BOOK OF ABSTRACTS

DARK MATTER.

REVISITING THE ARCHITECTURE OF COAL IN POST-WAR EUROPE

ACME
Architecture of Coal in Modern Europe

5 + 6TH NOVEMBER 2026

CONTENTS

DARK MATTER DARK MATTER DARK MATTER DARK MATTER DARK MATTER

WELCOME
Introduction

INVITED GUESTS
Plenary speaker Dr Łukasz Galusek, and panellists; Professor Tom Avermaete, Professor Stefan Berger, Professor Kathleen James-Chakraborty, Dr Ariane Mak, Dr Dennis Pohl

SESSIONS
BLOCK 1
Power + Territory - Room A
Sensing + Representation - Room B

BLOCK 2
Housing + Infrastructure - Room A
Domesticity + Energy - Room B

BLOCK 3
Labour + Governance - Room A
Extraction + Repair - Room B

BLOCK 4
Knowledge + Heritage - Room A
Memory + Afterlives - Room B

PLENARY PANEL DISCUSSION

EXHIBITION
Holobiont 2025-2026

Funded by the European Union | erc European Research Council | UCD Dublin | ACME Architecture of Coal in Modern Europe

WELCOME

DARK MATTER :REVISITING THE ARCHITECTURE OF COAL IN POST-WAR EUROPE

We are delighted to welcome you to the Irish Architectural Archive for the *DARK MATTER: Revisiting the Architecture of Coal in Post-War Europe* conference, organised through the ERC Advanced Grant *Architecture of Coal in Modern Europe* (ACME).

This conference re-examines post-war European architectural and spatial history through the lens of coal. Coal was not simply an energy source or an industrial commodity. Its extraction, circulation and consumption were embedded within wider systems of labour, knowledge, technology, welfare, housing, health and territorial development. These systems produced a distinctive *coalscape*: a pervasive network of material, social and cultural practices that contributed to the making of modern Europe.

DARK MATTER intends to turn attention towards the less visible dimensions beyond the histories of production and extraction.

Across scales, contexts, geographies and disciplines, the conference has gathered contributions examining the institutions, infrastructures, bodies, landscapes, images, and practices through which coal was experienced, represented and governed, as well as their afterlives in contemporary Europe.

We hope these exchanges will open further conversations across disciplines and geographies, and contribute to a more expansive understanding of the architectural legacy of coal in modern Europe and beyond.

About ACME

The Architectures of Coal in Modern Europe (ACME) is an Advanced Grant awarded by the European Research Council (ERC). ACME seeks to evoke, explore and substantiate a coalmining épistémè – the coalscape – a pervasive, interdependent network of ecologies, beliefs and practices that enfolded geologies, energies, bodies and space to exert a significant influence on the social and spatial foundation of modern, twentieth-century Europe, including its welfare state projects and the origins of the European Union. ACME proposes that understanding this coalscape represents a pivotal means with which to reconsider the critical intimacies between our extractive energy sources, cultural and social lives and built environment that have contributed to the Anthropocene.

ACME is led by Professor Gary A. Boyd, with Dr Tabassum Ahmed, Dr Emma Campbell and Dr Rebecca Jane McConnell (research scientists); Anna Cooke and Niall Patrick Walsh (PhD candidates). It is managed by Dr Jack Kavanagh. Its international advisory board consists of Professor Tom Avermaete (ETH Zürich); Professor Stefan Berger (Ruhr University Bochum); Professor Carola Hein (TU Delft); Dr Piotr Langer (Cracow University of Technology); and Professor Imre Szeman (University of Toronto).

Conference Team:



PROF. GARY A. BOYD
PI on the ACME Project

Professor Gary A. Boyd
Principal Investigator

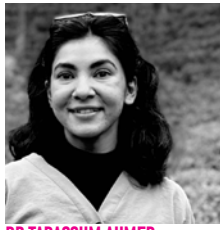
Gary A. Boyd is Full Professor of Architecture at University College Dublin and PI of ACME: the Architecture of Coal in Modern Europe (2025-2030). Prior to this, he was Professor at Queen's University Belfast (2013-2024) where he was Head of Architecture (2016-2019) and held a Leverhulme Major Research Fellowship (2018–22). The latter resulted in Architecture and the Face of Coal: Mining and Modern Britain (Lund Humphries, 2023), winner of the Alice Davis Hitchcock Medallion (SAHGB, 2023). He is co-editor of the series Modernism is Almost All Alright on (type.ie) and currently sits on the Paul Mellon Centre Advisory Council; the Council of the Society of Architectural Historians of Great Britain; serves as a panel member for the European Research Council (ERC); and reviews for La Caixa Foundation Fellowship

programme. He was project leader of a Getty Foundation Keeping it Modern grant (2018-2021), which won the Royal Institute of Architects in Ireland (RIAI) Prize for Research (2021); and Miners' Modernism in collaboration with the Twentieth Century Society and supported by the Paul Mellon Centre and AHRC Impact Accelerator Fund (2023-2025).

He has co-curated/designed a series of international architectural exhibitions including Infra-Éireann (the Irish pavilion for the 14th Venice Architectural Biennale); at EXPO 2020 in the United Arab Emirates with the Architecture of Creative Learning; and, more recently, Egon Riss: A Life in Fragments at the Isokon Gallery, London.

He is co-author of Design, Displacement and Donkeys: The Fractured Life of Egon Riss (London, Isokon, 2026) and co-editor of The Architecture of Borderlands (Abingdon, Routledge, forthcoming 2026). He jointly runs the holobiont Masters Design Research Studio at UCD which parallels ACME in its investigation of architecture as a pervasive network of ecologies, beliefs and spatial practices, and in its exploration of the relationships between extractive energy, the built environment, and the Anthropocene.

Dr Tabassum Ahmed
Research Scientist
Tabassum Ahmed works as a Research Scientist and Studio Tutor at the University



DR TABASSUM AHMED
Research Scientist

College Dublin. She teaches across UCD's architecture programmes, contributing to community-engaged design studios and design research studios,
Tabassum's research expertise includes urban commons and practices of commoning as spatial, social, and pedagogical processes. Through this she has examined situated forms of knowledge, care practices, and spatial agency which emerge through codesign and co-governance of urban spaces. Through funded research projects, including Commoning Kirklees and Climate Action and Visual Culture, she has investigated experimental modes of architectural and spatial practice that operate between design, everyday use, and community-led governance. She is passionate about exploring embedded and visual research methodologies in architectural research.

Tabassum has previously taught at the University of Huddersfield in the UK, the University of Pavia in Italy, and North South University in Bangladesh, and has contributed to European research projects such as HERITACT and SARPE.org.



DR EMMA CAMPBELL
Research Scientist

Dr Emma Campbell
Research Scientist
Emma Campbell is a Research Scientist and Design Studio Tutor in Architecture at University College Dublin, previously a Research Fellow and PhD Researcher at Queen's University Belfast. Her research

applies design and systems thinking to climate and ecological challenges, exploring resource extraction and regeneration, the food-energy-water nexus, circular design, nature-based solutions, and one health. Principles of inclusivity and co-creation are central to her practice. Her work spans journal publications, a Design Museum exhibition, and a TEDx talk. Emma has been co-investigator on two major UKRI-funded projects (£5.3M and £6.6M) and currently leads an ACME work package examining coal's medical and hygiene architectures.

Dr Rebecca Jane McConnell
Research Scientist
Rebecca Jane McConnell is an architect, researcher and educator working across climate, architecture, infrastructure and the future of spatial practice. Her work explores how design can respond to complex environmental and social challenges, from climate adaptation to post-industrial landscapes and emerging technologies. She holds a PhD in architecture from Queen's University Belfast and has taught at postgraduate level in architecture schools in Ireland and the UK. Through The Future Blueprint, Rebecca develops public-facing research, writing and visual storytelling that makes architectural ideas more accessible, critical and culturally relevant - connecting design, climate, history and the future of cities. Rebecca is a research scientist on the ACME project at UCD.


DR REBECCA JANE MCCONNELL
Research Scientist


ANNA COOKE
PhD Researcher

Anna Cooke
PhD Student
Anna Cooke is an architect, educator and PhD researcher at University College Dublin. Since graduating in architecture at University College Dublin, she has gained a wide range of experience working with award-winning practices in Ireland and the UK. Having worked with de Blacam and Meagher Architects in Dublin and Mole Architects in Cambridge, Anna spent several years working with Caruso St John Architects in London, where she worked on award-winning cultural projects, including the refurbishment of Tate Britain, the refurbishment and extension of Liverpool Philharmonic Hall and designs for the redevelopment of Stockholm City Library. With Damien Hannigan, she established Hannigan Cooke Architects in 2019, a design practice with a focus on low-carbon construction and the rehabilitation of existing structures.

Anna has a Master's degree in History and Theory of Architecture from London Metropolitan University and has taught design studio and history and theory of architecture at London Metropolitan University and the University of East London. She has been a design studio tutor at TU Dublin since 2018 and a design fellow at UCD since 2019. She is currently a PhD researcher for ACME at UCD, investigating how extraction reshaped processes of housing and settlement in modern Europe.

Niall Patrick Walsh
PhD student
Niall Patrick Walsh is an architect, writer, and researcher based in Belfast. He holds a Master of Architecture (Distinction) from Queen's University Belfast and is a licensed architect in both the UK and the Republic of Ireland (ARB / RIAI).


NIALL PATRICK WALSH
PhD Researcher

Niall has worked in architectural practice at firms including BDP in Dublin and Architecture Initiative in London, contributing to public, commercial, and educational design projects.

Alongside practice, he has developed a significant profile as an architectural journalist. Between 2017 and 2020, he was Senior Editor at ArchDaily, producing over 1,000 articles exploring architecture's past, present, and future. He is currently the Features Editor at Archinect, where he leads in-depth editorial series on design, technology, sustainability, and the evolving profession. He is a PhD researcher for ACME.

Dr Jack Kavanagh
Project Manager
Jack Kavanagh has ten years of experience working on various historical research projects encompassing private NGOs, public institutions and local authorities. Previously, he was a researcher in the Schools of Architecture, Planning & Environmental Policy, Computer Science and History, UCD, from 2022-5 and an occasional lecturer and tutor at the Department of History, Maynooth University, from 2019-23. His expertise is in historical geography and the spatial relationship between institutions and the state. He is the Research Project Manager for the ACME and SCRiBe projects at UCD.


