

Infra(Structure) to Supra(Structures) – a critical discourse

In a confluence of disciplines, infrastructure is now the subject of an intellectual discourse. The shift from being firmly embedded in the territory of engineers, infrastructure is being examined for its power to influence cultural and ecological patterns by historians to designer. As a product of the industrial revolution (though there is a long storied history back to the ancient civilizations of Babylon, Egypt, Greece, Rome, China, and Mesoamerica), infrastructure now dominates much of this planet's landscape. It is hard to escape the presence of roads, power lines, radio towers, and garbage dumps if you are located anywhere near a sizable settlement. Most of the items that are classified as infrastructure are typically ignored (except when they break or don't function as promised) and occupy the visual background noise that frames our gestalt view of nature. As a signifier of the frontier of human occupation, the presence of road or railroad is enough to shift a territory from being an unknowable wilderness to the rural hinterland. A paradigm shift is emerging from the creative and adaptive reuse of old steel mills, gas works, garbage dumps, as obsolescence and diminishing available land places a premium previously ignored sites.

Two of the most famous urban parks of the 19th century were built on former dumps- Olmstead's *Central Park* and *Parc des Buttes-Chaumont* (both from the 1860s) adapted to the growing metropolis that was surrounding them. Richard Haag's Gasworks Park from 1975 in Seattle, was the first documented adaptive reuses of a industrial facility into a park (though a grain elevator has famously been converted into a hotel in 1973¹). A parallel movement in the 1970's was the reclamation of urban waterfronts from working ports into public spaces as containerization shifted most cargo movement into new huge sites outside of most cities; Baltimore and Boston² both led the way.

Networks have become a 21st century preoccupation; this attention has been part of the driving force of examining the physical manifestations. As Manuel De Landa explores the connections of in the World Wide Web, the physical connection between places gets seen in a new perspective. So as the generator of most of these networks and connections- infrastructure has gained significantly in importance as the global culture emerges based on these invisible links.

Following are a collection of books that engage the new context of infrastructure- either by establishing precedence and the context for the emergence of our technological society or exploring the topic from a unique position. Geographically, this research focuses primarily on the western US. There are lots of books romanticizing the eastern cities like New York and fabled subway and parks- these tend not to be as critical or attempting to redefine their subject (though I couldn't resist throwing a few in).

¹ In Akron, Ohio, by Hilton - Crowne Plaza Quaker Square

² Thompson Associates design for Quincy Market in Boston was from 1971.

A brief typology of Infrastructures:

Water: irrigation ditches, wells, water tanks, aqueducts, dams, reservoirs, pipes, waterworks, water treatment

Defense: walls, moats, towers, gates, siege machines, armories, barracks,

Transportation: roads, bridges, tunnels, ferries, canals, locks, tollgates, railroads, ports, airports, spaceports

Waste: dumps, sewers, landfills, sewage treatment plants, recycling facilities, incinerators, transfer stations

Energy: electric plants, transmission lines, substations, coal mines, hydroelectric plants, coal gasification plants, wind turbines, solar farms

Communication: telegraph & telephone lines, radio antennas, cable TV, fiber optics, satellites, Internet, libraries

Commerce: warehouses, shopping mall, bazaars, markets, stock markets

Recreation: hunting parks, gardens, public baths, stadiums, theatres, harems, menageries, zoos, public parks, amusement parks, national park systems, back-country huts and lodges, pack stations, golf courses, ski resorts, all-inclusive resorts, cruise ships,

Literature search for cultural and critical texts on Infrastructure. Trying to shift the chaff of technical information for designing, constructing and managing public works, which make the majority of the text written often from an engineering or technocratic perspective. There is also a category of photographic art books that focuses on the built world and infrastructure – I will list some of my favorites.

BIBLIOGRAPHY (* = originally written as part of my thesis proposal)

Allen, Stan; *Points + Lines: Diagrams and Projects for the City* (New York, Princeton Architectural Press, 1999)

Berger, Allen; *Reclaiming the American West* (New York, Princeton Architectural Press, 2002)

As a student of Anu Mather at the University of Pennsylvania, Allen takes the methodology of iterative mapping and applies these techniques to strip-mines and the post-industrial landscape of the west.

