

Holobiont: design-research and the architectures of extraction

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Keywords

Post-Extractive territories, Architectural design pedagogy, Holobiont thinking, Relational mapping

Coal extraction shaped several regions in Europe and beyond as a territorial, social, and architectural project tied to technological optimism, welfare ambition, and modernisation. Today, these landscapes reveal the after-life of extraction through conditions of ecological degradation, infrastructural obsolescence, and socio-economic reduction. This paper examines how post-extractive territories can operate as critical frameworks for architectural design pedagogy. Over the 2025-2026 academic year, the Holobiont Design Research Studio (DRS), a masters design studio in the School of Architecture at University College Dublin, engaged with the South Wales Valleys as a post-extractive landscape territory. The studio approached the Valleys not simply as sites of industrial decline, but as globally entangled energy landscapes in which local territories were historically embedded within wider planetary systems.

Grounded in the concept of the holobiont, the DRS adopted interdependence and relational thinking as both its ethos and method. Using a design-research methodology in interconnected cycles, drawing and critical mapping became the means of investigating architecture as networks of symbiotic connection – the primary mode of inquiry to render visible and invisible territorial systems, including energy flows, ecosystems, infrastructures, and social relations across micro, meso, and macro scales. The collective Fanifesto (Welsh for manifesto) produced by the studio as one of its design outcomes established architectural representation as a speculative and projective practice capable of spatialising radical post-carbon futures.

Holobiont DRS exemplifies a pedagogical model rooted in situated practices of fitting for post-extractive territories marked by depletion, contraction, and uncertainty. As such, the paper contributes by proposing a transferable pedagogical framework which reframes post-coal territories as critical sites through which architecture can rediscover relational, multi-scalar, and ecologically attuned modes of practice, where local challenges can become generators of new architectural imaginaries rather than conditions of deficit.