DR JACK KAVANAGH
Project Manager

INVITED GUESTS

Plenary speaker

Dr Łukasz Galusek is Director of the Silesian Museum in Katowice. An architect, curator and historian, he has authored more than 150 publications. From 2018 to 2025, he served as Deputy Director for Programme Policy at Kraków's International Cultural Centre, where he curated exhibitions and public programmes on Central European art, architecture and built heritage. He also contributes to expert and advisory bodies supporting international cultural and heritage collaboration. His talk is titled '*From Coal Dust to Light: Upper Silesian Modern Adventure'.*



DR ŁUKASZ GALUSEK
Plenary Speaker

Plenary Panellists

Professor Tom Avermaete has been Full Professor and Chair for the History and Theory of Urban Design at ETH Zurich since 2018. His research examines the architecture of the city and the changing roles, methods and tools of architects and urban designers. Working from a cross-cultural perspective, he explores how architectural and urban practices respond to different social, political and cultural conditions. Tom was awarded a European Research Council Advanced Grant in 2026.



PROFESSOR TOM AVERMAETE
Plenary Panellist

Professor Stefan Berger is the Director of the Institute for Social Movements and Professor of Social History at Ruhr University Bochum. He also chairs the committee of the Library of the Ruhr Foundation. His research encompasses nationalism and national identity, historiography and historical theory, comparative labour studies, social movements and the history and heritage of industrial regions.



PROFESSOR STEFAN BERGER
Plenary Panellist

Professor Kathleen James-Chakraborty is Professor of Art History at University College Dublin and a historian of modern architecture. Her research examines architectural modernism, cultural identity and the relationship between architecture, politics and society, particularly in Germany and Europe. Her publications include German Architecture for a Mass Audience, Modernism as Memory and Architecture since 1400. A recipient of the Royal Irish Academy Gold Medal in the Humanities, she was awarded a European Research Council Advanced Grant in 2021.



PROFESSOR KATHLEEN JAMES-CHAKRABORTY
Plenary Panellist

Dr Ariane Mak is Senior Lecturer in Modern British History at Université Paris Cité and an editorial board member of *Annales: Histoire, Sciences Sociales.* Her research focuses on coal mining, labour history, wartime production and the social worlds of mining communities, with particular attention to strikes, industrial relations and everyday life in British mining settlements.



DR ARIANE MAK
Plenary Panellist

Dr Dennis Pohl is an author and researcher. His previous research at TU Delft focused on the relationship between energy, politics and architecture in the post-war era. His book *Building Carbon Europe* examines the histories of coal, steel and nuclear power, and the role of architectural design in shaping political planning in post-war Europe.



DR DENNIS POHL
Plenary Panellist

BLOCK ONE

POWER +
TERRITORY

—

SENSING +
REPRESENTATION

	ROOM A	*ROOM B*
	POWER + TERRITORY	**SENSING + REPRESENTATION**
	CHAIR - PROFESSOR GARY BOYD	*CHAIR - NIALL PATRICK WALSH*
09:40	DR ERIC NAY ONTARIO COLLEGE OF ART AND DESIGN UNIVERSITY (OCADU) *ON SVALBARD: COAL'S PARTICULAR SPATIAL AND IMAGINARY LEGACY IN THE ARCTIC*	DR PIERRE JOLIVET RISEBA UNIVERSITY OF APPLIED SCIENCES, RIGA *LISTENING TO EXTRACTION: COAL, SOUND, AND THE SENSORY INFRASTRUCTURE OF MODERNITY*
09:55	DR REBECCA JANE MCCONNELL UNIVERSITY COLLEGE DUBLIN *THE LONGWALL: MACHINES THAT MADE EUROPE*	PROFESSOR ILYA KALININ HUMBOLDT UNIVERSITÄT ZU BERLIN *THE SOCIALIST LAW OF ENERGY EXCHANGE: FOSSIL BASE AND CULTURAL SUPERSTRUCTURE (COAL AND SOCIALISM)*
10:10	PROFESSOR LOUISA IAROCCI UNIVERSITY OF WASHINGTON, SEATTLE *BLACK SUNLIGHT: FOSSILIZED NATURE AND THE LANDSCAPES OF COAL*	DAVID GENESTE VRIJE UNIVERSITEIT AMSTERDAM *A TOWERING COALSCAPE: THE 'SINGLE-SHEETED HYPERBOLOID COOLING TOWER OF REINFORCED CONCRETE' AS AN EMBLEM OF CARBON MODERNITY IN THE NETHERLANDS, 1950-1965*
10:25	Q&A	JAMES O. DAVIES HISTORIC ENGLAND *ENGLAND'S COAL-FIRED POWER STATIONS*
10:40		Q&A



BBC News ichef.bbci.co.uk

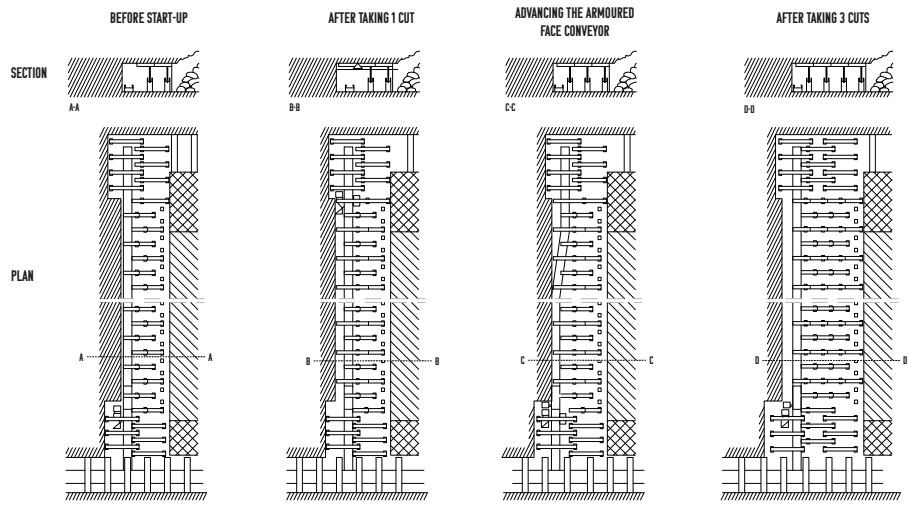
ON SVALBARD:

COAL'S PARTICULAR SPATIAL AND IMAGINARY LEGACY IN THE ARCTIC *Space, Imaginaries, Geopolitics*

DR ERIC NAY Ontario College of Art and Design University

Dr. Eric Nay is a professor of architectural history and theory and environmental design at the Ontario College of Art and Design University (OCADU) in Toronto as well as a lecturer in the Department of Geography and Environment at Mt. Allison University (Canada's east coast) and teaches architectural history and theory at the Daniels School of Architecture, Landscape Architecture and Design at the University of Toronto. Eric has practiced architecture in New York City, Chicago and California and taught architecture and design at more than a dozen universities, colleges and cultural institutions across Asia, the Middle East, the UK and the Americas, while producing a broad range of publications that include SPOOL (Netherlands); ARQ (Chile); ICOMOS (Germany); Docomomo (US); The Humanities and Technology Review (US); INTBAU (Italy); Open House International (UK); Alternatives Journal (Canada) and Folk, Knowledge, Place (China).

Svalbard's legacy of coal mining historically functioned as a geopolitical placeholder for sovereign occupation, allowing Norway and Russia to maintain a permanent presence and to claim strategic territory under the Svalbard Treaty. While the industry is phasing out due to climate change and low profitability, coal was a critical tool for establishing a permanent, year-round human foothold in the high Arctic. Coal has been a powerful force in the shaping of European urban form, forging distinct industrial and now post-industrial landscapes and imaginaries. These spatial and cultural legacies remain intact and can be seen and felt in places like the Ruhr Valley (Germany), Upper Silesia (Poland), South Wales (UK), and many others. In this paper I look at the Svalbard Peninsula in the Arctic as a very particular version of this narrative and spatial and imaginary legacy. Coal has profoundly shaped Svalbard, initiating permanent settlement, establishing its geopolitical identity under Norwegian sovereignty, and creating a cultural landscape that is now transitioning from active mining to tourism and heritage, all the while serving as a placeholder emplaced within a dangerous geopolitical game between the countries vying for control of the Arctic, most specifically China, Norway and Russia. Remnants of this industrial era, such as abandoned infrastructure and derelict Soviet mining towns, continue to define the environment, as well as redefine it for a new generation of digital natives as a tourist attraction, blending tales of the past with the present, while the economy cautiously shifts away from coal. This paper questions how coal has been instrumentalized and materialized spatially and geopolitically by looking closely at the material and imaginative legacy of coal as seen in abandoned former Soviet mining towns on the peninsula such as Pyramiden and Barentsburg and in the re-branding of coal in Longyearbyen by the Norwegians to understand how coal continues to shape and redefine sovereignty, territoriality and spatiality as an imaginary within the context of the 1920 Svalbard Treaty and contemporary life.



THE POSITION OF THE ROOF SUPPORTS IN A LONGWALL FACE WITH AN ANDERTON SHEARER AT THE INDIVIDUAL STAGES OF ITS OPERATION

drawing: authors own, based on information in Ledwoch, Z. and Pieczykolan, E. (1959) 'Praca kombajnu Anderton w kopalni Zabrze' [The operation of the Anderton shearer at Zabrze colliery], Wiadomości Górnicze, 10(1), pp. 12-15.

