Francis Tseng

The World Any Other Way: Simulation and the Expansion of Political Possibility

Mike Smith, "The Best
aid Plans: Urban Planning
Postwar Detroit," *H-Urban*,
eptember 1998.
ww.h-net.org/reviews/
howrev.php?id=2288

In the 1950s and 1960s, amidst urban decline caused by white flight across many American cities, Detroit's city government became enraptured by the promise of "urban renewal."[1] In pursuing this planned program, many maps were created—both to take stock of what existed at present (which neighborhoods were facing "blight") and to sketch out what could exist in the future (which areas could be invested in, what land could be appropriated for new development, what could be built where, and so on).

This planning process unfolded as it has in countless other places, well within the prescribed, entrenched vision of developers and capital. Crude, cruel, and wasteful, it at most aspired to imitate the redrawing of zones, boundaries, borders, and neighborhoods and consequent reshuffling of bodies that had been enacted with a brutal sameness across other cities.

In Detroit, this urban remaking was a project which, again with the same rehearsed strategies as elsewhere, such as in New York City under Robert Moses, ignored or was outright hostile to the city's black residents. The maps of the present framed black neighborhoods as up-for-grabs, if only the present and long-term occupants could be cleared out. The maps of the future promised a city whose prosperity was predicated on the erasure and exclusion of black residents. The authorities tasked with producing these maps could not picture—due to ingrained racism, lack of imagination or just the utmost desire to preserve their own interests at the expense of others—what present conditions were actually like or what a better city could possibly look like. The destruction wrought by these plans formed the structural foundations for the riots that occurred there in 1967.

Following the riots, the Detroit Geographical Expedition and Institute (DGEI), founded by geographer William Bunge and Detroit resident and community leader Gwendolyn Warren, recognized how the maps drawn in this planning process functioned as the catalyst for disaster. They realized that map-making is an act that centers how those in power—those tasked with making the maps from the top down—understand the world. Exercising this knowledge, the DGEI produced what

[2] Catherine D'Ignazio, "The Detroit Geographic Expedition and Institute: A Case Study in Civic Mapping," *Civic Media*, MIT, August 2013. www.civic.mit. edu/2013/08/07/the-detroit-geographic-expedition-and-institute-a-case-study-in-civic-mapping

[3] Dee Morris and Stephen Voyce, "William Bunge, the DGEI, & Radical Cartography," *Jacket2*, March 2015. www.jacket2. org/commentary/william-bunge-dgei-radical-cartography

[4] William Bunge, The Detroit Geographical Expedition and Institute, *Field Notes I* (Detroit: Society for Human Exploration, 1971).

they called "oughtness maps": "maps of how things are and maps of how things ought to be,"[2] with the goal of depicting exactly what the master planners' maps left out, producing a "radical cartography of murder sites, pedestrian paths, commuter traffic, and race relations,"[3] as well as finding ways to assert their own visions for a better Detroit.

Map-making is conventionally understood as a neutral act of description, one which represents the contours of space and the arrangement of the things within it in a way that reflects the physical world. Rather than be seen as an editorial act of perspective, interpretation, emphasization, and assertion, whatever a map depicts is taken for granted as real and inevitable. This is what makes maps most insidious: the same surface that renders empirically measurable geographical features like forests and mountains so too lay out intangible abstract constructs like borders, as if they are equally natural formations. This false-equivalency leads to a deep misunderstanding that grants maps their effectiveness as political and rhetorical tools. The maps put forward by the urban planners of Detroit were understood to express *all that is and all that could be*: the inevitable expansion of development rights and displacement, as if it were a force of nature. The DGEI knew that this inevitability was manufactured, and with their oughtness maps, they saw that if maps prefigured the material cityscape—and which one they prefigured was ultimately arbitrary—then it should prefigure one that responded to their hopes and needs. Bunge was on the nose with his perspective: in the DGEI's first publication, *Field Notes I*, he notes: "After all, it is not the function of geographers to merely map the earth, but to change it."[4]

Simulation and its abuses

Map-making and simulation are closely related: where maps are primarily concerned with the organization of space, simulations are instead primarily concerned with the organization of time. Simulations, of course, may also be concerned with space, but in general, they are designed to emulate dynamic processes that play out over milliseconds, minutes, months, years, eons.

