Ecstatic Weather - Encrypted Architecture

Long Island, 2030 - Climate Change, Pervasive Data, Privacy

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GSAPP	https://bit.ly/2nW6mCQ
Amazon Author's Page	https://amzn.to/2MpeTwR

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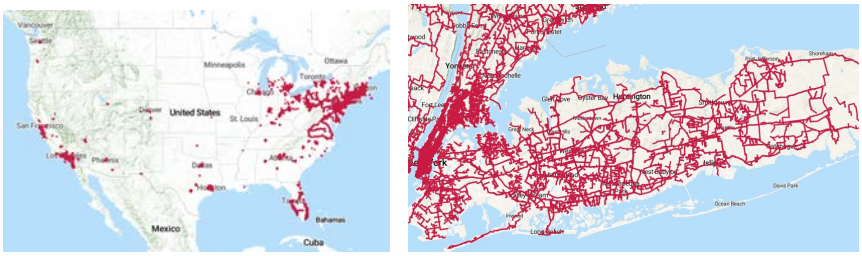
Kinne Travel Rome and Como, Italy. Issues of *encryption* in antique and modern architecture.

Algorithms that know more about us and our behavior than we do ourselves are too powerful to go without oversight. Garry Kasparov https://blog.avast.com/who-is-responsible-for-data-security

Weather and Data: Our studio will explore a small-scale architecture that conflates the ubiquitous data exchange and a fast-emerging era of renewable energy in buildings and mobility. Ours is a time of decoupling from an energy grid, yet deeply engaging a pervasive data grid. Are we increasingly engaging an *ecstasy* of weather as energy - climate as economics - and place as a trauma of insecure and unknowable data? What can we do to, in effect, encrypt the city and welcome the weather?[1] Our studio will seek a new prototype for a data/weather/work/house.



Crown Castle fiber optic network maps. The network connects 900 data centers and 25,000 buildings nationally.

Ciphering and Encryption: The studio will explore how architecture has often assumed a ciphered posture towards forms of emergent or pervasive power -- economic, political, social. From Giuseppe Terragni to Peter Eisenman; from Wassily Kandinsky to Frank Stella; architecture and art have often, in effect, made their subject *indecipherable* from their medium, rendering, in effect, an art/architecture that resists readings as it gains autonomy. The more experimental sides our discipline's history are more relevant than ever. Do these histories afford a basis for an early form of architectural encryption.

Is this an era where architecture must do more to understand privacy; when it will inevitably be more deeply engaged in the persistent streams of shared data that promise to cast innovation *as* a fusion of cities and data. Smart cities, smart mobility as the new metropolitan condition under the wider auspices of climate change.

[1] For reference see: http://www.econ.yale.edu/~nordhaus/homepage/homepage.htm

Deeply monitored spaces, ubiquitous sensors often portend a responsive environment. Is there a new *plastic* space and architectural quality that falls apart or from this tendency? A monitored and interconnected environment - from residence to mobility to work - that nonetheless offers some *other (plastics)* experience. Do we need to design buildings that do not know we are home (data opaque); set under a sky that does not know we are there (no effect on climate).

Does architecture help us stage our own disappearance.

The (mega) Site
Long Island - 2030

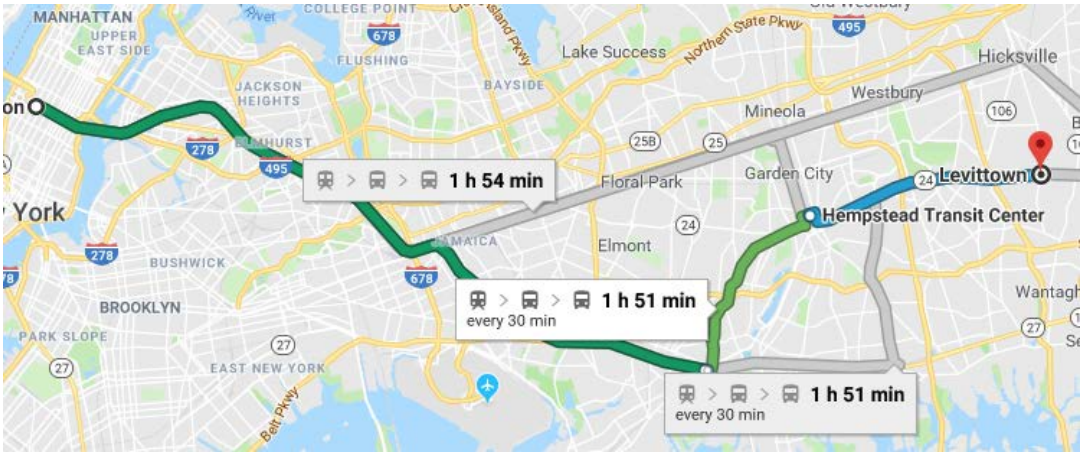
If the suburban matrix of home + retail + work spaces endemic to Long Island urbanization over 75 years further collapses into home + work (minus retail); as consumption commerce architecturally disappears (into Amazon et al) we are left with a form of domestic and works places. Will workspaces become more private if not quasi-autonomous? Does work become *less* reliant on place and the geographic locations that historically drove industry (river, bay, ice in the Great Lakes as a cooling means or food stabilizer)? Does housing continue to tether itself to industry and large cities; a remote bedroom community serving urban jobs. In other regions of the United States - for example, the Tahoe Reno Industrial Center - housing is tentatively being forged in proximity to lower cost robotics and forms of digitally scaled commerce where the future of human work unclear. What happens to older suburbs such as those of Long Island if labor recedes? How do gage the future of the hardware of the past century: highways, trucking, railroads and warehousing? We will ask how new forms of commerce, communication, retail and mobility and energy will ripple through the older American suburbs and in particular Long Island sprawl.

Microsoft/ NY Times map done with machine learning depicts the figure ground of "every building in the United States.

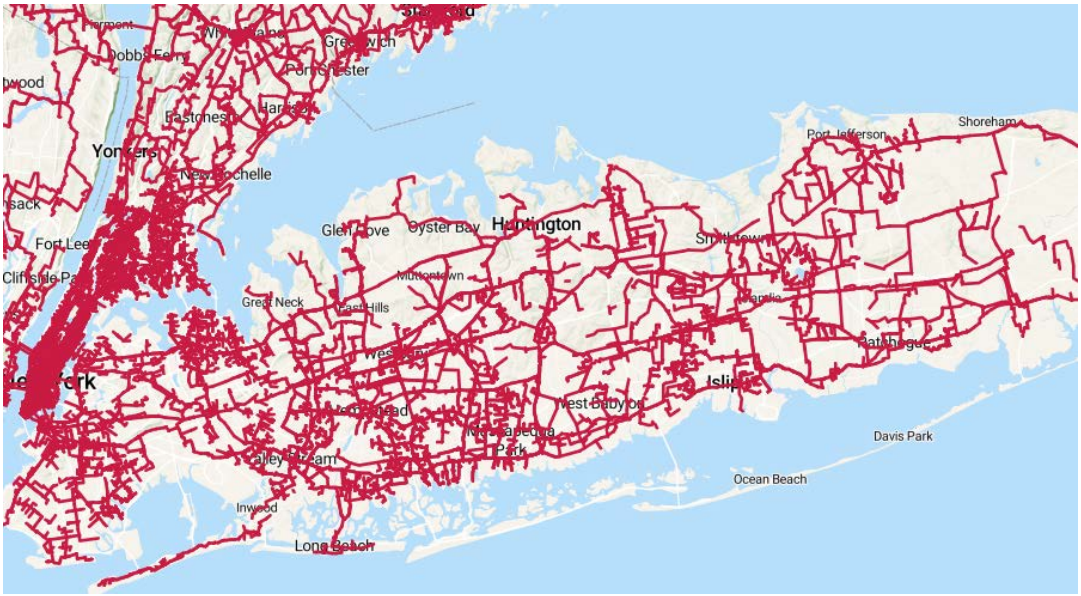
https://www.nytimes.com/interactive/2018/10/12/us/map-of-every-building-in-the-united-states.html?auth=login-email

Proposal: Enable a new architecture at Levittown, New York with a:

- new smart yet encrypted housing prototype.
- new localized form of data and energy production - the house and data center as one.
- house that does not register on any grid.
- house that does not know I am at home (encrypted)
- house that is self-similar to the 20,000-year history of Long Island.
- a seed for change in the larger context of Long Island and Levittown.



Levittown is connected by the Long Island Railroad to Manhattan. The post-war suburban town, like most of Long Island deeply intertwined with and supports the NYC economy. A map of data centers and fiber connected buildings shows (see below) the degree to which the new and old infrastructure continue this. Levittown encapsulates nearly a century of technologies from automobiles to fiber optics. Every aspect of its scenario is under threat of revision.



Course Outline

The studio will work in a parallel path method, exploring a wide range of denominators from the past and future of Long Island and urbanism in a wider sense.

We will seek to refrain from a unified design direction until we have imagined and studied an array of factors. Our focus will be on an early and persistent form of drawing and modeling as a form of research.

Studio Sector 1

Economic, Physiological, Social Research

- Long Island: The Form(s) of the Island (parkways, freeways, villages, sprawl)
- The Economics of Long Island (infrastructure scale, at its outset, today)
- Long Island and Climate Change + Energy + Data (how will they interact)
- Consumption economy and the physics of everyday architecture and/or objects
- Everyday Mobility: extraordinary experience, acceleration, torque, g-force

Studio Sector 2

Encryption Topics

- Ecstatic Weather -- the sky and the land
- Never on the power Grid (architecture after energy scarcity)
- The Internet of Things (IoT) - the end of privacy and the data "grid"
- The Audience Decrypts the Film
- Hardwired Nervous System (Jonathan Crary)
- No Weight, No Body, Abstraction

We will design a new architecture that is both home and energy center, and a data pervasive hub.

- Data is increasingly expected to be processed at its source of collection increasing the embedded nature of data into the physical infrastructure and within neighborhoods, offices, home and stores.

- Every house is a data center, every streetlight, and device is a sensor?

- The Internet of things is in its nascent stages.

- Mobility will be fully interconnected by sensors and data.

- AI and Machine Learning will in effect guide their own learning.

- Renewable energy will become ubiquitous, what is its value economically and to whom?

- AI and co-robotics will diminish the labor force. Where will we live in the future if we are not working.

- What happens to our older suburbs, settlement patterns. What is urban density in this new era?

On Data, Data Centers Energy and Urbanization

The studio programming is an open and real-time concern - it is in the news.

The edge data centers are mounted in locations near the streets or highways, so that it takes only milliseconds for the vehicle to send and receive data from the edge data center.

- Avast research shows that 60% of users worldwide have either never logged in to their router or have never updated their router's firmware, leaving them potentially vulnerable to fairly simple attacks.

- In the end, data centres will metamorphose into whatever shape and size they need to to withstand the most adverse environments and follow humans wherever we go, be it underwater civilisations, Mars colonies and beyond.