THE LONGWALL:

MACHINES THAT MADE EUROPE

Architecture, Modernism, Machine

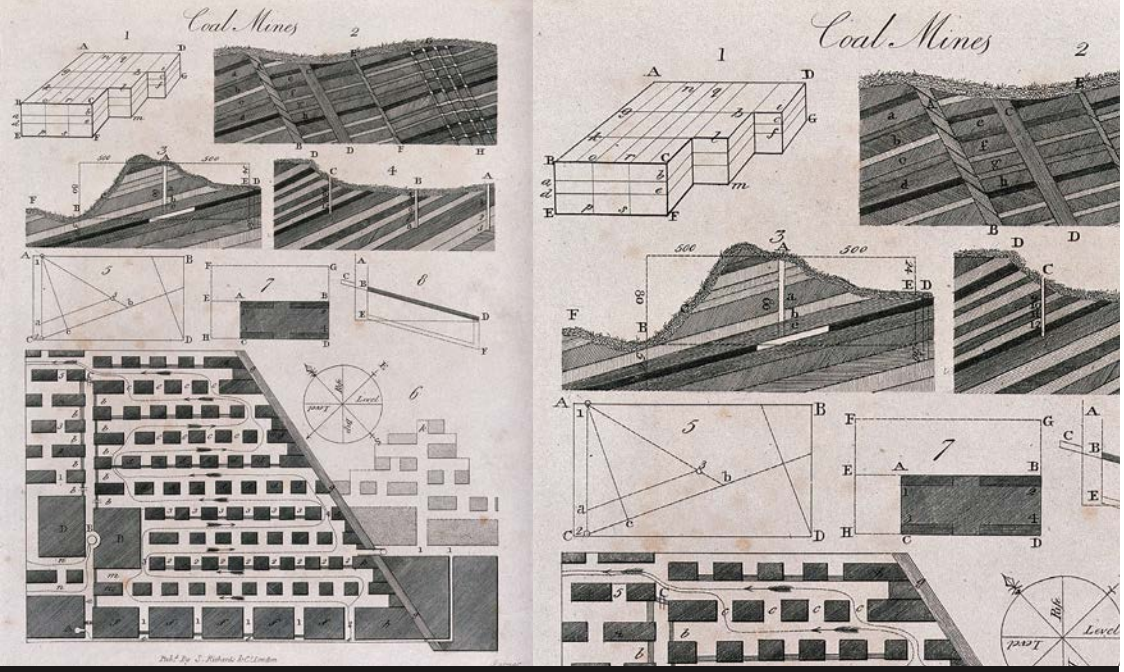
DR REBECCA JANE MCCONNELL University College Dublin

Dr. Rebecca Jane McConnell is an architect, researcher and educator working across climate, architecture, infrastructure and the future of spatial practice. Her work explores how design can respond to complex environmental and social challenges, from climate adaptation to post-industrial landscapes and emerging technologies. She holds a PhD in architecture from Queen's University Belfast and has taught at postgraduate level in architecture schools in Ireland and the UK. Through The Future Blueprint, Rebecca develops public-facing research, writing and visual storytelling that makes architectural ideas more accessible, critical and culturally relevant - connecting design, climate, history and the future of cities. Rebecca is a Research Scientist on the ACME (Architectures of Coal and Modern Europe) project at University College Dublin.

After the second world war, coal-mining machines and expertise moved increasingly across European borders. Over the next decades, Europe was rebuilt not only through treaties and markets but through technical systems. This paper examines the mechanised longwall as a transnational system: an interdependent arrangement of shearer-loaders, armoured face conveyors, powered roof supports, haulage, control and labour. Coordinating these components increased output, while at the same time reorganising movement, work and underground space around increasingly comparable forms of mechanised production.

The research traces the longwall's 'technological time': the sequence through which machines and practices were developed, combined, circulated and reconstructed across Britain, West Germany and Poland from the mid-1950s into the 1960s. It follows the Anderton shearer from National Coal Board development through manufacture, export and adaptation, situating it alongside Eickhoff shearers, Westfalia conveyors, and Seaman-Gullick and Dowty powered supports. At Cortonwood in Yorkshire, an Anderton shearer and Seaman-Gullick supports operated with a Westfalia conveyor in a transnational face system documented for a French-speaking European readership after a European Coal and Steel Community (ECSC) visit. At Zabrze, an imported British Jeffrey-Diamond Anderton entered a face without the flexible conveyor, hydraulic pushers or powered supports normally associated with it, meaning Polish engineers consequently adapted its support and conveyor arrangements and reorganised the work schedule.

Drawing on patents, engineering journals, mine plans, technical drawings, photographs and ECSC study reports, the paper argues that representation formed a key infrastructure of transfer. These media made underground arrangements visible and comparable while recording the adjustments demanded by different seams, equipment stocks and forms of work organisation. Overall, it argues that the longwall emerged through collective learning, cross-border manufacture, institutional exchange and local reconstruction. By establishing increasingly comparable spatial and operational logics across coalfields, longwall mechanisation established a common underground geography that simultaneously shaped Europe's surface.



Wellcome Collection 30562i

BLACK SUNLIGHT:

FOSSILIZED NATURE AND THE LANDSCAPES OF COAL

Black sunlight, Extractive Architecture, Energy and Flow

PROFESSOR LOUISA IAROCCI University of Washington in Seattle

Louisa Iarocci is Associate Professor in the Department of Architecture at the University of Washington in Seattle where she teaches architectural history, theory, and design. She is a licensed architect who has worked in architectural firms in Toronto, New York and Boston. She completed her Master's in Art History at Washington University in St. Louis and her PhD in the history of art and architecture at Boston University. Her publications include the anthology, Visual Merchandising: The Image of Selling (2013) and the monograph, The Urban Department Store in America (2014). She has recently contributed chapters on the icehouse and the convenience store to the anthologies, Architecture & Extraction in the Atlantic World, 1500-1850 (Routledge, 2023) and Building-Object: Shared and Contested Territories of Design (Bloomsbury), 2022. This proposal is based on research related to her current book project on the architectures of the supply chain under contract with Routledge.

This paper approaches coal as a form of nineteenth-century black sunlight: a substance understood as fossilised nature, transformed over deep geological time into a latent source of heat, light, and motion. Focusing on nineteenth-century Anglo-American coal landscapes, it examines how this compressed, vegetal energy was spatialised through architecture, rendering an invisible natural force both governable and productive. Coal mining is treated not simply as an industrial operation, but as a spatial regime that mediated relations between geology, labour, and modern ideas of progress.

Drawing on trade manuals, scientific treatises, popular journalism, and visual media, the paper traces the trajectory of black sunlight from subterranean seams through shafts, tunnels, and ventilation networks to surface headframes, breakers, railways, and waste piles. Plans, sections, and illustrated cross sections depict the mine as a shadow city beneath the ground-its passages likened to streets, its pillars to buildings-while stereoscopic photographs and popular illustrations stage partial encounters with labouring bodies immersed in the earth's interior. These representational practices reveal how coal's architectures translated natural processes into systems of circulation, discipline, and care, transforming buried landscapes into instruments of economic and social order.

Coal's power lay precisely in its paradoxical status as natural and manufactured, ancient and modern. Like a form of architectural dark matter, the infrastructures that mobilised black sunlight exerted force without fully appearing, shaping everyday life while remaining marginal to architectural history. While grounded in nineteenth-century Anglo-American contexts, the paper offers a genealogical lens for understanding post-war European coal modernisation. The spatial and narrative logics forged through early extraction-architectures of flow, techniques of concealment, and stories framing coal as a democratic and progressive gift of nature-persisted and were re-mobilised in post-war Europe through nationalised industries, welfare infrastructures, and modernisation campaigns. By foregrounding coal architecture as an architecture of flow rather than monument, the paper contributes to debates on extractive modernity, revealing how black sunlight continued to shape architectural thought, institutional practice, and environmental imagination long after the pits themselves fell silent.



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LISTENING TO EXTRACTION:
COAL, SOUND, AND THE SENSORY INFRASTRUCTURE OF MODERNITY

Coalscapes, Industrial landscapes, Spatial perception, Architecture and sound

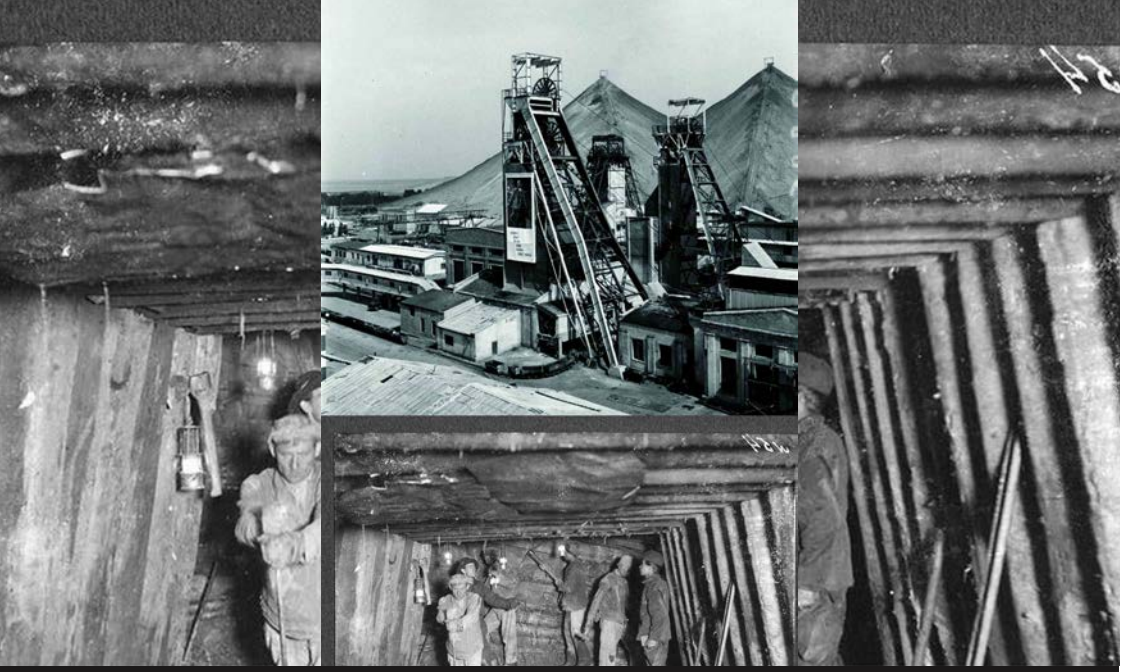
DR PIERRE JOLIVET RISEBA University of Applied Sciences

Pierre Jolivet is a composer, sound artist, and researcher working across sound studies, architecture, media theory, and artificial intelligence. He lectures and supervises PhD students in Creative Media at RISEBA University of Applied Sciences (Riga). His research explores sonic environments, perceptual infrastructures, and machine listening, with a particular focus on how technological systems shape sensory experience. He is the author of the forthcoming book Listening Beyond Sound. As an artist, he produces audiovisual and electroacoustic works under the alias Pacific 231, developing physical productions and editions alongside works presented internationally in festivals and research contexts.

