COMPUTATIONAL INFRASTRUCTURES AND AESTHETICS

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“Maps themselves are like laboratories where experimentations on tracings are set in interaction. Thus, here the map is opposed to the structure; it can open itself in all its dimensions; it can also be ripped apart; it can be adapted to all kinds of assemblies. A pragmatic map can be started by an isolated individual or a group, it can be painted on a wall, it can be conceived as a work of art, it can be conducted as a political action or as a mediation.”

- Félix Guattari

Recent years have witnessed a resurgent philosophical interest in materialist and realist ontologies. Following on the lead of sociology, archaeology, and feminism, philosophy is once again taken up with the task of thinking materiality. This ideational movement is paralleled in turn by a political movement seeking to deal with the complexity of the global capitalist world. The latter finds its intellectual inspiration in Fredric Jameson’s notion of cognitive mapping: those techniques which allow individuals to situate themselves within a larger structural whole. Whereas at one point the phenomenology of the world could plausibly be argued to correspond with the structural forces of the economy, in today’s globalized world, we are buffeted by forces far beyond our finite conceptual capacities. It is in this context, this conjunctural moment, that we increasingly recognize the limits of relying on internal cognitive capacities, and subsequently the potentials within technology for extending our mind. We exist in, as, and from socio-technical assemblages. The complexity of these systems gives rise to both the need and the means to cognitively map them, increasingly permeating our phenomenology with a new digital aesthetic. The aim of this piece is to examine the political implications of this new world of cognitive technologies.

1. MACHINIC COGNITIVE CAPITALISM

For the most part, these technologies find themselves associated with ‘cognitive capitalism’, whose most striking feature of the past decade has been the degree to which the supposedly unique qualities of human labor – affective, intelligent, cunning, and communicative – are all being transformed into the fixed capital of machinery. At their speculative edges, the computational infrastructure of today’s capitalism tangentially

2 For two representative examples, see: Coole and Frost, New Materialisms: Ontology, Agency, and Politics; Bryant, Srnicek, and Harman, The Speculative Turn: Continental Materialism and Realism.
3 Jameson, “Cognitive Mapping.”
4 Clark, Supersizing the Mind: Embodiment, Action, and Cognitive Extension.
approaches the limits of physics, with the speed wars of high-frequency trading forcing decisions into the nanosecond scale. More mundane developments combine the collection of massive amounts of data about individuals (purchasing habits, travel patterns, browsing history, etc.) with sophisticated mathematical analytics that provide forecasts for marketers. Emerging developments, such as drone deliveries and automated driving, all portend an increasingly automated and computational future. The world is being rebuilt to communicate with itself, outside of human perception. It is giving rise to what Benjamin Bratton calls the Stack:

“The Stack is planetary-scale computation understood as a megastructure. […] At the scale of planetary computation, The Stack is comprised of 7 interdependent layers: Earth, Cloud, City, Network, Address, Interface, User. In this, it is an attempt to conceive of the technical and geopolitical structures of planetary computation as a ‘totality.’”

It is the emerging global computational infrastructure which forms the materialist basis of today’s economy. Yet in spite of its ubiquity within circuits of capitalist accumulation, the computational infrastructures being constructed also contain within them the potential for repurposing.

In particular, they contain a potential response to one of the fundamental problems of contemporary leftist: its inability to think the global economy. Broadly speaking, analyses of neoliberalism tend to remain at either a local, reactive level (e.g. campaigns against welfare cuts, social housing cuts, precarious work, etc.) or attempt a global analysis through obsolete dialectical categories (e.g. David Harvey’s work being the paradigm here). For most of the left, what is missing is a cognitive map of the situation we find ourselves in – that is to say, the means to make our own world intelligible to ourselves through a situational understanding of our own position. This type of knowledge situates the individual observer into a larger array of forces – and remains, in a sense, unliveable by the individual. In much the same way that Thomas Metzinger shows how consciousness cannot live the knowledge of itself as a fleshy entity (because to do so would simultaneously eliminate the consciousness which is aware), so too does cognitive mapping of our structural position remain unliveable. It is instead recognised as a form of abstract knowledge partially divorced from our phenomenology. In cognitive mapping, "the spectator has the opportunity to understand that what he is seeing is how he is being seen" – the transformation of the first person perspective into a third person perspective. What is required here to make the structural image of neoliberalism amenable to action is stereoscopic vision – combining the manifest image and the scientific image, the local and the global, the ideological and the scientific. The phenomenological everyday experience of being-in-the-world appears in tension with the scientific and abstract image of our structural position, yet the issue here is not that the manifest gets eliminated by the scientific. Rather, the manifest becomes material for the scientific perspective – it is both its foundation as well as its material. The global-structural to local-phenomenological shift here needs to be made continuous (ideally

