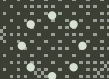


Place-conscious-poetic grounding the cloud

David Mahoney, PhD Candidate
Institute for Design Informatics
The University of Edinburgh

Overbrowsing Research Group



Overbrowsing Research Group

Overbrowsing is an applied research group focused on advancing sustainable web practices. We blend inquiry with action to develop research-driven solutions that reduce the environmental impact of the internet and improve accessibility, aligning technological potential with environmental stewardship.



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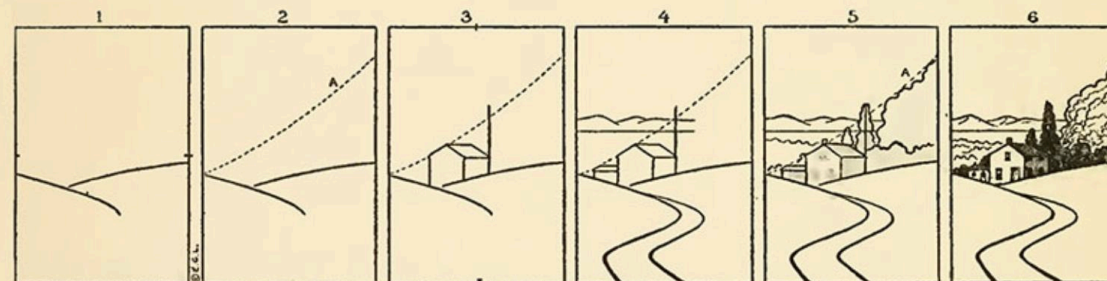


The term 'browsing' originates from herbivores feeding, and similarly, 'overbrowsing' in nature occurs when consumption exceeds the capacity of environmental resources



The Cloud Is Not Above Us

David Mahoney



<https://branch.climateaction.tech/issues/issue-9/the-cloud-is-not-above-us/>

This year marks the midpoint between the Paris Agreement and the 2030 Agenda for Sustainable Development

The internet underpins nearly every aspect of contemporary social, economic, and cultural life, and since the Paris Agreement (2015) and 2024, the number of internet users has grown by 28% to 5.5 billion people, 68% of the global population.

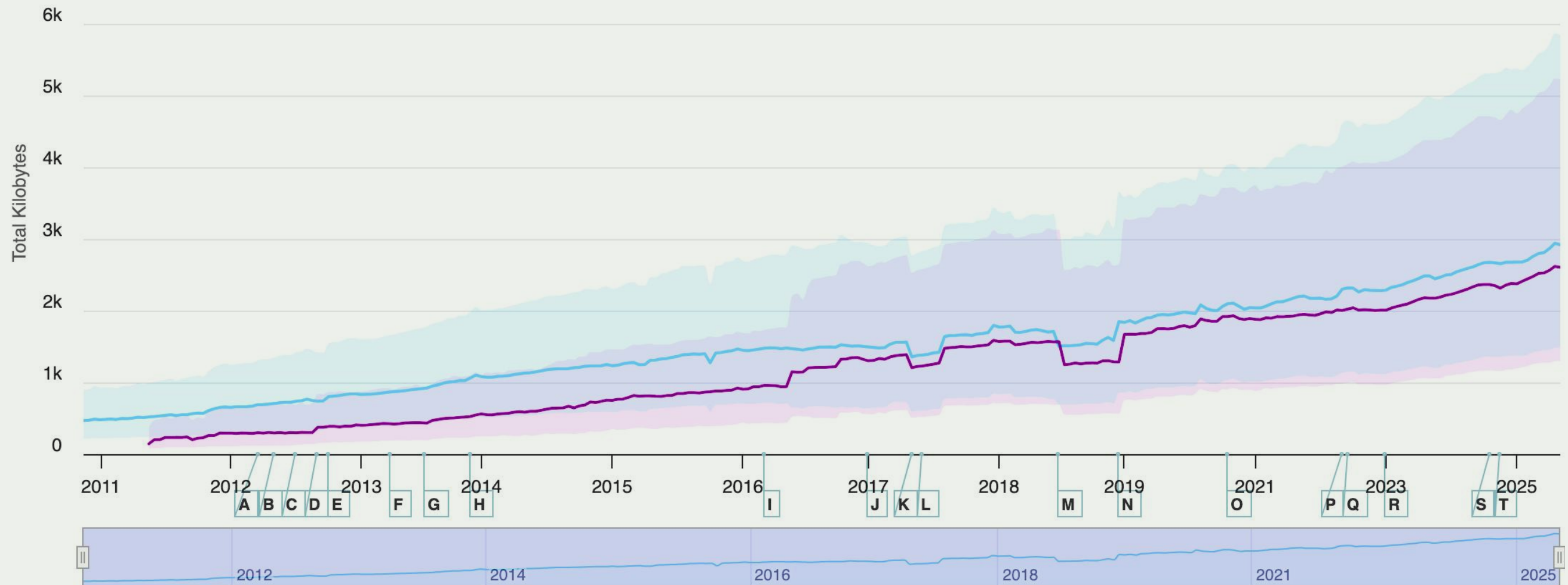
<https://www.itu.int/en/ITU-D/Statistics/pages/stat/default.aspx>



While AI captures attention, websites remain the largest and growing part of the internet's environmental impact, accounting for the majority of human–computer interactions



Since 2010, average desktop pages have grown by 523.2% and mobile pages by 1,700%, averaging 8 MB



<https://httparchive.org/reports/page-weight?start=earliest&end=latest&view=list>



But what if we looked beyond efficiency — to shape how the web is used, not just how fast or clean it runs?

Through the lens of solutionism — the belief that every problem, even climate change, can be fixed by technology alone (Tucker, 2013) — we risk overlooking the human, cultural, and design dimensions that shape our relationship with the world.

<https://hubblo.org/blog/attributional-vs-consequential/>

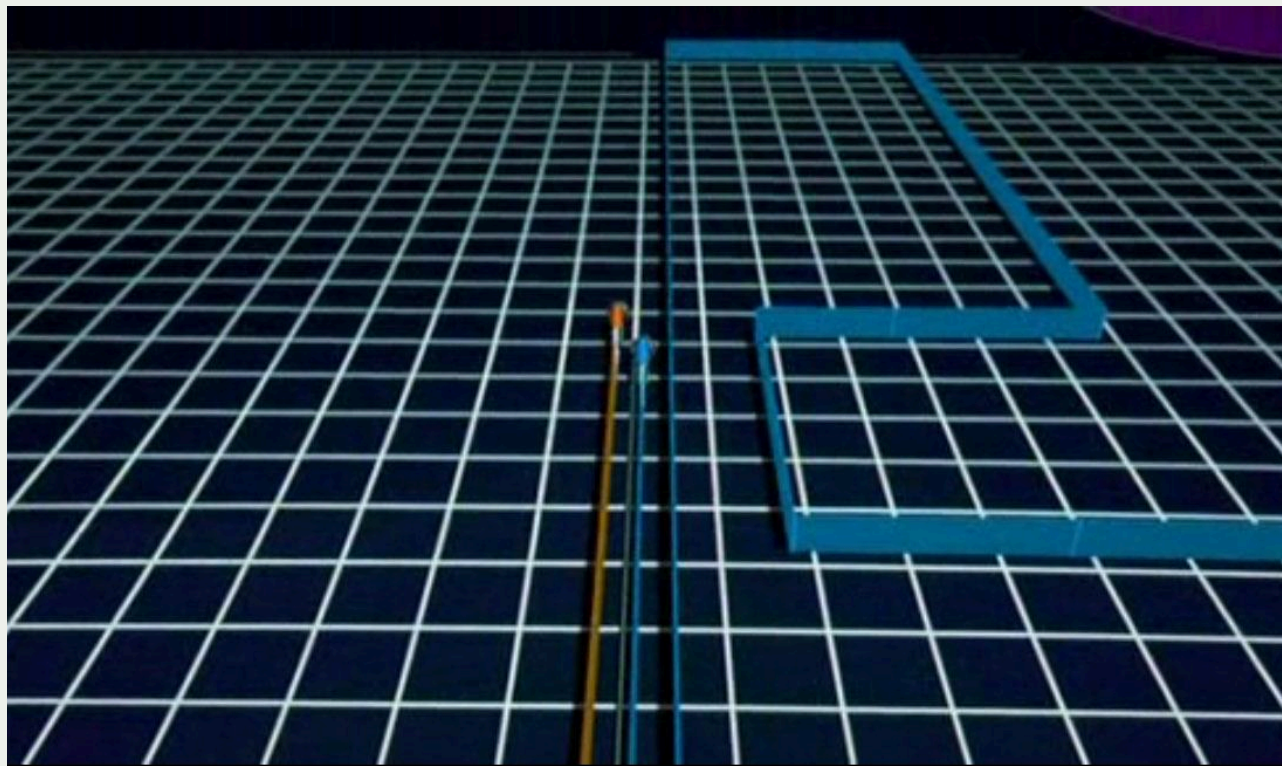


“Digitalisation’s promise of dematerialisation has not yet materialised” — United Nations