This paper proposes an acoustic and media-theoretical re-reading of twentieth-century European coalscapes by situating coal not only as an energy resource but as a formative sensory and perceptual infrastructure. While architectural and historical research has explored coal in relation to labour, governance, and spatial organisation, less attention has been paid to how extraction reshaped listening, embodiment, and collective attention. Mining environments constituted complex sonic ecologies in which reverberation, vibration, machinery, and pressure structured everyday labour and the anticipation of risk. In these contexts, listening functioned as an embodied and distributed mode of sensing rather than passive perception.

Drawing on phenomenology, sound studies, and media theory, the paper argues that coal mining contributed to the emergence of modern regimes of perception. It connects early industrial listening practices to later developments in sound recording, cinema, and contemporary monitoring technologies. From acoustic warning systems and the coordination of labour through sonic cues to the management of underground environments, the mine can be understood as a proto-media environment where auditory attention became a tool of governance and control.

The paper further traces how these sonic regimes persist in current technological infrastructures. Sensor networks, predictive maintenance, and AI-driven environmental monitoring extend earlier forms of distributed listening developed in extractive contexts. By establishing a genealogy from underground acoustic awareness to machine listening, the paper suggests that coalscapes provide a critical framework for understanding the sensory and infrastructural conditions of contemporary media and technological modernity.



Historical photographs of coal-mining infrastructure and underground working conditions. Photographers, dates and archival sources currently unidentified.

THE SOCIALIST LAW OF ENERGY EXCHANGE: FOSSIL BASE AND CULTURAL SUPERSTRUCTURE

Coal, Fossil Base, Cultural Superstructure

PROFESSOR ILYA KALININ Humboldt Universität zu Berlin

Ilya Kalinin is a research scholar at Humboldt Universität zu Berlin and a member of Petroculture International Research Group (https://www.petrocultures.com). He got his PhD at Saint Petersburg State University (the title of his thesis was "Russian Literary Utopia, XVIII-XX Centuries: The Philosophy and Poetics of the Genre." (2002). By 2022 he was a professor at the Department of Liberal Arts and Sciences (Smolny College), Saint Petersburg State University; and at the National Research University "Higher School of Economics" (Saint-Petersburg). His research focuses on Soviet cultural history, historical and cultural politics of post-Soviet Russia and cultural history of natural resources. He is an author of two books (incl. "Soviet Energy Imagination: Electricity, Atom, Oil," St. Petersburg, 2022, - in Russian) and more than 200 academic articles and public essays which have been translated into 16 languages.

From a geophilosophical and geopoetic perspective, Marxist political economy's base and superstructure can be represented as the relationship between the earth's interior – which contains mineral resources – and the social superstructure, which creates various technologies for extracting and processing these resources. From this standpoint, the "base"/subsoil and the "superstructure"/plans for the postwar economic recovery and further socialist development appear as links in a single dialectical chain of transformations. The significance of this chain lies in the integration of the productive forces of nature into socialist relations of production, resulting in the transformation of not only the nature of the relationship between humanity and nature, but also the nature of social relations themselves.

The focus of the presentation will be on the reconstruction of relationships between natural and social objects (coal basins and urban policy), geology and sociology, the subsoil and technology, the structure of the earth and the structure of society, and geological and historical temporalities. The focus of this study is the structure (vocabulary and grammar) of the Soviet energy imagination, which can be reconstructed using the example of how coal mining and its socio-economic significance were represented and conceptualised in postwar Soviet culture. The material for this reconstruction will consist of literary works, journalism, and visual arts created in the USSR and dedicated to coal, as well as works on geology and economic development plans from the 1940s to the 1980s that address issues related to the coal industry.



First day cover with representations (photograph and stamp) of cooling towers at Nitrogen Fixation Unit, Dutch State Mines in the Netherlands, 1963. Source: Collectie Discovery Museum, Kerkrade, no. 065196.

A TOWERING COALSCAPE: THE 'SINGLE-SHEETED HYPERBOLOID COOLING TOWER OF REINFORCED CONCRETE' AS AN EMBLEM OF CARBON MODERNITY IN THE NETHERLANDS IN THE PERIOD 1950-1965

Carbon modernity; hyperboloid cooling tower; cultural mediations

DAVID GENESTE Vrije Universiteit Amsterdam, The Netherlands

David Geneste is an architectural historian and a PhD candidate in the research group History of Architecture and the Living Environment / Heritage Studies at Vrije Universiteit Amsterdam in the Netherlands. He is interested in late-medieval, nineteenth- and twentieth-century architecture and culture and has written about religious, industrial and public buildings in the Netherlands. His research starts from the assumption that all architectural production is meaningful, and combines architectural history, cultural history and visual culture. At VUA he researches the development and reputation of the overground industrial landscape of Dutch State Mines in the Netherlands in the twentieth century. He does so by focusing on the design, development and appropriation of the 'single-sheeted hyperboloid cooling tower of reinforced concrete', which was to become an emblem of corporate ambitions, regional identity and industrial esteem, in the Netherlands and further afield.

Like elsewhere in Western Europe, the Dutch coal mining region in Limburg witnessed a relatively short but intense period of industrial and socioeconomic regeneration after World War II. To the outside world, this 'carbon revival' was made visible by the construction of impressive overground industrial edifices at the various collieries. The most emblematic of these was the 'single-sheeted hyperboloid cooling tower of reinforced concrete', first developed by Dutch State Mines in the 1910s and erected on a large scale in the post-war era. Despite their striking presence in the Limburg coalscape, the industrial and cultural significance of these edifices has not been studied in detail before. I argue that the hyperboloid cooling tower was more than a mere utilitarian object in the post-war revival of the Dutch mining region. Rather, the tower was appropriated by a range of stakeholders to contrive a culture of carbon modernity in the Netherlands. This propaganda was achieved not only by the building of increasingly larger cooling towers but also through mediations of them in a range of contexts. To underpin my claim I will first explore the construction of industrial cooling towers at the mines in the 1950s. Acknowledging that nearly all towers were demolished in the 1980s, this will be done using existing research, archival sources and photographic documentation. Next, I will study mediations of cooling towers produced by specific stakeholders in different contexts. These include logos and gifts (corporate context), artistic renderings (regional context), philately (national context) and postcards (European context). Together, these built and visual traces will reveal how in the post-war years the Limburg cooling tower became synonymous with carbon-related industries, and with the branding of industrial modernity and energy in the Netherlands in general.



photograph: James O. Davies, Historic England

ENGLAND'S COAL-FIRED POWER STATIONS

Record, celebration, photographic

JAMES O. DAVIES Historic England

James O. Davies is Team Lead for photography at Historic England where he has been recording the built environment for the last 35 years. He is a passionate believer in the power of photography to document for perpetuity. He has exhibited and published widely on themes as broad as prisons, tin mining, mosques, farmsteads, shopping, post-war architecture, stained glass and Stonehenge, along with years of contributing to Pevsner's Buildings of England. He has won various awards and lectures on architectural photography.

A richly illustrated paper on the recording of England's last coal-fired power stations over the last sixteen years, marking the end of 142 years in the history of national electricity generation. Each power station (including the Hinton Heavies) was photographed to architectural standards to act as a point-in-time record for perpetuity prior to demolition. With rare access provided by the power companies, boiler houses, turbine halls, coal handling infrastructure, water treatment plants and their iconic cooling towers were recorded to celebrate the engineering and mechanical skills that far outlasted their original lifespan.

This talk will visually illustrate their heritage significance, the increased role of an architectural language, their presence in the landscape and the affinity of purely functional pieces of plant to appear aesthetically sculptural, what the Bechers referred to as 'anonymous sculpture'. This talk takes us inside the working life of these enormous complexes, which so often appeared only as a marker on the landscape.

BLOCK TWO

HOUSING +
INFRASTRUCTURE

—

DOMESTICITY +
ENERGY

	ROOM A **HOUSING + INFRASTRUCTURE** *CHAIR - DR TABASSUM AHMED*	*ROOM B* **DOMESTICITY + ENERGY** *CHAIR - DR EMMA CAMPBELL*
11:10	NIALL PATRICK WALSH UNIVERSITY COLLEGE DUBLIN *ENGINE OF MODERNITY: COAL AS AN ECOLOGICAL DRIVER OF NEW LIVING IN POST-WAR EUROPE*	SHAIWANTI GUPTA ARCHITECT & RESEARCHER *COAL INTIMACIES: KITCHENS AS A MICROCOSM OF BITTERFELD'S POST-WAR INDUSTRIAL LANDSCAPE*
11:25	ANNA COOKE UNIVERSITY COLLEGE DUBLIN *ON THE THRESHOLD: MICROGEOGRAPHIES OF GENDER, COOPERATION AND CONTROL IN EUROPEAN MINERS' HOUSING, 1900-1940*	DR FABIAN ZIMMER TECHNISCHE UNIVERSITÄT BERLIN *HOME COMFORTS, WARTIME SCARCITY AND THE MATERIALITY OF ENERGY, GERMANY 1914-1918*
11:40	DR VERONIKA VICHERKOVÁ CZECH TECHNICAL UNIVERSITY IN PRAGUE *MINING YOUTH HOMES AS A MIRROR OF THE SOCIALIST TRANSFORMATION IN CZECHOSLOVAKIA IN THE EARLY 1950S*	DR AIKATERINI KARADIMA TECHNICAL UNIVERSITY OF CRETE *THE HIDDEN ARCHITECTURE OF EXTRACTIVE LANDSCAPES IN POST-WAR GREECE: THE SPATIAL ORGANISATION OF LABOUR AND HOUSING IN PPC LIGNITE MINING AREAS*
11:55	Q&A	Q&A



photograph: author's own

ENGINE OF MODERNITY:

COAL AS AN ECOLOGICAL DRIVER OF NEW LIVING IN POST-WAR EUROPE

Housing, Post-war Europe, Coal

NIALL PATRICK WALSH University College Dublin

Niall Patrick Walsh is an architect, writer, and researcher based in Belfast. He holds a Master of Architecture (Distinction) from Queen's University Belfast and is a licensed architect in both the UK and the Republic of Ireland (ARB / RIAI). Niall has worked in architectural practice at firms including BDP in Dublin and Architecture Initiative in London, contributing to public, commercial, and educational design projects.

Alongside practice, he has developed a significant profile as an architectural journalist. Between 2017 and 2020, he was Senior Editor at ArchDaily, producing over 1,000 articles exploring architecture's past, present, and future. He is currently the Features Editor at Archinect, where he leads in-depth editorial series on design, technology, sustainability, and the evolving profession. He is a PhD researcher for ACME.