Robert Axelrod, "Advancing the Art of Simulation in the Social Sciences," *Santa Fe Institute Working Paper*, 97. www.santafe.edu/ search/results/working- papers/advancing-the- -of-simulation-in-the- cial-scie

As a practice, simulation is broadly concerned with reconstructing a system or phenomenon in a simplified form, so as to reproduce its approximate behavior over time. The most familiar simulations are computer simulations, which can include for example fluid dynamics simulations to analyze the effect of turbulence on an aircraft wing, or a model of how crowds form stampedes when trying to escape a stadium in panic to inform evacuation plans for urban centers during natural disasters or chemical attacks. Video games like the SimCity franchise, the FIFA series, and Roller Coaster Tycoon let players simulate daily urban life, sports, and business ventures. Beyond computer simulations, nurses are also trained through simulations where actors play out scripted likely scenarios in a clinical setting. And then, there's the Monetary National Income Analogue Computer (MONIAC), which models the UK economy as a system of hydraulic stocks and flows. Of course, the convenience, affordability, and raw power of computing means that we very rarely see mechanical simulations like MONIAC. Simulation nowadays is popularly understood to mean computer simulations.

Computer simulations play out phenomena far more complex (and in much greater detail) than we humans can handle in our working memory. To program a simulation, we specify the rules that we believe govern a subject system, then we run the simulation to see the consequences of those rules delivered in the form of data or visualization. The political scientist Robert Axelrod frames simulation as a third scientific methodology: a "generative" method as opposed to more familiar inductive and deductive approaches.[5] The general idea is to run simulations thousands or hundreds of thousands of times to collect vast amounts of data, and see if the results statistically match real-world observations of the system in question.

Running a simulation is a relatively straightforward process. The process of *developing* a simulation, however, requires that we articulate our particular understanding and theories of how the subject system operates. Because this articulation needs to be legible to a computer, the whole process is less forgiving of ambiguity than other ways in which we can describe how a system works—an essay, a conversation, a tweet, a map, and

so on. The stricter requirement for explicit, detailed theories of what governs a system is what makes simulation so different.

In general, we structure computer simulations by defining a relatively small set of rules or equations that dictate the subject system's dynamics. Though the number of rules may be relatively small, their interaction produces an emergent complexity that can sufficiently model the target system. We follow the same principle of simplification when we render bodies of water in a uniform shade of blue, or a mountain range as a row of triangles on a map; for most uses it is unnecessary for nature to be rendered in photo-realistic detail to be legible. With simulations, these simplifications are necessary for computational tractability—too much detail and your model can take years to finish running. Simulations also need to be simplified versions of the system so that the model has meaningful explanatory power. If we were somehow capable of exactly reproducing the subject system computationally, down to the smallest detail, then we'd have got nowhere in making its inordinate complexity more manageable (which is the whole purpose of making a model and theorizing how systems work in the first place). Much like in other areas of science, the quality of a simulation is based on how accurately it is able to reproduce the target system's dynamics (its predictive power) against the simplicity of its rules.

As a technique, simulation has wide applications: nearly every field can find some use for it. Simulation encompasses applications in the natural sciences, where comparatively simple sets of rules govern but still may be immensely dense, whether at the level of the climate or even at the scale of folding proteins; and in the social sciences, where nuance and context and specificity conspire to add complexity that can never fully be captured by a model. This brings up some of the hard limits to simulation: there are limits to sensor precision, there are limits to projection accuracy over time (the "horizon of predictability," which is why weather forecasts are increasingly unreliable the further ahead they run), and there are epistemological limits which prevent us from knowing enough about the internal mental models and experiences of individuals to model them in a detailed way.

But still, the promise of simulation is tempting. For businesses, institutions, and policymakers, there is tremendous appeal. In its idealized form, simulation essentially promises a way to "predict" the future, under the guise of computational objectivity and rigor. Like so many popular clairvoyant fantasies, the chance to glimpse the future is often valuable only because it provides an edge in exploiting the future.

In the 1973 miniseries World on a Wire (Welt am Draht), the fictional Institute for Cybernetics and Future Science (IKZ) develops a rich simulated world, something akin to The Matrix. Its creators see it as a technological achievement to be explored and further understood, but the IKZ's benefactor, United Steel, pressures IKZ researchers to squander this new technology on predicting steel demand and prices to beat competitors. In our current world, the US military seeks a tight grip on the ebbs and flows of geopolitics and global conflict: Lockheed Martin's ICEWS (Integrated Crisis Early Warning System) assembles data to this effect, though Lockheed Martin probably takes less issue with this than the IKZ researchers did. Being able to simulate how State and non-State actors respond and react would further exaggerate the already egregious asymmetry between the US military and that of the rest of the world.