<https://www.un-ilibrary.org/content/books/9789213589779>



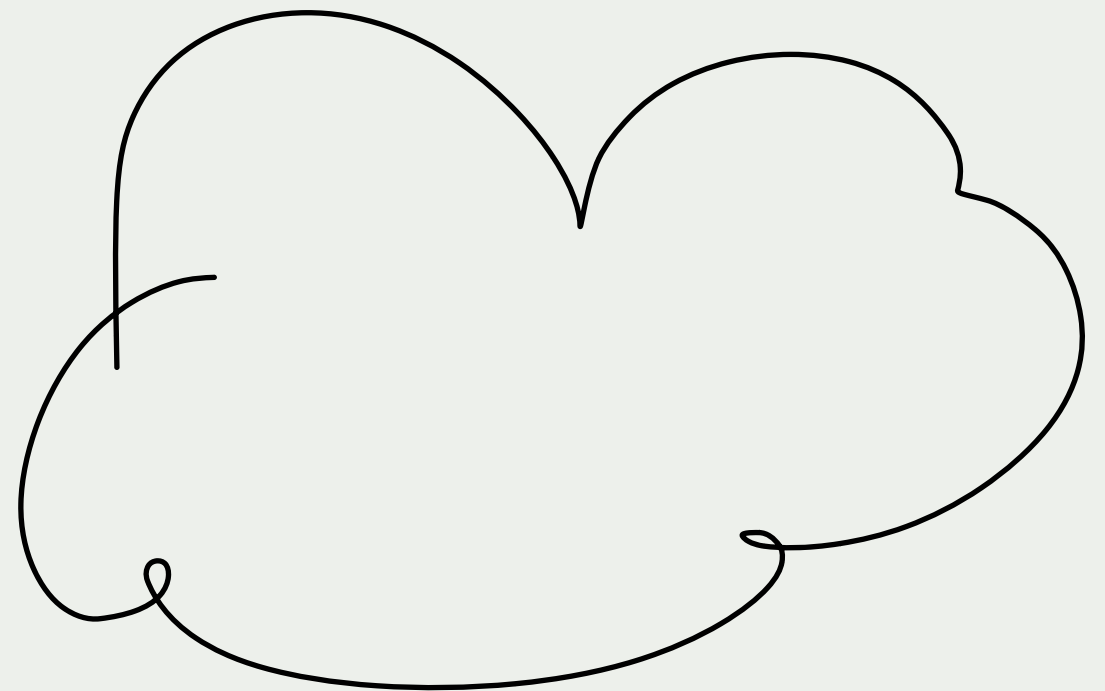
This abstraction is a cultural blind spot: we treat the two realms separately, when they are deeply entangled — analogue vs digital



- Metaverse
- Cyberspace
- The Cloud
- The Grid (Tron)
- The Matrix



In early computing, the scribbled cloud icon represented 'the unknown' and was used as a placeholder for complexity, somewhere off the page, on someone else's computer



<https://mitpress.mit.edu/9780262529969/a-prehistory-of-the-cloud/>

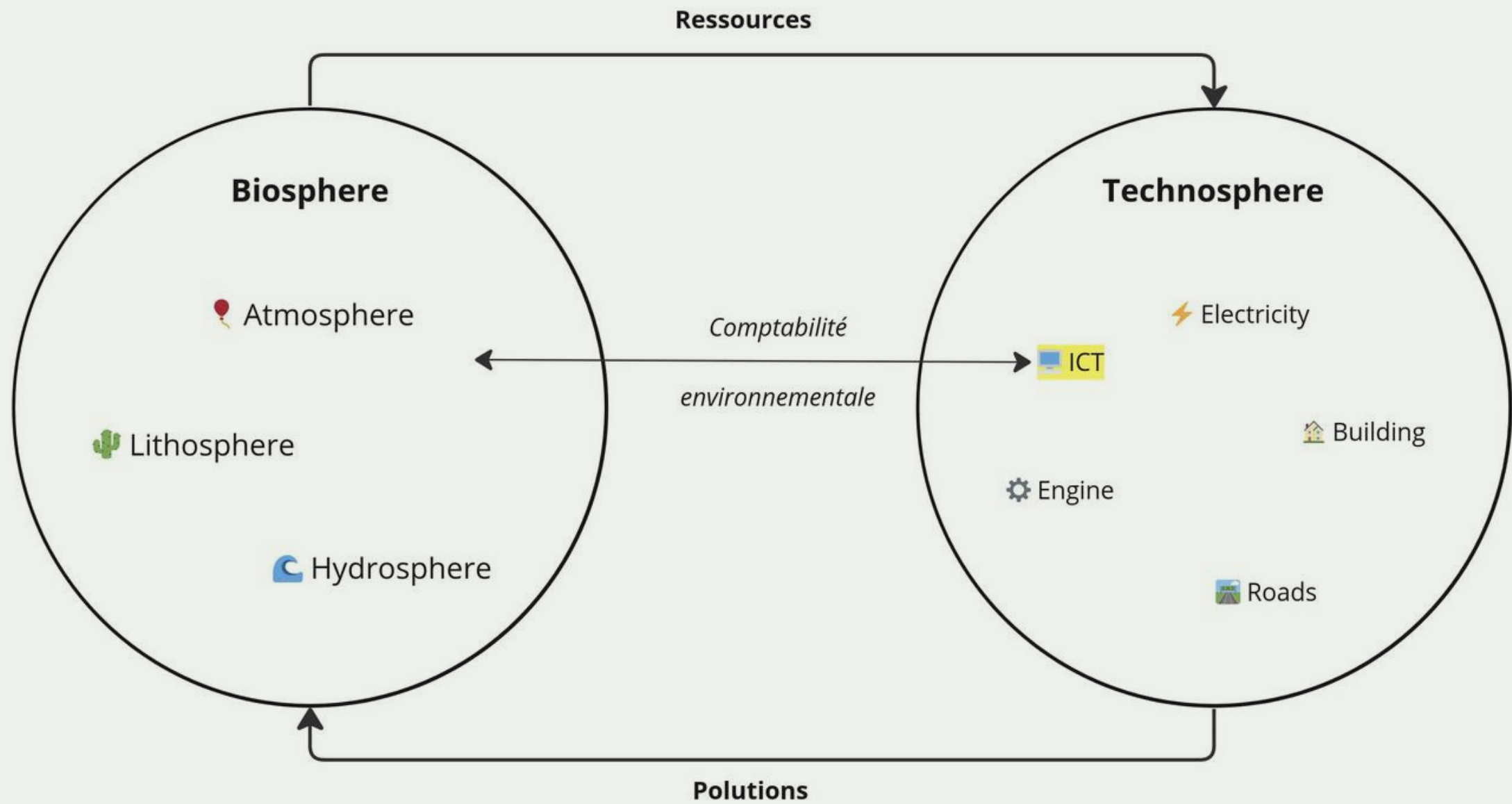


“[We] failed to make the connection between physical and digital; instead, they are one and the same” — UN

- Ronald Kline, The Cybernetics Moment
- Daniel Bell, Coming of Post-Industrial Society
- James Martin, The Wired Society
- Nicholas Negroponte, Being Digital.

<https://www.itu.int/en/ITU-D/Statistics/pages/stat/default.aspx>

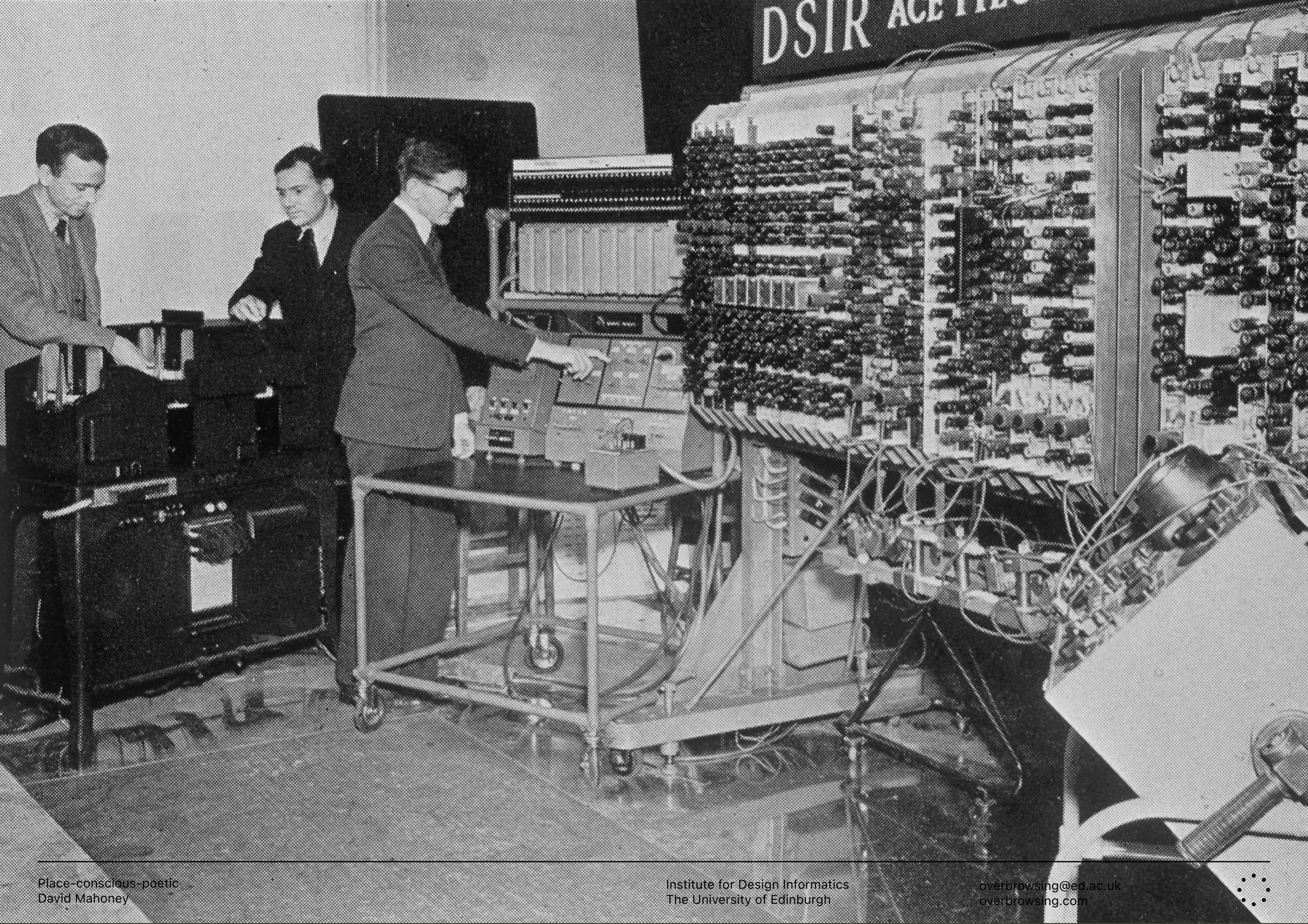




Alan Turing on the so-called 'discrete state' or digital machines, admitted that "strictly speaking there are no such [discrete] machines"