After the conclusion of the Second World War, European economies undertook vast programs of reconstruction and modernisation. As the dominant energy source of the time, coal mining was considered by governments across Europe as a critical industry to reactivate and expand in pursuit of rebuilding the continent. The need to house coal miners therefore came to the fore of the continent's architectural priorities.

In the United Kingdom, Germany, and Poland, coal miners' settlements became vehicles for new approaches to architecture and urbanism. Three of the United Kingdom's 14 first-designed New Towns were sited to cater to nearby coal mines, including the New Town of Peterlee, imagined as a 'miners' citadel'. Coal miners' housing settlements in Germany's Ruhr region were among the country's first large-scale housing projects after the Second World War, while the USSR sought to shape the Polish city of Katowice as a 'miners' capital' with coal at its center.

The particularities of coal intersected with miners' housing through multiple lenses. Miners' housing was political, reflecting the ideologies, aspirations, and fears of the capitalist, socialist, or communist systems they sat within. Miners' housing was cultural, caught between the pre-war image of the manual labourer synergistic to the ground, and the post-war image of the professional machinist. Miners' housing was technological, exploiting new approaches to construction methods, structural systems, and material science. Finally, miners' housing was geological, informed architecturally by previous, current, or planned mining activity underground.

At a time of political fracturing across Europe, coal still transcended national boundaries, steering the emergence of a pan-European architectural coalscape. As national boundaries were transcended, so too were architectural scales; from expansion joints in Poland to failed masterplans in the United Kingdom. This paper explores the emergence of this pan-European coalscape, tracing the hitherto under-explored history of how the coalscape so heavily informed the course of urbanism in the UK and Europe at a time of radical expansion in housing and settlement.



State Labour Reserve Centre Třinec-Kanada, Czechoslovakia (Silesia), approx. 1952–1958, author unknown. Provincial Archives in Opava, Collection of photographic and audiovisual material of the Třinec Ironworks, state enterprise, Třinec, inv. no. 270

MINING YOUTH HOMES AS A MIRROR: THE SOCIALIST TRANSFORMATION IN CZECHOSLOVAKIA IN THE EARLY 1950S

Youth Miners, Socialist Industry, Czechoslovakia

DR VERONIKA VICHERKOVÁ Czech Technical University, Prague

As an art and architecture historian, she specializes in 20th-century design with a focus on the postwar era. Her primary research explores the preservation of modern heritage and the integration of new construction within historic environments. She is particularly interested in the intersection of fine arts and architecture, as well as the roles of ecology, sustainability, and reuse in design.

She is based at the Faculty of Architecture of the Czech Technical University in Prague, where she is also a member of the Working Group for Postwar Architecture. As part of a research team, she currently examines the process and impacts of the collectivization of architectural practice in 1950s Czechoslovakia, specifically through the unified state-led design organization Stavoprojekt. Additionally, she explores the evolution of building materials and occasionally engages in the documentation and passportization of postwar interiors.

During the 1950s, coal mining became the absolute priority of the Czechoslovak economy. As a key industrial pillar of the Eastern Bloc, Czechoslovakia was tasked by the Soviet Union to drive the heavy industrialization of Eastern Europe. With coal as the primary domestic energy source, sectors like metallurgy and engineering demanded it in massive quantities, necessitating a total mobilization of the workforce.

The shift to a planned economy triggered a profound societal transformation, solidified by the 1948 Constitution. This document enshrined the “duty to work,” aiming to integrate all citizens-including a massive influx of women-into “socialist prosperity.” A primary focus of social policy became the systematic capture of youth. Through reforms like the Education and Apprenticeship Acts, the state facilitated worker education while effectively deploying students into the labor force as part of their schooling.
A pivotal moment occurred in July 1949 with President Klement Gottwald’s speech, which launched the Lány Campaign (Lánská akce). This massive recruitment drive for young miners offered total social security and boarding school care. To accommodate this, the state design organization, Stavoprojekt, was tasked with creating a new architectural typology: the miners’ apprentice home.

These designs were strictly regulated by the “controlled construction” system, which dictated precise calculations for floor area, material consumption, and labor intensity. However, within a single Five-Year Plan, these architectural types underwent a rapid and significant transformation. This evolution mirrored the hardening of the political regime, the increasing ideologization of the mining profession, and the need to address social instability within the dormitories.

The architectural legacy of 1950s mining culture is vast, encompassing entire new towns, transformed landscapes, and specialized building types. Ultimately, the evolution of youth-miners’ homes provides a focused lens into the dynamic- and often volatile-transformation of social and political conditions during Czechoslovakia’s first Five-Year Plan.



Abb. 123. Kolonie der Dubenskogrube. Arbeitergärten.

Dubenskogrube colony, in Seidl, K. (1913) Das Arbeiterwohnungswesen in der oberschlesischen Montanindustrie (Workers' housing in the Upper Silesian mining industry). Katowice: Selbstver. des Oberschlesischen Berg- u. Hüttenmännischen Vereins, P. 113.

ON THE THRESHOLD:

MICROGEOGRAPHIES OF GENDER, COOPERATION AND CONTROL IN EUROPEAN MINERS' HOUSING, 1900-1940

Domesticity, Labour, Typology

ANNA COOKE University College Dublin

Anna Cooke is an architect, educator and PhD researcher at University College Dublin. Since graduating in architecture at University College Dublin, she has gained a wide range of experience working with award-winning practices in Ireland and the UK. Having worked with de Blacam and Meagher Architects in Dublin and Mole Architects in Cambridge, Anna spent several years working with Caruso St John Architects in London, where she worked on award-winning cultural projects, including the refurbishment of Tate Britain, the refurbishment and extension of Liverpool Philharmonic Hall and designs for the redevelopment of Stockholm City Library. With Damien Hannigan, she established Hannigan Cooke Architects in 2019, a design practice with a focus on low-carbon construction and the rehabilitation of existing structures. She is currently a PhD researcher for ACME at UCD, investigating how extraction reshaped processes of housing and settlement in modern Europe.

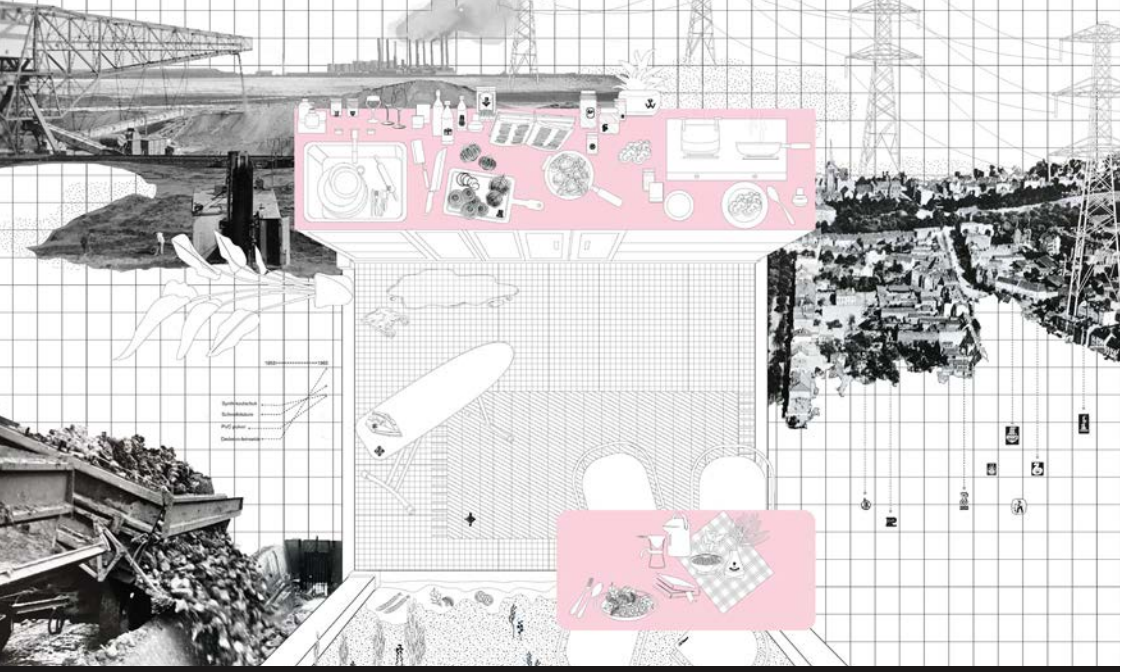
Across European coalfields in the early twentieth century, miners, managers, engineers, clerks, secretaries, housewives, children and domestic servants negotiated physical landscapes of production and pollution, and social landscapes of hierarchy and control. This paper investigates these conditions as they emerged at the boundaries of the domestic, between public and private worlds.

The first threshold: the early decades of the twentieth century hold great significance in housing histories; demands by the labour movement and reforming ideologies in hygiene and moral rectitude transformed housing from a private concern to a public one. This critical period, before and after the First World War, is the first threshold, where new and old forms of housing and urban planning attempted to respond to scientific, technological and social change.

The second threshold: from temporal to social and political, the second threshold is a series of tensions in the collective life of the coal field, balancing corporate imperatives against workers' self-determination, paternalistic control against grassroots cooperation, discipline against leisure and contamination against cleanliness. With responsibility for the domestic, women were the primary negotiators of these tensions as they related to housing. Miners' wives, boarding house managers and domestic servants complied with, enforced and subverted corporate and social expectations of order.

The third threshold: finally, to the material, the third threshold is that of the window, the shared entrance hall, the fence defining a garden city plot. Boundaries become hardened, distinct, and spatial. Tracing the movements and routines of household management, microgeographies of the threshold demonstrate how dust, sanitation, pests, laundry, bacteria, and disease were navigated across these sites of surveillance and collective life.

The paper is transnational in scope and examines case studies from the Silesian, Ruhr and Campine coal basins to understand whether instruments of control and spaces of cooperation were comparable across these different contexts. From tenancy agreements and house rules to hierarchical site planning and spatial oversight, this study maps the strategies and tactics at play across the coalscape.



