GLOBAL 253:
Infrastructures and Technologies of Globalization

Thursdays 3:30-6:15pm, SSMS 2001



Xiaolangdi Dam, Jiyuan. Film still from Edward Burtynsky and Jennifer Baichwal's Watermark, 2014.

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COURSE DESCRIPTION:

While infrastructures such as sewage systems, electrical grids, and railroads are often understood as "boring things" (Star 1999) – the underlying material substrata that support our everyday lives – the study of technological innovation often focuses on hyper-visible modern artifacts and systems of technical hardware – from the automobile to the iPhone and the drone – that alter the relations between human ends and their technical means. This course aims to bring the study of technical artifacts and their underlying systems together, considering their co-constitutive role as powerful transformative forces in shaping and reflecting processes of globalization. Drawing attention to the transformative social force of large-scale socio-technical systems, we will consider how technical arrangements and physical systems produce and reflect various forms of global order. Course themes include: the historical development of mechanization, industrialization and processes of mass automation in the making of global capitalism and militarism; the role of technology in social difference (class, race, gender,

sexuality, disability etc.); histories of conflict around the access, use, and the construction of infrastructural and technological projects; and the ways in which transportation infrastructures and technologies have been crucial in remaking global dynamics such as displacement, extractivism, unemployment, disease, etc. Specific examples examined might include railroads, electricity, undersea cables, logistics and energy systems, bitcoin, the cloud, financial technologies, drones, and border surveillance technologies.

REQUIRED TEXTS:
There are no required texts for this course. I will make PDFs available on Canvas, but if you prefer reading hard copies, you may consider purchasing the following if you so choose. I have not ordered any of these at the bookstore. Please purchase them from your favorite bookseller.

READINGS:
All readings are posted on Canvas, with the exception of the required text above. Check the syllabus carefully before starting your readings each week.
Additional sources may be of interest or relevant to your specific research topics and chosen approaches, so they are included for your reference and their potential utility in formulating your final project.

ASSIGNMENTS AND GRADING:
- Class Discussion and Participation, including one in-class presentations: 30%
- Reading responses: 30%
- Research Paper: 40%

1. *Class Participation* (30%)
    a. As this is a seminar course, a main requirement is thoughtful participation during all classes. Students are expected to not only attend all classes having completed all weekly readings, but set aside time to think through them before coming to class.
    b. Most of your work involves reading academic books and articles. Reading all the material is essential. Before you plunge in, I strongly recommend reading Paul N. Edwards, "How to Read a Book." Even the most accomplished and experienced students, postdocs, and faculty find this guide useful for getting through large amounts of reading in limited amounts of time.
    c. PhD students in the humanities and social sciences are taught to critique. That is a crucial skill. But you should not conflate critique with criticism. Critique represents serious engagement, while criticism all too often involves demolition. Make every effort to engage with readings on their own terms. What did the author intend? Who is their audience? What value can you find in their arguments? Is the evidence they present persuasive -- does it support these arguments? Would additional (or different) evidence have produced a different argument?

Leading Class Discussion
    d. Once in the quarter, you will lead class discussion. Students will sign up for their presentation during the first class meeting.
    e. Start by preparing a presentation that introduces the readings and places them in conversation with each other. These prefatory remarks should be aimed at opening up questions or topics for discussion. <u>These presentations should *not*</u>

aim merely at summary, but should rather introduce major themes, common confusions or questions, or background to the contexts or authors discussed. The bulk of the presentation should be focused on pulling out common themes arising from the readings. You may also raise questions you found particularly profound, interesting, or unconvincing that arose from the readings, and to introduce a few questions for class discussion.

f. Do a little research on the author(s). What's their disciplinary background? What else have they published? Look for information that illuminates the arguments you read, and that helps to situate them relative to other literature. You could look at reviews of some of the suggested readings to help you with this task, or use Edwards's techniques to browse through a few of them.
g. Please prepare a short handout as an aid to class discussion. This handout should be brief, listing 3-4 analytical points you found most significant for the session. Accompany each analytical point by a discussion question. This handout should be written in outline of bulleted form. Do not exceed 1 single-sided page. Please bring paper copies to distribute to your classmates.
h. At the beginning of that class session or section, you will spend no more than 15 minutes presenting background (5-7 min) and elaborating on your discussion questions (8-10 min). These presentations should be delivered without reading from a text (a skill you should all be practicing!). All presenters should participate equally.
i. At the end of this presentation, you (and your partner if applicable) will lead discussion for at least 20 minutes. This is an active process: don't just say "what do you think?" and then wait for replies! You should have several strategies planned so that you can adapt to the flow of the discussion as it evolves. You may cold-call your classmates if they aren't cooperating with your leadership.

2. *Reading Responses* (30%)
   Due via email by 10pm the day before class.
   a. You will each write TWO short reading responses in total. Specific prompts are posted at the end of each week's reading list. You will choose which prompts you would like to write a response for, and email me your preferences by the end of Week 1 of the quarter.
   b. You'll notice that most of these aren't standard "respond to the reading" assignments. Instead, they constitute invitations to experiment with genre. In all cases, the product should be polished, well-crafted, and free of typos. In most cases, I have assigned readings by writers whose prose, in addition to their arguments, I greatly admire. Read the texts with a mind to how they compose and tell the stories of their worlds. Chase down passive constructions, proliferating prepositional phrases, and other forms of verbal throat-clearing. Edit ruthlessly. This takes time, so you should leave yourself time to edit and revise. Be sure to respect word limits. These are all important academic skills; they only come naturally after a lot of practice.

3. *Research Paper* (40%)
   Final paper due Friday, Dec 13th by 11:59pm. I would prefer a paper copy in my mailbox, but if you are not in town, you don't have to do this. Please also send me a digital copy by email by the deadline.
   Here are some possible options:

a. A substantial research paper on an original topic of your choice (3500-4000 words max) on a topic of your choosing. There is great room for pursuing your own interests, but at minimum the research paper must investigate or produce an argument about the politics of technology and/or infrastructure that falls within the seminar's themes, broadly defined. Students are encouraged to begin work on that paper as soon as possible.
b. Pick a particular technology, technique, or infrastructure in a given space or region, and conduct research to trace its relationship to (and effects on) the relations of power, social difference, ecology, human/non-human relations, etc. both in the region of its location and beyond. E.g. How do the still-present landmines in the Vietnam, Cambodia, and the DMZ of North Korea affect everyday relations of labor? What are the social and political factors that led to the decommissioning of oil rig platforms off the coast of Santa Barbara?
c. Group project (2-3 people): engage in a creative mapping project of the infrastructural histories and pathways of technology in a chosen region. You might choose, for example, to map the military footprint of Santa Barbara and its global impacts; or to map technological forms of warfare along a timeline in Palestine, or the politics of agriculture and just transitions in the Central Valley, etc. You can produce a map accompanied by a write up or teach-in for public dissemination. Please consult with me about what this project would look like before you begin.
d. You may choose to use this opportunity to compose an annotated bibliography for your dissertation or thesis, or to write a prospectus for your dissertation (PhD students only). Please discuss this with me beforehand.
e. You may also choose to write review essay of 5-6 books (or the equivalent in articles) of around 3500-4000 (max) words (not including references), which may serve as a field assessment for a qualifying exam. You may select a group of texts from the Additional Sources portion of each week, or assemble your own coherent group of readings.

Research proposal + initial bibliography
Due Week 1 on Canvas, by Thursday, Oct 3 at 11:59pm on Canvas. Please prepare a research paragraph that does not exceed one page, and which briefly outlines what you think you will do in your final project. Since there is no class in week 1, use the time to browse the syllabus, do some initial research and planning, and propose a topic. Your proposal should try to address the following questions:

- Question and Issue: What are you proposing to investigate, and why should anyone care? (You might build a very brief literature review into this section.)
- Hypotheses and Tentative Argument: What are potential answers to this question, and which seems likely to prove most useful/insightful/revealing/ correct (pick your epistemological stance)?
- Research Plan: How will you go about demonstrating your argument? What evidence would you use to test your hypotheses/evaluate your argument/demonstrate your claims? Make sure you explain how you would know if you were wrong.
- Implications: What do you expect you will find/show? What are the implications of your findings?