Data Centers and Energy Consumption:
https://www.datacenterknowledge.com/archives/2016/06/27/heres-how-much-energy-all-us-data-centers-consume
https://www.forbes.com/sites/forbestechcouncil/2017/12/15/why-energy-is-a-big-and-rapidly-growing-problem-for-data-centers/#6d915e9f5a30
https://e360.yale.edu/features/energy-hogs-can-huge-data-centers-be-made-more-efficient
https://www.nrdc.org/media/2014/140826

Kevin Slavin, Algorithms are everywhere:
https://datascience.berkeley.edu/kevin-slavin-algorithms-shape-world/

The Architectural Relevance of Cybernetics:
https://cmusyntheticecologies.files.wordpress.com/2014/01/pask_gordon_the-architectural-relevance-of-cybernetics.pdf

Privacy Challenges for technology
https://www.nytimes.com/2018/12/29/opinion/tech-2018-trends-2019-predictions.html?rref=collection%2Ftimestopic%2FComputer%20Security%20(Cybersecurity)&action=click&contentCollection=timestopics&region=stream&module=stream_unit&version=latest&contentPlacement=8&pgtype=collection

Sidewalk Labs: the interconnected city
https://sidewalktoronto.ca/

And on Long Island

3 Reasons Long Island Is Dying, by Tanvi Misra, The Atlantic, City Lab, February 12, 2015.
https://www.citylab.com/equity/2015/02/3-reasons-long-island-is-dying/385431/

19th Century Weather and Industrialization (it has long included climate change, and money)

In the 19th century the skies over cities began to change as industrial factories sent emissions into the air. The sky of the 19th century was also increasingly mapped and understood; a necessary step to hedge crop production against an uncertain weather. The 19th century saw the sky gain the side effects of fossil fuel burning; today we increasingly look to the sky for sustainable fuel: solar, tidal, and wind energy. What emerges in the relation between land and sky in the future of Long Island today - where is the value (land or sky) and how does it affect design? Do we dig into the earth or the sky?

> *And besides; the problem of land, at its worst, is a bye one; distribute the earth as you will, the principal question remains inexorable, —Who is to dig it? Which of us, in brief word, is to do the hard and dirty work for the rest, and for what pay?*
>
> *John Ruskin, Sesame and Lilies, lecture I: Sesame. Of King's Treasuries, section 3 (1864-1865)*

John Ruskin's writings in the late 19th Century were based in his personal observation of the skies over England. He witnessed the increasing effects of industrial pollution and recorded this in his drawings. His observations, however, were aesthetic before political or activist. He saw the weather as beyond the reach of an individual human; above us, surrounding us - extensive and knowable by a kind of aesthetic algorithm. The perception of the animate total of the weather was temporal and indivisible. As pollution altered the sky, Ruskin saw a foreclosing of whole eras of art; based in vision, based in a kind of light available to the human eye that he believed was disappearing. The weather was human experience, life -- not something we are apart from but something we are inescapably within. During the 19th Century the emergence of financial markets and stock exchanges were largely based in speculation about the weather and crops. Hedging farm yields against investment is a foundation of all stock markets; money, earth and sky interlinked. A shovel in the ground, an eye to the sky and a recording of historical events (temperature, rainfall…). Today the markets hedge everything and data streams amortize our moves on the net and in our cars -- algorithms are everywhere. The weather as market, has of course become everything as market. Where then does that leave architecture as it increasingly must secure all forms of assets against all forms of weather.

Study of Sky on Mount Pilatus, John Ruskin, 1861. John Ruskin, The Storm-Cloud of the Nineteenth Century, page 7. Delivered February 4, 1884, at the London Institution.

Below: John Ruskin, The Storm-Cloud of the Nineteenth Century Two Lectures delivered at the London Institution February 4th and 11th, 1884

"And now I come to the most important sign of the plague-wind and the plague-cloud: that in bringing on their peculiar darkness, they blanch the sun instead of reddening it. And here I must note briefly to you the uselessness of observation by instruments, or machines, instead of eyes. In the first year when I had begun to notice the specialty of the plague-wind, I went of course to the Oxford observatory to consult its registrars. They have their anemometer always on the twirl, and can tell you the force, or at least the pace, of a gale, by day or night. But the anemometer can only record for you how often it has been driven round, not at all whether it went round steadily, or went round trembling. And on that point depends the entire question whether it is a plague breeze or a healthy one: and what's the use of telling you whether the wind's strong or not, when it can't tell you whether it's a strong medicine, or a strong poison?

2019 -- a nervous reaction to a new century's storm

As a storm passes over Long Island it travels over the stoniest urban cores of Brooklyn, over the barely suburban veneer of Queens, over the original 21-trade houses of Levittown and slowly towards the north and south forks of the sandy East End. If the storm is a nor'easter it comes from the north and spins moisture off the ocean onto land creating immense amounts of rain or snow. Long Island runs west to east; its orientation sustains a 120-mile hypotenuse from Montauk to Wall Street; in between is a history of American town planning, transit and later day debt driven sprawl. An economic, architectural, urban planning and weather pattern all in one. And we live through it all.

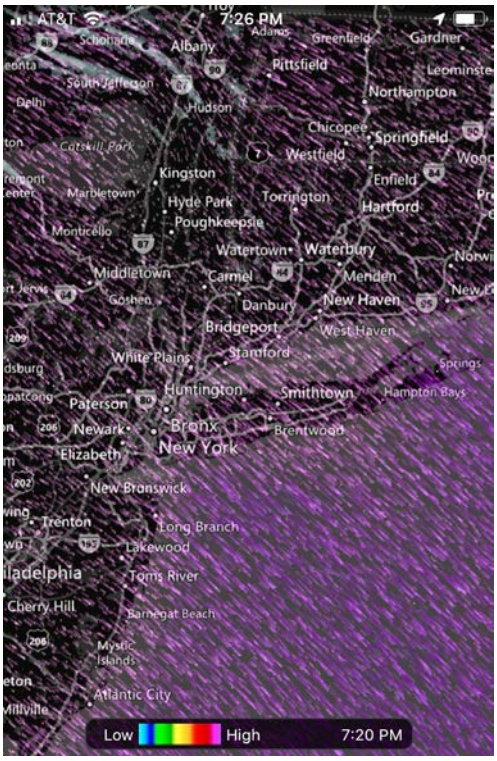
A storm has passed. Over the rich and poor, over every form of anxiety and panic; every kind of social program. A global experience of atomized lives. It soaks every house with moisture, creeping into the molecular structures of the wood siding, headers, sills plates and floors -- thrilling or dimming every person's outlook. The island is an enveloping weather pattern engulfing 7.6 million people's lives. In between are ancient and new denominators that subdivide (and at times unify) the contemporary experience of a geologic formation that emerged from receding glaciers only 20,000 years ago. How did we get so far from the weather so fast? How long does this formation last?

Decelerate. Traction control kicks in, anti-lock brakes try to right a hydroplaning car. Semi-tractor trailers rely on their weight and tire's deep grooves (siping) to evacuate water from under their 70,000 lb. trucks. Electricity moves inside insulated cables strung in catenary arcs; radio/phones continue to work collecting charges from the molecules of the air. Municipal structures, federal, state, city governments manage the entire panoply of services and infrastructure.

Dry ground returns, the sky goes from dark to light and a body moves more freely again. The ecstasy was not the storm; it was the full sensory experience of every type that navigated and in effect appreciated it without analysis. From the touch of a brake pedal; to the dilation of the eye to the anticipation of lost ground to water (hydroplaning); the weather experience is without distinct history as the body processes billions of stimuli per second. Much of it in the form of unexpressed fear.

Free smart phone weather apps such as "MyRadar" offer animated, detailed wind patterns, cloud cover, storm details in real time. Inside the storm and above it (via a satellite) with a free download. An unprecedented experience that scales to billions of smartphone users. Never have we known so much about the experience of weather, of immense spaces as we are inside them.

Economic modeling of immense detail in near real time is available for download via the Federal Reserve's websites. A rarefied audience - the current user - but at what point do the weather patterns of money go more mainstream – sidestepping the commentators. Index funds and quantitative trading run algorithms that stochastically model billions of possible future trading moves in the millions of markets. The risk of any type of storm is diminished as models exhaust anything and everything that might happen -- and yet the storms keep causing crisis. Superstorm Sandy arrives a few years after the mortgage crisis of 2009.



For release at 2:00 p.m., EDT, September 26, 2018

Economic projections of Federal Reserve Board members and Federal Reserve Bank presidents under their individual assessments of projected appropriate monetary policy, September 2018

Advance release of table 1 of the Summary of Economic Projections to be released with the FOMC minutes

Percent

Make Full Screen

	Median[1]					Central tendency[2]			
Variable	2018	2019	2020	2021	Longer run	2018	2019	2020	2021
Change in real GDP	3.1	2.5	2.0	1.8	1.8	3.0 - 3.2	2.4 - 2.7	1.8 - 2.1	1.6 - 2.
June projection	2.8	2.4	2.0	n.a.	1.8	2.7 - 3.0	2.2 - 2.6	1.8 - 2.0	n.a.
Unemployment rate	3.7	3.5	3.5	3.7	4.5	3.7	3.4 - 3.6	3.4 - 3.8	3.5 - 4.
June projection	3.6	3.5	3.5	n.a.	4.5	3.6 - 3.7	3.4 - 3.5	3.4 - 3.7	n.a.
PCE inflation	2.1	2.0	2.1	2.1	2.0	2.0 - 2.1	2.0 - 2.1	2.1 - 2.2	2.0 - 2.
June projection	2.1	2.1	2.1	n.a.	2.0	2.0 - 2.1	2.0 - 2.2	2.1 - 2.2	n.a.
Core PCE inflation[4]	2.0	2.1	2.1	2.1		1.9 - 2.0	2.0 - 2.1	2.1 - 2.2	2.0 - 2.
June projection	2.0	2.1	2.1	n.a.		1.9 - 2.0	2.0 - 2.2	2.1 - 2.2	n.a.
Memo: Projected appropriate policy path									
Federal funds rate	2.4	3.1	3.4	3.4	3.0	2.1 - 2.4	2.9 - 3.4	3.1 - 3.6	2.9 - 3.
June projection	2.4	3.1	3.4	n.a.	2.9	2.1 - 2.4	2.9 - 3.4	3.1 - 3.6	n.a.

Weather systems: sky and money

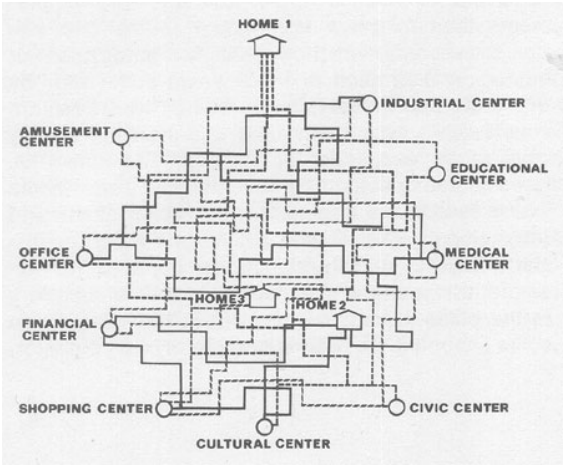
Left - MYRADAR app: real time wind patterns over Long Island

Right - Economic projections of Federal Reserve Board members and Federal Reserve Bank presidents under their individual assessments of projected appropriate monetary policy, September 2018. Note projections extend to 2021. Markets have an origin in projecting the weather -- in hedging crops.

Our studio begins here, at the scale of Long Island, at the scale of the weather and returns to a scale of architectural work. We are seeking an architecture that is self-similar to the weather. Capable of imbuing the uncertainty and predatory nature of the weather at the scale of a dwelling, a work space, a transit depot, a charging station, a mobility hub.