Drawing: authors own

COAL INTIMACIES:
KITCHENS AS A MICROCOSM OF BITTERFELD'S POST-WAR INDUSTRIAL LANDSCAPE

Domestic Architecture, Extractive Landscapes, Coal Modernity

SHAIWANTI GUPTA Independent Researcher

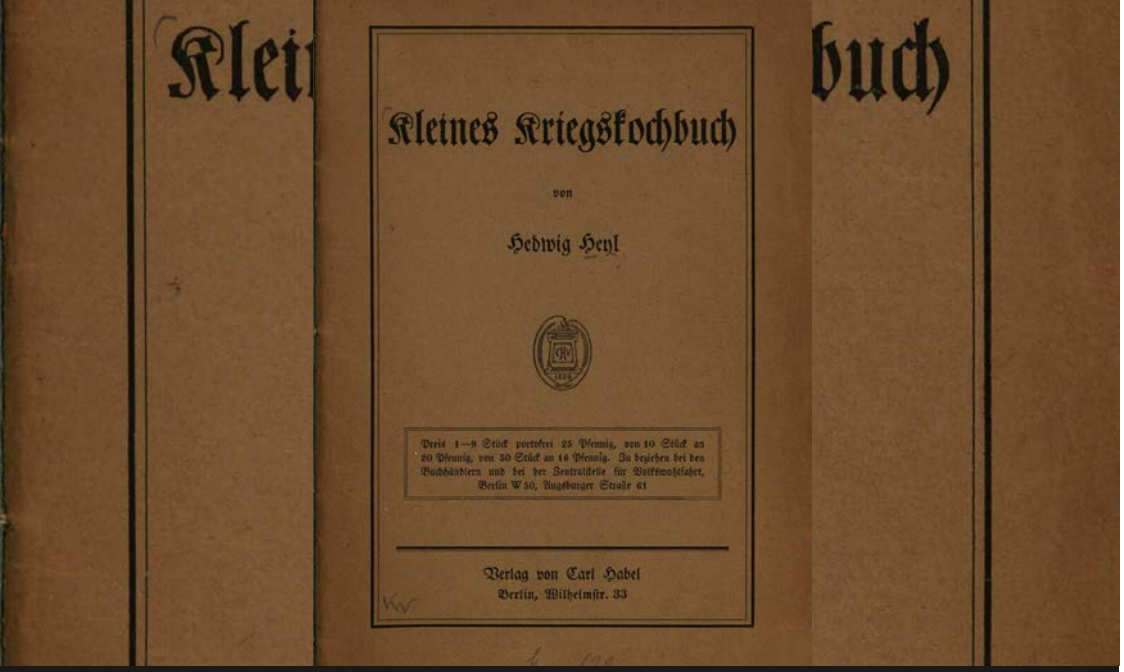
Shaiwanti Gupta is an architect and researcher working across industrial landscapes, domestic space, and environmental histories. She is a graduate of The Berlage Center for Advanced Studies in Architecture and Urban Design at TU Delft. As a fellow at the Bauhaus Dessau Foundation, she contributed to the exhibition and publication Vegetation Under Power (Spector Books and Progetto Grafico) through her research on the coal chemical landscapes of Bitterfeld. She is part of the Bauhaus Study Rooms 2026, creating the energy-focused workshops for Irregular Circularities, within the Real-World Laboratory ZEKIWA Zeitz (RZZ). Her intensive professional experience in the refinery and petrochemical sector, while working with Engineers India Limited, informs her academic inquiry into extractive infrastructures. Her practice combines archival research, exhibition-making, and spatial storytelling, engaging feminist and decolonial readings of architecture through industrial and material histories.

Situated in the post-war industrial landscape of Bitterfeld, Germany, the paper utilises the lens of kitchens as a critical architectural site where coal can be traced in all its material forms and temporalities. Briquettes fuelled the stove for cooking; plastics and products synthesised in Bitterfeld's coal-powered industries filled the shelves as amenities of the modern kitchen; but also, contamination from the same industrial processes entered the home-cooked meal through polluted soil and vegetation. Kitchens thus become a representative microcosm of the industrial landscape around, embedded in the very spaces of care and nourishment. The paper positions coal modernity as an intimate domestic condition rather than a distant industrial force.

Shaped by lignite mining and coal-fired power, Bitterfeld developed into a highly mechanized industrial region producing thousands of synthetic goods that transformed domestic life. The modern kitchen became compact and efficient, aligned with industrial rhythms and often framed through narratives of emancipation. Yet this transformation was inseparable from its environmental consequences: agricultural lands and home-grown produce were rendered toxic. Oral histories of the residents reveal how contamination was concealed despite its persistence in everyday life. Domestic space was thus entangled in both the productive and destructive capacities of industrial modernity.

The division of Germany produced two divergent domestic environments from a shared extractive base. Kitchens became a site where Cold War ideologies and coal-based modernization became architecturally legible. While Western publications cultivated the ideal housewife, in the East, cookbooks such as Kochen (1979) framed meals around the dietary needs of working women. In Bitterfeld, women occupied both industrial and domestic roles: employed in facilities such as the Agfa Filmfabrik and Kraftwerk Zschornewitz, while simultaneously navigating the conditions of a contaminated domestic environment. To sustain this dual position, institutional infrastructures including kindergartens, labour canteens, and collectives, were financed and supported by the industry. Within this context, domestic practices of care were inseparable from industrial systems.

Building on research developed for the exhibition Vegetation Under Power at Bauhaus Dessau Foundation, the paper utilizes archival research and oral narratives as a methodology. 'Coal Intimacies' situates kitchens not as a closed system, but as an interface through which industrial, social, and ecological systems of coal were internalized within everyday life.



Book cover of Hedwig Heyl: Kleines Kriegskochbuch [Little Wartime Cookery Book], Berlin: Carl Habel 1914

HOME COMFORTS:

WARTIME SCARCITY AND THE MATERIALITY OF ENERGY, GERMANY 1914–1918

Comfort, Wartime scarcity, Households

DR FABIAN ZIMMER Technische Universität Berlin

Fabian Zimmer works at the intersection of environmental history, the history of technology and the history of knowledge. He is currently a postdoctoral researcher at Technische Universität Berlin, where he researches the history of 19th-century domestic comfort. Recent publications include a special issue on "Histories of Technology Acceptance in the 20th Century" (NTM. Journal of the History of Science, Technology and Medicine 2/2026) and the book "Hydroelektrische Projektionen" (2022), examining the role of film and other PR media in public conflicts about 20th-century hydropower infrastructures.

In the face of the climate crisis, architects have to learn how to "design for discomfort", as architectural historian Daniel Barber (2019) has recently put it. In addition to developing new regulations and building techniques, this requires rethinking the values we associate with comfort and the place it has within our culture.

The proposed paper aims to contribute to this endeavor by examining historical everyday practices and expectations of comfort. It focuses on a place and period when normally tacit knowledge and practices related to comfort were questioned as previously functioning systems of supply broke down: examining diaries, letters and wartime cookery books, this paper studies how wartime scarcity in Germany during the First World War was experienced and coped with on the household level. While affluent households in Germany had become accustomed to relying on a steady supply of coal for their domestic thermal comfort in the decades preceding the war, wartime scarcity and harsh winters now threw these dependencies and expectations into sharp relief. Homeowners and tenants renegotiated their expectations of comfort and tried to practically maintain a minimal level of comfort – for instance through rearranging furniture and adapting everyday routines to an altered indoor geography of warmth dictated by fuel scarcity.

In examining such everyday reflections and practices, this paper spells out a remarkable dialectic regarding the materiality of energy: as historians have shown, World War I constituted an important turning point in the development of an abstract, immaterialized notion of energy, which was underpinned by managerial ideals of flow, efficiency and control (for instance developed in the German Kriegsrohstoffabteilung). On the household level, by contrast, wartime scarcity made energy felt as a fragile and deeply material thing, the exact opposite of the frictionless flow which is still built into today's ideas and infrastructures of comfort.



Reference: oryktosploutos.net/2014/12/46/

HIDDEN ARCHITECTURE OF EXTRACTIVE LANDSCAPES IN POST-WAR GREECE:

THE SPATIAL ORGANISATION OF LABOUR AND HOUSING IN PPC LIGNITE MINING AREAS

Extractive landscapes, labour organisation, workers' settlements

DR AIKATERINI KARADIMA Technical University of Crete

Dr. Aikaterini Karadima is an architect, researcher, and academic specialising in architectural history and theory. She earned her PhD in Architecture from the Technical University of Crete and an MA with distinction in Architecture and Historic Urban Environments from the Bartlett School of Architecture, University College London (UCL). Professionally active since 2015, she has collaborated with architectural practices and construction firms in Greece and the UK. From the winter semester of 2025–2026, she serves as an appointed lecturer at the School of Architecture of the Technical University of Crete, teaching History and Theory of Architecture and the City. Her research explores twentieth-century spatial transformations in relation to social, political, and economic processes, with a focus on architectural and urban heritage management. Her work has received international recognition through scholarly publications, exhibitions, and research projects, and she contributes regularly to conferences and academic discussions on architectural heritage and urban development.

European mining histories have traditionally emphasized industrial infrastructure-mineshafts, processing plants, and extraction systems-while dispersed residential environments enabling extraction socially and spatially have received little attention. In post-war Greece, lignite-based energy production generated extensive networks of settlements structuring labour, mobility, and everyday life in direct relation to production sites.

This paper examines these networks through the case of settlements developed by the Public Power Corporation (PPC). Housing is considered not as a secondary consequence of industrial expansion, but as a core element in the spatial organisation of extraction. Located near mines and power stations and connected by dedicated infrastructure, these settlements enabled continuous coordination of shift-based labour and maintained a geographically dispersed workforce.

From the 1950s onward, lignite extraction operated as a continuous industrial process, requiring workers to remain embedded within the production landscape. Housing provision facilitated internal migration, stabilized labour, and reproduced conditions necessary for uninterrupted energy generation. Settlement layouts and standardized dwelling types, together with basic community facilities and services, structured daily routines and social life around extraction.

The study examines selected settlements by looking at their location within the mining landscape, planning strategies, and housing types, highlighting common patterns of dispersion, standardization, and managed proximity. These residential environments are approached as functional components of extraction rather than as instances of welfare housing.
Today, these landscapes bear the imprint of decades of extraction, illustrating how their layered histories, economic roles, and ecological transformations can be understood, even as they are often perceived as marginal or empty. By situating the Greek case within the wider geography of extractive regions, including Southern European contexts largely absent from dominant historiographies, the paper foregrounds domestic and social infrastructures as central to the organisation of labour and territory, while highlighting conceptual and practical considerations for examining post-industrial landscapes in the post-lignite era.

