

Immanent Appalachia: Insurgent Practices of Circularity

JEREMY MAGNER

University of Tennessee

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“Truth is having things in common.¹”

—John Dewey, *How We Think*

GEOPOETIC IMMANENCE

Due to its unique tectonic history and extreme biological diversity, East Tennessee is a place defined by the incredible abundance of natural resources and the inevitable environmental degradation in the exploitation thereof. What we share most truthfully and vividly in the commons of Appalachia are the myriad forms of catastrophe wrought by extraction economies. Representing a body of scholarship undertaken as the Tennessee Architecture Fellow in the University of Tennessee College of Architecture and Design, the work began by investigating the means of production within three dominant material regimes of East Tennessee - the lithic, metallic, and xylological - this project locates three sites as the ‘theater of operations’² for the development of architectural ‘mock-ups’³ (Figures 1-3) which address the consequences of extraction by inducing circularity in flows of material and labor. Evoking histories of abundance, craft, and community of pre-modern and indigenous⁴ Appalachian cultures while working directly with material harvested on site, each mock-up seeks to conjure an immanent geopoetic⁵ agency, generating unique assemblages⁶ of meaning, feeling, and place in proto-architectural relationships between structure and surface. Speculative fabrication protocols introduced digital precision (Figures 7, 8) to traditional, high-participation means and methods of manual craft in order to manage the inherent complexity and eccentricity of non-standard parts in structural assemblies while foregrounding issues of automation which loom large in the region.

SITE 1 - SCAVENGING

Once popular in turn-of-the-century civic and religious architecture throughout North America, use of Tennessee Marble⁷ has dwindled due in part to its necessarily energy-intensive extraction, shaping, and transportation processes. Historically, Tennessee marble has been featured in civic and

religious architecture across the country including the Lincoln Memorial, Penn Station, and the US Capitol. At the Tennessee Marble Company quarry (Figure 4), in operation since the 1850’s⁸, offcuts generated from refining massive blocks into precise architectural elements accumulate in towering waste piles. Resembling pink ice floes which will never conveniently melt, the piles currently represent no economic value - a dead end of production - at best slowly eroding back into the lithosphere.

Reorienting this dead-end economy towards circularity required protocols of scavenging. Pieces within a certain size and weight, roughly those which could be lifted and moved by 1 or 2 people, were collected and digitally scanned (Figure 7). This digital scavenging allowed the marble elements to become ‘weightless’ in a nimble process of testing part-to-whole relationships. The mock-up (Figure 3) reflects the immanent agency of the lithic regime in a horizontal figure becoming oblique (or vice versa) - a sobering thrust of its weight and brittleness. Its aluminum frame acts as a crystallized vein structuring this transitional posture in a tense intimacy with gravity in the precarious accumulation of potential energy.

SITE 2 - AUGMENTING

Rimmer Brothers Recycling (Figure 5) is one of many local, national, and international metal recyclers in the immediate region capitalizing upon economic opportunity generated by Arconic Inc. (formerly Alcoa), an aluminum manufacturing company in nearby Alcoa, TN. Alcoa was founded as a company town in 1888, located for its easy access to cheap and consistent energy for smelting produced by the TVA network of hydroelectric dams. Also known as ‘liquid electricity’, virgin Aluminum requires a massive amount of energy - 8x that of producing steel - but is then infinitely recyclable. Most aluminum produced by Arconic today comes from recycled material fed by the many scrap yards of the region.

There is no economic upside to selling scrap aluminum to anyone but a large corporation such as Arconic. Engaging with this largely circular yet exclusive economy suggested protocols of interception and augmentation in the flow of valuable material. The quantities and forms of aluminum and other



Figure 1. Xylological mock-up. Photo by Michael Jenks.



Figure 2. Metallic mock-up. Photo by Michael Jenks.

metals which accumulate in the Rimmer Brothers scrap yard are fairly unpredictable and remain only long enough for a crew to process them. As chaotic as these fluctuations can be, scrap aluminum holds incredible potential in its extreme recyclability and plasticity. These immanent creative capacities of the metallic regime are reflected in the mock-up (Figure 2) as an oblique figure becoming exultantly vertical. In order to manage this complexity in a structured relationship to the ground, its wooden frame was fabricated using HoloLens⁹ augmented reality technology, projecting holograms into space to aid the cutting and fastening of complex assemblies. This allowed primitive wooden elements to be cut efficiently with simple tools and assembled with precision in reference to a digital model. The structure acts as a scaffold configuring complex interactions, liberating the abundant kinetic, computational energy of the aluminum surface.

SITE 3 - INTERPOLATING

East Tennessee is one of the most biodiverse regions in North America¹⁰. Its forest ecology is comprised of some of the hardest and fastest growing hardwood timber in the world. Despite this, hardwood remains a modestly utilized local resource with any waste generated by the milling process fed directly into other regional industries. Offcuts, chips, and sawdust become useful material for livestock bedding, pulp mills, OSB production, etc., in something of a distributed metabolic process of accumulation and digestion.



Figure 3. Lithic mock-up. Photo by Michael Jenks.

Engaging with this highly networked local economy required protocols of participation and interpolation. Jeffries Woodworks (Figure 6) of Knoxville serves as something of a commons or temple for this wood community. As a hub connecting local sawmills to individual craftspeople and builders, and by extension individuals to forest ecosystems, Jeffries stocks some of the finest hardwood in the world in a humble yet quietly celebratory space locally referred to as 'lumber heaven'. In resonance with the diversity and resilience of the xylogical regime, the timber industry in East Tennessee manages a balanced flow of production and consumption of resources which is minimally exploitative. Participation in this community involves sharing and celebrating the abundance, beauty, and fecundity of local forests and forest products. This manifests in an openness and generosity of knowledge and labor in often informal ways. Similarly, the wood mock-up (Figure 1) is self-supporting. Generative Design software was utilized to structure an actively static interpolation between horizontal and vertical planes. The figure gains structural coherence through its connections, modeled after traditions of timber frame construction in the region. Here, generative design software resonates with a metabolic process, digitally interpolating a flow of energy as information in a delicate stasis between earth and sky in a figure of generosity.