A house -- a home in the midst of past centuries weather.

Suburbs - A labyrinth undone or reformed?



Victor Gruen's diagram of the "suburban labyrinth" - is reductive by today's standards. As Amazon increasingly takes over retails delivery and diminishes the physical presence of shopping what is the nature, quality - a reason for - spaces outside the home and work?

How does a century of urbanization on Long Island evolve? To understand something its necessary to withhold judgement as an investigation ensues.

Lamented, criticized, blamed and often intellectually diminished the United States suburbs are an anachronism. An unprecedented form of settlement made possible in the recent century in the advent of the automobile, federal highways - by regimes of private and public debt - the suburbs are still only a recent phenomenon emerging parallel to the most advanced technologies from physics to economics. Silicone gaskets, engineered materials, complex forms of amortization. Supply chains of all types morphed into an experience and geo-distribution products and practices. A place to live.

As media spectacle the social life of the suburbs was for most of the past century portrayed as inevitable but also facile, wasteful -- as unsustainable. Yet it is also a daily experience, an animate orchestration, of real-time advanced physics and chemistry. Drive a car: manufacturing, momentum and speed and the calculus, the interpolation of altered inertia is enabled by the chemical work on materials of all kinds, on fuels. A chemistry and physics of everything often seen as a semiotic end game; lives registered in easier to reconcile spectacle of images. Your television interpolates images that don't' exist from those that do.[2] The suburb was imagined as a labyrinth in the 1950's - a tensile mechanism experienced as persistent and unfortunate fragments; if the experience was that of anxiousness the means were often quite total and the products that enabled it technologically advanced. Today large parts of this labyrinth are being dismantled and replaced. Shopping as place disappears, home and office fuse, government and municipal structures become more private, energy grids give way to renewable power, communications systems are handheld and privatized; social conventions of family and on and on -- there is little that from the original suburban matrix that is intact except the architecture itself.

[2] see "motionflow" Sony Bravia et all.
https://www.reddit.com/r/bravia/comments/7ztuwv/what_is_motionflow_and_cinemotion/)

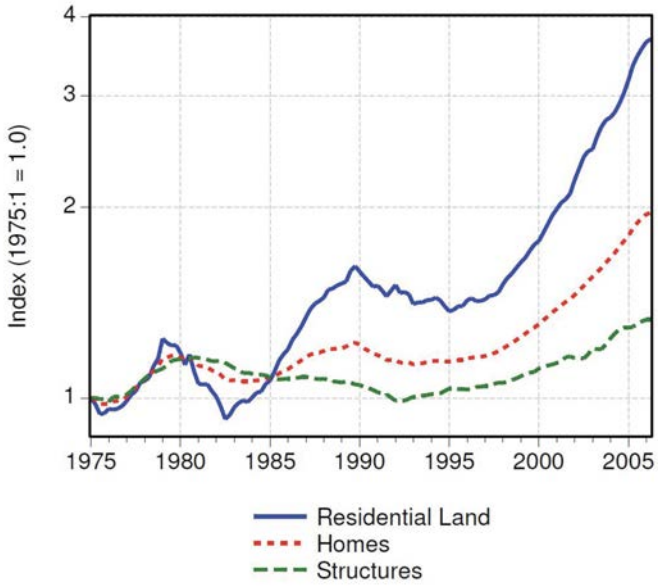
Unstable - Debt / Levittown fused land and house. Do we now fuse house and sky?

Far from financially stable and barely a century old, the suburbs are nonetheless often seen as unstoppable, unchangeable and at best (maybe) upgradable. Their density of land use; population distribution; energy consumption is often seen as unsustainable in light of the deeply urban world cities where resources are more wholly shared and extended. Is high density our future; a more deeply urban world? Maybe not.

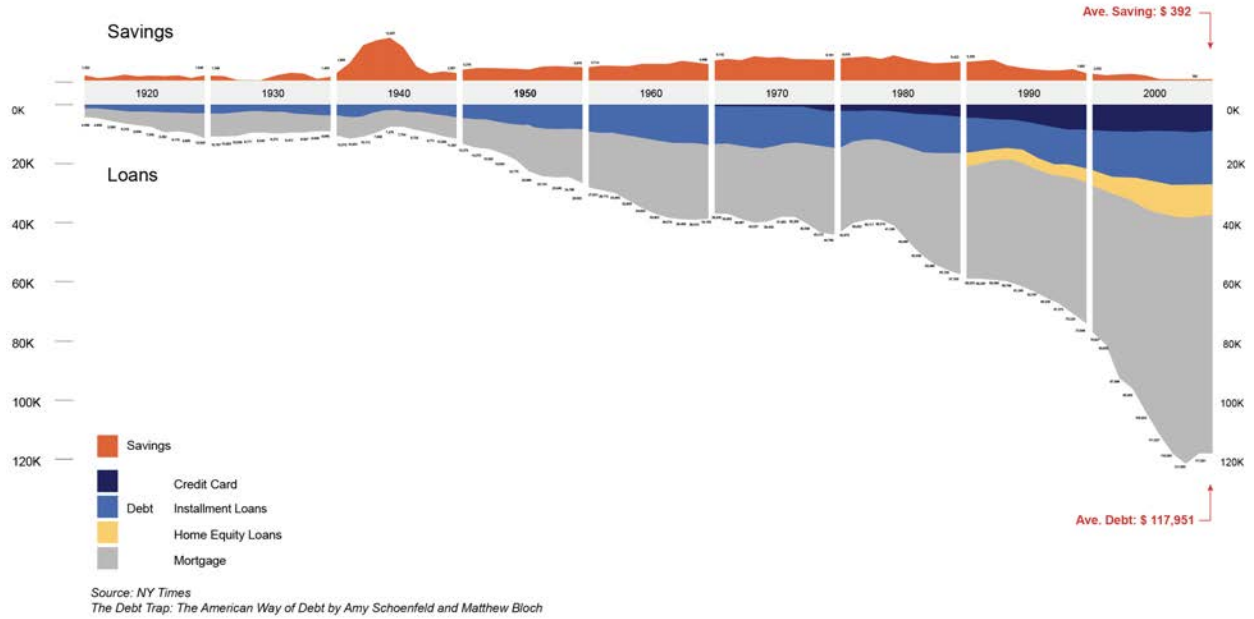
In the United States the costs of urban or near-urban land has steeply risen as urbanization has taken hold over the past 40 years -- architecture's ability to help make urban life affordable is increasingly weakened as building itself is often a small component of residential property value. If A.I and machine learning make inroads in diminishing jobs what would spur higher density urbanization and housing; can we afford to live on expensive land far from urban centers if we are not working? Does the rise of cities since the advent of the Industrial Revolution continue – at higher density - or are we about to see a new topology of density and settlement?

The weather--the sky. The weather as money. Are about to forge a new asset class and a new architecture that like Levittown is born of the technologies of its time. For good or bad?

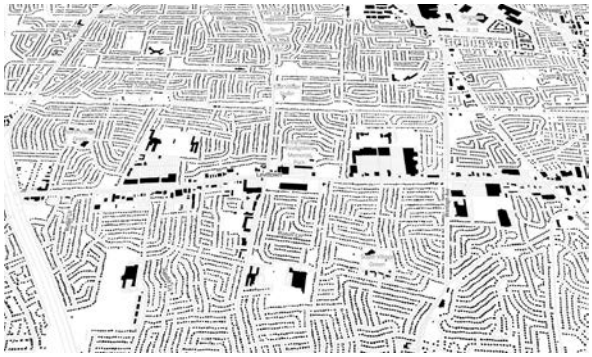
Figure 1: Real Land, Home, and Structures Prices (Log Scale)



The financial proportion of a residential real-estate transaction apportioned to land was stable for most of the 20th century. After 1975 land values rose faster than structure values making the building (the structure) a smaller and smaller portion of housing costs. For much of the twentieth century automobiles allowed increased commuting distance. Today that is no longer seen as possible increasing the value of land near jobs. Where will jobs be in the future; how does AI diminish jobs. Levittown and large portions of Long Island seem ready for major change as the factors that drove their development and values are changing. Source: *The Price and Quantity of Residential Land in the United States* by Morris A. Davis University of Wisconsin-Madison Georgetown University, Department of Real Estate and Urban Land Economics and Jonathan Heathcote Georgetown University, Federal Reserve Board, and CEPR.



Post 1970's residential real estate debt and leverage increased dramatically. The rapid rise in residential real estate values during this period was dramatic and fueled by leverage at private, commercial and state levels. What is the future of this curve and where does design fit it?



Levittown: FAR: .15? The house as a commodity.

Autonomous Mobility, Housing after Shopping (but still Endless Consumption)

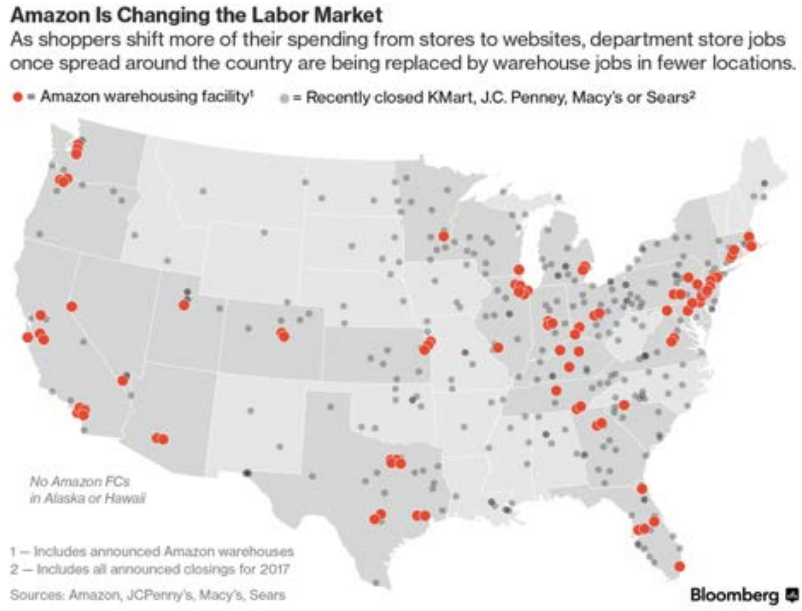
Long Island emerged as a series of villages interconnected by rail and later parkways and the Long Island Expressway. Over the post-war era the dispersed villages fused into what is today often a continual sprawl of low-rise urban development. The sprawl of Long Island and other regions of the United States has in effect induced new technologies that now threaten to redesign the host that instigated them.

As new forms of industrial and urban development take shape in the context of Internet based commerce and retail; electric and possibly autonomous mobility; artificial intelligence, machine learning enabled robotic labor; and a rapid increase in local renewable energy production where and how we live and work are changing. The breadth and convergence and layering of technological change escape disciplinary boundaries and now deeply affect how we organize cities, social life, economic activity and increasingly settlement and architecture. Will it diminish the labor pool forcing governments hands on universal income? Can universal income come in other forms? We often imagine technology as an overlay; the social life and form of cities is a substrate is given new life expectancy. But there is strong evidence that we reached the limits of this economy--of software and computing that in effect draws its life from the inefficiency of its host. Instead software is becoming the host and matter is being moved; a flood of investment will demand it.

