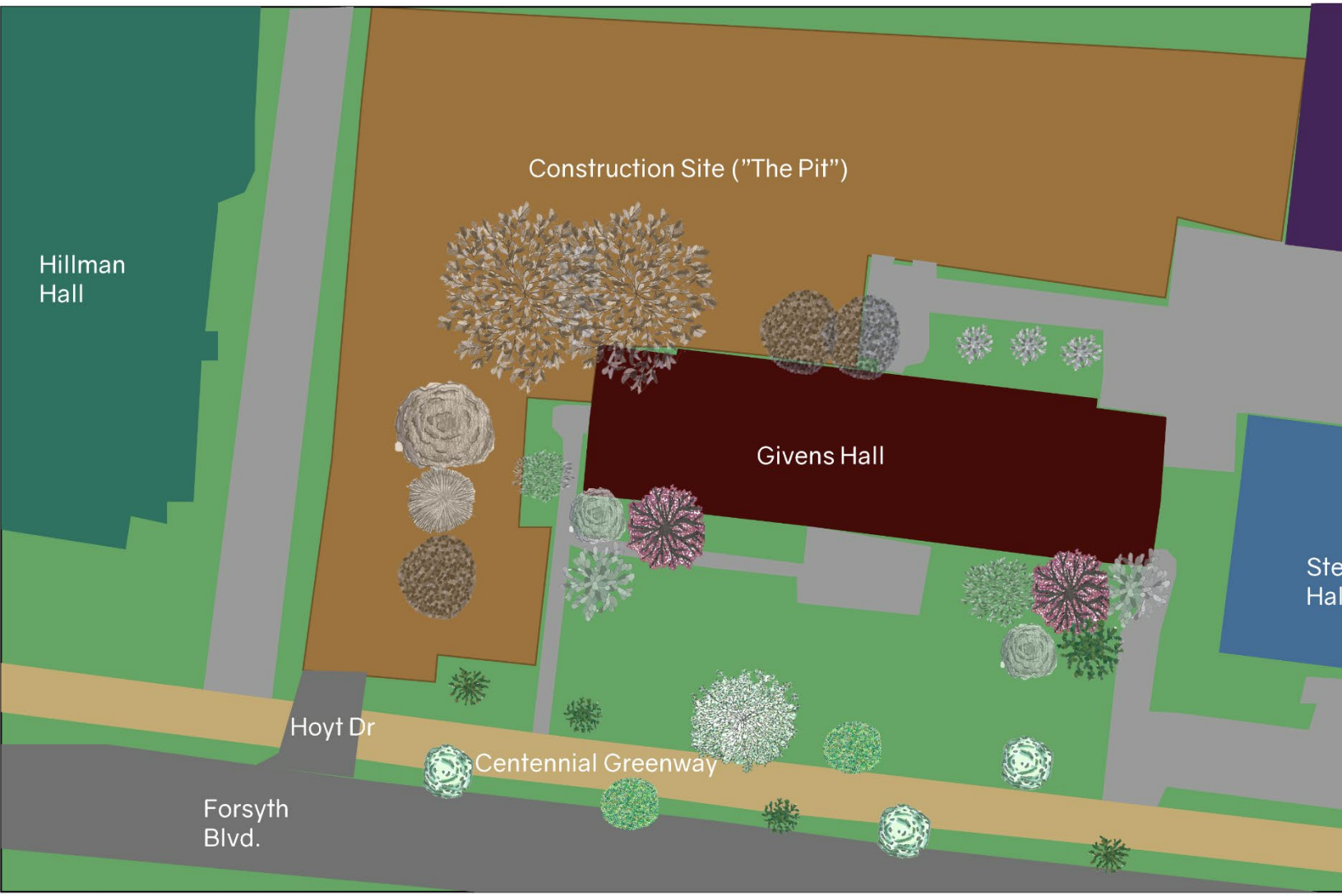
Figure v

Denis Wood, Sign Map, (2008)[35]