Blake, Peter; *God's Own Junkyard: the Planned Deterioration of America's Landscape* (Holt, Rinehart and Winston, 1964)

As *Silent Spring* was to pesticides and chemicals, this book is the equivalent polemic call to arms against visual blight, sprawl and litter. Of course it's harder to rally the troop against something that doesn't kill us, just poison's our soul.

Brown, Laurie et al; *Recent Terrains: Terraforming the American West* (Baltimore: John Hopkins University Press, 2000)

Corner, James - editor; *Recovering Landscape* (New York: Princeton Architectural Press, 1999)

Several of chapters dance between the vernacular landscape and the post-industrial sites that dot our country. The exploration of infrastructure should be at the scale of the landscape and this book even six years later is still some of the freshest thoughts around.

Cronon, William; *Nature's Metropolis: Chicago and the Great West* (W. W. Norton & Company, 1999)

As one of the leading historians redefining the American West- any of Bill Cronon's books can be cited in the context of infrastructure and settlement. As a synthesis of wide ranging trends and topics, his writing is very clear insightful –perhaps his influence is greatest in establishing a new discourse on what the west is.

Easterling, Keller; *American town plan: a comparative time line* (New York, NY: Princeton Architectural Press, 1993)

Easterling, Keller; *Organization Space: Landscapes, Highways, and Houses in America* (Cambridge, Mass.: MIT Press, 1999.)

One of the more influential books that approaches the critical inquiry to infrastructure obliquely. Her diagrams of the highway systems appear in lots of other publications- and not always credited.

Engler, Mira; *Designing Americas Waste Landscapes* (Center Books on Contemporary Landscape Design)-

In response to a harsh book review in *Landscape Architecture Magazine*, Mira Engler stated that she applied a post-structuralist method to garbage. This book is one of the best-focused examinations of an infrastructural topic that explores both the historical development of the system and the implications of those choices. She may glorify a smelly subject, but then so does Mike Davis.

Gastil, Raymond; *Beyond the Edge: New York's New Waterfront* (New York: Van Alen Institute/Princeton Architectural Press, 2002)

New York City's waterfront was once the generator of why the city existed- with the shifting technologies and evolution of the city from being a shipping center to being a service center- the long neglected waterfront has been subject to a great deal of investigation of potential re-use and adaptation. Several of these projects are collected in this book along with several case studies of waterfront redevelopment from around the world. Is the waterfront really infrastructure? Well the dock and wharves are, and the bulkheads might just be. Docklands have emerged as one of the leading places for renewal over the past 30 years as the scale of shipping has moved waterfront industrial activities, out to the periphery of the urban zone- leaving prime land vacant.

Gierstberg, Fries and Bas Vroege- editors; *Wasteland Landscape From Now On* (Den Hague: Uitgeverij 010 publishers, 1992)

Exhibit catalog that by its juxtaposition of so many different explorations of derelict places, performs a critical re-evaluation and redefinition of their cultural potential.

*Gumprecht, Blake; *The Los Angeles River: Its Life, Death, and Possible Rebirth* (Baltimore, Johns Hopkins University Press, 1999)

Any exploration of the aqueduct needs to start with the historic pattern of water resources, and the sequential growth of the city, which are well documented here. Connecting the history of the settlement of LA with the sources of water, this book provides a contemporary holistic view of the city and the cultural implication of its water. There have been many academic architectural explorations of the river as it exists- as the river was a popular site of urban design studios over the past several years; this book captures the interest and renewed awareness of the river. The author extensively covers the recent attention focused on the river and lays out groundwork for future action. While the book lacks detailed maps, it contains many photographs and a strong narrative. The sources for the book are a good avenue for future research along with a bibliography of primary sources.

Holt, Nancy- Editor; *The Writing of Robert Smithson* (New York, New York University Press, 1979)

Robert Smithson's role in expanding art to encompass earthworks and the techniques of the civil engineer is crucial to this exploration of infrastructure. His writings were some of the first to propose a paradigm shift from eyesore to aesthetic appreciation. "A Tour of the Monument of Passaic, New Jersey" should be required reading for all.