Everything in the natural world moves continuously, the digital machine is not real, but merely a 'convenient fiction'





By framing this as a purely digital issue,
we've reset the story — as if these
questions are new

But once we ground the web in its
physical and planetary reality,
we see echoes of the past

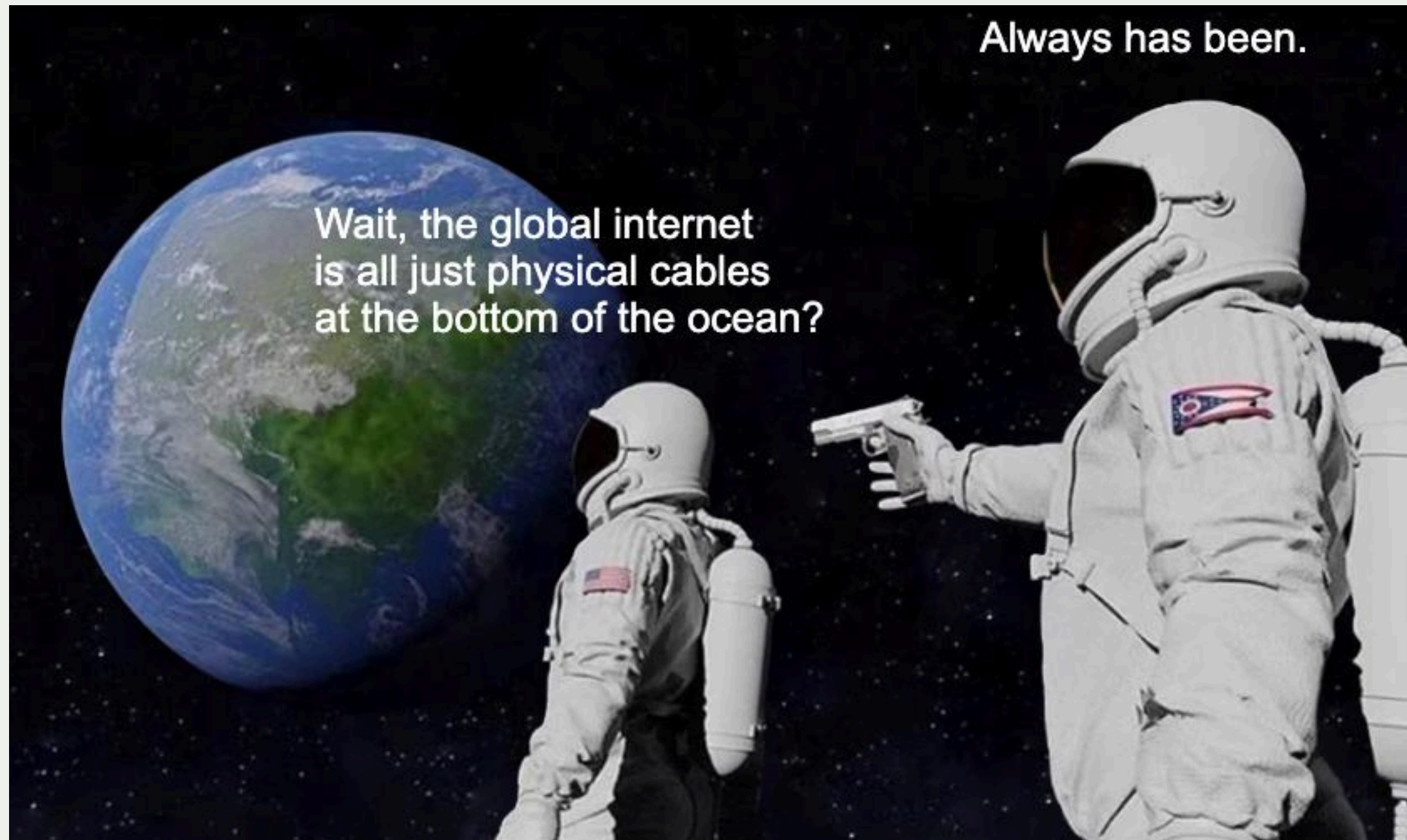


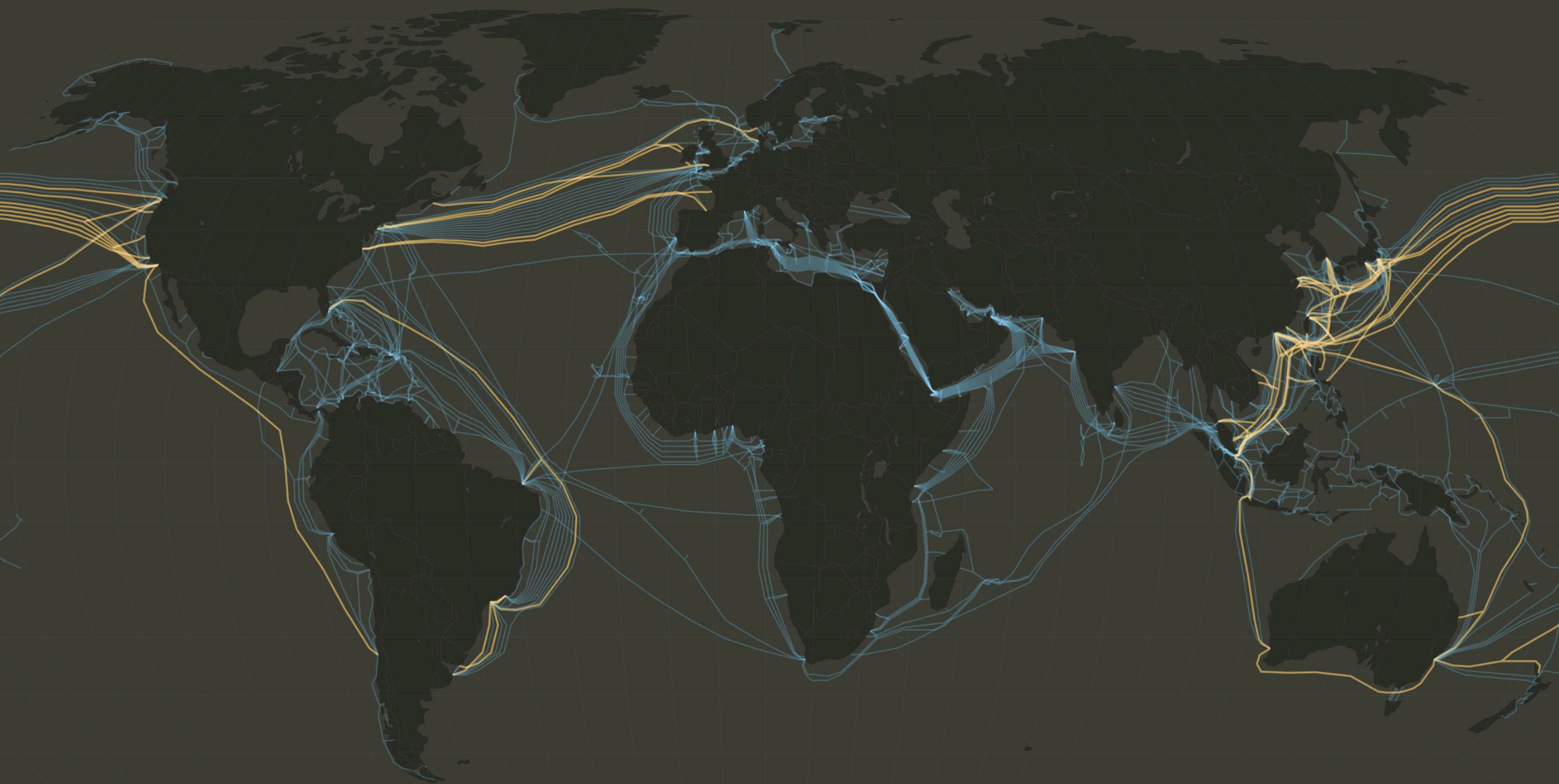
When we hide the material world
beneath metaphors and imagined
realms, we sever our sense of place
— we create 'placelessness'

"the bulldozing of an irregular topography into
a flat site is clearly a technocratic gesture
which aspires to a condition of absolute
placelessness." — Frampton

<https://modernindenvr.com/wp-content/uploads/2015/08/Frampton.pdf>







<https://www.submarinecablemap.com>
<https://link.springer.com/epdf/10.1007/s11023-024-09683-z>



Over the past half century, we have grown accustomed to thinking of ourselves as living in an information society — a post-industrial society



“Unregulated digitalisation risks leaving people behind and exacerbating environmental and climate challenges”¹