- Initial Bibliography and References - this can be brief, but please start assembling sources.

IMPORTANT DATES

- Week 1, Thursday Oct 3 by 11:59pm: Research proposal due on Canvas
- Staggered: 3 reading responses, due 10pm on the day before class
- Staggered: Lead 1 class discussion
- Dec 13th: Final paper due

COURSE READINGS

Please read all readings in the order that they appear on the syllabus.

Topics of Sessions

1. Thinking technology politically
2. Initial research
3. Technopolitics, Coloniality, Race
4. Automation and the Future of Work
5. Mega-projects
6. The digital and its conditions of possibility
7. Energy
8. Planetary sensing and techno-environments
9. Militarism
10. Catastrophic Times

Week 0, T Sep 26: Thinking technology politically

- Langdon Winner. 1986. Chapter 2, "Do Artifacts Have Politics?" in *The Whale and the Reactor: A Search for Limits in an Age of High Technology.* Chicago: University of Chicago Press, p. 19-39
- Donald MacKenzie and Wajcman, Judy, eds. 1999. *The social shaping of technology.* 2nd ed., Open University Press, Buckingham, UK, 1-47.

Additional Sources

- David Noble, *Forces of Production: A Social History of Industrial Automation* (New Brunswick, NJ: Transaction Publishers, 2011).
- Trevor Pinch and Wiebe Bijker, "The Social Construction of Facts and Artifacts: Or How the Sociology of Science and the Sociology of Technology Might Benefit Each Other," in *The Social Construction of Technological Systems*, eds. Wiebe Bijker, Thomas Hughes, and Trevor Pinch (Cambridge, MA: MIT Press, 1987), 17–50.
- Daniel McCarthy. 2018. Chapter 4: "Critical Theory of Technology: Design, Domination and uneven development" in ed. Daniel McCarthy, *Technology and World Politics: An Introduction.* New York: Routledge Press, p. 60-79
- Lewis Mumford, *Technics and Civilization* or *The Myth of the Machine*
- Jacques Ellul, *The Technological Society*
- Langdon Winner, *Autonomous Technology: Technics-out-of-Control as a Theme in Political Thought*
- David E. Nye, *Technology Matters: Questions to Live With*
- Wiebe Bijker, *Of Bicycles, Bakelites, and Bulbs: Toward a Theory of Sociotechnical Change*
- Nelly Oudshoorn and Trevor Pinch, eds., *How Users Matter: The Co-Construction of Users and Technology*
- Shoshanna Zuboff, *In the Age of the Smart Machine: The Future Of Work And Power*
- David Edgerton, *The Shock of the Old: Technology and Global History Since 1900*
- Fred Turner, *From Counterculture to Cyberculture: Stewart Brand, the Whole Earth Network, and the Rise of*

Digital Utopianism
- Philip Mirowski, *Machine Dreams: Economics Becomes a Cyborg Science*

Week 1 Oct 3: No Class
I am in Copenhagen and Amsterdam this week giving a few talks, so there will not be any class. Please use your time this week researching initial ideas for your final paper and submit a research proposal on Canvas, however initial, by 11:59pm on Oct 3. Next week's readings are also long, so you might want to get started this week.

Week 2 Oct 10: Machinery and Large-scale industry

- Karl Marx. 1977. *Capital,* vol. 1, trans. Ben Fowkes. London: Penguin, Chapter 15. This is a long chapter. I will send an email with a brief reading guide on what to focus on the week beforehand.
- Aaron Benanav, 2019/ "Automation and the Future of Work – 1," *New Left Review* 119, Sept-Oct.
- David Noble. 2011. "Toward the Automatic Factory," Chapter 4 in *Forces of Production.* New Jersey, Transaction Publishers. 57-76

Reading Response:
Imagine that you are writing an article review for a journal of technology on Benanav and Noble's essays from a Marxian framework. Draw out the relationship between their approaches, noting how both are responding to or in conversation with Marx's conception of the relationship between capitalism, large-scale industry, and labor. What are the arguments each are making about automation? What are the stakes of their similarities and differences? (1000 words max)

Additional Sources
- James Boggs, Chapters 2, 3, 4 from American Revolution
- CLR James and Raya Dunayevksaya, "State Capitalism and World Revolution"
- Curtis Marez, "Farm Workers in the Machine" from Farm Worker Futurism
- Jason Smith, "Automation Then and Now Part 2"
- Stanley Aronowitz. 1994. *The Jobless Future: Sci-Tech and the Dogma of Work*
- David Noble. 1995. *Progress without People.*
- Melissa Wright. 2006. *Disposable Women and Other Myths of Global Capitalism*
- David Graeber. 2018. *Bullshit Jobs*
- Shoshanna Zuboff. 2019. *In the Age of the Smart Machines*
- Jeremy Rifkin. 1995. *The End of Work*
- David Spencer. 2018. "Fear and Hope in the Age of Mass Automation: Debating the future of work" *New Technology, Work and Employment* 33 (1).
- Guy Standing. 2011. *The Precariat: The New Dangerous Class*
- Ben Scully. 2016. "Precarity North and South: A Southern Critique of Guy Standing." *Global Labour Journal* 7 (2): 160-173
- Ronald Munck: "The Precariat: A View from the South." *Third World Quarterly*

Week 3 Oct 17: Scientific knowledge production and the Lab - Presenting: Josh and Ian

- Bruno Latour. 1983. "Give Me a Laboratory and I Will Raise the World." In: Knorr Cetina, K and Mulkay, M (eds.) *Science Observed: Perspectives on the Social Study of Science*. London: Sage. pp. 141–170.
- Danielle Carr. 2022. "Excess in the avant-garde of the data subject", *Terrain* 76
- Grant Bollmer. 2023. *The Affect Lab.* Chapter 3. "The Prison Dynograph"

- Max Liboiron. *Pollution is Colonialism.* Intro and chapter 3 (The whole book is available online through the UCSB library)
- Two short pieces:
    - "Military Research" in Resistance and Revolution: The Anti-Vietnam War Movement at the University of Michigan 1965-1972
    - The 1969 Scientists Strike for Peace 50 years later

Reading response: What is a lab, and how does it construct knowledge? Write a response paper using 2-3 readings from this week. (800-1000 words)

Week 4 Oct 24: The Capitalist Reconfiguration of Nature - Presenting: Matt & Yulia

- Soren Mau, "The Capitalist Reconfiguration of Nature," ch. 11 in his *Mute Compulsion: A Marxist Theory of the Economic Power of Capital.* Verso Press, 2023.
- Rosemary-Claire Collard & Jessica Dempsey, 2016. "Capitalist Natures in Five Orientations" *Capitalism Nature Socialism*
- Ashley Carse. 2012. "Nature as infrastructure: Making and managing the Panama Canal watershed" in Social Studies of Science 42(4).
- Bikrum S Gill. 2023. A world in reverse: The political ecology of racial capitalism. *Politics,* 43(2), 153-168.
- Araghi, Farshad. "Accumulation by Displacement: Global Enclosures, Food Crisis, and the Ecological Contradictions of Capitalism" *Review: Fernand Braudel Center for the Study of Economies, Historical Systems, and Civilizations*, 2009-01, Vol.32 (1), p.113-146

Reading response: Find a photograph that depicts an aspect of or historical moment in the construction of an infrastructural system that reconfigured nature in some fundamental sense. Write an analytical response close reading the photograph in relation to 2-3 of the assigned texts. (800-1000 words)

Additional Sources:

- Larkin, Brian. "The Politics and Poetics of Infrastructure." *Annual Review of Anthropology* 42 (2013): 327-343.
- Ashley Carse. 2017. "Keyword: infrastructure: How a humble French engineering term shaped the modern world," in Harvey, Jensen, & Morita eds., *Infrastructures and Social Complexity.* Routledge Press: 27-39.
- "The Local in the Global," *International Journal of Sociology of Food and Agriculture*, Vol. 8, No. 1.pp. 111-125, 2000.
- Nick Estes. 2019. *Our History is the Future.* Chapter 4, "Flood."133-168.
- Eyal Weizman, Forensic Architecture: Violence at the Threshold of Detectability, (New York: Zone Books, 2017). Selections TBA
- Stephen Ramos, *Dubai Amplified: The Engineering of a Port Geography* (Chapters 1, 3)
- Joshua Comaroff, "Built on Sand: Singapore and the New State of Risk" in *Harvard Design Magazine*
- Rosie Bsheer, 2015. "The Property Regime: Mecca and the Politics of Redevelopment in Saudi Arabia" in *Jadaliyya.*
- *Laleh Khalili. 2019. "A World Built on Sand and Oil," Lapham's Quarterly Volume XII, 2 (Spring).*
- Stuart Elden, 2013. "Secure the Volume: Vertical Geopolitics and the Depth of Power" in *Political Geography.*
- Fred Moavenzadeh, 1978. "Construction industry in developing countries" in *World Development* 6(1).
- WorldBank, 2007. "Construction, corruption, and developing countries"
- Zeynep Celik, "Le Corbusier, Orientalism, Colonialism" in *Assemblage 17.*

- Dennis Rodgers, 2012. "Haussmannization in the Tropics: Abject Urbanism and Infrastructural Violence in Nicaragua," *Ethnography* 13(4).
- Gaston Gordillo, *Rubble: the afterlife of destruction*

Week 5 Oct 31: Cyberculture, Silicon Valley imperialism, and platform labor - Presenting: Sienna

- Malcolm Harris 2024. *Palo Alto: A History of California, Capitalism, and the World.* Chapters 3.1 and 3.2 [60 pages]
- Erin McElroy. 2024. *Silicon Valley Imperialism.* Duke University Press. Ch. 1 & 2 + Coda [68 pages]
- Maha Rafi Atal. 2021. "The Janus Faces of Silicon Valley" *Review of International Political Economy* 28 (2): 336-350. [14 pages]
- Nick Dyer Witheford. 2013. "Red Plenty Platforms" *Culture Machine* 14: 1-21 [20 pages]
- Veena Dubal and Vitor Araújo Filgueiras, "Digital Labor Platforms as Machines of Production" Yale Journal of Law & Technology 26:3
- Chua, Charmaine and Spencer Cox, 2023. "Battling the Behemoth: Amazon and the Rise of the New American Working Class." *The Socialist Register 2023.*

Reading Response:
Write an essay for a public audience (specify your target publication if you can) that accessibly but creatively and evocatively tells a story of Silicon Valley imperialism, algorithmic labor, or tech culture. You might start with an anecdote, story, or illustrative case, a historical moment, or a recent piece of news. Many public-facing forums for leftist scholarship like *Dissent, The Baffler,* or *The Boston Review* look for public pieces that can help make sense of a timely item in the news, so you might find that the best way to write a public piece is to use the readings assigned to make sense of something that happened in the world recently. (If examples help, here is example of one I wrote when the Ever Given was stuck in the Suez Canal) (800-1000 words)

Response option 2:
Write a 800-1000 word memo detailing how the readings from this week inform the theoretical or empirical frame of your final paper.

Supplementary:
- Daub, Adrian 2 *What Tech Calls Thinking: An Inquiry into the Intellectual Bedrock of Silicon Valley.* Farrar, Straus and Giroux
- Matthew Cole. 2023. "(Infra)structural Discontinuity: Capital, Labour, and Technological Change." *Antipode*, 55: 348-372. https://doi.org/10.1111/anti.12887
- Kao, Caroline. 2021. "Startup Capitalism: Gendered Transformations of Home, Work, and Value in Silicon Valley" (UCSC dissertation)
- Jones, Phil. 2021. *Work without the Worker: Labor in the Age of Platform Capitalism*. Verso Books.
- Watchman, Judy. 2018. "How Silicon Valley Sets Time" New Media and Society 21(6)
- Gray, Mary L, and Siddharth Suri. 2019. *Ghost Work: How to Stop SIlicon Valley from Building a New Global Underclass.* Houghton Mifflin.
- Chua, Charmaine. 2023. "Disruption from above, the middle and below: Three terrains of governance" *Review of Internaitonal Studies* 49(1): 37-52
- Lüthje, Boy, Stefanie Hürtgen, Peter Pawlicki, and Martina Sproll 2013. *From Silicon Valley to Shenzhen" Global Production and Work in the IT Industry.* Rowman & Littlefield.

- Pellow, David and Lisa Park. 2002. *The Silicon Valley of Dreams: Environmental Injustice, Immigrant Workers, and the High-Tech Global Economy.* New York University Press

Week 6 Nov 7: Resource Extraction and the "New Imperialism" - Presenting: Natalia

- Martín Arboleda. 2020. *Planetary Mine: Territories of Extraction Under Late Capitalism.* Read the whole book.
- Mazen Labban. 2014. "Deterritorializing Extraction: Bioaccumulation and the Planetary Mine," *Annals of the Association of American Geographers*, 104:3, 560-576, DOI: 10.1080/00045608.2014.89236

Reading response:
Find a photograph that depicts an aspect of resource extraction and imperialism of particular interest to you. Enter the highest resolution you can find on Canvas by 10pm on Wednesday and write an analytical response close reading the photograph in relation to 2-3 of the assigned texts. (800-1000 words)

Response option 2:
Write a 800-1000 word memo detailing how the readings this week inform the theoretical frame or empirical work of your paper.

Additional Sources:

- Starosielski, Nicole. 2015. *The Undersea Network*. Durham, NC: Duke University Press.
- Myra Hird, Scott Lougheed, Kerry Rowe et al. "Making waste management public." *Social Studies of Science* 44(3):441-465
- Julie Klinger. 2017. *Rare Earth Frontiers: From Terrestrial Subsoils to Lunar Landscapes.* Cornell University Press. Chapter 1 "What are Rare Earth Elements?" and "Placing China in the World History of Discovery, Production and Use" 41-66 and 67-102 (skim chapter 2 if you're running out of time, but it's a good read)
- Matin Oteng-Ababio, Ebenezer Forkuo Amankwaa, and Mary Chama. 2014. "The local contours of scavenging for e-waste and higher-valued constituent parts in Accra, Ghana" *Habitat International* 43: 163-171
- Josh Lepawsky and Charles Mather. 2011. "From beginnings and endings to boundaries and edges: rethinking circulation and exchange through electronic waste" *Area* 43(3): 242-249 (Good theoretical framing that helps tie all these articles together)
- Freyja Knapp. 2016. "The Birth of the Flexible Mine: Changing Geographies of mining and the e-waste commodity frontier" *EPA: Economy and Space* 48 (10): 1889-1909.
- Martin Oteng-Ababio. 2012. "When Necessity Begets Ingenuity: E-waste scavenging as a livelihood strategy in Accra, Ghana" *African Studies Quarterly* 13 (2): 1-21.
- Julia Corwin. 2018. "Nothing is useless in nature": Delhi's repair economies and value-creation in an electronics 'waste' sector." *EPA: Economy and Space* 50 (1):14-30
- Andrew Blum, 2012. *Tubes: A Journey to the Center of the Internet*. Harper Collins
- Tung-Hui Hu. 2015. *A Pre-history of the Cloud*. Cambridge, MA: MIT Press.
- Alix Johnson. 2019. "Data Centers as infrastructural in-betweens: Expanding connections and enduring marginalities in Iceland." *American Ethnologist* 46 (1): 75-88.
- Digital Map of Undersea Cables (© Nicole Starosielski, Eric Loyer, Shane Brennan; http://surfacing.in/)
- Brian Larkin, *Signal and Noise: Media, Infrastructure, and Urban Culture in Nigeria*
- Mariel Borowitz, *The Global Effort for Open Access to Environmental Satellite Data*
- Benjamin Peters, *How Not to Network a Nation: The Uneasy History of the Soviet Internet*
- Samuel Greengard, *The Internet of Things*
- Thomas Hendricks, "SIM cards of desire: Sexual versatility and the male homoerotic economy in urban Congo" in *American Ethnologist*
- Daniel Headrick, *Tentacles of Progress*, Chapter 4
- Simon Rogers, "The World's Undersea Internet Cables" in *The Guardian*
- Helga Tawil-Souri, 2012. "Digital Occupation: Gaza's High-Tech Enclosure," *Journal of Palestine Studies* 41(2).
- Adam Greenfield, *Radical Technologies: The Design of Everyday Life* (Chapter 5 on Bitcoins)

- Ingrid Burrington, "Why Amazon's Data Centers Are Hidden in Spy Country"
- Ingrid Burrington, "A Network of Fragments"
- Joon Ian Wong and Johnny Simon, "Photos: Inside one of the world's largest bitcoin mines"
- Zach Sokol, 2015. "Photographs of the Underwater Telecommunication Cables Tapped by the NSA" in *Vice.* Also look up Trevor Paglen's work on how he went about creating these pieces.