There is a clear evidence of an emerging new form of territory - a zone where work (and post-work) and domestic consumption (of all kinds) are for most of the population un-anchored and increasingly (if not severely segregate) from manufacturing and the physical-social aspects of retail space. Today Amazon runs hundreds of fulfillment and sorting centers around the world and in the United States (as of 2017) operated out of more than 240 million sq. ft. of offices, warehouses and data centers. The expansion of their real estate footprint has been recently fueled by the acquisition of Whole Foods creating a new (for Amazon) presence in the everyday life of people and blurring the boundary between net-based commerce and the physical architectural world. The wider physical presence of Internet based commerce is by its very nature, however, often hidden and deeply private – indeed, often based in a cartography divorced from historical forms of urban settlement and realized in distant relation to urban centers of the past. How the net meets the existing urban world is no longer a nascent matter – it is happening at immense scale. It is resetting urban patterns that were set nearly a century ago.

Industries have hidden in plain sight before. The aerospace and defense industries have been based in the desert regions of California, Nevada, Arizona and New Mexico for a century. The Tahoe-Reno industrial development on the eastern outskirts of Reno hosts private logistics centers and data centers and aspiring autonomous manufacturing over 107 sq. miles of desert land. Four hours northeast of Silicon Valley they form a structure for perpetual delivery — a distant means to sustain residential life without the Venn diagram of retail or other “social spaces.”

If the suburban matrix of home/retail/work spaces further collapses into home/work – as consumption commerce architecturally disappears we are left with a form of private domestic space and another of workspace that is likely more private (if not autonomous). Does work become *less* reliant on place and the geographic locations that historically drove industry (to a river, a bay, a lake—to ice in the Great Lakes as a cooling means or food stabilizer)? Does housing continue to follow industry to remote locations where land is cheap and indeed barely part of the logistics save for privacy concerns? The Tahoe Reno Industrial Center coalesces around lower cost robotics and forms of digitally scaled commerce – yet it also converges with the hardware of the past century: highways, trucking, railroads and warehousing. We will ask how this new form of commerce will ripple through the older American suburbs and in particular Long Island sprawl.



What happens when a company like Amazon brings incredible efficiency to the wider consumption economy. Does technology, in effect, accelerate consumption? Is there a breaking point where the home as consumption center fails to enable this acceleration? Data and mobility efficiency require a patron?

Below: except, Murray Bookchin, Post Scarcity Anarchism, Black Rose Books, 1986. Page 60.

> *We must learn here from the limits of Marxism, a project which, understandably in a period of material scarcity, anchored the social dialectic and the contradictions of capitalism in the economic realm. Marx, it has been emphasized, examined the preconditions for liberation, not the conditions of liberation. The Marxian critique is rooted in the past, in the era of material want and relatively limited technological development. Even its humanistic theory of alienation turns primarily on the issue of work and man's alienation from the product of his labor. Today, however, capitalism is a parasite on the future, a vampire that survives on the technology and resources of freedom. The industrial capitalism of Marx's time organized its commodity relations around a prevailing system of material scarcity; the state capitalism of our time organizes its commodity relations around a prevailing system of material abundance. A century ago, scarcity had to be endured; today, it has to be enforced—hence the importance of the*

Bookchin provides a general footnote:

> *It is worth noting here that the emergence of the "consumer society" provides us with remarkable evidence of the difference between the industrial capitalism of Marx's time and state capitalism today. In Marx's view, capitalism as a system organized around "production for the sake of production" results in the economic immiseration of the proletariat. "Production for the sake of production" is paralleled today by "consumption for the sake of consumption," in which immiseration takes a spiritual rather than an economic form—it is starvation of life.*

45 Years (little change)

The urban world we know constructed over this past sixty years has relied on a synthesis of private automobile, private house and public infrastructure. The public and private spending was interlocked as a form of hardware; dimensionalized in the form and materials of concrete, asphalt, metals, polymers, glass and into an episodic energy grid of peak demand and troughs. To many the sprawling contemporary city has become an opaque semiotic field of signals: stop, start, wait, accelerate/velocity. An anthropology of neurologically severe threshold experiences and yet also fundamental human actions (care, empathy, fear…). We went to work, home, shopping malls, and schools.

Below: "Albuquerque, New Mexico, 1972," by Lee Friedlander. Friedlander said he deliberately included "those poles and trees and stuff." Things other photographers avoid.

https://www.moma.org/collection/works/57736

Google Street View: Albuquerque, New Mexico 2017: 45 years later

Change comes slowly in the built environment. How Little Change was made over 45 years. A close examination shows even the same slumped asphalt in the corner of parking lot. The Chevrolet Impala has become a Toyota Prius, C. What kind of change can we expect in the next four decades? How did this change so little in the past?

Q: How do we imagine architectural encryption. . . . . eight ways to start.

Encryption Topic 1

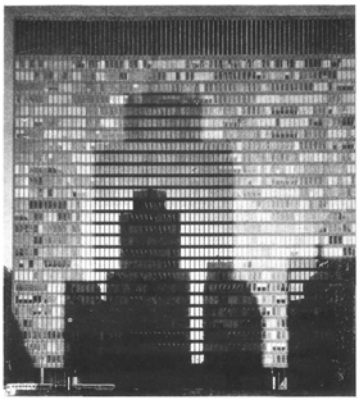
Architectural Encryption: Ciphered

Encryption is not a contemporary concept and its most essential forms dates to antiquity and beyond. In this short video a Berkeley computer science student explains the uses of ciphering for military correspondence by Julius Caesar. Ciphering might be a simple algorithm that rearranges the alphabet rendering common words, at least, momentarily opaque. Contemporary forms of encryption quickly become more complex but here a return to the elemental nature of ciphering opens our studio.

- https://www.khanacademy.org/computing/computer-science/internet-intro/internet-works-intro/v/the-internet-encryption-and-public-keys

In architecture the metaphoric use of the term *cipher* has been relatively common but with broad leeway as to its goals and means or precision. Rafael Moneo referred to John Hejduk's late 1980's work Bovisa as ciphered; the architecture in effect concealed a coded meaning even as the work was highly self-evident and immediate in its form. Manfredo Tafuri referred to the unbuilt Palazzo Littorio by Giuseppe Terragni as an "apodictic word"; as self evident yet also opaque in its meaning. Tafuri invoked the work apodictic as well in reference to Mies van der Rohe --

- *What the **apodictic** products of that enfant terrible of modern architecture, Mies van der Rohe, prophesied has by now become a reality. In their absolutely **asemantic** quality the Seagram Building in New York or the Federal Center in Chicago are objects that "exist by means of their own death," only in this way saving themselves from certain failure.*
- *All the same, Mies's "silence" today seems out of date in comparison to the "noise" of the neo-avant garde.*
- *Manfredo Tafuri, Architecture and Utopia, Design and Capitalist Development, MIT Press, 1976. page 148*

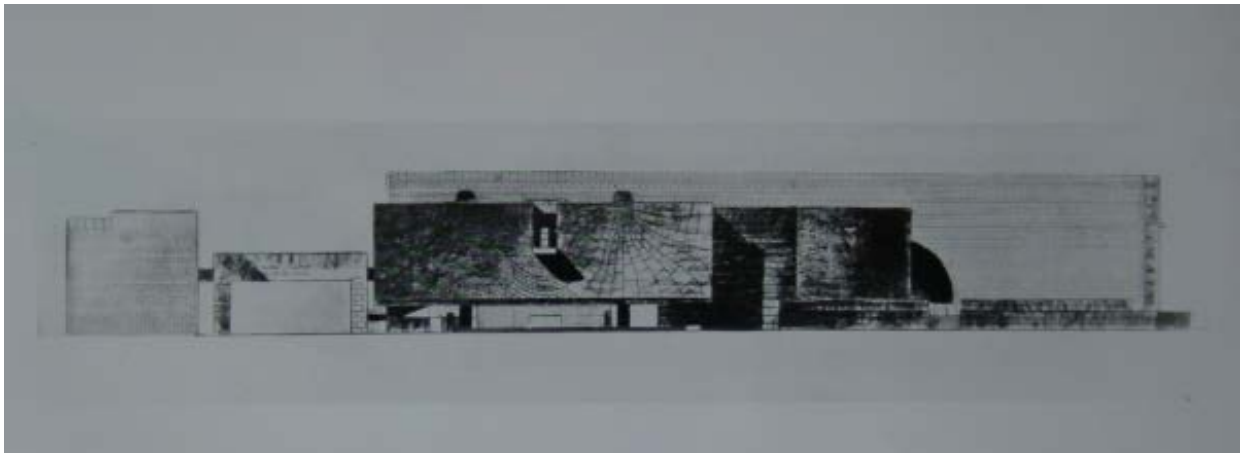


Bovisa / John Hejduk ; with an essay by José Rafael Moneo ; edited by José Rafael Moneo

Ludwig Mies van der Rohe, Federal Center, Chicago, 1959—1964. Photo by Hedrich-Blessing as published in Tafuri's essay.

Structural Encryption

A closer look at Terragni's Palazzo Littorio reveals that Tafuri was attempting to read Terragni's use of photo-elastic structural analysis. The pattern in the facade Tafuri was attempting to read were the result of an optical photo-analysis of material stress and strain. In some sense one could argue the test was an inversion of encryption and what it revealed was an explicit reading of the building's physics. Our studio will look closely at how force of every kind is imbricated in architecture and where it become readable if at all.



For example, although Tafuri recognized that what he called the "wall" that composes the primary facade is actually a "box-like structure," he did not recognize that this reading changes not just the mechanics of its cantilever and its rotational tendencies but also the facade's ability to "speak" or be "read" (Tafuri's words). Tafuri concludes his critique by stating that he is unsure why the isostatic lines of the photo-elastic process are represented on the proposed final surface of the building. His analysis focuses instead on the conclusion that Terragni had reduced these "forces" to an "arabesque," to an "apodictic word." The building was thus forced to be understood as "speechless" and "silent" and as such ultimately corroborated Tafuri's existential interpretation. Had Tafuri examined the history and implications of the photo-elastic process, he may have concluded that Terragni's intentions were instead to open architecture's visual techniques to new instruments and new means, and to thus transform the visual subject's relation to technology and to power. Tafuri also suggested that the shallow curve of the structure is not sufficient to define the piazza in front of Palazzo Littorio, not noting its role in providing a mechanical ballast or stiffness to the suspended structure.