Jackson, JB; *The Necessity for Ruins, and Other Topics* (Amherst: University of Massachusetts Press, 1980)

As one of the original thinkers of the vernacular that established the aesthetic dimension of the undersigned and the engineered, this essay explores the future of our industrialized culture. We all owe a great deal to J.B.

Kirkwood, Niall –editor: *Manufactured Sites: Rethinking the Post-Industrial Landscape* (Spon Press 2001)

As a collection, Kirkwood collects a good cross section of investigations ranging from technical to philosophical musing about brownfields and aging infrastructure. There are more case studies collected here than in any other book- but only serve as the basis for additional investigation.

Lewis, Peirce Fee; *Visual blight in America* (Washington: Association of American Geographers, Commission on College Geography, 1973)

Lyle, John Tillman; *Regenerative Design for Sustainable Development* (John Wiley & Sons; 1996)

*Mather, Anuradha & da Cunha, Dilip; *Mississippi Floods* (New Haven, Yale University Press, 2001)

This book is a prototype and armature for temporal and cultural mapping of a fascinating site. By engaging the transmuting subject that shifts over time and with perspective, Anu creates a graphic language that has layers of temporality.

McHarg, Ian; *Design With Nature* (Garden City, N.Y., Published for the American Museum of Natural History [by] the Natural History Press, 1969.)

With the emphasis on ecological analysis, McHarg acknowledges the importance of highways and other public works for supporting our growing cities. There are many flaws that are apparent three decades later, primarily his inability to quantify or engage aesthetics and cultural values. *Design With Nature* is one of the classic texts of the environmental movement and for landscape architecture and helped established ecological planning as a profession. McHarg's other texts, *To Heal the Earth* (1998) and his autobiography never expands beyond his initial thesis of analysis driven planning, but this can be forgiven for an iconoclast and visionary.

Meinig, D.W. -ed.; *Interpretation of Ordinary Landscapes* (Oxford University Press, 1979)

*Ostrom, Vincent; *Water & Politics: a Study of Water Policies and Administration in the Development of Los Angeles* (Los Angeles, Haynes Foundation, 1953)

Details of the complexity of water policy and use. There is a good study of the impact of the Aqueduct on the behavior and development of the city. Most of the maps are reprints from the Complete Report, though there are few updated graphics of interest and more details of the distribution system within the city. The Colorado River Aqueduct is also documented- which presents an interesting contrast in engineering and technology a decade later.

*Suisman, Douglas R.; *Los Angeles Boulevard: Eight X-rays of the Body Public* (Los Angeles, Los Angeles Forum for Architecture and Urban Design, 1989)

Standing on the shoulder of Banham's *Los Angeles; Four Ecologies*, this book delves into the specific phenomena of the public spaces and organization of the city. Interpolating from the original Rancho properties to the current street patterns, there are some good maps (though derivative of several earlier histories) though the biggest contribution is connecting the idea of Hausmann's Parisian boulevards to the major boulevards of Los Angeles.

Thayer, Robert L.; *Gray World, Green Heart: Technology, Nature and the Sustainable Landscape* (John Wiley & Sons, 1994)

Tuan, Yi-fu; *Space and place: the Perspective of Experience* (Minneapolis: University of Minnesota Press, 1977)

Tuan, Yi-Fu; *Topophilia: A Study of Environmental Perceptions, Attitudes, and Values* (New Jersey: Prentice-Hall 1974/ Columbia University Press 1990)

As a geographer, Yi-Fu's approach is holistic and more of setting the context than interpretive.

Wines, James; *De-Architecture* (New York: Rizzoli 1987)

This book is a wide-ranging and meandering journey through art, architecture and the cultural context. Even as his post-modern architecture is quite dated, James Wines' writings will leave a more significant legacy of synthesis and thesis to the world.