Week 7 Nov 14: Energy - Presenting: Avie

- Adam Hanieh. 2021. "Petrochemical Empire: The Geopolitics of Fossil Fuelled Production." *New Left Review.*
- Hannah Appel 2019. *The Licit Life of Capitalism.* Selections
- Thea Riofrancos; "The Security–Sustainability Nexus: Lithium Onshoring in the Global North." Global Environmental Politics 2023; 23 (1): 20–41.
    - Optional: Andreas Malm. "No government but fuel: the derivation of power from coal in bourgeois ideology" in *Fossil Capital.*
    - Optional: Timothy Mitchell. 2011. Carbon Democracy: Political Power in the Age of Oil. London: Verso Books, 2011, Chapter 1.

Reading Response:
Do some brief research on debates over the transition and decommissioning of the oil platforms off the coast of Santa Barbara. Bringing in the readings for this week, how might questions of oil in our local context be framed in relationship to the global petrochemical industry? (1000 words)

Response Option 2:
Write a 800-1000 word memo detailing how the readings this week inform the theoretical frame or empirical work of your paper.

Additional Sources:

- Michael Watts, 2012. "A tale of two gulfs: life, death, and dispossession along two oil frontiers" in *American Quarterly* 64(3).
- Nies, Judith. "The Black Mesa Syndrome: Indian Lands, Black Gold." *Orion Magazine*. Summer 1998. Accessed September 2, 2018. https://orionmagazine.org/article/the-black-mesa-syndrome/
- On Barak. 2014. "Three Watersheds in the History of Energy." *Comparative Studies of South Asia, Africa and the Middle East* 34, 3): 440-453.
- Katayoun Shafiee. 2018. Machineries of Oil: An Infrastructural History of BP in Iran. MIT Press. Chapter 2, "Petroleum Knowledge," 57-85.
- Gabrielle Hecht. 2012. *Being Nuclear: Africans and the Global Uranium Trade*. Selection TBD
- Cara New Daggett. 2019. *The Birth of Energy: Fossil Fuels, Thermodynamics, and the Politics of Work.* Selections. Duke University Press. Chapter 3, 51-82.
- Donald Mackenzie, "Missile Accuracy: A Case Study in the Social Processes of Technological Change," in *The Social Construction of Technological Systems*, eds. Wiebe Bijker, Thomas Hughes, and Trevor Pinch (Cambridge, MA: MIT Press, 1987), 195–222.
- Mikael Wolfe, *Watering the Revolution: an Environmental and Technological History of Agrarian Reform in Mexico* (Duke, 2017): Introduction & chs 2, 3, & 6.
- Jones, Toby. *Running Dry: Essays on Energy, Water, and Environmental Crisis*. New Brunswick, NJ: Rutgers University Press, 2015. Selections.
- Paul Edwards, *The Closed World: Computers and the Politics of Discourse in Cold War America* (Cambridge, MA: MIT Press, 1996). Chapters 1 and 3.
- Chikowero, Moses. "Subalternating Currents: Electrification and Power Politics in Bulawayo, Colonial Zimbabwe, 1894-1939," Journal of Southern African Studies 2007 vol. 33 (2): 287-306.
- Allison, James Robert. *Sovereignty for Survival: American Energy Development and Indian Self-Determination*. New Haven, CT: Yale University Press, 2015.
- Appel, Hannah, Arthur Mason, and Michael Watts, eds. *Subterranean Estates: Life Worlds of Oil and Gas*. Ithaca, NY: Cornell University Press, 2015.
- Barak, On. "Outsourcing: Energy and Empire in the Age of Coal, 1820–1911." *International Journal of*

Middle East Studies 47, no. 3: 425-445.

- Boyer, Dominic. "Anthropology Electric." *Cultural Anthropology 30,* no. 4 (2015): 531–539. https://doi.org/10.14506/ca30.4.02
- Dean, Erin. "The Paradox of Power: Connection, Inequality, and Energy Development on Tumbatu Island, Zanzibar," *Ethnology* (summer 2010) 49 (3): 185-206.
- Halff, Antoine, Benjamin K. Sovacool, and Jon Rozhon, eds. *Energy Poverty: Global Challenges and Local Solutions*. Oxford: Oxford University Press, 2015. Jones, Toby. *Desert Kingdom: How Oil and Water Forged Modern Saudi Arabia*. Harvard University Press, 2010.
- Kale, Sunila S. 2014. "Structures of Power: Electrification in Colonial India." *Comparative Studies of South Asia, Africa and the Middle East* 34, no.3 (2014): 454-475.
- Mains, Daniel. "Blackouts and Progress: Privatization, Infrastructure, and a Developmentalist State in Jimma, Ethiopia." *Cultural Anthropology* Vol. 27, No. 1 (2012): 3-27.
- McDermott Hughes, David. *Energy Without Conscience: Oil, Climate Change, and Complicity*. Durham, NC: Duke University Press, 2017. Miescher, Stephan F. and Dzodzi Tsikata, "Hydro-power and the promise of modernity and development in Ghana: Comparing the Akosombo and Bui dam projects," *Ghana Studies*, v. 12/13 (2009/2010): 15-53.
- John McPhee, "Coal Train" in *New Yorker*
- Christopher Jones, *Routes of Power: Energy and Modern America*
- David Nye, *Consuming Power: A Social History of American Energies*
- James Robert Allison, *Sovereignty for Survival: American Energy Development and Indian Self-Determination*
- The Standing Rock Syllabus
- Andrew Barry, *Material Politics: Disputes Along the Pipeline*
- James Ferguson, 2005. "Seeing Like an Oil Company: Space, Security, and Global Capital in Neoliberal Africa," *American Anthropologist*, 107(3).
- On Barak, 2014. "Three Watersheds in the History of Energy" in *Comparative Studies of South Asia, Africa and the Middle East* 34(3).
- O'Rourke, Dara, Sarah Connelly. "Just Oil? The Distribution of Environmental and Social Impacts of Oil Production and Consumption." *Annual Review of Environment and Resources* 28 (2003): 587-617.
- Schwenkel, Christina. "The Current Never Stops: Intimacies of Energy Infrastructure in Vietnam." In *The Promise of Infrastructure*, edited by Nikhil Anand, Akhil Gupta, & Hannah Appel, 102-130. Durham, NC: Duke 2018. 102-129.
- Shamir, Ronen. *Current flow: The Electrification of Palestine*. Stanford, CA: Stanford University Press, 2013.
- Tischler, Julia. "Negotiating Modernization: The Kariba Dam Project in the Central African Federation, ca. 1954-1960," in Peter J. Bloom, Takyiwaa Manuh, and Stephan F. Miescher, eds. *Modernization as Spectacle in Africa* (Indiana University Press, 2014).
- Winther Tanja. *The Impact of Electricity: Development, Desires and Dilemmas*. New York: Berghahn Books, 2008.