5 Bratton, “The Cloud, the State, and the Stack.”
6 Jameson, “Cognitive Mapping.”
both visually and conceptually), but this is precisely what is its most difficult task. It is here that speculation on the material nature of thought can be productively combined with the political manipulations of technology in order to marshal together the resources and capacities needed to construct a cognitive map.

Recent reflections on the nature of thought and its situatedness within computational infrastructures has demonstrated that certain aspects of cognition can be outsourced beyond our biological surface – entering into material circuits of technology and augmenting our limited capacities. In fact, one of Bruno Latour’s most significant insights is that complex societies cannot exist without such material embodiments of social relations and cognition. We build, embed, and manipulate objects into material infrastructures precisely in order to solidify a state of society. These infrastructures thereby form both the reification of a state, as well as the platform for expanding into new states. Take technologies away from human societies and one is left with very little – reliance on memory and institutionalization instead being premised on fallible oral and auditory methods of interaction. In this regard, particularly crucial to the task of cognitive mapping is representational technologies – those technologies which expand our specifically conceptual capacities to make intelligible large-scale structures. Such technologies have a long history, particularly as employed by state and proto-state political formations:

“The long-distance organs of perception of social complexity enabled the state to ‘see’ the past and the present and, consequently, to foresee and program the future. […] Graphic statistics made it possible to encompass in a glance the society as a whole, to compare and contrast all the objects comprising it, and hence to make calculated forecasts. They contributed, in fact, to the decline of the hegemonic regime of discourse and its replacement by a dictatorship of measured facts – which would be the very foundation of social planning, social security and national accountancy.”

While these technologies are ubiquitous in literatures on state-formation, they can also be appropriated by critical perspectives as well. A critical use of these representational technologies entails two primary types of cognitive maps – on the one hand, an economic model of contemporary neoliberalism; and on the other hand, a model of a post-capitalism system. The former provides a navigational tool (both epistemic and political), while the latter provides a flexible cognitive map for a future system.

Yet what must be made clear here is that the idea of cognitive mapping remains empty insofar as it limits itself to a passive contemplation of a representation. Cognitive mapping only takes on political significance once it generates an active means for leveraging the dynamics of a system. It should, in true Jameson fashion, be capable of augmenting our phenomenological experience in such a way as to make clear the structural elements determining it, thereby making them visible and open to transformation. It must be capable, in other words, of translating structural forces into amenable aesthetic perceptions. One of the political problems of aesthetics is therefore not how to represent power, but how to create power. How, in other words, does one use art in order to construct mechanisms of effective action? In a world where overwhelming complexity and the futility of central planning are the default beliefs of neoliberal

9 Bureau d’Etudes, “Representing the System,” 32.
economics (i.e. the basic Hayekian point against communism), creating means to modulate complexity from the bottom-up are essential political interventions. What must be constructed is what John May calls a ‘managerial surface’ – an interface that makes possible the manipulation of a complex system. Yet whereas May sees the managerial surface as a control mechanism and as a flight from reality, in fact, the logic of a complex assemblage dictates that it is precisely the managerial surface which makes self-governance and autonomy possible. In all these aspects, it is the figure of the control room which most clearly concretizes them.