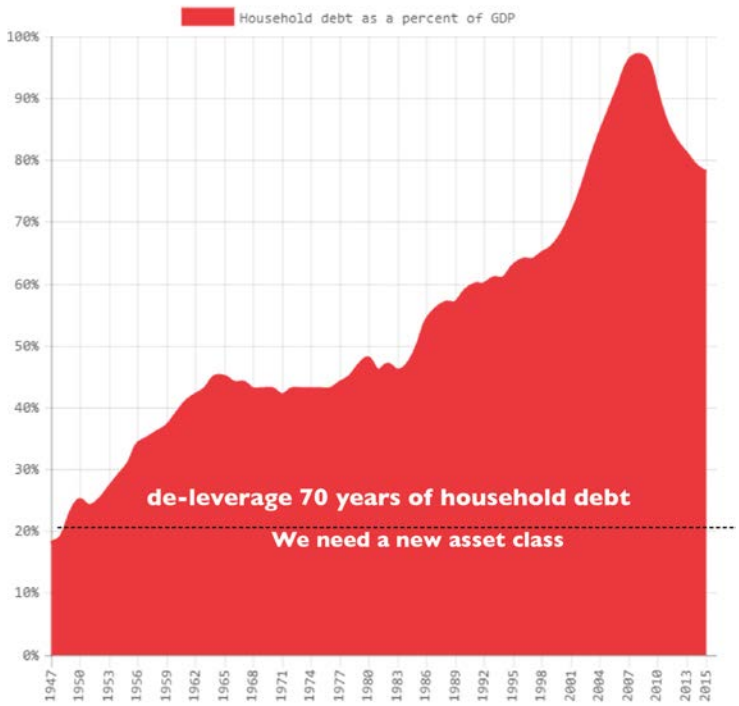
above: Eyes in the Heat: RSE, Michael Bell, Perspecta, Vol. 34 (2003), pp. 138-147. The MIT Press on behalf of Perspecta

Encryption Topic 2

Decode and Alter the Uses of Debt Hidden in our Cities

Long Island's role in the history of suburbanization is vivid. A urban Island - interlinked by the LIRR with NYC - it was seen as a kind of utopia surrounded by water; a series of green villages atop an aquifer and within an hour of the financial/media capital of the world. Long Island was a form of capital fueled ecstasy. Hundreds of millions of years of geologic formation newly underwritten by a thirty-year mortgage and wired with transit, and cheap industrial power. Our studio will focus on a new architecture designed to sense future re- settlement. We will begin inside the past century's mechanisms seeking to give credit to the madness that fueled a world that was more complex than we often give it credit for --- the financial systems beneath the development will be a focus of this sector. Praised for offering the American dream of homeownership, the hamlet has also been derided for its cookie-cutter suburbia. But residents find it hard to leave.

https://www.nytimes.com/2018/12/19/realestate/levittown-ny-the-original-starter-community.html?rref=collection%2Fsectioncollection%2Frealestate&action=click&contentCollection=realestate&region=rank&module=package&version=highlights&contentPlacement=8&pgtype=sectionfront



Cumulative household debt accounted for 18% of the United States GDP when Levittown was realized. In 2008 it approaches 100% and today is again near this peak. The thirty-year mortgage was a utopia of future monies enjoyed today. Or was it a debt that pre-lived our future labor for us. Undo the mortgage—can we design a house without a mortgage. above: In 2006 the United States household debt rose to nearly 95% of the national GDP. In 1947, it totaled only 18% of GDP. The new matrix of commerce: Can we invert the debt and leverage curves of the past century?

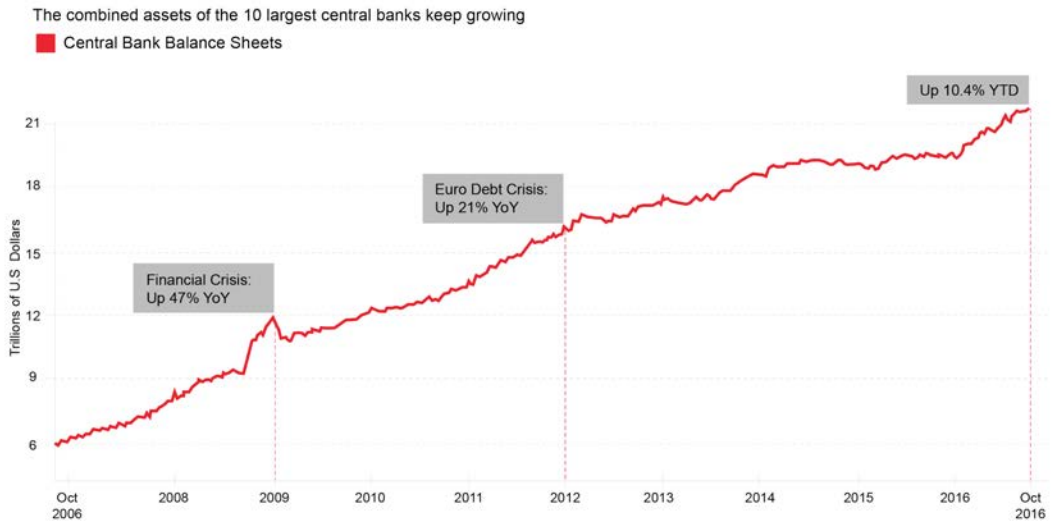
Or will new forms of manufacturing and commerce simply extend our uses of leverage and debt in creating the settlement of the future?

Encryption Topic 3

After Risk: Cities are giant risk machines. Have banks given a false impression of their financial stability?

Central Banks worldwide are holding immense sums of debt off the markets -- effectively shoring up weak assets and their markets.

Between 2006 and 2016 the world's top 10 central banks holdings rose by more than 400% -- from approximately 6 trillion to 24 trillion dollars. In the wake of 2007-08 financial crisis central banks entered an unprecedented role in stabilizing markets.



Markets for real estate and virtually every form of production and consumption were sustained by global quantitative easing: near-zero interest rates. Personal housing debt and household debt as a percentage of the GDP has over the last century seen immense expansion. Will the architecture of the future rely on debt the same way and if not, what can sustain it? Architecture today has become very adept at modeling risk and economy. Does this portend a new architectural nomenclature; a new asset?

Markets and reconciliation with scarcity have often gripped the architectural imagination—is this the norm for our future? We are increasingly advanced agents in modeling risk and opening new means—what will this enable?

Architecture and development are to a tremendous extent realized inside financial and economic risk models. Will this continue to be the case in our future?

At the annual Berkshire Hathaway shareholders meeting (which is often seen more as a state fair) Jack Bogle, the founder of Vanguard Group, and a confidante of Warren Buffett offered a proclamation on risk by discussing the state of index trading—a use of algorithms to essentially trade the probability and momentum of an entire stock exchange. Indexing removes stock picking or the discrete, strategic, construction of a portfolio (as a means to hedge risk) and instead seeks to harvest the movement of the intelligence evident in the broader trading of the exchange itself. It harvests what everyone else is figuring out via artificial intelligence, machine learning or simply immense computational and stochastic modeling. For many index trading is a low-cost way to diminish trading risk and yet harvest the collective insight of the market itself.

Indexing, while far from mathematically total, aspires to limit risk associated with accessing a small (minute) or even large sector of the exchange. Bogle seemed to be seeing this aspiration to the removal of risk as a disincentive to trading—if there is no risk and no unrealized opportunity (that is identified by the trader as opportunity) there is no need to trade. Indexing relies on an active underlying market—it models a propensity that it then seeks to mine. Without real traders, there is no risk to mine.

According to Bogle about 1/3 of United States' stock trading is done by indexing. Bogle predicts a turning point, a threshold at which markets would freeze as indexing would arm everyone with the same ability to react to and forecast risk—each trader would in effect thwart the trajectory of the other. "If everybody indexed, the only word

you could use is chaos, catastrophe," he said. "There would be no trading, there would be no way to convert a stream of income into a pile of capital or a pile of capital into a stream of income. The markets would fail.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Markets

Bogle Says If Everybody Indexed, Markets Would Fail Under Chaos

By Sonali Basak
May 6, 2017, 4:33 PM PDT

- Vanguard founder says chance of everybody indexing is 'zero'
- Warren Buffett praises Bogle for lower fees, better returns

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Bloomberg, Jack Bogle in Markets and Stock Indexing: Risk *https://goo.gl/88bmjo*

Artificial intelligence, machine learning and robotics are often proclaimed to be a threat to labor markets. What do they portend in financial or economic markets? Aside from displaced jobs what do they incentivize or indeed make almost inevitable in development and the distribution of economic resources. What will be built in such a world if, for example, A.I. alters job migration, or collapses asset values?

Markets may fear uncertainty but risk is a driver and motivation and it is the unseen or undervalued asset that has historically been a source of future wealth production—if you can see a potential risk and you are (nearly) alone in knowing its existence the trade is yours. The wealth could be yours—it could belong to a nation, a city or a state--or neighborhood and constituency.

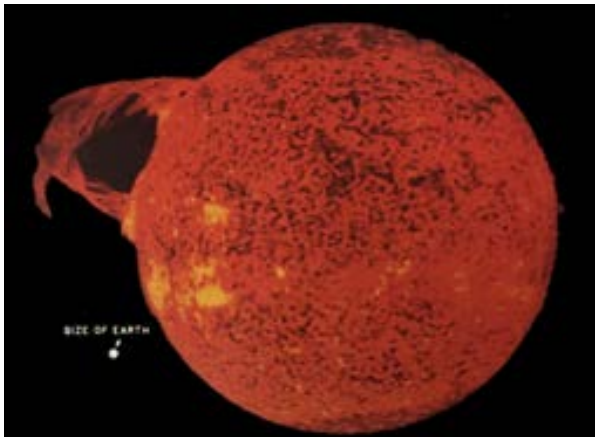
Today we see new means to model risk of every kind. But we also increasingly imagine ourselves less at the brunt of some forms of risk while others form immense crisis and undermine stability of all kinds. From structural mechanics to chemical engineering to fluid dynamics and geography and economics. Risk as its forecast within relatively low-level computational systems is today increasingly made transparent to analysis and thus adjudication. Inside realms of engineering or medicine, advertising or banking or autonomous mobility and safety the prospects of a world driven more by choice then necessity is often depicted as offering a new model of liberty and indeed freedom. From social media to personal delivery—limits seem diminished even as crisis of all kinds still exists. Counter the immediacy of some forms of risk control vs. the global migration from war or climate change.

Much of the confidence (when it occurs) seems to rise from a new and more granular scale to modeling. Risk modeling has opened a finer parsing of the value of what have been seen as stable or older assets: indeed, often exhausted assets. A re-monetization of private housing (Airbnb) or the private automobile (Uber, Lyft)—risk models made possible by anonymous but secure transactions (peer to peer) in effect begin to revise the privacy and value of entire asset classes. You can share a latent temporal value in your home. But do they change the assets themselves and when, if at all, will these new models give rise to entirely new assets. After all, the private car – relied upon by Uber or Lyft – is only a century old as a human invention—an entirely new asset that drove 100 years of urbanization (and de-urbanization). What are the next assets, how do we find them and how do we trade them?

Encryption Topic 4

Never on the Grid

(Post-Scarcity and excess energy mean we are not leaving the grid, we were never on it)



"Unique electronic photograph of the sun in the extreme ultraviolet radiation from ionized helium (304 angstrom wavelength) taken 19 December 1973 by the Naval Research Laboratory's spectroheliograph aboard Skylab. The massiveness of the sun and its eruption is indicated by the comparison of it to the size of the earth. Theoretically, if it were possible to harness the energy of this eruption, it would have provided for all of mankind's power needs for the year 1 A.D. to the present – perhaps the next 2000 years.

a - Eight Minutes from the Sun

Solar energy from the sun reaches the earth's surface in 8 minutes. Fossil fuels, oil and gas form over 250 – 350 million years. How do we imagine the 8-minutes as architecture?