Week 8 Nov 21: Technological warfare - Presenting: Anam & Zach

Technological warfare:

- Katharine Hall Kindervater. 2017. The technological rationality of the drone strike. *Critical Studies on Security*, *5*(1), 28–44.
- Derek Gregory. 2017. "Drones and Death in the Borderlands" and Brandon Bryant, "Letter from a Sensor Operator" in *Life in the Age of Drone Warfare,* Duke University Press. 25-52

Background readings on Palestine:

- Muhammad Ayyash. 2024. Colonial Racial Capitalism and Violence: Theorising the Relationship between Empire and Israeli Settler Colonialism. Journal of Holy Land and Palestine Studies, Volume 23 Issue 2, Page 205-220, ISSN 2054-1988 Available Online Oct 2024
- Max Ajl, 2024 "Settler Colonialism in the Late Neocolonial Period" *Agrarian South: Journal of Political Economy* 1-25

Militarism and technology in Palestine:

- Craig Jones, Ichamati Mousamputri, Mark Griffiths, "Duality and dual use in Israel's war on Gaza," *Political Geography,* Volume 114, 2024
- El-Shewy, M., Griffiths, M. and Jones, C. 2024. Israel's War on Gaza in a Global Frame. Antipode. https://doi.org/10.1111/anti.13094
- Corry, S., & Rose, C. 2024. Interrupting circulations: the politics of infrastructure in contemporary mobilisations for Palestine. Race & Class, 0(0). https://doi-org.proxy.library.ucsb.edu/10.1177/03063968241282804

Investigative journalism - quick reads

- Yuval Abraham. 2023. "A mass assassination factory': Inside Israel's calculated bombing of Gaza" +972 magazine.
- Yuval Abraham. 2024. 'Lavender': The AI machine directing Israel's bombing spree in Gaza. +972 magazine
- Yuval Abraham: 2024. "'Order from Amazon': How tech giants are storing mass data for Israel's war." +972 magazine
- Leila Katibah, 2024. "The Genocide Will Be Automated—Israel, AI and the Future of War" *MERIP 312*
- Amber Rahman 2024. "Explainer: The Role of AI in Israel's Genocidal Campaign against Palestinians" *Palestine Studies* online blog
- Supplementary background reading: Lisa Hajjar and Joel Beinin, "Palestine, Israel and the Arab-Israeli Conflict" *MERIP* primer.

Reading response:
Imagine that you've organized a big university event on the topic of Militarism and technology featuring three of the scholars you read this week, with an invitation for these scholars to think about the relationship of their work to the ongoing genocide in Gaza. It's up to you to introduce the theme of the panel, why these interrogations are important in our contemporary moment, and how the three presenters' work are in conversation with each other. Write this introduction. (1000 words max)

Response Option 2:
Write a 800-1000 word memo detailing how the readings this week inform the theoretical frame or empirical work of your final research paper.

Additional Sources

- Sai Englert, Gargi Bhattacharyya, 'Capital's Genocide: A Conversation on Racial Capitalism, Settler Colonialism, and Possible Worlds after Gaza', Journal of Holy Land and Palestine Studies, 23, 2, 2024, pp. 165-186
- Agha, Z., Esson, J., Griffiths, M. & Joronen, M. (2024) Gaza: A decolonial geography. *Transactions of the Institute of British Geographers*, 49, e12675. Available from: https://doi.org/10.1111/tran.12675
- Khalidi, R. (2023). De-Mystifying the Decolonization of Palestine. *Forum for Social Economics*, *53*(1), 101–111 https://doi.org/10.1080/07360932.2023.2229524
- Joseph Pugliese. 2016. "Drone casino mimesis: Telewarfare and civil militarization." *Journal of Sociology* 52(3): 500-521.
- Gregory, Derek. (2006). 'In Another Time-zone the Bombs Fall Unsafely: Targets Civilians and Late Modern War,' Arab World Geographer 9(2): 88-111.
- Kindervater, K. H. (2016). The emergence of lethal surveillance: Watching and killing in the history of drone technology. Security Dialogue, 47(3), 223-238. https://doi.org/10.1177/0967010615616011
- Stacy Stamatopoulou-Robbins. 2018. "An Uncertain Climate In Risky Times: How Occupation Became Like The Rain In Post-Oslo Palestine." *International Journal of Middle East Studies*, 50(03), 383–404.
- Chamayou, Grégoire. "The manhunt doctrine." Radical Philosophy 169 (2011): 2-6. https://www.radicalphilosophy.com/commentary/the-manhunt-doctrine
- Bousquet, "A Revolution in Military Affairs? Changing technologies and changing practices of warfare"

in Technology and World Politics, ed. Daniel McCarthy, 165-181
- Cohn, Carol. "Sex and Death in the Rational World of Defense Intellectuals." *Signs,* vol. 12, no. 4, 1987, pp. 687–718
- Hussain, Nasser. "The Sound of Terror: Phenomenology of a Drone Strike" *Boston Review,* October 26, 2013. http://bostonreview.net/world/hussain-drone-phenomenology
- Gilbert, Emily. 2015. "The Gift of War: Cash, counterinsurgency, and 'collateral damage,'" *Security Dialogue* 46 (5), pp. 403-421
- Caren Kaplan. "Precision Targets: GPS and the Militarization of US Consumer Identity," *American Quarterly* 58 (2006): 693-714
- Bridle J (2018) *New Dark Age: Technology and the End of the Future.* New York: Verso.
- Jurgenson N (2013) Pics and It Didn't Happen. *The New Inquiry*, 7 February. Available at: https://thenewinquiry.com/pics-and-it-didnt-happen/ (accessed 7 August 2019).
- Kuntsman A and Stein R (2015) *Digital Militarism: Israel's Occupation in the Social Media Age.* Stanford: Stanford University Press.
- Stein R and Kuntsman A (2014) Selfie Militarism. In: London Review of Books Blog. Available at: https://www.lrb.co.uk/blog/2014/may/selfie-militarism (accessed 14 August 2019).

Week 9 Nov 28: Thanksgiving

Week 10 Dec 5: Presentations

COURSE POLICIES

Use of Laptops, Tablets and Phones: Laptops or tablets are allowed during class to reference readings, participate in activities, or take notes. Cell phones must be silenced and out of sight during class. If I see your cell phone during class time, I will ask you to please put it away. You are expected to be mentally present during class time. Communication devices/modes should be off. Only use your laptop to refer to the readings. We can all tell when you're using it for other purposes: it's not only rude, but also distracting. I will call you out if I get the sense that you're off in the fourth dimension.

Food and Drink: You are welcome to drink water or other non-alcoholic beverages during class, preferably in a bottle with a lid. There will be a brief break in the middle of each seminar, after about an hour, during which you are welcome to eat snacks.

Academic Integrity: Plagiarism, cheating, turning in others' work as your own, and any other forms of academic dishonesty are absolutely not tolerated and will be subject to consequences in line with university regulations. Academic dishonesty devalues the learning experience and the value of UCSB degrees not only for offenders, but for the whole community. It is your responsibility to know the campus's rules regarding academic integrity, so please read the UCSB Student's Guide to Academic Integrity here:
https://judicialaffairs.sa.ucsb.edu/CMSMedia/Documents/academicintegflyer.pdf.
This guide to academic citations may also be helpful:
https://www.press.uchicago.edu/books/lipson/honestcollege/citationfaq.html.

Excuses and Extensions: I do not accept late assignments or excuse class absences, except in cases of documented, serious personal, medical, or legal problems. Legitimate excuses are usually situations where an employer would excuse you from work: illness requiring medical attention, jury duty, documented family emergency, travel required by your employer, or an

official school activity. All anticipated conflicts with class meetings should be explained to me at least two weeks in advance, and arrangements will be made to write a longer reading response or meet at a different time to ensure that you gain familiarity with the week's materials.

Students with Disabilities: UCSB is committed to providing full participation and access for students with disabilities. If you plan to request accommodations, please contact the Disabled Students Program (https://dsp.sa.ucsb.edu/). They can be reached by visiting the Student Resource Building, Room 2120, by emailing DSP.Help@sa.ucsb.edu, or by phone (805.893.2668) or fax (805.893.7127).