- 47% of the world's poorest 40% rely on 2G and 3G networks to access the internet²
- Larger pages = higher costs²
- These communities also bear the burden of resource extraction and e-waste¹
- Hinders progress toward the SDGs¹

1. <https://www.un-ilibrary.org/content/books/9789213589779>

2. <https://www.gsma.com/solutions-and-impact/connectivity-for-good/mobile-economy/>

3. <https://www.un-ilibrary.org/content/books/9789213589779>



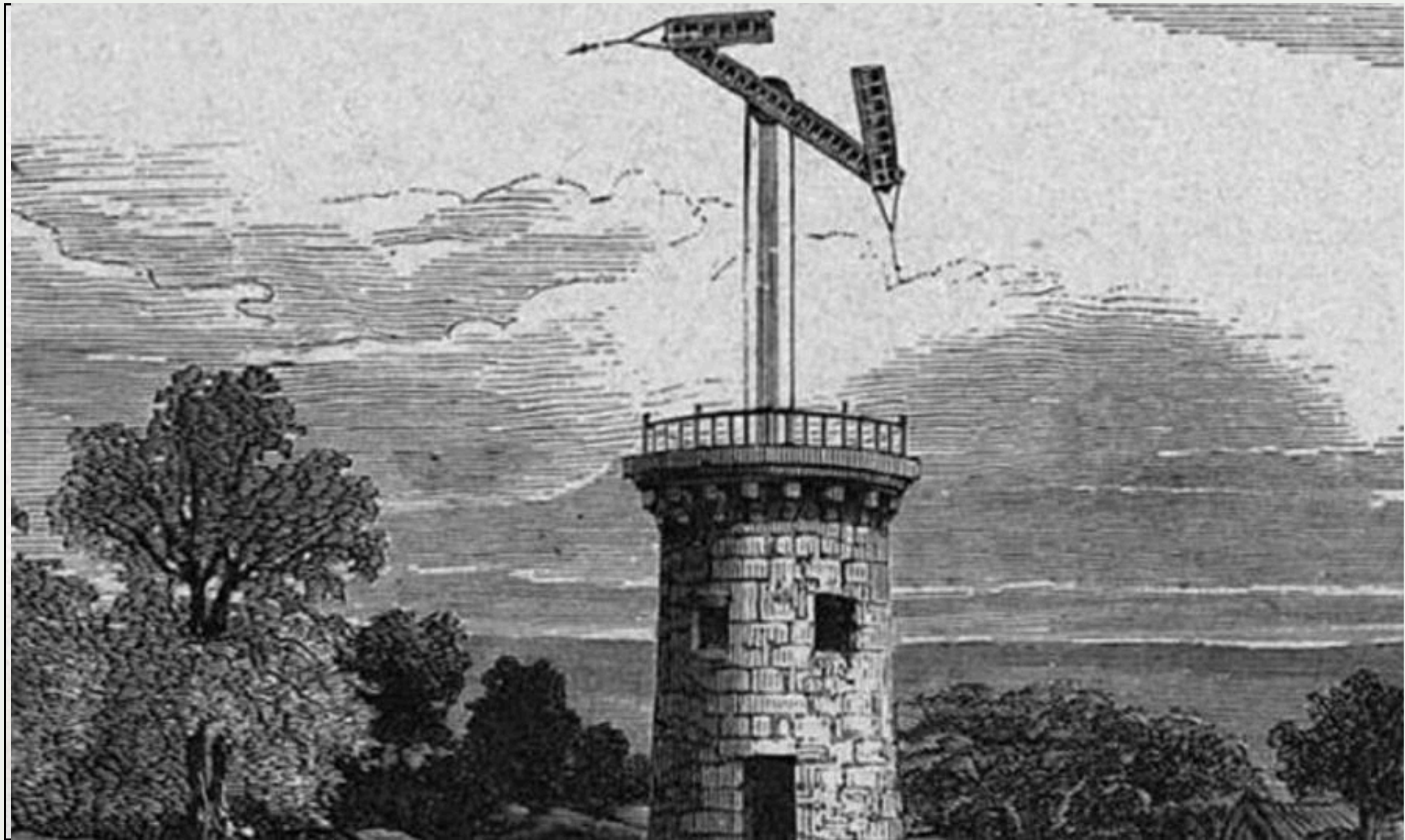
Those who cannot remember the past are condemned to repeat it —Telegraphic Imperialism



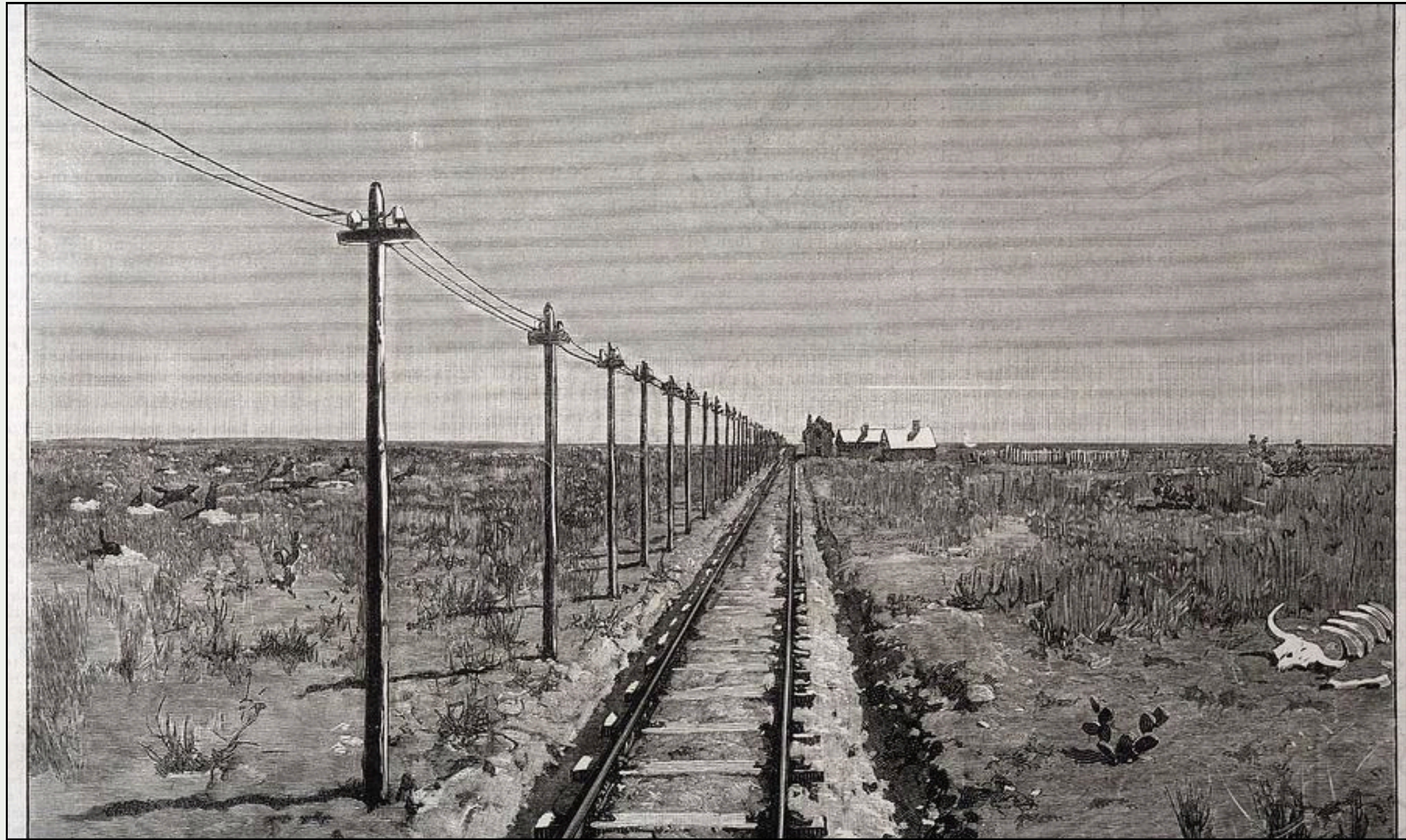
Telegraphic imperialism: crisis and panic in the Indian Empire, c.1830

- We imagine the internet as post-industrial, global, and placeless.
- In reality, it is shaped by infrastructure, energy, and control — just as telegraph networks were.
- What feels "new" is really a continuation of old patterns of extraction and imperial logic.