Anyone involved in sustainability and energy knows these measurements and has long sought a transformation of our energy regimes. Whatever the goals the compensatory challenges have seemed intractably staged to stop change (and thus stage environmental calls for change as "revolts"). Blocking sustainability has been market based; there is too much easy money to make in the old energy regimes, too many assets based in fossil fuel protocols, too many stakeholders dedicated to the past. Whatever the source energy expenditures, as we know, are bound to the very nature of modern life. Divided into nomenclatures of housing / office / retail or mobility / production / leisure. Embedded or transitory. Communications and (solid-state) electronics (chips / transistors and batteries). Energy is our basis and every move removes something from the earth and re-releases it into the literal and social atmosphere. If sustainability has been an ethical question we may concern ourselves with doing the right thing; if sustainability is a matter of survival, we had better find a path. Ethics tied to every step—anxiety and conflict. At the moment, however, most of us cannot stop moving or consuming. Anxiety and conflict have often been sustenance of sustainability debates, yet, today, the global turn to renewable energy is not only mature but also perhaps bound to cause more change then we are prepared to imagine. Will a deep implementation of a renewable energy economy shore up old assets (houses, cars, offices et al) or will possibly instigate entirely new asset classes?

The economy of the past century dramatically reduced and induced scarcity of all kinds; from food to housing; fuel to land; education to medicine. It simultaneously opened immense branches of low-cost communication and global communication.

How will newly implemented renewable energy means meet new forms of intelligence and new networks for trade? How will this allow us to reallocate energy as we know it?

b - Energy - Excess

George Bataille's *The Accursed Share, An Essay on General Economy,* was a rare but vivid presence in architecture schools in the 1990's. George Bataille considered himself quasi-embarrassed by the subject of this writing but nonetheless opened the text by calling his work "a book of political economy." He was not an economist nor a specialist in the earth's physics and chemistry but he nonetheless had a fully formed discourse on an economy of energy—on how humans power the world and indeed distribute and share assets. He offered a theory of political economy and described as false the scarcity and lack of energy apportioned by financial markets under the broader auspices of an economy driven by capitalism. Bataille in essence offered a theory that scarcity was a false concept in realms of energy and the earth. Bataille linked economic thought to the world's energy sources in a manner that supposed as fact that the on a daily basis the surface of the earth received more energy than was needed to sustain life. The excess energy needed to be released and spent, indeed squandered to allow renewal and release of excess energy.

> For some years, being obliged on occasion to answer the question "What are you working on?" I was embarrassed to have to say, "A book of political economy." Coming from me, this venture was disconcerting, at least to those who did not know me well. (The interest that is usually conferred on my books is of a literary sort and this was doubtless to be expected: One cannot as a matter of fact class them in a pre-defined genre.) I am still annoyed when I recall the superficial astonishment that greeted my reply; I had to explain myself, and what I was able to say in a few words was neither precise nor intelligible. Indeed, I had to add that the book I was writing (which I am now publishing) did not consider the facts the way qualified economists do, that I had a point of view from which a human sacrifice, the construction of a church or the gift of a jewel were no less interesting than the sale of wheat. In short, I had to try in vain to make clear the notion of a "general economy" in which the "expenditure" (the "consumption") of wealth, rather than production, was the primary object.
>
> *The Accursed Share, An Essay on General Economy, Georges Bataille. Volume I Consumption; © 1988 Urzone, Inc. ZONE BOOKS, New York; Originally published in France as La Part Maudite © 1967 by Les Editions de Minuit. Distributed by The MIT Press, Cambridge, Massachusetts, and London, England*

c - Fear of Nature's Abundance - The New Jersey and Long Island Pine Barrens

The Pine Barrens is a conceptual site: a zone of nature preserved on the edge of the sprawling metropolis. Perhaps a new zone or interior that now serves as the origin of an architectural habitation. Instead of the other or periphery of the settled and codified metropolis. Our studio will make use of the Long Island Pine Barrens rather than those of New Jersey.

Designing for nature today. Design for the risk associated with settings (way) off the grid. Can we explore what capacities of excess exist in nature that we do not usually attribute to architectural design.

An infamous episode of the HBO television series *The Sopranos* depicted two mafia hit men lost and increasingly unwound in (and by) the New Jersey Pine Barrens. Reeling in the snow and freezing winter weather, unable to determine direction or path, Paulie and Christopher increasingly collapse into fear in the face of an expanse of the pine forest.

The topological quality of a seemingly boundary less interior of trees and snow (the Pine Barrens) finds the otherwise ruthless characters unable to garner direction.

The Pine Barrens for us is a stand in: a prop for a concept and literal quality of nature that persists in the midst of even the most industrialized states. A zone of nature that is both a demonstrative act of preservation (control) but also of concern and hesitancy (fear). A forestalling of extinction, the forest is another ruin, signaling a hands-off anxiety and fear or damaging a deeply primordial site.

Paulie and Christopher, two mobsters, panic and as it turns out have zero skill to navigate in the face of nature. Normally the inflictors of risk, punishment and fear they instead reel into panic attacks as night falls

Excerpt from John McPhee. "The Pine Barrens."

> *The water of the Pine Barrens is soft and pure, and there is so much of it that, like the forest above it, it is an incongruity in place and time. In the sand under the pines is a natural reservoir of pure water that, in volume, is the equivalent of a lake seventy-five feet deep with a surface of a thousand square miles. If all the impounding reservoirs, storage reservoirs, and distribution reservoirs in the New York City water system were filled to capacity—from Neversink and Schoharie to the Croton basin and Central Park—the Pine Barrens aquifer would still contain thirty times as much water. So little of this water is used that it can be said to be untapped. Its constant temperature is fifty-four degrees, and, in the language of a hydrological report on the Pine Barrens prepared in 1966 for the United States Geological Survey, "it can be expected to be bacterially sterile, odorless, clear; its chemical purity approaches that of uncontaminated rainwater or melted glacier ice.*

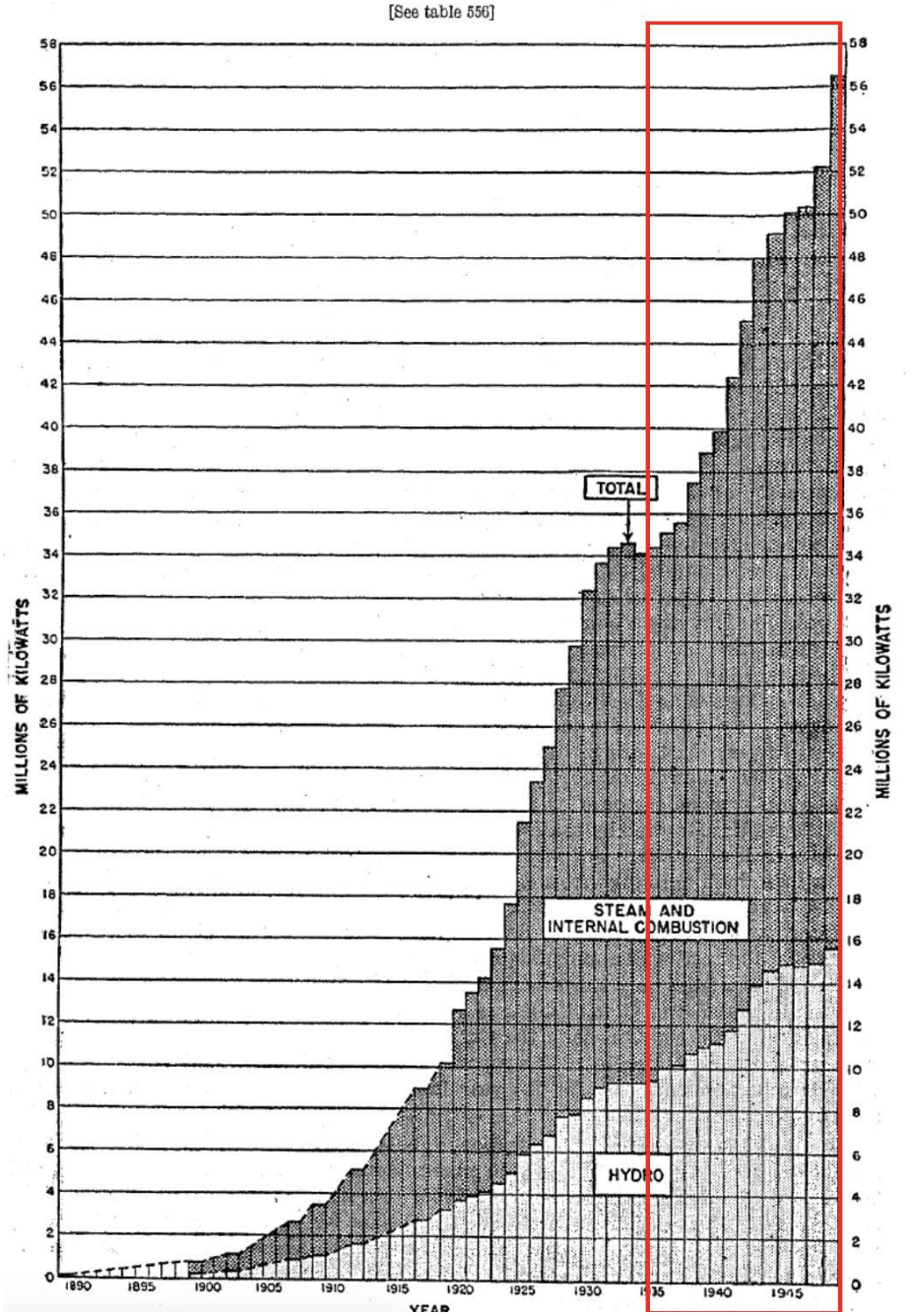
In the United States as a whole, only about thirty per cent of the rainfall gets into the ground; the rest is lost to surface runoff or to evaporation, transpiration from leaves, and similar interceptors. In the Pine Barrens, fully half of all precipitation makes its way into the great aquifer, for, as the government report put it, "the loose, sandy soil can imbibe as much as six inches of water per hour. The Pine Barrens rank as one of the greatest natural recharging areas in the world. Thus, the City of New York, say, could take all its daily water requirements out of the pines without fear of diminishing the basic supply. New Jersey could sell the Pine Barrens' "annual groundwater discharge"—the part that at the moment is running off into the Atlantic Ocean—for about two hundred million dollars a year. However, New Jersey does not sell a drop, in part because the state has its own future needs to consider. In the eighteen-seventies, Joseph Wharton, the Philadelphia mineralogist and financier for whom the Wharton School of Finance and Commerce of the University of Pennsylvania is named, recognized the enormous potentiality of the Pine Barrens as a source of water for Philadelphia, and between 1876 and 1890 he gradually acquired nearly a hundred thousand contiguous acres of Pine Barrens land. Wharton's plan called for thirty-three shallow reservoirs in the pines, connected by a network of canals to one stupendous reservoir in Camden, from which an aqueduct would go under the Delaware River and into Philadelphia, where the pure waters of New Jersey would emerge from every tap, replacing a water supply that has been described as "dirty, bacterial soup." Wharton's plan was never executed, mainly because the New Jersey legislature drew itself together and passed prohibiting legislation. Wharton died in 1909. The Wharton Tract, as his immense New Jersey landholding was called, has remained undeveloped. It was considered as a site for the United States Air Force Academy. The state was slow in acquiring it in the public interest, but at last did so in 1955, and the whole of it is now Wharton State Forest."

"Published in 1968 by Farrar, Straus and Giroux, First paperback edition, 1988. The contents of this book originally appeared in The New Yorker and were developed with the editorial counsel of William Shawn and Robert Bingham.

Below: The Long Island Pine Barrens cover less ground then those in New Jersey but cede a large portion of Long Island to nature.

FIGURE R.—INSTALLED CAPACITY OF ELECTRIC UTILITY GENERATING PLANTS IN THE UNITED STATES: 1889 TO 1948

[See table 556]



Above: the rise of eclectic power in the United States and the means of generating it. A century of bringing industrial power to most of the nation.