Policy on Children in Class: UCSB does not currently have a policy on children in the classroom, but the policies here reflect my own commitments to making the classroom accessible for students who are parents or guardians.
1. All exclusively breastfeeding babies are welcome in class as often as is necessary.
2. For older children and babies, if disruptions in childcare put parents or guardians in the position of having to miss class or stay home with a child, it is perfectly acceptable to occasionally bring a child to class to cover gaps in childcare.
3. If you do bring a baby or older child to class, I ask that you please sit closer to the door, so that if your child needs special attention or is disrupting learning for other students, you can quickly step outside until their needs have been met.

Themes I could not include but that may be of interest.

Foundations: Infrastructure and Logistics

Additional Sources:

- Appel, Hannah, Nikhil Anand & Akhil Gupta. 2018. "Temporality, Politics, and the Promise of Infrastructure." In Anand, Gupta, Appel (eds), *The Promise of Infrastructure*, Durham: Duke University Press. 1-31
- Edwards, Paul. "Infrastructure and Modernity: Force, Time and Social Organization in the History of Sociotechnical Systems." In *Modernity & Technology*, edited by Thomas J. Misa, Philip Brey, and Andrew Feenberg, 185-226. Cambridge, MA: MIT Press, 2003.
- Benjamin McKean. "Seeing (Like) Supply Chain Managers" in his *Disorienting Neoliberalism*, Oxford University Press 2020, 47-78.
- Julie Chu, 2014. "When infrastructures attack: The workings of disrepair in China" in *American Ethnologist* 41(2).
- Charmaine Chua, 2020. "Logistics" *in the Handbook of Marxism*
- Francesco Marullo. 2015. "Logistics Takes Command" *Log* 35: 103-120
- Japhy Wilson and Manuel Bayon. 2017. "Fantastical materializations: Interoceanic infrastructures in the Ecuadorian Amazon," *Environment and Planning D: Society and Space* 35 (5): 836-854.
- Mattern, Shannon. 2013. "Infrastructural Tourism." *Places Journal*, https://doi.org/10.22269/130701.
- Harvey, Penelope, Hannah Knox. "The Enchantments of Infrastructure." *Mobilities* 7, no. 4 (2012): 521–5
- Edwards, Paul. 2003. Infrastructure and Modernity
- Star, Susan Leigh. 1999. "The Ethnography of Infrastructure." *American Behavioral Scientist* 43 (3): 377-391
- Simone, Abdou Maliq. "People as Infrastructure: Intersecting Fragments in Johannesburg." *Public Culture* 16, no. 3 (2004): 407-429.
- Jackson, Steven J. "Rethinking Repair." In *Media technologies: Essays on Communication, Materiality, and Society*, edited by Tarleton Gillespie, Pablo J. Boczkowski, and Kirsten A. Foot, 221-39. Cambridge, MA: MIT Press, 2014.
- Furlong, Kathryn. "STS Beyond the 'Modern Infrastructure Ideal': Extending Theory by Engaging with Infrastructure Challenges in the South." *Technology in Society* 38 (2014): 139-147.
- Adam Rothstein. 2015. "How to See Infrastructure: A Guide for Seven Billion Primates" *Rhizome.*

- Prashad, Vijay. *The Poorer Nations: A Possible History of the Global South*. New York: Verso, 2012. Introduction & Ch. 2, pp 85-142.
-

Race and Technology

- Donna Haraway, "A Cyborg Manifesto: Science, Technology, and Socialist-Feminism in the Late Twentieth Century," in *Simians, Cyborgs, and Women: The Reinvention of Nature* (New York: Routledge, 1991), 149–182.
- Clapperton Chakanetsa Mavhunga. 2017. Introduction. What do Science, Technology, and Innovation Mean from Africa? Introduction, MIT Press. 1-27.
- Manu Karuka. 2019. Chapter 1 and 3 in *Empire's Tracks: Indigenous Nations, Chinese Workers, and the Transcontinental Railroad.* University of California Press, 1-19, 40-59
- Gabrielle Hecht and Paul Edwards, "History and the Technopolitics of Identity: The Case of Apartheid South Africa," *Journal of Southern African Studies* 36:3 (September 2010): 619–639.
- Ruha Benjamin, ed. *Captivating Technology: Race, Carceral Technoscience, and Liberatory Imagination in Everyday Life* (Durham: Duke University Press, 2019).
- Ruha Benjamin, "Introduction: Discriminatory Design, Liberating Imagination," 1–22.
- Ron Eglash, "Anti-Racist Technoscience: A Generative Tradition," 227–251.
- Nettrice R. Gaskins, "Techo-Vernacular Creativity and Innovation across the African Diaspora and Global South," 252–274.
- Lorna Roth, "Making Skin Visible through Liberatory Design," 275–307.
- TallBear, Kim. *Native American DNA: Tribal Belonging and the False Promise of Genetic Science.* Minneapolis, MN: University of Minnesota Press, 2013. Selections.
- Braun, Lundy. *Breathing Race into the Machine: The Surprising Career of the Spirometer from Plantation to Genetics.* Minneapolis, MN: University of Minnesota Press, 2014. Introduction + chs 2 & 7 + epilogue.
- Rana, Junaid. "The Racial Infrastructure of the Terror-Industrial Complex." *Social Text* 34, no. 4 (2016): 111-138.
- Amrute, Sareeta. *Encoding Race Encoding Class: Indian IT Workers in Berlin*. Durham, NC: Duke University Press, 2016. Selections.
- Ruth Schwartz Cowan, *More Work for Mother. The Ironies Of Household Technology From The Open Hearth To The Microwave*
- Francesca Bray, *Technology, Gender and History in Imperial China: Great Transformations Reconsidered*
- Marie Hicks, *Programmed Inequality: How Britain Discarded Women Technologists and Lost Its Edge in Computing*
- Nathan Ensmenger, *The Computer Boys Take Over: Computers, Programmers, and the Politics of Technical Expertise*
- Kavita Philip, "What is a Technological Author? The Pirate Function and Intellectual Property," *Postcolonial Studies* 8, no. 2 (2005): 199–218.
- Robyn D'Avignon, "Primitive Techniques: From 'Customary' to 'Artisanal' Mining in French West Africa," *The Journal of African History* 59, no. 2 (July 2018): 179–197.

Just Transition

- Thea Riofrancos, "What Green Costs" Logic mag issue 9 nature 2019 https://logicmag.io/nature/what-green-costs/
- Oliver-Smith, Anthony. 1999. "'What is a Disaster?': Anthropological Perspectives on a Persistent Question." In The Angry Earth: Disaster in Anthropological Perspective, edited by Anthony Oliver-Smith and Susanna Hoffman, 18–34. New York: Routledge.
- Das, Veena. 2007. Life and Words: Violence and the Descent into the Ordinary. Berkeley: University of California Press.
- Wong, Edward, "Life in a Toxic Country," New York Times, 3 August 2013
- Out of the Woods. 2018. "The Uses of Disaster." *Commune Magazine*. October 22.
- Max Ajl. 2018. "Beyond the Green New Deal." *The Brooklyn Rail.* November.
- Nick Estes. 2019. "A Red Deal" *Jacobin.* August 6.
- Jasper Bernes. 2019. "Between the Devil and the Green New Deal." *Commune Magazine*
- Nick Estes. "Water is Life: Nick Estes on Indigenous Technologies." *Logic Mag.*
- Just Transition Alliance. "A Framework for Change"
- Jessica Green. 2019. "It's time to Abandon Carbon Pricing." *Jacobin.* September 24.
- Jessica Green. 2017. "Don't Link Carbon Markets" *Nature* 543: 484-486.
- "Economists' Statement on Carbon Dividends." January 17 2019. (read vs. Jessica Green's arguments)