INSURGENT PRACTICES

The project culminated in a semi-permanent installation located in the courtyard of the University of Tennessee, Knoxville College of Architecture and Design that synthesized



Figure 4. Tennessee Marble Company. Photo by Michael Jenks.

these material strategies into tangibly architectural elements, exhibiting the possibilities of re-commoning resources through circularity. As a performance component of the Tennessee Architecture Fellowship exhibition, 'Leant-To' (Figures 9,10) was constructed over the course of two weeks in view of and collaboration with students of the College. The performance of a social act of construction served as the culmination of a body of scholarship and action-oriented pedagogy that attempted above all else to address questions of:

"...how to recognize and insert oneself within lineages that will manage to last, cultivating attachments to terrestrial material systems rather merely producing work...(how) to multiply the sources of revolt against injustice and consequently to increase considerably the gamut of potential allies in the struggles to come in a system of engendering in which all animated beings raise questions about descendants and forebears.'¹¹

By extending from the particular immanence of local material regimes into action-oriented protocols of scavenging, augmenting, and interpolating, an inextricably Appalachian craft¹² emerges. The work attempts to define a future paradigm guided by a work ethic for 'living well on a damaged planet'¹³ in Appalachia and beyond with hope for the possibility of an infinite number of insurgent and celebratory practices unique to the truths of every common struggle.



Figure 5. Rimmer Brothers Recycling. Photo by Michael Jenks.



Figure 6. Jeffries Woodworks. Photo by Michael Jenks.

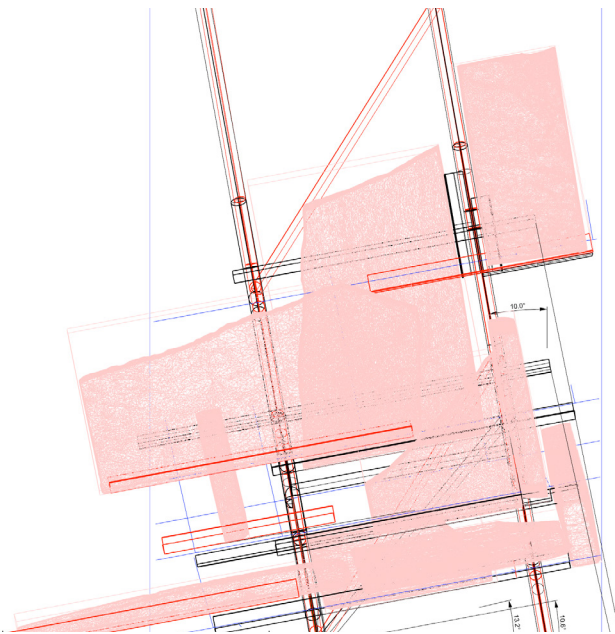


Figure 7. Weightless marble mesh. Image by author.



Figure 8. LiDar 3d scanning, digital scavenging. Image by author.



Figure 9. Circular Pavilion. Photo by Michael Jenks.



Figure 10. Circular Pavilion. Photo by Michael Jenks.

ENDNOTES

1. John Dewey, *How We Think* (Boston: Heath & Co, 1910), 67.
2. Jane Bennett, *Vibrant Matter: A Political Ecology of Things* (London: Duke University Press, 2010), 23.
3. Mock, defined as 'not real or authentic, but without intention to deceive'. Nick Gelpi frames the architectural mock-up as "opportunities for experimentation and failures" in order to "better anticipate the interactions of matter and form, and the particulars of site, absorbing these empirical observations into deeper forms of design. (...) Mock-ups allow physical construction to embody both truth and falsifiability." Nick Gelpi, *The Architecture of Full Scale Mock-ups: From Representation to Reality* (New York: Routledge, 2020) 2, 13.
4. East Tennessee is originally the home of the Eastern Band of the Cherokee people, www.ebci.com
5. Angela Last, "Fruit of the Cyclone: Undoing Geopolitics through Geopoetics" *Geoforum* 64: 56-64.
6. "The effects generated by an assemblage are, rather, emergent properties, emergent in that their ability to make something happen (a newly inflected materialism, a blackout, a hurricane, a war on terror) is distinct from the sum of the vital force of each materiality considered alone." Jane Bennett, *Vibrant Matter: A Political Ecology of Things* (London: Duke University Press, 2010), 24
7. Tennessee Marble is a sedimentary formation rather than metamorphic and is therefore actually a limestone.
8. The Tennessee Marble Company has 300 years worth of marble left in its quarry at current rates of extraction.
9. Hololens was used in conjunction with TwinBuild, AR software for the construction industry.
10. <https://www.nature.org/en-us/about-us/where-we-work/priority-landscapes/appalachians/>
11. Latour, Bruno, *Down to Earth: Politics in the New Climate Regime* (Cambridge: Polity, 2018), 87-88
12. "The crafts(person) represents the special human condition of being engaged." Richard Sennett, *The Craftsman* (New Haven: Yale University Press, 2008), 20.
13. Anna Tsing, Heather Swanson, Elaine Gan and Nils Bubandt, *Arts of Living Well on a Damaged Planet* (Minneapolis: Minneapolis University Press, 2017).