Encryption Topic 5

Building and Mobility Physics, IoT

The trend toward smart devices will be so pronounced in the coming years that it will become difficult to buy appliances or home electronics that are not connected to the internet.

https://blog.avast.com/iot-predictions?utm_campaign=socialposts_us&utm_source=twitter&utm_medium=social

https://blog.avast.com/mqtt-vulnerabilities-hacking-smart-homes

Energy Physics

Tesla's Gigafactory is a major presence at the Tahoe Reno Industrial Center. The factory's primary mission is to produce lithium-ion batteries for its automobiles. The larger context for this work, however, comes from physics, and in particular research into energy density. Simply put this is a concern for the amount of energy available or stored in a given system or volume/space. The scale of the Gigafactory links energy density in lithium-ion batteries with the commercial and manufacturing scale needed for Tesla to achieve mass production of electric automobiles. If taken to its larger context of matter and energy—that is, away from mobility or batteries the term energy density becomes available to architecture in ways that are distinctly historical and essential to our field. The Gigafactory is an experiment in manufacturing and architectural density.

Architectural Physics

Aldo Rossi opened his 1981 book, A Scientific Autobiography, with an existential concern in reference to physicist Max Planck's 1949 publication Scientific Autobiography and Other Papers. Rossi refers his architectural reader to Planck and the physicist's reaction to a story he had been told as a young student enunciating the principle of the conservation of energy. Planck learns the principle by way of a story of a stone falling to the earth from its place within an architectural wall. The latent of energy accrued in lifting the stone to its height within the wall was released to tragic effect—it killed a passerby.

Rossi's autobiography characterized by a generation of academics as "melancholy" was shaped within a disillusionment with technical progress and the potential of society to change from within its later day

scientific/technical, capital driven means. Rossi's manu-script nonetheless infused or one should say witnessed in architecture a latent and unre-vealed energy. In the face of a visually fragmented, inchoate, then late modern city--forged by a century of industrial evolution—architecture and the city were in large part revealed by their own disregard for human presence. The energy stored inside architecture (at its mak-ing) may allow a semblance of shelter of human life (within its walls) but it also disregards its inhabitants in the seeming monotony of its own self-perpetuation. Building do fail—de-cay--aside the passage of life but in Rossi's appraisal the city was virtually autonomous; a self-regulated entity that ran parallel to but disregarded its inhabitants' lives--buildings en-dure beyond and precede human presence registering generations but seemingly withhold-ing the promise of their making and embedded energy and labor. While not his goal, Rossi often was seen as a force that instigated a deep distrust of technology in architecture, and more so, a turning away from the capital or scientific aspects of materials in architecture.

Rossi described his awareness of Planck and more so his understanding of the principles of conservation of energy and entropy. Our studio will return to this writing to gauge how it might open up new readings of our current world – that is the race towards new forms of energy density.

Aldo Rossi: A Scientific Autobiography. MIT Press, The Institute for Architecture and Urban Studies, 1981, Page 1.

- *Certainly, a very important point of reference is Max Planck's Scientific Autobiography. In this book, Planck returns to the discoveries of modern physics, recapturing the impression made on him by the enunciation of the principle of the conservation of energy; he always recalled this principle in connection with his schoolmaster Mueller's story about a mason who with great effort heaved a block of stone up on the roof of a house. The mason was struck by the fact that expended energy does not get lost; it remains stored for many years, never diminished, latent in the block of stone, until one day it happens that the block slides off the roof and falls on the head of a passerby, killing him.*

- *It may seem strange that Planck and Dante associate their scientific and autobiographical search with death, but it is a death that is in some sense a continuation of energy. Actually, the principle of the conservation of energy is mingled in every artist or technician with the search for happiness and death.*

- *In architecture, this search is also undoubtedly bound up with the material and with ener-gy; and if one fails to take note of this, it is not possible to comprehend any building, either from a technical point of view or from a compositional one. In the use of every material there must be an anticipation of the construction of a place and its transformation.*

Art and Physics

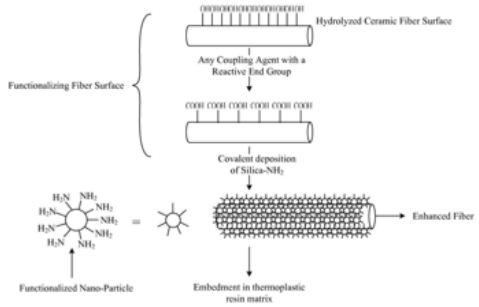
Robert Smithson, Map of Broken Glass (Atlantis), 1969, DIA Art Center: "Deeply informed by science in its popularized forms (such as science fiction literature and cinema, encyclopedic collections, even natural history museums), his art focuses on processes of accumulation, displacement, and entropy in order to reveal the contradictions in our visible world."

Electronics and Physics

Chemical engineering and design. Below, an example of Apple patent for a new silica as filed by Michael Pilliod and Jonathan Ive.

The material was designed and engineered to limit electrical conductivity while providing material binding properties. It relies on spatial language and spatial properties to in effect make the material less electrically conductive.

> *From the patent documents:*
>
> *a topologically enhanced silica molecule for use as binding agent in iPhone production. The topologically enhancing coating can take the form of functionally activated nano-silica particles. In one embodiment, the nano-silica particles are functionally activated using amine groups. The thermoplastic composite can be used to join a number of metal components together to form a load bearing structure.*

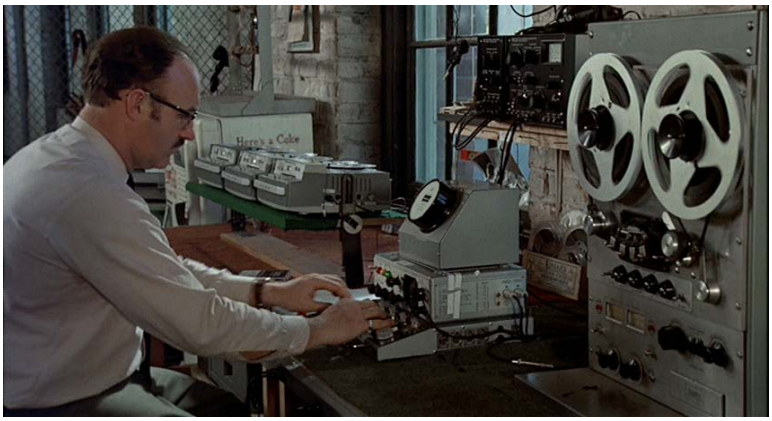


Encryption Topic 6

The Audience Decrypts the Film: Architecture Thwarts Surveillance

Catharsis gained - eyes closed – enthralled by music, is an everyday occurrence. Humans overcome alienation in ways that the high arts diminish but count in everyday ways. Fueled by imagination embedded in the nervous system, the audience uses popular music, media spectacle to reach essential emotion. We complete the movie that we thought was already made.

It takes no training and reveals everyone as deeply talented if not powerful.



above: Gene Hackman, The Conversation. Architecture thwarts surveillance. Seeing around corners. Harry Caul, audio surveillance specialist cranes to see inside a hotel room he is staking out. The camera watches as he struggles to fill in what he can't see – and what he can't believe he is hearing.

In the 1974 film *The Conversation* two actors pace Union Square in San Francisco. Fragments of the conversation are being recorded by three distant parabolic microphones. The camera follows them as we lose sight of them between people and monuments. They are being watched and recorded - at distance. Using three microphone sources, two parabolic and one up close carried by a contract agent the actual statement was only assembled later in the film. Assembled by correlating the divergent array of recordings and their sound waves into a decipherable whole. Two otherwise wholesome seeming characters utter "*he'd kill us if he had the chance*" setting into motion a film where vision fails the director and audience and listening driving the plot. We watch the main character listens to things we

(as audience) cannot verify by sight—the words are only partially present as limited spectrums of the sounds waves being recorded. In the mix of fragments captured is a comment on how a person ends up homeless, empathy? But also, an incantation of a criminal plans and covers up.

The audience completes the film. We watch an actor assembles a partial whole from diverging spectrum of sound waves. They reveal events in an adjacent, unrevealed hotel room. The verification of what occurred in his audio surveillance is never confirmed and indeed may not have happened at all.

The actress in a few phases causes deep anxiety in the mind of the person listening to her – or quasi-listening. Our studio will take the film, written and directed by Francis Coppola as a starting point – as a juncture in art's estimation of surveillance and more so surveillance as creating deep unease in what was the privacy and intimacy of what we colloquially call home. Our private lives lead in public spaces and inside our homes.

The Conversation was released in the immediate wake of Watergate and at a time when theory and criticism of television and media were a vivid component of intellectual life. In 1963 Michel Foucault's The Birth of the Clinic was published; in retrospect, one could imagine a time when the concern about surveillance was both intense and real but also still being explored and perhaps nascent in scale.

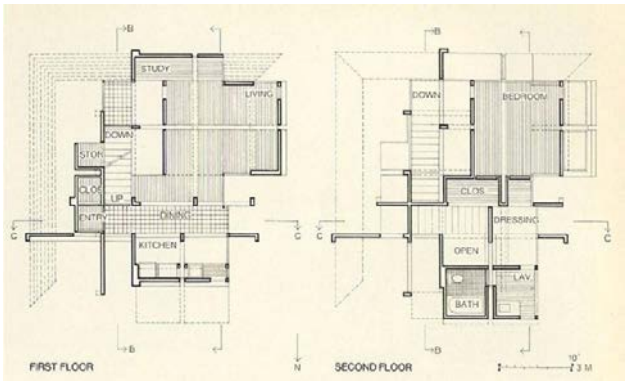
The Conversation starred Gene Hackman but also relied on two nearly silent characters played by Cindy Williams and Harrison Ford. Williams, strolling Union Square and Ford inhabit a kind of silent motion picture. The issue here is that Coppola has made a film – about listening more than looking. A film that undermines what you can learn by looking. So much so that the main character privy to the entire body of audio surveillance he acquires and constructs is unsure if what he hears actually happened. The audience is left to construct the would-be film in their own imagination – in their own gray matter and brain. We are the makers of the actual visual film.

At the Jack Tar Hotel, San Francisco, Harry Caul, master of audio surveillance is confronted by what he imagined but is not sure actually happened – according to his audio surveillance. Caul eventually breaks into the then empty hotel room: a drop of water on the tub drain convinces him evidence of a crime has been erased before a toilet overflows with blood in a surreal flood that to the audience is made to seem a dream. In other words, we are left like Harry unsure of any occurrence. The film's trajectory is negated and its only presence is in our imagination. Caul ends up dismantling his own domestic life—his apartment is torn apart as he seeks evidence of his own being bugged

Encrypted Vision: At the Jack Tar Hotel, San Francisco, Harry Caul, master of audio surveillance is confronted by what he imagined but is not sure actually happened – according to his audio surveillance. Caul eventually breaks into the then empty hotel room: a drop of water on the tub drain convinces him evidence of a crime has been erased before a toilet overflows with blood in a surreal flood that to the audience is made to seem a dream. In other words, we are left like Harry unsure of any occurrence. The film's trajectory is negated and its only presence is in our

imagination. Caul ends up dismantling his own domestic life—his apartment is torn apart as he seeks evidence of his own being bugged.