- UN Emissions Gap Report. 2018. *UNEP.*
- Bonilla, Yarimar. 2017. "Why Would Anyone in Puerto Rico Want a Hurricane? Because Someone Will Get Rich." Washington Post, September 22.
- Consortium on Gender, Security and Human Rights. 2017. "Environmental Disasters: Gendered Impacts and Responses"
- CLARA. "The Role of the Land Sector in Ambitious Climate Action." (see their whole site for good article recommendations)
- Podcast: "The Geoengineering Question."Jane Flegel on The Ezra Klein Show.
- Spangenberg, Joachim. "China in the Anthropocene: Culprit, Victim or Last Best Hope for a Global Ecological Civilisation?" *BioRisk* 9 (2014): 1–37.
- What Is Equity in the Context of Climate Negotiations?," World Resources Institute (2012)

Technological Planetarity

- Jennifer Gabrys, *Program Earth: Environmental Sensing Technology and the Making of a Computational Planet* (Minneapolis, MN: University of Minnesota Press, 2016).
- Columba Peoples, "Extra-Terrestrial Technopolitics: The politics of technology in space" 182-20
- Paul Edwards, *A Vast Machine: Computer Models, Climate Data, and the Politics of Global Warming*, (Cambridge, MA: MIT Press, 2010). Chapters 1 and 8.
- Stefan Helmreich, "Intimate Sensing," in *Simulation and Its Discontents*, ed. Sherry Turkle (Cambridge, MA: MIT Press, 2009), 129–150.
- Michelle Murphy, *Sick Building Syndrome and the Problem of Uncertainty: Environmental Politics, Technoscience, and Women Workers*
- Geoffrey C. Bowker and Susan Leigh Star, *Sorting Things Out*: *Classification and Its Consequences*
- Joy Parr, *Sensing Change*: *Technologies, Environments, and the Everyday, 1953-2003*
- Theodore M. Porter, *Trust in Numbers: The Pursuit of Objectivity in Science and Public Life*
- Rudolf Mrázek, *Engineers of Happy Land: Technology and Nationalism in a Colony*
- Stefan Helmreich, *Alien Ocean: Anthropological Voyages in Microbial Seas*
- Ken Alder, *The Measure of All Things: The Seven Year Odyssey and the Hidden Error that Transformed the World*
- Cultures of Energy Podcast No. 185 (with guest Andrew Blum, http://culturesofenergy.com/185-andrew-blum/)
- Gabrys, Jennifer. 2016. "The Internet of Things and the rise of planetary computerization: How environmental sensing technologies multiply rather than consolidate versions of the planet." University of Minnesota Press Blog, 2 Mar
- Curtis, Adam. 2011. All Watched Over By Machines of Loving Grace (Episode 2: The Use and Abuse of Vegetational Concepts)

Toxicity

- Hecht, Gabrielle. *Being Nuclear: Africans and the Global Uranium Trade* (MIT Press, 2012): chs 6 & 7.
- Tousignant, Noémi. *Edges of Exposure*. Durham, NC: Duke University Press, 2018. Selections.
- Michelle Murphy, "Chemical Infrastructures of the St Clair River," 103-116 in Soraya Boudia & Nathalie Jas, eds., *Toxicants, Health, and Regulation since 1945* (Pickering & Chatto, 2013).
- Didier Torny, "Managing an Everlastingly Polluted World: Food Policies And Community Health Actions in the French West Indies," 117-134 in Soraya Boudia & Nathalie Jas, eds., *Toxicants, Health, and Regulation since 1945* (Pickering & Chatto, 2013).
- Agard-Jones, Vanessa. "Spray," *Somatosphere*. Liboiron, Max. "Waste Colonialism," *Discard Studies* (Nov. 1, 2018).
- Liboiron, Max. "Waste Colonialism," *Discard Studies* (Nov. 1, 2018).

Waste

- Vinay Gidwani. *Capital Interrupted.* University of Minnesota Press
- Fredericks, Rosalind. *Garbage Citizenship: Vital Infrastructures of Labor in Dakar, Senegal*. Durham, NC: Duke University Press, 2018.
- Anand, Nikhil. "Pressure: The PoliTechnics of Water Supply in Mumbai." *Cultural Anthropology* 26, no. 4 (2011): 542–564.
- Jensen, Casper Bruun. "Multinatural Infrastructure: Phnom Penh Sewage," in Harvey, Jensen, & Morita eds., *Infrastructures and Social Complexity* (Routledge 2017): 227-241
- Ranganathan, Malini. "Mafias in the Waterscape: Urban Informality and Everyday Public Authority in Bangalore." *Water Alternatives* 7, no. 1 (2014): 89-105.

- Wael Fahmi and Keith Sutton, 2010, "Cairo's Contested Garbage: Sustainable Solid Waste Management and the Zabaleen's Right to the City" in Sustainability 2(6).
- Sophia Stamatopoulou-Robbins, 2014. "Occupational Hazards" in Comparative Studies of South Asia, Africa and the Middle East 34(3).
- Ziad Abu-Rish, 2015. "Garbage Politics" in Middle East Report 45.
- Alastair Iles, 2004. "Mapping Environmental Justice in Technology Flows: Computer Waste Impacts in Asia" in Global Environmental Politics 4(4).
- Susan E Chaplin, 2011. "Indian cities, sanitation and the state: the politics of the failure to provide" in Environment and Urbanization 13(1)
- Gordon McGranahan and Diana Mitlin, 2016. "Learning from Sustained Success: How Community-Driven Initiatives to Improve Urban Sanitation Can Meet the Challenges" in World Development 87.
- Susanna Smets, 2015. "Turning finance into services for the future : a regional synthesis of the service delivery assessments for water supply and sanitation in East Asia and the Pacific" WorldBank
- Adia Benton, 2017. "White people shit: incremental development and excremental politics" no paper available. Lecture can be watched on YouTube.
- Dominique Laporte, *A History of Shit*
- Heather Rogers, *Gone Tomorrow: The Hidden Life of Garbage*
- Donald Reid, *Paris Sewers and Sewermen: Realities and Representations*
- Assa Doron and Robin Jeffrey, *Waste of a Nation: Garbage and Growth in India* (forthcoming)
- Peter Redfield & Steven Robins, 2016. "An index of waste: humanitarian design, "dignified living" and the politics of infrastructure in Cape Town" in *Journal Anthropology Southern Africa* 39(2).
- Brenda Chalfin, 2014. "Public things, excremental politics, and the infrastructure of bare life in Ghana's city of Tema" in *American Ethnologist* 41(1).
- Joshua Reno, 2015. "Waste and Waste Management" in *Annual Review of Anthropology* 44.
- Rosalind Fredericks, 2014. "Vital Infrastructures of Trash in Dakar" in *Comparative Studies of South Asia, Africa and the Middle East* 34(3).

Capital, Austerity, Debt

- Bear, Laura. *Navigating Austerity: Currents of Debt Along a South Asian River*. Stanford, CA: Stanford University Press, 2015. Introduction, chapters 1, 4, 5, and Section V (both conclusions).
- Ogle, Vanessa. "Archipelago Capitalism: Tax Havens, Offshore Money, and the State, 1950s–1970s," *The American Historical Review*, Volume 122, Issue 5, 1 December 2017, Pages 1431–1458. https://doi.org/10.1093/ahr/122.5.1431
- Doron, Assa and Robin Jeffrey. *Waste of a Nation: Garbage and Growth in India*. Cambridge, MA: Harvard University Press, 2018. S
- Hornberger, Julia. "Nocturnal Johannesburg." In *Johannesburg: The Elusive Metropolis*, eds. Achille Mbembe and Sarah Nuttall, 285-296. Durham, NC: Duke University Press, 2008.
- Will Fitzgibbon, "Tax Haven Mauritius' Rise Come at the Rest of Africa's Expense," ICIJ, Nov 7, 2017 Nick Deaden, "Africa is not poor, we are stealing its wealth," Al Jazeera, May 24 2017
- Jane I. Guyer, "Money in the Future of Africans," 63-76 in Goldstone & Obarrio, eds. *African Futures: Essays on Crisis, Emergence, and Possibility* (Chicago, 2016).
- Michael Ralph, "Forensics of Capital," 77-94 in Goldstone & Obarrio, eds. *African Futures: Essays on Crisis, Emergence, and Possibility* (Chicago, 2016).
- Charles Piot, "Hedging the Future," 104-116 in Goldstone & Obarrio, eds. *African Futures: Essays on Crisis, Emergence, and Possibility* (Chicago, 2016).
- Alden Young, "Measuring the Sudanese Economy: A Focus on National Growth Rates and a Blindness to Regional Inequality, 1958 to 1964" *Canadian Journal of Development Studies* (April 1, 2014): 44-60.
- Chaterjee, Elizabeth. "A Climate of Scarcity: Electricity in India, 1899-2016." In *Scales of Scarcity in the Modern World, 1800–2075*, edited by John Brewer, Neil Fromer, and Frank Trentmann, London: Bloomsbury, 2019.
- Collier, Stephen J., James Christopher Mizes, and Anita von Schnizler. "Preface: Public Infrastructures/Infrastructural Publics." *Limn* 7 (July 2016).
- Mizes, James Christopher. "Who Owns Africa's Infrastructure?" *Limn* 7 (July 2016).
- Park, Emma and Kevin P. Donovan. "Between the Nation and the State." *Limn* 7 (July 2016).
- Morduch, Johnathan. "Microfinance as a Credit Card?" *Limn* 9 (Nov. 2017).
- Best, Jacqueline. "Governing Development Failure." *Limn* 9 (Nov. 2017).