BLOCK THREE

LABOUR + GOVERNANCE

—

EXTRACTION + REPAIR

	ROOM A **LABOUR + GOVERNANCE** *CHAIR - DR REBECCA JANE MCCONNELL*	*ROOM B* **EXTRACTION + REPAIR** *CHAIR - ANNA COOKE*
13:40	DR EMMA CAMPBELL UNIVERSITY COLLEGE DUBLIN *ARCHITECTURES OF OCCUPATIONAL LUNG DISEASE: THE PNEUMOCONIOSIS RESEARCH UNIT, LLANDOUGH, AS A POST-WAR EUROPEAN CASE STUDY*	DR JOERG REKITTKE UNIVERSITY COLLEGE DUBLIN *EPHEMERAL GIGANTISM: REVERSIBLE STRUCTURES OF BROWN COAL OPENCAST*
13:55	JACOPO ZANI ETH ZURICH *UNRULY MOVEMENTS: COAL, MECHANIZATION AND WORKERS´ MIGRATIONS IN THE CAMPINE MINING SITES, BELGIUM*	PROFESSOR LUCA CSEPELY-KNORR UNIVERSITY OF LIVERPOOL *THE ECONOMIC USE OF INDUSTRIAL WASTE, CONSCIOUSLY SCULPTURED: COAL, POWER, ASH AND ENVIRONMENT*
14:10	DR ANDREW SEATON UNIVERSITY OF MANCHESTER *RECLAIMING LAND FOR THE FUTURE: COAL, ENVIRONMENTALISM, AND POPULATION IN POST-1945 BRITAIN*	DR PIOTR LANGER CRACOW UNIVERSITY OF TECHNOLOGY *POLISH COAL MINING THROUGH THE EYES OF AN ARCHITECT AND URBAN PLANNER - REFLECTIONS ON THE CURRENT STATE IN THE CONTEXT OF WESTERN EUROPEAN EXPERIENCES*
14:25	Q&A	Q&A



Michael Edmonds' mural, Llandough Hospital

ARCHITECTURES OF OCCUPATIONAL LUNG DISEASE: THE PNEUMOCONIOSIS RESEARCH UNIT, LLANDOUGH, AS A POST-WAR EUROPEAN CASE STUDY

occupational Medicine, coal dust, healthcare Architecture

DR EMMA CAMPBELL University College Dublin

Dr Emma Campbell is a Research Scientist and Design Studio Tutor in Architecture at University College Dublin, previously a Research Fellow and PhD Researcher at Queen's University Belfast. Her research applies design and systems thinking to climate and ecological challenges, exploring resource extraction and regeneration, the food-energy-water nexus, circular design, nature-based solutions, and one health. Principles of inclusivity and co-creation are central to her practice. Her work spans journal publications, a Design Museum exhibition, and a TEDx talk. Emma has been co-investigator on two major UKRI-funded projects (£5.3M and £6.6M) and currently leads an ACME work package examining coal's medical and hygiene architectures.

In 1831, Scottish physician Dr James Crauford carried out an autopsy of the diseased coal miner John Hogg. The autopsy revealed a pair of blackened lungs, stained by decades of coal dust, and led to the formal discovery of pneumoconiosis. A century later, mechanisation drove a rapid rise in coal dust exposure and brought the disease to a crisis point among British mineworkers. In 1942, during World War II, a Medical Research Council (MRC) report, based on research conducted in South Wales, proved that coal dust itself — not only silica rock dust — caused severe lung disease. The following year, the British government legally recognised pneumoconiosis as an occupational disease, entitling miners to compensation under the Coalmining Industry (Pneumoconiosis) Compensation Scheme. What was still needed was research, and the spaces to carry it out, to determine how the disease should be diagnosed, treated, and prevented.

By 1945, the MRC set up the Pneumoconiosis Research Unit (PRU) in Cardiff – first from a temporary base at the docks, then on a ward at Llandough Hospital, before a dedicated building attached to the hospital was opened in 1949. Drawing on archival research, this paper offers the first architectural analysis of the PRU and its efforts to diagnose and treat patients as well as develop approaches to prevent future cases. Vulnerability to dust disease was not confined to Britain. As one of many occupational lung institutes to emerge across European coalfields in this period, the PRU offers a lens onto a broader story: one of collective action, knowledge exchange, and standardisation in the fight against pneumoconiosis.



Belgian Federal Science Policy Office (BELSPO) (2022). Science Connection, No. 67, March–May 2022, p. 23.

UNRULY MOVEMENTS:

COAL, MECHANIZATION AND WORKERS' MIGRATIONS IN THE CAMPINE MINING SITES, BELGIUM

Campine Mines, Labour Migration, Mechanization

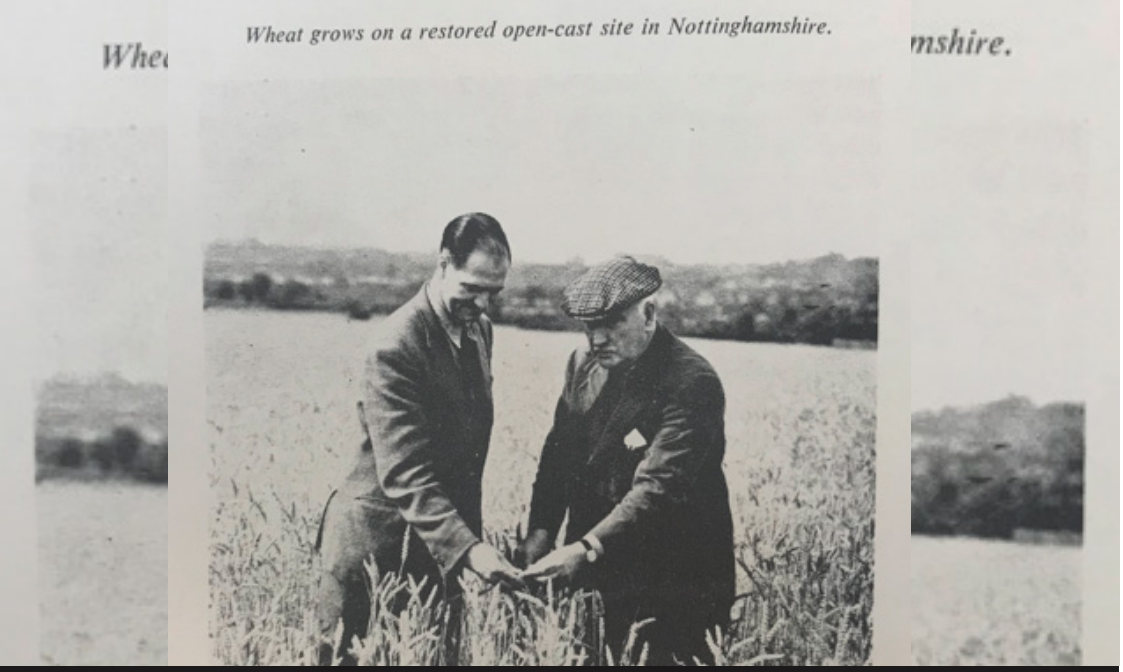
JACOPO ZANI ETH Zurich

Jacopo Zani is a PhD fellow at the Institute of Landscape and Urban Studies (LUS) at ETH Zurich since 2022. His research work investigates the relationship between resource extraction and notions of displacement in architecture, with a focus on post-war coal mining operations in Belgian industrial settlements.

Jacopo Zani completed an MSc in Architecture, Urbanism and Building Science at TU Delft in 2021, and a BSc at Politecnico di Milano in 2018. Before starting his fellowship he worked as an architect in Belgium and Italy. At the LUS he coordinated the 2023 lecture series 'Lus Talks' and is part of the editorial board of the institute's annual publication 'DeLus.' Jacopo is currently a 'Roma Calling' fellow at the Swiss Institute in Rome (2025-2026).

In 1945, Prime Minister Achille Van Acker introduced a set of social and economic measures – known as the 'Battle for Coal' – aimed at reviving coal extraction across Belgium. In the following decade, mining sites in the Campine region were extensively renovated and expanded to accommodate an unprecedented increase in production. Scholars have traditionally interpreted these spatial transformations through the lenses of technical progress and welfare-state ambition, which state and mining companies closely associated with coal extraction. A less studied aspect in the architecture of coal mines, however, concerns the illegal and transgressive movements which accompanied its development, and were dictated by the material properties of coal itself. This paper traces such unruly trajectories in order to illuminate the infrastructures required to sustain coal extraction and management. Coal and its by-products were dusty, unstable, and heterogeneous: as they moved, they disrupted the efficiency of surface installations, destabilized industrial landfills, eluded administrative routines within logistical spaces and mining neighbourhoods, and permeated domestic interiors with dirt and smoke.

By following both prescribed and unruly movements, this paper contextualizes how coal-related infrastructures shaped spatial transformations in the Campine mining sites in two ways. First, drawing on engineers' reports and studies of mining accidents, it argues that the material qualities of coal made mining companies increasingly dependent on mechanized extraction methods. In this sense, coal shaped extraction sites by demanding the operation of ever more complex machinery. Second, based on oral histories and a critical reading of press and police reports, the paper examines the effects of mechanization on mining neighbourhoods and domestic interiors – largely inhabited by Italian migrant workers and their families. It argues that coal extraction reshaped these environments by exposing residents to more unstable living and working conditions, which in turn prompted police surveillance and slum reform initiatives.



Reference: author unknown

RECLAIMING LAND FOR THE FUTURE: COAL, ENVIRONMENTALISM, AND POPULATION IN POST-1945 BRITAIN

Extraction, Remediation, Environmentalism.

DR ANDREW SEATON University of Manchester

Andrew Seaton is a Lecturer in Modern British History at the University of Manchester. His work centres on political economy, social history, health, environment, and welfare. His first book was Our NHS: A History of Britain's Best-Loved Institution (2023), which won the American Historical Association's Forkosch Prize and was shortlisted for the Wolfson Prize. He is currently writing an environmental history of coal in Britain and the world since the late nineteenth century.

This paper discusses the ascent of industrial land reclamation in Britain during the mid-twentieth century through the lens of the National Coal Board (NCB). By the mid-1960s, the NCB was the largest single agent of such projects in the country, clearing longstanding dereliction and the damage from more recent extraction on a large scale.