Optical telegram

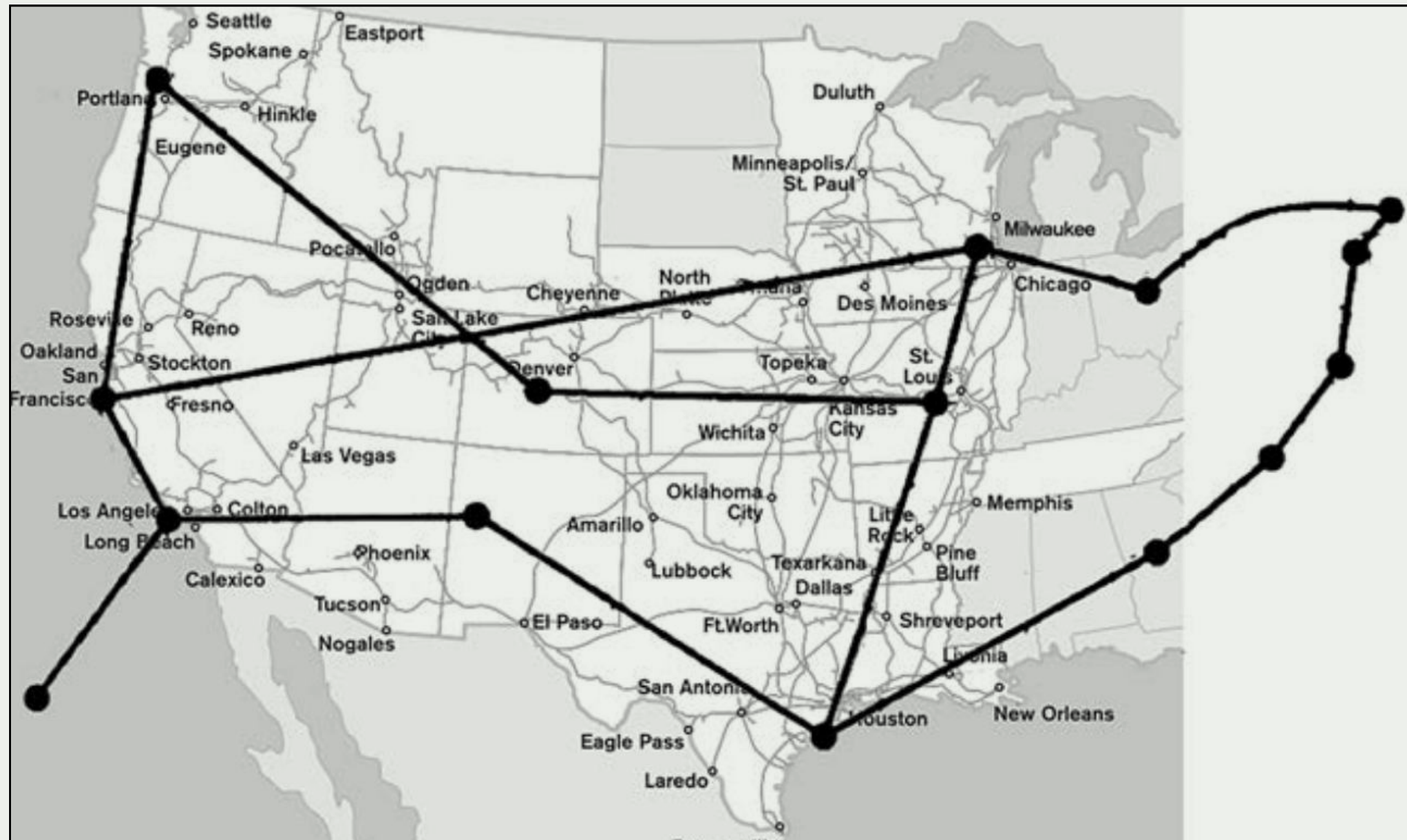


Railway and Telegraph

Railroads and telegraphs were
industrial infrastructures; today's data
centres, undersea cables, and cloud
networks are their descendants

The systems, power structures, and
extractive practices persist





NSFNet (1991) superimposed over the Southern Pacific Railroad network.

By studying historical reactions,
we can develop a digital 'attunement'
— systems and experiences grounded
in place, materials, and human values

“If we forget history,
we are doomed to repeat it”



In the late 19th century, the Arts and Crafts movement reacted against the dehumanising effects of industrial mass production, calling instead for a return to craft, locality, and material honesty



Where materials are active participants
and the maker 'joins forces with them'
rather than exercising control
— The death of the Webmaster



Figures like William Morris argued that design should not be divorced from context, material, or meaning

Research by Burman and Sinclair found that the Arts and Crafts movement embodies a holistic sustainability framework grounded in place-making



'Placelessness' exists on the web in three ways: material, experience and scale

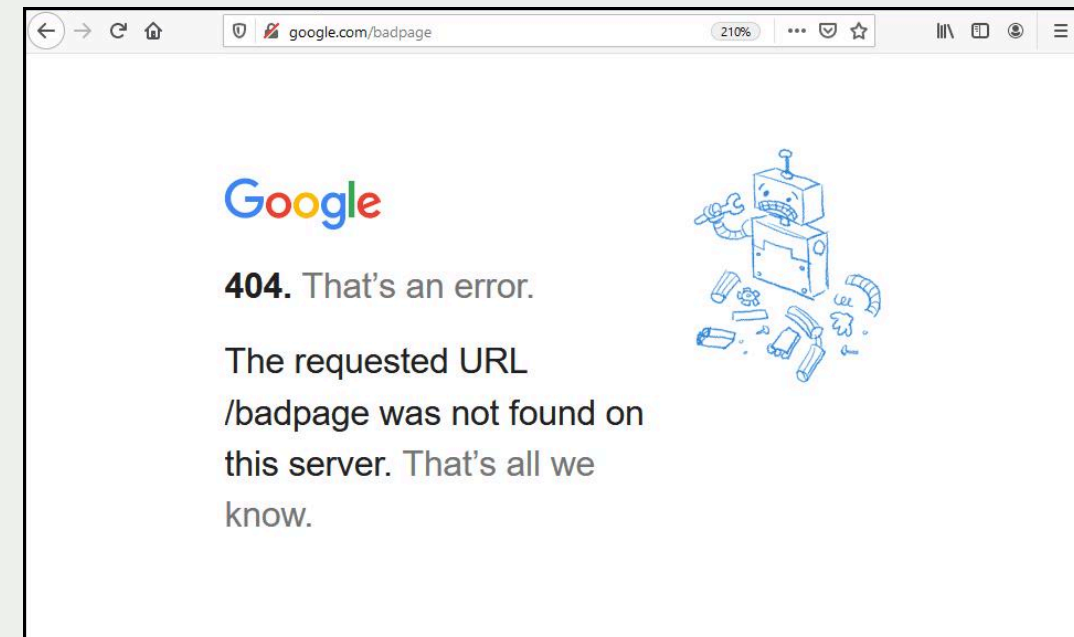
- Material: infrastructure across continents but "invisible" to users.
- Experience: many web sites are templated, homogenised, lacking personality or locality.
- Scale: tools designed for large enterprises get dropped into small sites inappropriately — over-engineering.



Material: About 50% of web pages vanish or become unrecognisable within a year, and the average lifespan of a page is roughly 11,300 days. Over the past 12 years, more than 90% of the web has disappeared

The web changes so fast that signs of progression, history, and impact are erased. If we paused to see their cumulative effect, they'd be like landfills or scars on the earth — digital traces of past choices, visible only when we look closely.



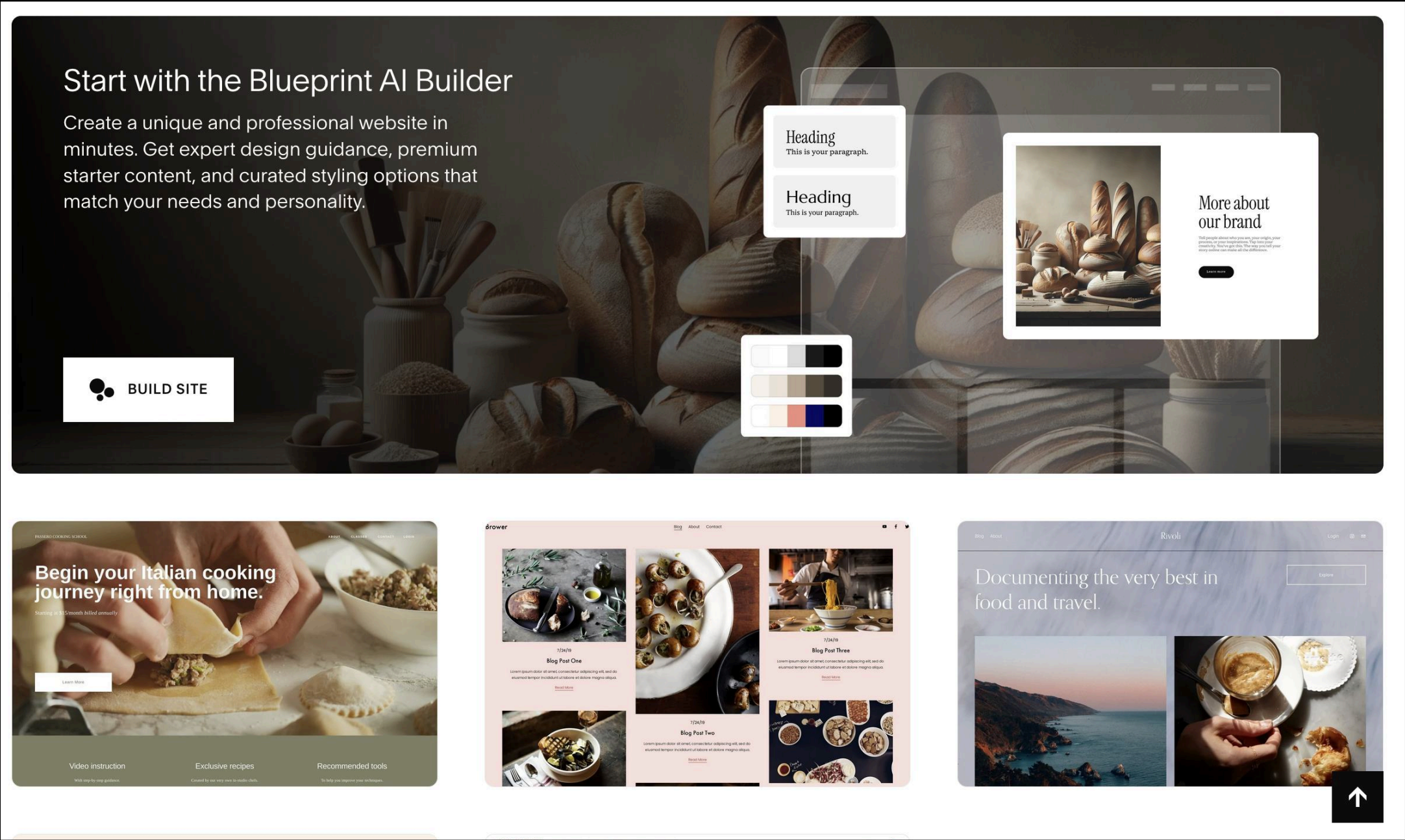


Experience: Templated web content already account for 40–50% of all web bytes — growing ~6% per year