Architecture: 1973: In 1973 Peter Eisenman was designing House IV—a private house in Connecticut. Making explicit reference to the house's elimination of formal room assignments Eisenman was vocal in rejecting the anthropological traces of domestic life and in effect promoting a "subject-less" house that you nonetheless took up residence in. The house rejected it role as surveillance of your domestic setting. Architecture in this era of autonomy often sought to delimit the degree to which it anticipated and constructed a subject even as it demanded utter precision and visual evidence of its own making. Of its author's actions. It demanded that the architect reveal their means. Eisenman's degree zero was countered by varying genres of pop architecture but the entire sequence was perhaps played out with only one audience – that cultivated inside architecture schools and the profession. It was not without major consequence but in the scope of mass media or even the limited distribution of a film like The Conversation how are we to compare agency or communication? Should we try to?



Peter Eisenman, House, VI, 1978, CT.

Today these ideas of surveillance are narrow by this measure but if you put them in perspective with a more limited mobility were people in 1973 easier to surveil then they are today? And does architecture have a sense of where it fits in the pan project of making visible our every move. More importantly are there larger changes in what underpins architecture and development today that would altogether alter how we imagine the place of architecture in this equation?

Our studio—and project—will be drawn into these conditions and seek an update on what it means to imagine what constitutes the colloquial term home or the architectural term house in our current industrial-tech economy. The Conversation is one sample of what are here outlined as eight conditions of our time. Some are seen as liberating while other are seen as new forms of surveillance – in this midst what is architecture as an agent of human liberty.

Encryption Topic 7

Hardwired Nervous System (Hiding in Plain Sight)

Today: Surveillance: Top Secret America, The Washington Post

https://goo.gl/5jaO *https://goo.gl/6sYh*

Top Secret America.

Today the surveillance techniques imagined in the *Conversation* might seem narrow if compared to imbrication of techniques in today's communications. In the post 9/11 world the *Washington Post* recently mapped what they claim is a dramatic increase of sites dedicated to counter-terrorism in the United States. In short, a distribution of the architectural and urban installment of surveillance where vision is both self-evident and tells us nothing.

Jonathan Crary, Art Historian, Columbia University and founder, *Zone Books* has written extensively on the role of vision and in particular on the role of the nervous system in vision. For Crary, vision, is a zone of subjectivity that since the 1830's increasingly relied on a segregation of the subject (the person) from that which is seen. Crary studied how the physiological understanding of the bodies nervous system and in particular the optic nerves lead to a belief that semantic content was in effect not transmitted by the nervous system. The risk in such a finding was that the person as *physiological* subject might in effect be increasingly neutralized or indifferent to the semantic content of the world (the sources) that stimulates it.

Jonathan Crary, Modernizing Vision, in Vision and Visuality, Edited by Hal Foster, Bay Press, 1988

Jonathan Crary, Modernizing Vision, in Vision and Visuality, Edited by Hal Foster, Bay Press, 1988

Crary, page 38, 39

The work in question is the research of the German physiologist Johannes Muller, the single most important theorist of vision in the first half of the nineteenth century. In his study of the physiology of the senses, Muller makes a comprehensive statement on the subdivision and specialization of the human sensory apparatus; his fame was due to his theorization of that specialization: the so-called "doctrine of specific nerve energies." It was a theory in many ways as important to the nineteenth century as the Molyneux problem was to the eighteenth century. It was the foundation of Helmholtz's Optics, which dominated the second half of the 1800's; in science, philosophy, and psychology it was widely propounded, debated, and denounced even into the early twentieth century.

The theory was based on the discovery that the nerves of the different senses were physiologically distinct. It asserted quite simply - and this is what marks its epistemological scandal - that a uniform cause (e.g., electricity) would generate utterly different sensations from one kind of nerve to another. Electricity applied to the optic nerve produces the experience of light, applied to the skin the sensation of touch. Conversely, Muller shows that a variety of different causes will produce the same sensation in a given sensory nerve; in other words, he describes a fundamentally arbitrary relation between stimulus and sensation. It is a description of a body with an innate capacity, one might even say a transcendental faculty, to misperceive, of an eye that renders differences equivalent.

His most exhaustive demonstration concerns the sense of sight, and he concludes that the observer's experience of light has no necessary connection with any actual light. Mueller enumerates the agencies capable of producing the sensation of light. "The sensations of light and color are produced wherever parts of the retina are excited 1) by mechanical influences, such as pressure, a blow or concussion 2) by electricity 3) by chemical agents, such as narcotics, digitalis 4) by the stimulus of the blood in a state of congestion." Then last on his list, almost begrudgingly, he adds that luminous images also can be produced by "the undulations and emanation which by their action on the eye are called light."

Crary, page 40, 41

Sight here has been separated and specialized certainly, but it no longer resembles any classical models. The theory of specific nerve energies presents the outlines of a visual modernity in which the "referential illusion" is unsparingly laid bare. The, absence of referentiality is the ground on which new instrumental techniques will construct for an observer a new real world. It is a question of a perceiver whose very empirical nature renders identities unstable and mobile, and for whom sensations are interchangeable. And remember, this is roughly 1830. In effect, the doctrine of specific nerve energies redefines vision as a capacity for being affected by sensations that has no necessary link to a referent, thus threatening any coherent system of meaning. Muller's theory was potentially so nihilistic that it is no wonder that Helmholtz and others, who accepted its empirical premises, were impelled to invent theories of cognition and signification which concealed its uncompromising cultural implications. But what was at stake and seemed so threatening was not just a new form of epistemological skepticism about the unreliability of the senses but a positive reorganization of perception and its objects. The issue was not just how does one know what is real, but that new forms of the real are being fabricated and a new truth about the capacities of a human subject was being articulated in these terms.

Crary, page 42

Far from the specialization of the senses, Helmholtz is explicit about the body's indifference to the sources of its experience and of its capacity for multiple connections with other agencies and machines. The perceiver here becomes a neutral conduit, one kind of relay among others to allow optimum conditions of could generate utterly different sensations from one kind of nerve to another, electricity applied to the optic nerve produces the experience of light, applied to the skin the sensation of touch. Conversely, Muller shows that a variety of different causes will produce the same sensation in a given sensory nerve; in other words, he describes a fundamentally arbitrary relation between stimulus and sensation. It is a description of a body with an innate capacity, one might even say a transcendental faculty, to misperceive, of an eye that renders differences equivalent.

Discussion, Page 42

Crary is referring to: Hermann von Helmholtz, On the Sensations of Tone as the Physiological Basis for Music Theory, 1954.

https://archive.org/details/onsensationsofto00helmrich/page/n7

Nerves in the human body have been accurately compared to telegraph wires. Such a wire conducts one single kind of electric current and no other; it may be stronger, it may be weaker, it may be in either direction; it has no other qualitative differences. Nevertheless, according to the different kinds of apparatus with which we provide its terminations, we can send telegraphic dispatches, ring bells, explode mines, decompose water, move magnets, magnetize iron, develop light, and so on. The same thing with our nerves. The condition of excitement which can be produced in them, and is conducted by them, is everywhere the same.

Encryption Topic 8

Weightless Bodies and Materials: Frank Stella's *Working Space*.

Composition X, 1939, Biomorphic abstraction, Oil on canvas, 51.2 × 76.8" (130.0 × 195.0 cm), Dusseldorf. Kunstsammlung Nordrhein-Westfalen

Frank Stella, Working Space, Page 116

> *"Kandinsky knew from his experience of Expressionism and Fauvism that twentieth century art was infatuated with the reality of pigment, that it was stuck to the plane of the pictorial surface.*
>
> *This reality of pigment, the inevitable weight of the touch of the artist's hand, was something Kandinsky hoped to deny."*
>
> *"He expected to paint and compose with a new freedom, seeking to dissolve the ground plane of the past into a surface of continuous weightlessness relationships."*

In Frank Stella's *Working Space*, abstraction might be understood as a form of encrypted realism.

Working Space, a set of six lectures, were compiled and presented as a book in 1986. Stella's lectures had a strong relationship to architecture and to a mechanics of pictoriality, that while noted at the time as potentials for architecture design.

Stella was exploring a way to achieve a new mode of pictorial plasticity in painting after modernism's gradual but also seeming total flattening of pictorial space. Part of what was so powerful in the book's timbre and detail was the immediacy in his analysis of *other* painters—and a kind of authority of tone that came from Stella's own practice. On Mondrian, for example, and the painting *New York City*, Stella saw a total eradication of a bodily plasticity:

> "It is here that Mondrian rattles the bones of human configuration for the last time; it is here that the white rectangle steps out of the background landscape into its own space."

Stella's own painting and sculpture were presented in the book - from his own early student experiments in a flattening of space (and figure) to his then newest quasi-sculptural paintings. He orbited back toward the Renaissance and as far forward as urban graffiti looking at ways in which painting begat a more palpable and occupy-able plasticity—a place for a body that was itself plastic if still abstract.

Stella's descriptions of space resonated with a quality in cities in the 1980's — a blankness and flatness of experience that architectural theorist were beginning to describe as "terrain vague"— a space where the presence of a person was real, but hardly acknowledged in the no-man's land of near abandoned spaces between building as isolated capital-instruments.

Ignasi de Solà-Morales work on the term terrain vague arrives concurrent to Stella's lectures; Mike Davis *City of Quartz* was published eight years later. Davis' reading of the political mechanics that created and sustained an anomie of the street level experience in Los Angeles were never related to Stella's work but together, Stella (*Working Space*) and Davis with Solà-Morales provide a sense of painting and architecture diagnosing an arid yet barely plastic urban life where the dissipative quality of space needed but could not (as yet) sustain a new plastic direction. This space was shored up by plastic spatial tropes, literal policing and intimation of real and implied surveillance. People were present but abandoned or as Albert Pope wrote, "un-constructed". Today we are digitally re-connecting everything and everyone -- but constructing what?

If Stella seemed to be describing this aridity and trying to create something new from it—in part by going back into history and bringing forward a renewed and transformed mechanics of the plastic (see the passage re. Leonardo above) he also conflated it with his own experiments in flatness. His work traced a vivid "hot-blooded" structure that was simultaneously laced with emptiness as it was literally becoming spatial and quasi-architecture, quasi-sculpture. The work seemed to have a kind of evaporative quality—plastic and plasticity drained away at the same time. Stella had a path into a NEW plastic architecture that seemed to not have been understood by architects---what are we constructing today if we put the term plastic and body at the front of our concern but also recognize the predation of a data driven and map centric world where bodies can be a liability?

Essential Reading and Schedule

draft: complete bibliography and weekly schedule will be provided at studio outset.

Murray Bookchin, *Post Scarcity Anarchism*

David Harvey, *Flexible Accumulation Through Urbanization Reflections on "Post-Modernism" in the American City*

Kenneth T. Jackson, *Crabgrass Frontier: The Suburbanization of the United States.*

William Nordhaus.
https://economics.yale.edu/people/william-d-nordhaus
https://sites.google.com/site/williamdnordhaus/papers_speeches

William D. Nordhaus, *Are We Approaching an Economic Singularity? Information, Technology and the Future of Economic Growth*, September 2015
http://cowles.yale.edu/sites/default/files/files/pub/d20/d2021.pdf

John Ruskin, *The Storm-Cloud of the Nineteenth Century*
https://www.wwnorton.com/college/english/nael/noa/pdf/27636_Vict_U08_Ruskin.pdf