WATER

*Davis, Margaret L.; *Rivers In The Desert: William Mulholland And The Inventing Of Los Angeles* (New York, NY: Harper Collins Publishers, 1993)

Greenberg, Stanley; *Waterworks: A Photographic Journey Through New York's Hidden Water System* (Princeton Architectural Press; 1st edition, 2003)

A typological photographic study

Hundley, Norris. *The Great Thirst – California and Water: A History*. Berkeley: University of California Press, 2001.

*Kahrl, William L.; *Water And Power: The Controversy Over Los Angeles' Water Supply In The Owens Valley* (Berkeley: University Of California Press, 1982)

*Moore, Charles Willard; *Water And Architecture* (New York: H.N. Abrams, 1994)

*Morrish, William; 'The Urban Spring: Formalizing The Water System Of Los Angeles' / *Modulus* 1984, No.17, P.44-73 (Charlottesville: University of Virginia Press)

*Mulholland, Catherine; *William Mulholland And The Rise Of Los Angeles* (Berkeley: University Of California Press, 2000)

*Orsi, Jared; *Hazardous Metropolis: Flooding And Urban Ecology In Los Angeles* (Berkeley: University Of California Press, 2004)

*Reisner, Marc P; *Cadillac Desert* (New York, Viking, 1986.)

TRANSPORATION

Raitz, Karl; *The National Road* (Baltimore: John Hopkins University Press, 1996)

ENERGY

Froschauer, Karl; *White Gold: Hydroelectric Power in Canada* (Univ of British Columbia Press, 2000)
[Amazon.com states that this is critical sociological study of the impact of hydropower]

Melosi, Martin; *Coping with abundance: energy and environment in industrial America* (Philadelphia: Temple University Press, 1985.)

Melosi, Martin; *Effluent America: cities, industry, energy, and the environment* (Pittsburgh: University of Pittsburgh Press, 2001)

Payne, Christopher; *New York's Forgotten Substations: The Power Behind the Subway* (Princeton Architectural Press, 2002)
A typological study that is simply a documentation of what exists and how it worked.

DEFENSE

Vanderbilt, Tom; *Survival City: Adventures Among the Ruins of Atomic America* (Princeton Architectural Press, 2002)

WASTE

Dominique Laporte, Nadia Benabid (translator); *History of Shit* (Boston: The MIT Press, 2000)

Melosi, Martin; *The Sanitary City: Urban Infrastructure in America from Colonial Times to the Present (Creating the North American Landscape)* (Baltimore, Johns Hopkins University Press 2002)

Melosi, Martin; *Garbage in the cities: refuse, reform, and the environment : 1880-1980* (College Station, TX : Texas A&M University Press, 1981)

Melosi, Martin -editor; *Pollution and reform in American cities, 1870-1930* Austin : University of Texas Press, 1980.

Strasser, Susan; *Waste and Want: A Social History of Trash* (Metropolitan Books: 1999)

COMMUNICATION

Bertomen, Michele; *Transmission Towers on the Long Island Expressway* (New York: Princeton Architectural Press 1991)

COMMERCE & INDUSTRY

There are several famous typographies that focus of the aesthetics of the engineered buildings and structures.

Ackermann, Kurt; *Building for Industry* (London: Watermark 1991)

Banham, Reyner; *A Concrete Atlantis: US Industrial Building and European Modern Architecture* (Boston: MIT Press 1989)
The original text that builds on the early modernist fascination with grain elevators and industrial structures

Grohloke, Frank; *Measure of Emptiness: Grain Elevators in the American Landscape* (Baltimore: John Hopkins University Press, 1992)

Mahar-Keplinger, Lisa; *Grain Elevators* (New York, Princeton Architectural Press, 1993)

Zilvold, rein and Peter Nijhof; *Industriële Monumenten* (Amsterdam: Fragment Uitgeverij, 1989)

RECREATION

Judd, Dennis R. - editor; *The infrastructure of play: building the tourist city.* (Armonk, N.Y.: M.E. Sharpe, 2003.)

Judd, Dennis R. & Susan S. Fainstein, editors; *The Tourist City* (New Haven: Yale University Press, 1999)

UTILITIES

Granick, Harry; *Underneath New York* (Fordham University Press; Reprint edition, 1991)

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