- Many websites today are generated by AI or built from standard templates
- The result: harmonised appearances, uniform layouts, and corporate-style branding — even for a small bakery
- This erases local character, context, and a sense of place
- ‘Flattening’ risks erasing the ‘creative nucleus’ — Frampton

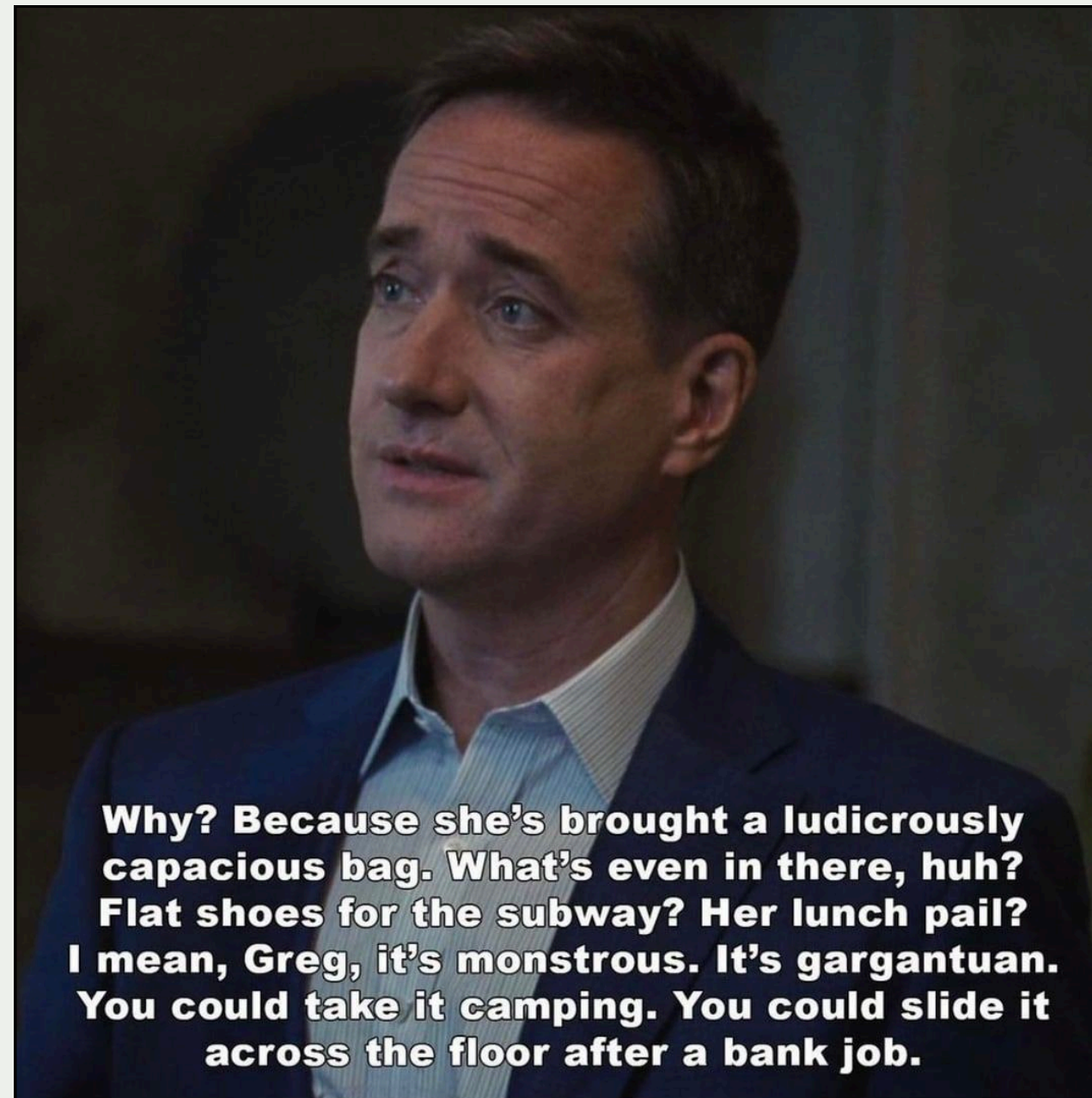




Scale: Enterprise-grade tools are imposed on SME websites, like overengineered office towers dropped into quiet villages

- Disproportionate technology: 'monstrous', filled with oversized images, tracking scripts, and complex JavaScript frameworks, never meant for the people they serve
- Templates and AI-generated sites can impose corporate-scale design on small, local contexts
- A better web would begin not with efficiency, but with appropriateness