Figure vi


Double Window
Single Window
Old food smell
Stairwell
Toxic Spray Paint scent
Micah's Section
Hazardous materials cabinet
Trash
Gross trash icky scent
Light Table
Scent of Toxic fumes (spray mount/adhesive)
Lockers
UNCHARTED TERRITORY (Sophomore studio)
Studio 2018
Alex's Section
Old Pizza boxes scent/ food waste and grossness, probably originating from sophomore side
Lockers
Storage Section
Hazardous materials cabinet
My locker
Piles of Drafting Boards of all the students that quit (about 10+ boards)
Desk I abandon models for other classes at
Table covered in sophomore debris
Trash
Gross trash icky scent
Random Table
Kelley's Section
My desk last semester (Zach)
Super glue/accelerant fumes
Potentially Hazardous Chemical smell
Weird wet leaky old wall smell
Table where everyone at the end of the section leaves their broken dreams (models)
LJ
Anne
Alex
Empty
Carl's Section
Andrew
Ben
Edison
Jerry
Jo
My desk
Basil
Steven
Super glue/accelerant fumes
Double doors into studio
Scent of burning styrene/ laser cut fumes

Trees - Givens Hall Circa 2018



Legend

Trees Cut down (no longer there)

Live Trees

Pavement

Green Space

Figure vii

Appendix B: Bibliography

Bachelard, Gaston. *The Poetics of Space*. Translated by Maria Jolas, Reprint, 1994.

BOSSELMANN, PETER. "Metropolitan Landscape Morphology." *Built Environment (1978-)*, vol. 37, no. 4, 2011, pp. 462–78.

Bunschoten, Raoul, and Tak Hoshino. *Black Sea: Bucharest Stepping Stones*. http://iffi.org.uk/projects/chora/bucharest/bucharest_stepping_stones.htm. Accessed 5 May 2018.

Caquard, Sébastien. "Cartography I: Mapping Narrative Cartography." *Progress in Human Geography*, vol. 37, no. 1, Feb. 2013, pp. 135–44. *Crossref*, doi:10.1177/0309132511423796.

Corner, James. "The Agency of Mapping." *Mappings*, edited by Denis Cosgrove, Reaktion Books Ltd, 1999, pp. 213–52.

Crampton, Jeremy W. "Cartography: Performative, Participatory, Political." *Progress in Human Geography*, vol. 33, no. 6, Dec. 2009, pp. 840–48. *Crossref*, doi:10.1177/0309132508105000.

DeBord, Guy. "The Situationist International Text Library/Introduction to a Critique of Urban Geography." *Les Lèvres Nues*, no. 6, June 1955, http://library.nothingness.org/articles/SI/en/display/2.

---. "Theory of the Dérive." *Les Lèvres Nues*, translated by Ken Knabb, no. 9, Nov. 1956, https://www.cddc.vt.edu/sionline/si/theory.html.

Deleuze, Gilles, and Félix Guattari. *A Thousand Plateaus : Capitalism and Schizophrenia*. University of Minnesota Press, 1987. /z-wcorg/.

"Drawings by James Corner from 'Taking Measures Across The American Landscape.'" *SOMESIENA*, http://www.somesiena.com/somesiena/2013/6/drawings-by-james-corner-from-taking-measures-across-the-american-landscape. Accessed 5 May 2018.

Giannachi, Gabriella. “Art Maps: 7 Questions about Place in Relation to Richard Long’s A Hundred Mile Walk.” *Tate Research*, 3 Apr. 2012, http://www.tate.org.uk/context-comment/blogs/art-maps-7-questions-about-place-relation-richard-longs-hundred-mile-walk.

Glass, Ira, and Denis Wood. “Mapping.” *This American Life*, 4 Sept. 1998, https://www.thisamericanlife.org/110/mapping.

Guy Debord 1957: Psychogeographic Guide of Paris. http://imaginarymuseum.org/LPG/Mapsitu1.htm. Accessed 5 May 2018.

Henri Lefebvre. *The Production of Space*. Translated by Donald Nicholson-Smith, Basil Blackwell.

History of GIS.Pdf. https://web.mst.edu/~rogersda/gis/History%20of%20GIS.pdf. Accessed 4 May 2018.

Krygier, John. “Making Psychogeography Maps.” *Making Maps: DIY Cartography*, 22 June 2009, https://makingmaps.net/2009/06/22/making-psychogeography-maps/.

Mackenzie, John. *Mapping the 1854 London Cholera Outbreak*. 2010, https://www1.udel.edu/johnmack/frec682/cholera/index.html.