Of course, in domains like high-frequency trading, the timescales that simulation is used for is a matter of nanoseconds, but the fundamental conception of simulation as a tool for making decisions about the future is the same. The impulse in both finance's nanoscale and the military's more glacial pace is to spatialize the future so that it can be carved up and doled out like land on a map: territories to be contested, claimed, and extracted from. This framing of simulation serves only to propagate today's dominant values and principles forward into the future.

Simulation as rhetoric

The truth is, unquestioningly projecting forward the values or understandings of the present world is standard in designing simulations today. The process of simplifying a system by whittling it down to a relatively small set of rules necessarily

6. Andrew Newman and Sara Safransky, "Learning from Field Notes No.4: The Trumbull Community: Reflections on the Politics of Urban Land and Participatory Research," *Antipode: A Radical Journal of Geography*, 2017. www.radicalantipode.files. wordpress.com/2017/02/ dgei-field-notes_newman-and-safransky.pdf

7. Rich Heyman, "Knowledge Production, Political Action, and Pedagogy in Trumbull," ibid. www.radicalantipode. files.wordpress.com/2017/ 02/dgei-field-notes_rich-heyman.pdf

means that details are smoothed out and nuance is ignored. For many parts of a simulation this is a conscious process of design and deliberation. But for many other parts—often the most foundational ones—certain details, such as those regarding human behavior, motivation or values, are maintained without any examination. These details are taken for granted because they are often ideological and therefore not something to be seen but something that is seen through, like the air we breathe. The company that seeks to forecast its consumer demand and market changes takes as a given that they should and will continue to exist in the future. The military that seeks to foretell geopolitical swings takes as a given that the crises of today might resurface tomorrow, and that they are the best means of addressing them. Simulations present a working model of the world, but the explanations they provide are bound by the ideological commitments of their creators.

Maps are similarly developed under ideology, in particular those that are centered around government and economic power, as the only legitimate agents of shaping land and its uses—and more fundamentally, what the DGEI describes as the "social value of land."[6] Much of the DGEI's work was aimed at challenging this premise by expanding who produced and presented maps and plans for the city, and asserting different understandings of the function and governance of land.[7] In the case of the Trumbull community in Detroit, detailed in the DGEI's *Field Notes No.4*, the main tension was over Matthaei Playfield, a rare open recreation area. A local university aimed to annex the land as a carpark, under the presumption that land is meant to serve the expansion of institutions rather than meet the needs of the community that it is located within, perpetuating a long history of land as something to be claimed and taken.

While simulations similarly perpetuate long-standing dogma, the ideology that simulations primarily rely on is that of computation: perceived rigor, correctness, and mathematical infallibility which, in turn, further entrenches all other assumptions built into them. As a result, these foundational assumptions are often taken as an immutable natural law, perhaps more than they do when rendered in a map.

Chris Franklin, "Errant
Signal—Civilization,"
YouTube: 2014.
www.youtube.com/
watch?v=xBIEscMLjy0

Ava Kofman, "Les
Simerables," Jacobin,
October 30, 2014.
www.jacobinmag.com/
2014/10/les-simerables

Video games are home to some of the most egregious examples of these naturalizing premises. Civilization is a series of strategy simulation games where players embody a civilization from a past era of human history. The game, perhaps unsurprisingly, privileges the nation-state as the only legitimate form of human society. As Chris Franklin (Errant Signal) points out, nomadic or "stateless" peoples are unambiguously labeled as "barbarians."[8] In some sequels they are explicitly labeled as primitive savages, sharing the same banner as wild animals. These "barbarian" people are presented as backwards nuisances to be dealt with (i.e. exterminated) or ignorant heathens to be assimilated into the "correct" form of human organization. In parallel, each of the simulated civilizations race to conquer all others, to achieve total cultural hegemony, to establish a global theocracy, or even to leave the planet behind. You can't establish a completely new way of living: in Civilization, the nation-state remains eternal.

Similarly, SimCity, a series of city management games, embeds and informs many assumptions as to how a city functions. In online forums and discussion boards, there are many lively debates about how to get rid of homeless people in players' cities; according to players the most effective solution is to build buses to take them away. There is no way to engage with homelessness as a social problem; for players it is a nuisance that "just happens." Like rainwater that needs to be directed into a drainage system, people without a shelter must be channeled away to somewhere else. Similarly, in her text Les Simerables, writer Ava Kofman points out that criminal activity in SimCity can only be dealt with by plopping down more police stations.[9] There is no room to meaningfully examine the root causes of criminal activity in a way that might lead to other ways of addressing crime. Here, it is simply how a city works.