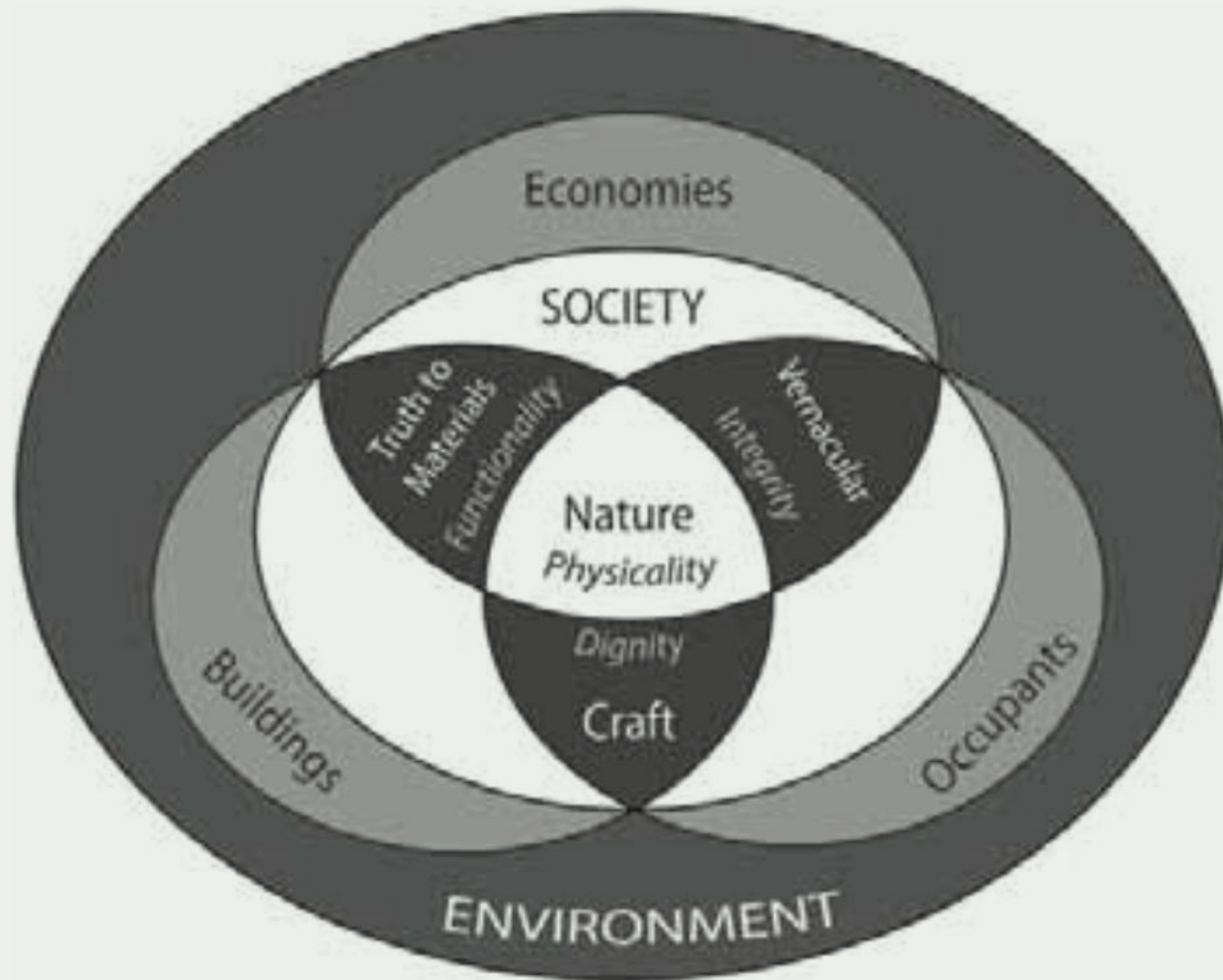


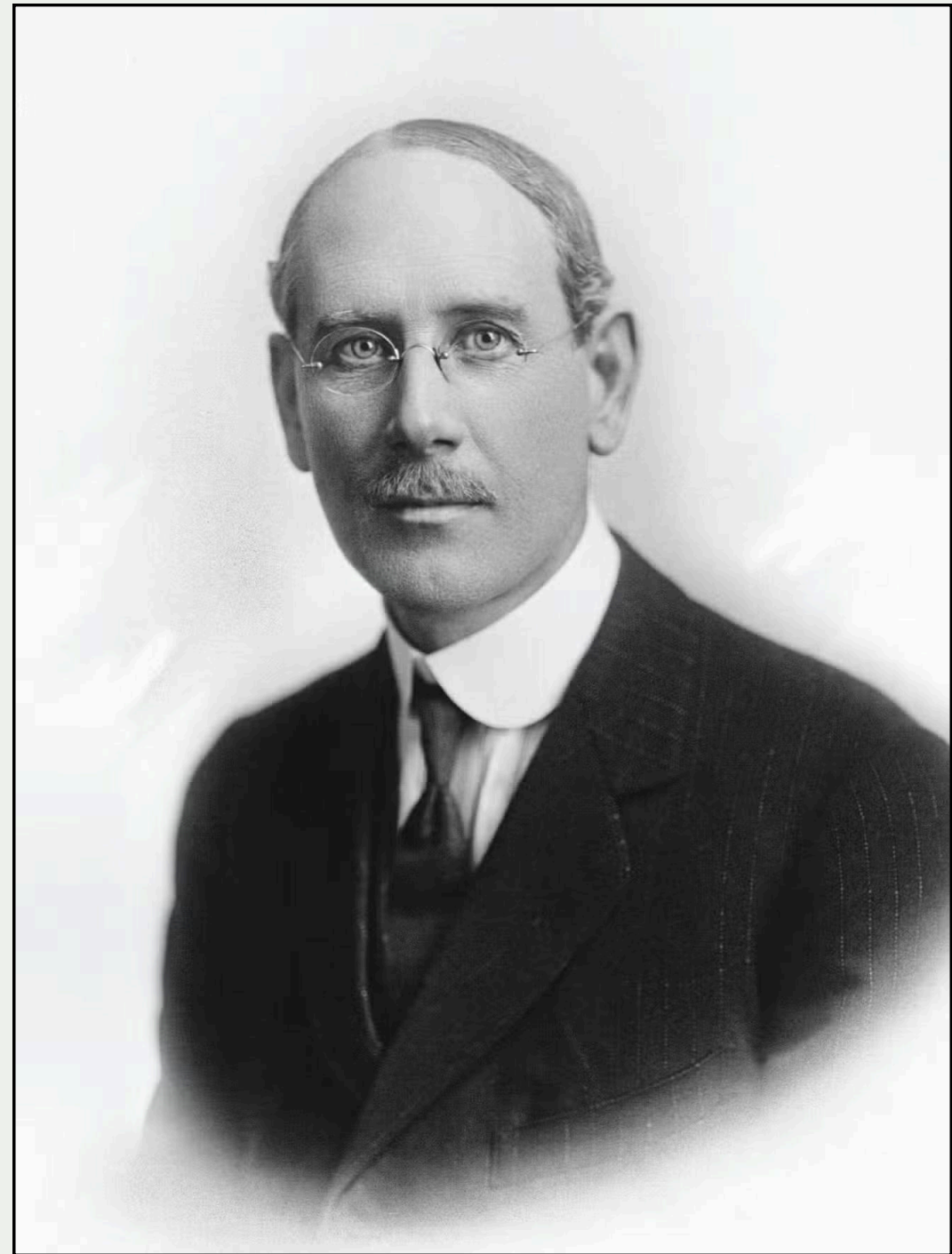


The interplay of material and nature.
Frampton describes this type of
interaction of nature and culture as the
“place-conscious-poetic”

Biophilia hypothesis suggests that humans
possess an innate tendency to seek
connections with nature.







Charles and Henry Greene





Gamble House

The goal isn't nostalgia or retreat. A
'place-conscious poetic' web doesn't
mean rejecting scale or technological
progress – it means alignment

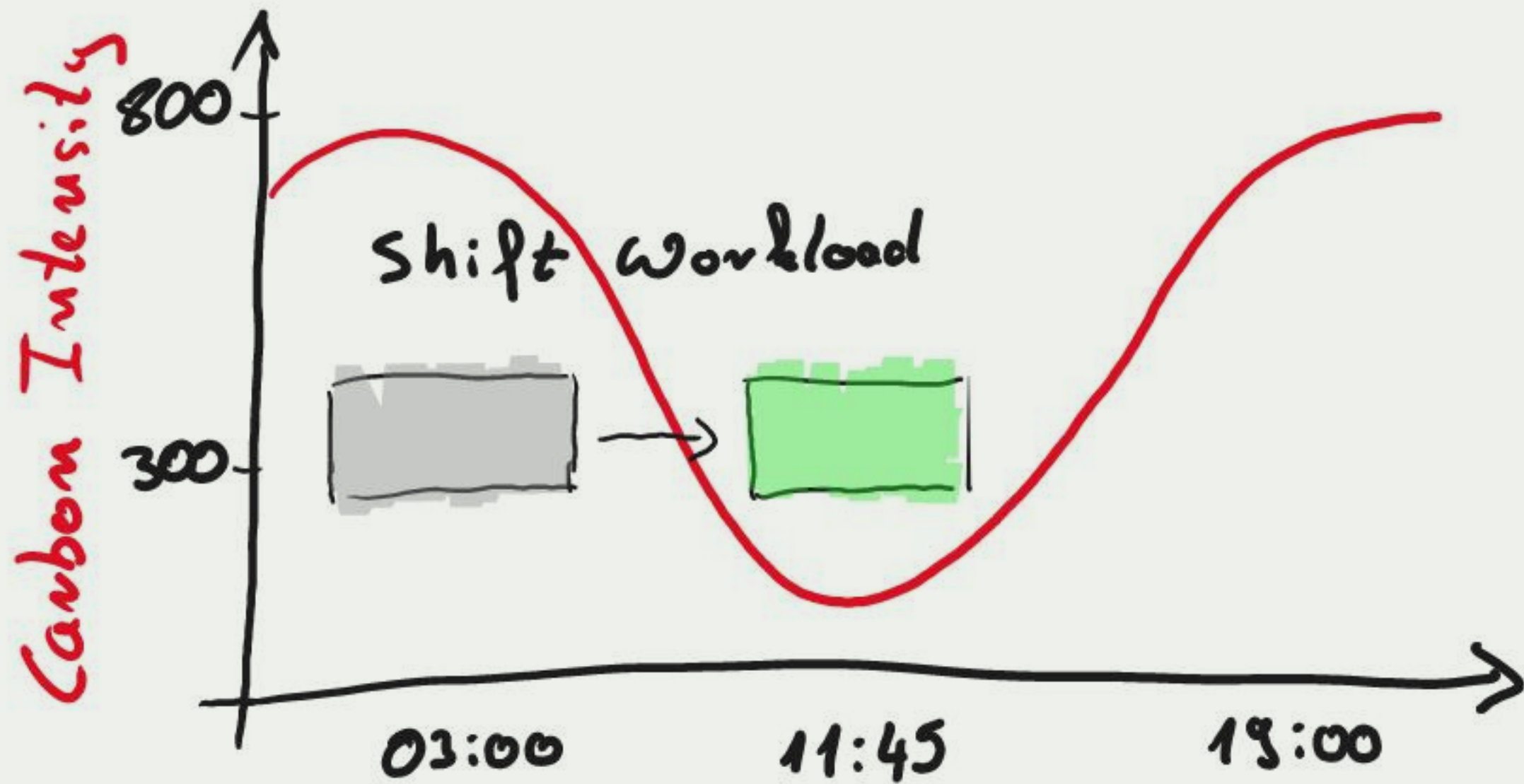
It asks that we move from the
abstraction of 'convenient fiction'
toward awareness





The technosphere and biosphere coexist







GRID-AWARE WEBSITES

**A toolkit that makes it much easier to turn any
website grid-aware.**

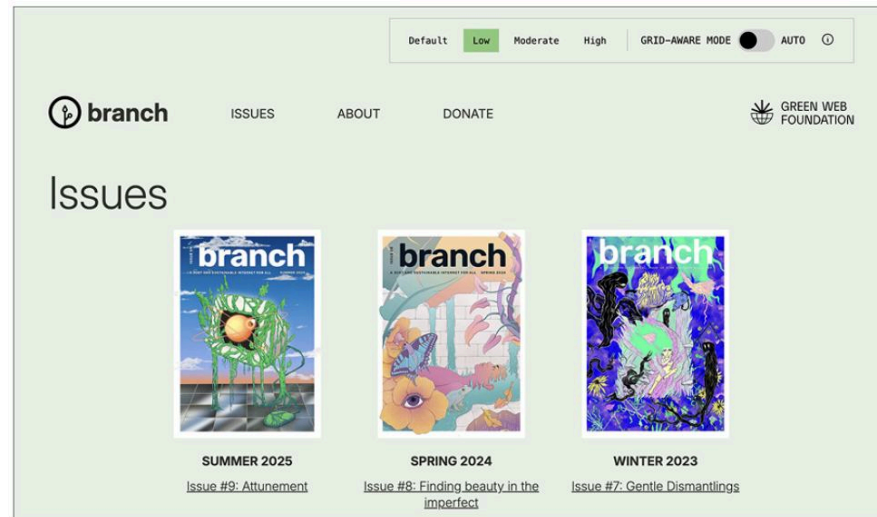
**We believe that grid-aware websites can raise awareness of the carbon emissions
associated with digital technologies, and unleash creative potential for how the website
industry can address these issues.**

The grid-aware websites initiative considerably reduces the barriers to building grid-aware
websites. We've created a toolkit to enable developers and designers to understand more about
the electricity a visitor is consuming when visiting a website and adjust the site design accordingly.
We call websites that respond to the electricity grid in this way grid-aware.