“Map | Definition of Map in English by Oxford Dictionaries.” *Oxford Dictionaries | English*, https://en.oxforddictionaries.com/definition/map. Accessed 21 Apr. 2018.

Mayo, James M. “INTRODUCTION: TIME AND LANDSCAPE.” *Journal of Architectural and Planning Research*, vol. 26, no. 2, 2009, pp. 91–94.

McDonough, Thomas F. “Situationist Space.” *October*, vol. 67, 1994, pp. 59–77.

McHarg, Ian L. *Design with Nature*. Published for the American Museum of Natural History [by] the Natural History Press, 1969. /z-wcorg/.

Pinder, D. *Subverting Cartography: The Situationists and Maps of the City*. 1994.

Popova, Maria. “Everything Sings: Making the Case for a New Cartography.” *Brain Pickings*, 6 Sept. 2011, https://www.brainpickings.org/2011/09/06/everything-sings-david-wood/.

Rennell, Rebecca. “Landscape, Experience and GIS: Exploring the Potential for Methodological Dialogue.” *Journal of Archaeological Method and Theory*, vol. 19, no. 4, 2012, pp. 510–25.

Ridgway, Maisie. “An Introduction To Psychogeography.” *The Double Negative*, 12 Oct. 2014, http://www.thedoublenegative.co.uk/2014/12/an-introduction-to-psychogeography/.

thatfield. “CHORA’s Gameboard Methodology.” *Now Urbanism Mapping The City*, 20 Jan. 2012, https://uwcitiescollab.wordpress.com/2012/01/20/choras-gameboard-methodology/.

Tilley, Christopher, and Kate Cameron-Daum, editors. “The Anthropology of Landscape:” *Anthropology of Landscape*, UCL Press, 2017, pp. 1–22, http://www.jstor.org/stable/j.ctt1mtz542.7.

Weinreb, Amelia Rosenberg, and Yodan Rofè. “MAPPING FEELING: AN APPROACH TO THE STUDY OF EMOTIONAL RESPONSE TO THE BUILT ENVIRONMENT AND LANDSCAPE.” *Journal of Architectural and Planning Research*, vol. 30, no. 2, 2013, pp. 127–45.

Wood, Denis. “Everything Sings.” *Places Journal*, Oct. 2011. *placesjournal.org*, doi:10.22269/111013.

---. “Map Art.” *Cartographic Perspectives; No 53 (2006)*, Mar. 2006, http://www.cartographicperspectives.org/index.php/journal/article/view/cp53-wood-featured-article/418.

[1] John Mackenzie, Mapping the 1854 Cholera Outbreak
[2] Ibid.
[3] John Mackenzie, GIS Analysis of John Snow's Map
[4] Ibid.
[5] Ian McHarg Conversations with students
[6] Conversations with students
[7] Ibid.
[8] Ian McHarg, Design with Nature
[9] James Corner, Agency of Mapping: Speculation, Critique and Invention, page 223
[10] Ibid, page 229
[11] Ibid, page 229
[12] Ibid, page 229
[13] Ibid, page 230
[14] Ibid, page 231
[15] Guy Debord, Introduction to a Critique of Urban Geography
[16] Guy Debord, Theory of the Dèrive
[17] Debord, Introduction to a Critique of Urban Geography
[18] Ibid.
[19] James Corner, Agency of Mapping, page 233
[20] James Corner, Agency of Mapping, page 235
[21] Ibid, page 235
[22] Ibid, page 236
[23] Ibid, page 240
[24] Ibid.
[25] Deleuze and Guattari, A Thousand Plateaus
[26] Corner, Agency of Mapping
[27]Ibid Page 244
[28] Ibid, page 249
[29] Ibid, page 249
[30] Ibid, page 249
[31] Ira Glass and Denis Wood, This American Life: Mapping
[32] Guy Debord, Psychogeographic Guide of Paris, "Discours Sur Les Pasions de L'Amour"
[33] Rem Koolhaas/Office for Metropolitan Architecture (OMA), Taken from the Image shown in Agency of Mapping, page 236
[34] Rauol Bunschoten/CHORA, Black Sea: Bucharest Stepping Stones
[35] Featured in Denis Wood's book, *Everything Sings*