2. OPENING THE LOCAL ONTO THE GLOBAL

The control room operates here as both a metaphor (a physical embodiment of an abstract diagram of local-to-global transitions) and a literal configuration of materials and cognitive capacities. These are centres of calculation which mediate between local phenomenology and global structures in order to render a complex system amenable to modulation and action. The classical control room finds its paradigmatic example in the war room: products of that moment where existential threat compelled capitalist economies to shirk their liberal pretences and adopt a thorough system of economic planning. The links between centralised economies and war are so close that it’s no surprise to learn that Gosplan in the Soviet Union was inspired and modelled after Germany’s WW1 economic system. In these classical models – often constructed by designers and architects manipulating technology around human contours – emerges a system of top-down, highly centralised control, with orders emanating from the top and acted upon by below.

Yet it is precisely these types of control rooms which are ineffective and made obsolete after the failures of really existing communism. New situation rooms have sloughed off the traditional pretences towards full control and instead attempt to modulate flows: examples include the traffic control rooms in global cities, border management in politically sensitive areas, and the policing of major metropolitan areas. In this regard, the Chilean experiment with CyberSyn is an important precedent. Precisely because it incorporates worker autonomy, and worker control over the factories into a decentralised planning system, CyberSyn tears apart ancient ideas of Soviet Gosplan with its impersonal and tedious bureaucracy. Cognitive mapping enters here both in the overall structure which aimed to modulate the national economy, as well as in the form of a simulator of the Chilean economy. While the simulator was a relatively simple model of the Chilean national economy at the time, the principle behind it still holds today: melding epistemic accelerationism of economic science with political accelerationism of post-capitalist planning. With today’s computing power though, this simulator could not only be greatly expanded but could also run multiple possible outcomes in order to determine the best possible outcome. Whereas the real economy today, running on a price system of information, can only run one outcome at a time, the

10 May, “Logic of the Managerial Surface.”
12 De Lama, “From Control Rooms to Situation Rooms,” 38.
virtual economies of the simulators could choose which path through phase space an economy would be best suited for.\textsuperscript{13}

The figure of the control room therefore condenses within it (1) the necessity of technology to extend cognitive capacities and map the current system, (2) the necessity of translating this structural map into a local aesthetic, (3) the necessity of technology to act as a means for leveraging power, and (4) the necessity of computational infrastructures for achieving all of this.

3. CONCLUSION

The problem that remains is that most attempts at cognitive maps have remained at the level of the beautiful and evaded the level of the useful. The French group Bureau d’Etudes, for all the beauty of their work, is one of the most prominent in this regards. Their works present global capitalism at-a-glance: intricate and detailed networks of financial, political, and social relations embodied in alluring designs. Yet this work remains content with the technological sublime. The viewer remains overwhelmed at global capitalism’s complexity, and struck by the beauty of the connections, but the viewer’s capacity for transformation is left unaugmented. What is needed instead are artworks that move beyond the replication of capitalism’s complexity and seek to design means to begin thinking and altering the current conjunction. These are models that generate an understanding of how to take apart and re-build economic systems. What happens if a basic income is instituted? What happens if automation permanently removes large numbers of workers from the labor force? What happens if quantitative easing for the masses is carried out? Such questions require a cognitive map to navigate the ramifications of paths they lead to. Moreover these cognitive maps create new possible practices by expanding the means of intervention and interaction with systems. For instance, CyberSyn’s coordination of workers during a strike by the bourgeoisie was made possible by its cognitive map of the Chilean economy. In this regard, such cognitive maps literally create power by creating new capacities to act in the world.

In conclusion, what is needed is not a perpetual nomadism or a withdrawal from power (two standard figures of contemporary leftism); what is necessary today is instead a counter-hegemonic operation. The field of power, the shaping of material infrastructures and social relations, all need to be contested and fought for, not removed from struggle. The material infrastructures and cognitive extensions provided by technology act as a platform for both speculative political thought and action.

\textsuperscript{13} Cockshott et al., \textit{Classical Econophysics}, 329–330.
REFERENCES