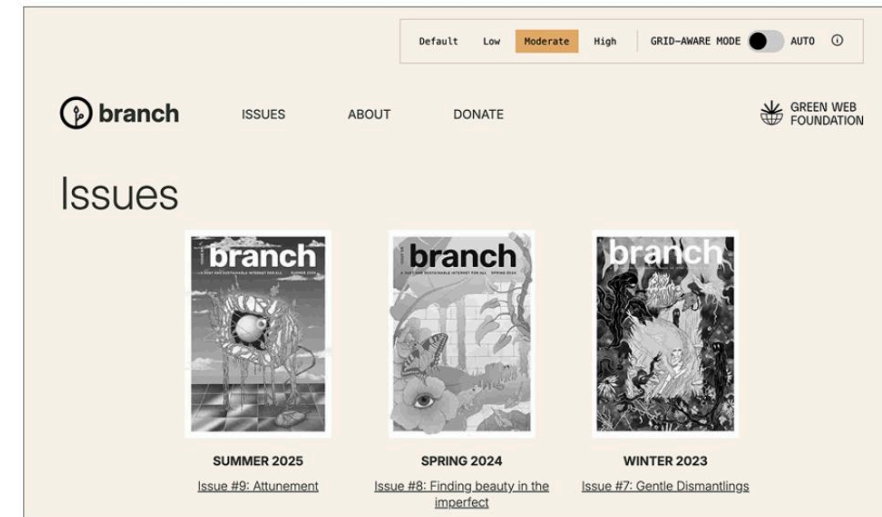
WHAT'S IN THE TOOLKIT?

<https://www.thegreenwebfoundation.org/tools/grid-aware-websites/>

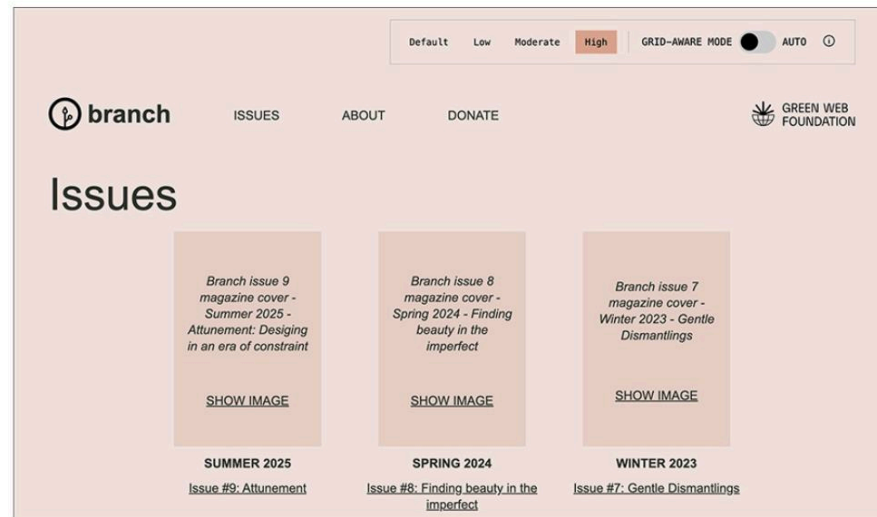




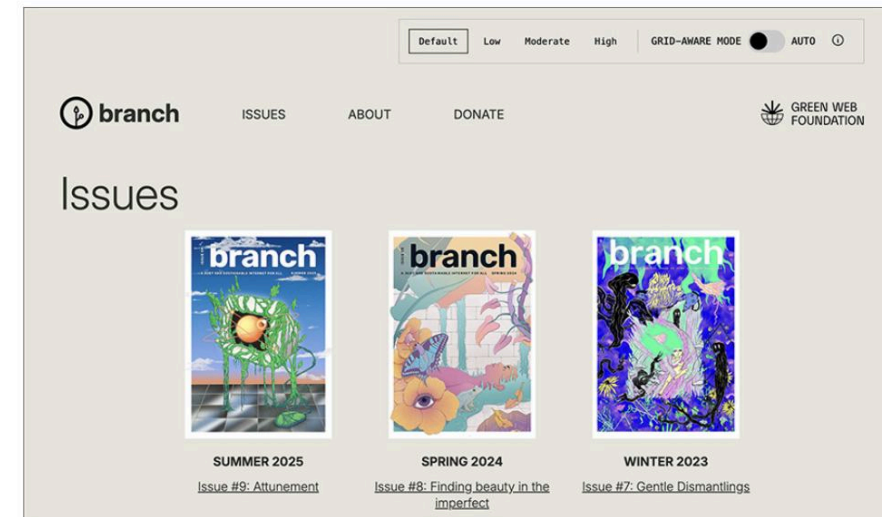
Low grid intensity



Moderate grid intensity



High grid intensity

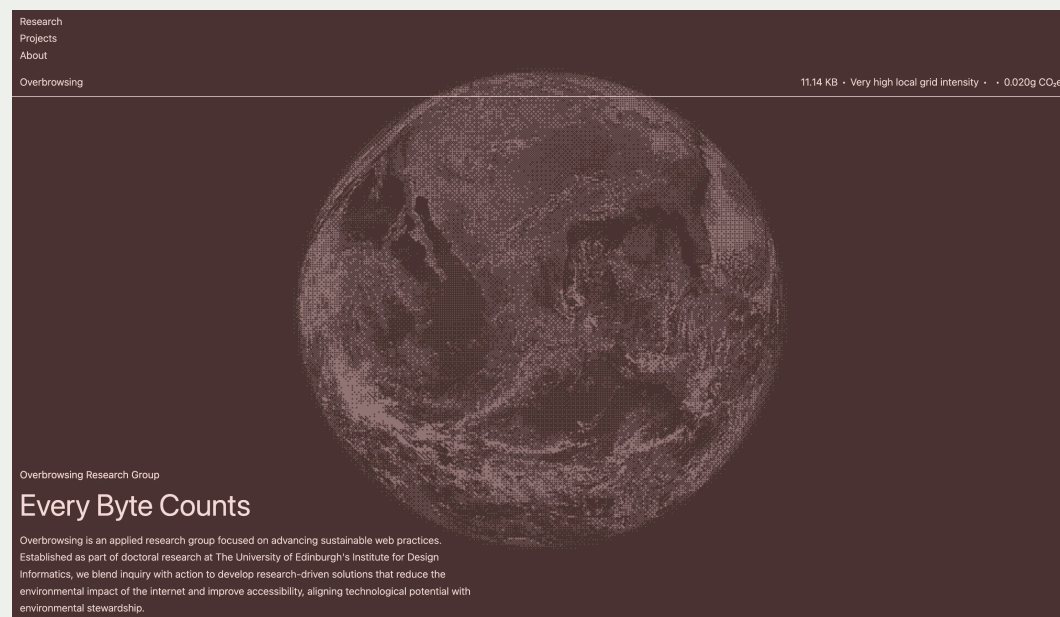
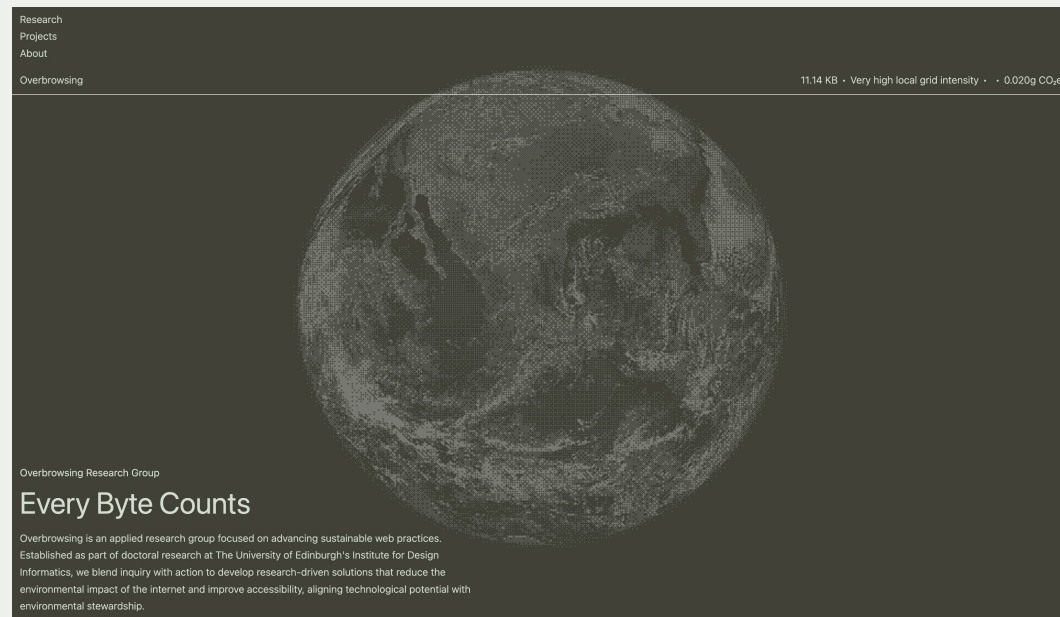


Default mode or no data available

<https://www.thegreenwebfoundation.org/tools/grid-aware-websites/>



Designing rooted, context-aware sites



- Start with material, scale, and user context: 'page weight budgets' and appropriate tech stack
- Integrate live environmental data: energy intensity, weather, air quality, time
- Simplify architecture: static sites, lighter tools, relevant libraries
- Beyond coding: empathetic research, content curation, mindful performance



If the web is a place,
what kind of place
do we want it to be?



Thank you overbrowsing.com

David Mahoney, PhD Candidate
Institute for Design Informatics
The University of Edinburgh

Overbrowsing Research Group