Still, since simulations are code, modifying the code is a direct way to challenge these assumptions and assert new ones. In the case of Civilization and SimCity, there are already communities of "modders" who create their own add-ons and modifications to the base game (though none, yet, seem to have addressed the problems described above). These games, and computer simulations more broadly, then become

10. Peter Frase, "Social Science Fiction," *Peter Frase*, December 2010. www.peterfrase. com/2010/12/social-science-fiction

a clear site of ideological contestation, where one can directly challenge the framing of certain behaviors or phenomena as the norm. Players can code their own rules or tweaks to see how things play out from new starting points. Beyond simulations' predictive and explanatory capacities, the most exciting characteristic of simulation is exactly in this kind of counterfactual thinking—we can all ask our own "what ifs." But even then, our imagination seldom escapes the enormous gravity of our most foundational beliefs.

The expansion of possibility

Fiction often fulfills a similar counterfactual function by carving out a space for imaginings that can be quite radical. Ursula K. Le Guin's work, and what Peter Frase calls "social science fiction," are known for this: taking our world, rejigging some key elements, and then laying out what could change as a result.[10] And, unlike most science fiction, these writings aren't concerned with the future per se; they are concerned with the here and now, not asking "what will things be like?" but rather "how could things be?"

It is unfortunate that because these are works of fiction, their radical imaginaries may be dismissed on the grounds that they are, indeed, fictitious. The audience is ready to wave away its predictions as fantastical and its characterizations as unrealistic. Simulation differs because it can produce radical new possibilities roughly within parameters that people are willing to accept, by leveraging computation's aura of accuracy and impartiality. And, because it's often framed as a forward-looking tool, it's possible to make a simulation that looks like it is referring to how things could change in future, but is actually about how things could be right now. Furthermore, since simulations can be modified to produce different consequences, they fundamentally challenge the fantasy that the world works in just *one* immutable way: upending the post hoc rationalization that things have simply "happened for a reason," and the implicit conclusion that all processes and things are justified by their mere ongoing existence.

The justification of capitalism is generally based on the idea that we have reached the logical end of a roughly

11. The Detroit Geographical Expedition and Institute, *Field Notes No. 4: The Trumbull Community* (Detroit: Society for Human Exploration, 1972).

linear historical process of unambiguous progress. Present inequities in wealth, life, and production are therefore viewed as "necessary" to achieve better standards of living in the aggregate. History, and all the dynamic processes that compose it, is basically understood to exhaustively enumerate all viable political and economic configurations, and to stop when it delivers us with the best one. Following this mindset, since we are always at the latest stage of this linear process, we always live in the best of all possible worlds.

Of course, there are vested interests in maintaining a sense of historical inevitability, and silencing or subduing any evidence to the contrary. Cognitive psychologist Steven Pinker built his popular science career around arguing that the world is actually getting better, contra what pessimists and news media would have you believe. But where Pinker is so unimaginative that he can only ask "are things better than they were?" (and of course, some things are better for some people) simulation, in its tendency towards counterfactual thinking, instead asks "how good things could have been?"

For the communities involved with the DGEI, mapping was a pretense for exploring these questions in a way that could be legible to city government. In their work with the Trumbull community, it was a space to lay out a new desired world: housing that isn't controlled by landlords and rent, land that isn't reserved for institutions to claim, cooperative and community-owned businesses. The DGEI therefore asked how their neighborhoods could look, if they existed in a city that granted them their autonomy?[11]

Simulation similarly provides space to explore such possibility, helping us to appreciate the branching paths of history so that we may recognize that we continually exist at such a juncture in the present. In encouraging us to think of ourselves as people existing in systems made up of interlocking simple rules, and more importantly, to consider how different things can be with small shifts to these rules, we can appreciate how close we are to so many different worlds. These simple rules are often not set in stone—even though they feel that way—and so simulation helps to dispel the conservative inertia that gives these myths their longevity and apparent inescapability.

Like maps, simulations have the capacity to shift the way that our priorities are framed and to call into question the most sacred axioms society is organized around. What do we take for granted? The Detroit Geographical Expedition and Institute recognized that powerful interests took for granted the notion that a city's rehabilitation necessitated the eviction of its black inhabitants, and they used maps to literally reshape the material landscape to make it so. The city government maps presented an inevitability to how space was structured, and a limited view on how space could be used. The DGEI's maps needed to upend that "common" sense. So too can simulation and its counterfactual tendency be used to upend the common ideology of our time, to help us appreciate, to paraphrase the old refrain, that "other worlds are possible." This certainly isn't the best one.