Urbanism and the City

- Ahmed Kanna, *Dubai: City as Corporation*

- Mike Davis, *City of Quartz*
- Andrew Friedman, *Covert Capital: Landscapes of Denial and the Making of U.S. Empire in the Suburbs of Northern Virginia*
- Michelle Buckley and Adam Hanieh, 2013. "Diversification by Urbanization: Tracing the Property-Finance Nexus in Dubai and the Gulf" in *International Journal of Urban and Regional Research* 38(1).
- Stephen Graham and Simon Marvin, eds. *Splintering Urbanism: Networked Infrastructures, Technological Mobilities and the Urban Condition*
- Stephen Graham, Colin McFarlane eds., *Infrastructural Lives: Urban Infrastructure in Context*

Mobility and Logistics

- Harvey, Penelope. "The topological quality of infrastructural relation: an ethnographic approach." *Theory, Culture & Society* 29, no. 4–5 (2012): 76–92.
- Chua, C., Martin Danyluk, Deborah Cowen, and Laleh Khalili (eds.) "Turbulent Circulation: Building a Critical Engagement with Logistics." Environment and Planning D: Society and Space 36, no. 4 (2018).
- Cowen, Deborah. *The Deadly Life of Logistics.* University of Minnesota Press 2014
- Freed, Libbie. "Networks of (Colonial) Power: Roads in French Central Africa after World War I." *History and Technology* 26, no. 3 (2010): 203-223.
- Khan, Naveeda. "Flaws in the Flow: Roads and their Modernity in Pakistan" *Social Text* 24, no. 4 (2006): 87-113. Carse, Ashley. "Nature as infrastructure: making and managing the Panama Canal watershed."
- *Social Studies of Science* 42, no. 4 (2012): 539–63. Salon, Deborah, Sumila Gulyani. "Mobility, Poverty, and Gender: Travel 'Choices' of Slum Residents in Nairobi, Kenya." *Transport Reviews* 30, no. 5 (2010): 641-657, DOI: 10.1080/01441640903298998
- Hart, Jennifer. *Ghana on the Go: African Mobility in the Age of Motor Transportation*. Bloomington, IN: Indiana University Press, 2016. Introduction and chs 1 & 5. Diving into other chapters in the book is encouraged but optional.
- Dua, Jatin. "Chokepoint Sovereignty." *Limn* 10 (April 2018). https://limn.it/articles/chokepointsovereignty/
- Melly, Caroline. "Bottlenecks: An Urban Physics." *Limn* 10 (April 2018). https://limn.it/articles/bottlenecks-an-urban-physics/
- Bjork-James, Carwil. "Blockade: The Power of Interruption." *Limn* 10 (April 2018): https://limn.it/articles/blockade-the- power-of-interruption/.
- Ahuja, Ravi. Pathways of Empire. Circulation, 'Public Works' and Social Space in Colonial Orissa (c. 1780-1914). Hyderabad: Orient Blackswan, 2009. Chattopadhyay, Swati. "The Art of Auto-Mobility: Vehicular Art and the Space of Resistance in Calcutta." Journal of Material Culture 14, no. 1 (2009): 107-139.
- Green, Nile. "From the Silk Road to the Railroad (and Back): The Means and Meanings of the Iranian Encounter with China." Iranian Studies 48, no. 2 (2015): 165-192.
- Harvey, Penny, Hannah Knox. Roads: An Anthropology of Infrastructure and Expertise. Ithaca, NY: Cornell University Press, 2015.
- Mavhunga, Clapperton Chakanetsa. Transient Workplaces: Technologies of Everyday Innovation in Zimbabwe. Cambridge, MA: MIT Press, 2014.
- Monson, Jamie. Africa's Freedom Railway: How a Chinese Development Project Changed Lives and Livelihoods in Tanzania. Bloomington, IN: Indiana University Press, 2009.
- Ramos, Stephen J. Dubai Amplified: The Engineering of a Port Geography. Burlington, VT: Ashgate, 2010.
- Rizzo, Matteo. Taken for A Ride: Grounding Neoliberalism, Precarious Labour, and Public Transport in an African Metropolis. Oxford: Oxford University
- Press, 2017.
- Schler, Lynn. Nation on Board: Becoming Nigerian at Sea. Athens, OH: Ohio University Press, 2016.

Crisis, Catastrophe, and the Uses of Disaster

- Ashley Dawson. 2017. *Extreme Cities: The Peril and Promise of Urban Life in the Age of Climate Change*. Verso Press.
- Kathryn Yusoff. 2019. *A Billion Black Anthropocenes or None*. University of Minnesota Press
- Jeffrey Juris and Alex Khasnabish. 2013. *Insurgent Encounters*. Duke University Press.
- Marisol De la Cadena. 2015. *Earth Beings: Ecologies of Practice Across Andean Worlds*.
- Luke Bergmann. 2013. "Bound by Chains of Carbon: Ecologial-Economic Geographies of Globalization" *Annals of the AAG.* 103 (6): 1348-1370
- Paul Gilroy. 2017. "'Where every breeze speaks of courage and liberty': Offshore Humanism and Marine Xenology, or, Racism and the Problem of Critique at Sea Level." *Antipode* 50 (1): 3-22.

- Simon Popperl. 2018. "*Geologies Of Erasure: Sinkholes, Science, And Settler Colonialism At The Dead Sea. International Journal of Middle East Studies, 50(03), 427–448.*
- Beth Rose Middleton Manning. 2019. "Geographies of hope in Cultural Resources Protection" *EPE: Nature and Space.*
- Marisol De la Cadena. 2010. "Indigenous Cosmopolitics in the Andes: Conceptual Reflections Beyond "Politics"
- Gaston Gordillo. 2014. Conclusion to *Rubble: The Afterlife of Destruction.* Duke University Press. 253-269
- Brookings Institute. 2018. "Making Border Carbon Adjustments Work in Law and Practice."
- Sophia Stamatopoulou-Robbins. 2019. *Waste Siege: The Life of Infrastructure in Palestine.* Stanford University Press.
- Marisol LeBrón and Yarimar Bonilla. 2019. *Aftershocks of Disaster: Puerto Rico Before and After the Storm*
- Deborah A. Thomas. "The Afterlives of Disasters" *American Anthropologist* 119(4)
- Beth Rose Middleton Manning. 2018. *Upstream.*
- Beth Rose Middleton Manning. 2018. "Holding the Headwaters: Northern California Indian Resistance to State and Corporate Water Development" *Decolonization.*
- See the work of Jonas Mahm http://www.jonasnahm.com/papers.html
- See the work of Jonas Meckling: http://www.jonasmeckling.com/
- Kate O'Neill. 2002. *Waste Trading Among Rich Nations.*