This paper examines the composition and framing of these initiatives to make three arguments. First, that remediation emerged within an expansive industrial economy, not when it lay in the past. Second, that these initiatives were part of an effort by the nationalised coal industry to defend its reputation from alternative fuels. Third, that the NCB's land reclamation involved associations with environmentalists, showing the links between the fossil fuel industry and this burgeoning political tradition.



Braunkohlebagger, Arcticbear1, 2009

EPHEMERAL GIGANTISM:

REVERSIBLE STRUCTURES OF BROWN COAL OPENCAST *Brown coal opencast, Recultivation, Transient presence*

DR JOERG REKITTKE University College Dublin

Joerg Rekittke is Head of Landscape Architecture at University College Dublin (UCD). He is an Associate Professor in Landscape Design (UCD), Registered Landscape Architect (AKNRW), and a skilled tree nursery gardener. He studied at the TU Berlin and the École Nationale Supérieure du Paysage Versailles (ENSP) and received his doctorate at RWTH Aachen University. Joerg held academic positions at RWTH Aachen University and Wageningen University (WUR) before, as an Associate Professor, he built and directed the Master of Landscape Architecture Programme (MLA) at the National University of Singapore (NUS). Subsequently, he served as Associate Dean of the Landscape Architecture Discipline at the Royal Melbourne Institute of Technology (RMIT University). At the Norwegian University of Life Sciences (NMBU), he worked as a founding professor for the Master's program in Landscape Architecture for Global Sustainability (GLA).

The extraction of lignite represents a paradox of industrial history, characterised by a phenomenon that could be described as ephemeral gigantism. Unlike the hard coal industry, whose core industrial action-underground mining- is largely invisible, lignite is predominantly extracted through open-pit mining. These open-pit mines are distinguished by a level of mechanisation unparalleled in any other sector. The world's largest mining machines, such as the Bagger 288, are used to excavate pits up to 350 meters deep and several kilometres long. This phase of industrial expansion is characterised by its absolute dominance of the landscape and necessitates the relocation of entire villages and the complete removal of the overburden.

Yet this gigantic presence is remarkably transient. While hard coal mining often leaves behind a lasting "post-industrial" legacy of workers' housing estates, shaft towers, factory buildings, spoil heaps, etc., the lignite industry is subject to a cycle of almost complete landscape mending (recultivation). Because the overburden typically consists of unconsolidated sediments (sand, clay, etc.) rather than bedrock, it can be replenished almost exactly as it was mined. Modern reclamation techniques allow for a rapid transition from active, moon-like landscapes to new agricultural land, managed forests, or artificial lakes. Consequently, the physical traces of the colossal machinery and deep open-pit mines often disappear within a few decades of mine closure, leaving behind a well-maintained, natural environment that obscures its violent industrial origins. The architectural legacy of the lignite industry is vanishingly small. Its gigantic machines oftentimes outlive their utilitarian architecture.



Reference: colmog.co.uk/portfolio/gale-common-yorkshire

THE ECONOMIC USE OF INDUSTRIAL WASTE, CONSCIOUSLY SCULPTURED:

COAL, POWER, ASH AND ENVIRONMENT

Environmental amelioration, Landscape architecture, Nature conservation

PROFESSOR LUCA CSEPELY-KNORR University of Liverpool

Professor Luca Csepely-Knorr is a chartered landscape architect and art and architectural historian. She is research chair at the University of Liverpool School of Architecture, where she leads the Landscape || Gender || Environment Research Collective. Luca's research focuses on the transnational histories of landscape and environmental history with a special focus on women's contribution to shaping disciplinary agendas and the evolving social and ecological discourses of the 20th century. She is co-convener of the European Architectural History Network's Women and Gender in Landscape, Architecture and Urban Design Interest Group with Professor Svava Riesto.

This paper presents Gale Common, an artificial ash disposal hill in a 'flat and rather uninteresting' landscape, as a case study to understand the interconnected nature of processing coal: extraction, power production and environmental amelioration. Gale Common is situated within the Yorkshire coalfield, one of the largest and most productive in the United Kingdom. Due to the extractive activities, the area was liable to subsidence and was therefore predicted to become marsh and swamp, losing its agricultural value. Due to the coalfields, the landscape was also affected by the building of large-scale coal-fired power stations. The three post-war stations, Ferrybridge, Eggborough and Drax, have altered the landscape on a local as well as a territorial scale due to their infrastructural networks. But Gale Common was also impacted by the afterlife of coal. In 1962, it was decided that ash slurry, the by-product of coal burning in the stations, would be used to create an artificial hill, to ameliorate the impacts of subsidence. The ash disposal hill was designed in 1962 by eminent landscape architect Brenda Colvin and delivered throughout a period stretching over four decades by her practice Colvin & Moggridge. While originally the hill was supposed to create a 'hill farm' to provide new agricultural land, the long design process saw the principles changing in parallel with the growing environmental movement of the second half of the 20th century: instead of providing for an agricultural economy, the design was changed to become an example of 'nature conservation with agriculture being a maintenance method.'

Lately, Gale Common started to accommodate a new extractive economy. Its new owners propose to extract up to one million tonnes of ash yearly, to be used as a recycled aggregate, supporting sustainable solutions in the building industry. This is something Colvin foresaw in the 1960s, while designing Gale Common: a landscape constantly being affected by the circular processes of coal – extraction, power generation, by-product disposal and new extraction. But simultaneously, Colvin & Moggridge's design succeeded in creating a landscape for biodiversity and environmental amelioration - a hopeful example for landscape and climate futures.



Photograph: author's own

POLISH COAL MINING THROUGH THE EYES OF AN ARCHITECT AND URBAN PLANNER: REFLECTIONS ON THE CURRENT STATE IN THE CONTEXT OF WESTERN EUROPEAN EXPERIENCES

coal mines, revitalisation, post-mining space

DR PIOTR LANGER Cracow University of Technology

Piotr Langer is a faculty member at the Faculty of Architecture, Cracow University of Technology, where he is actively engaged in teaching and research in architecture and spatial design. His work focuses on the relationships between built environments, urban structures, and social dynamics, particularly how architectural form and planning shape the experience and use of space. A central theme of his research is spaces connected to mining activities, including both active extraction areas and post-industrial sites transformed after mining has ceased. He examines how mining shapes urban and rural landscapes, its long-term effects on spatial organisation, and strategies for adapting former industrial territories into functional, cultural, and environmentally sustainable spaces.

For more than a century, Polish coal mining has played a central role in shaping the spatial, social, and economic landscape of many regions, particularly Upper Silesia. From an architectural and urban planning perspective, the sector is not only an industrial activity but also a factor influencing urban form, workers' settlements, transport infrastructure, and the identity of local communities. Historically, mines determined the layout of towns, forming characteristic industrial complexes with associated residential and service areas.

Currently, Polish hard coal mining is undergoing significant transformation due to economic pressures, environmental concerns, and European Union climate policies. Poland is unique within the EU as the only country still operating large-scale hard coal extraction. This position presents a dual challenge: maintaining the traditional energy sector while responding to increasing pressure for energy transition and gradual mine closures.

A particular focus of interest is the revitalization of post-mining areas. In Poland, these processes are often characterized by excessive commercialization, with retail, office, and residential developments replacing authentic industrial structures. In other cases, neglect leads to the degradation and permanent loss of historic mining sites. By contrast, in Western Europe-such as Germany's Ruhr region, Limburg in Belgium, or Nord-Pas-de-Calais in France-former mining sites have been systematically transformed into cultural, educational, tourist, or public spaces, integrating industrial heritage into urban development.

These experiences indicate that effective transformation of mining regions requires long-term, coordinated strategies combining urban planning, social, and economic measures. For Poland, this means leveraging the potential of post-industrial architecture, preserving industrial heritage, and creating sustainable revitalization models. Such approaches can safeguard the material and cultural legacy of the mining era while preparing these regions for a post-coal economy, ensuring that urban and social development aligns with contemporary environmental and economic realities.

BLOCK FOUR

KNOWLEDGE + HERITAGE

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MEMORY + AFTERLIVES

	ROOM A	*ROOM B*
	KNOWLEDGE + HERITAGE	**MEMORY + AFTERLIVES**
	CHAIR - NIALL PATRICK WALSH	*CHAIR - ANNA COOKE*
14:55	DR TABASSUM AHMED UNIVERSITY COLLEGE DUBLIN *THE ARCHITECTURE OF COAL RESEARCH IN MODERN EUROPE*	DR IRIS BURGERS VRIJE UNIVERSITEIT AMSTERDAM *CARBON AMNESIA: THE ERASURE OF DUTCH URBAN COAL-GAS INFRASTRUCTURE, 1959-1980*
15:10	DR SILKE HAPS DEUTSCHES BERGBAU-MUSEUM BOCHUM *FROM THE RUHR REGION TO THE WORLD: "THE FUTURE OF PREFABRICATED HOUSE CONSTRUCTION HAS ALREADY BEGUN"*	JOANNA SOKOŁOWSKA UNIVERSITY OF WROCŁAW *POST-SOCIALIST, EXTRACTIVE LANDSCAPES AND ECOLOGICAL IMAGINATION IN CONTEMPORARY ART*
15:25	EWA WOJTOŃ / ŁUCJA ZAWADZKA COAL MINING MUSEUM IN ZABRZE + INTERNATIONAL CULTURAL CENTRE IN KRAKOW *COAL AS A CATALYST FOR TRANSFORMATION: UPPER SILESIA FROM THE 18TH TO THE MID-19TH CENTURY*	JOSEPH OWERS / PROFESSOR TOM JEFFERIES QUEEN'S UNIVERSITY BELFAST *BANAL MONUMENTS: COAL, MEMORY AND EVERYDAY LIFE IN POST-EXTRACTIVE LANDSCAPES*
15:40	Q&A	Q&A



Photograph: author unknown

ENCODING EXTRACTION:

THE ARCHITECTURE OF COAL RESEARCH IN MODERN EUROPE

coal research, industrial architecture, knowledge ecologies

DR TABASSUM AHMED University College Dublin

Tabassum Ahmed works as a Research Scientist and Studio Tutor at the University College Dublin. She teaches across UCD's architecture programmes, contributing to community-engaged design studios and design research studios, Tabassum's research expertise includes urban commons and practices of commoning as spatial, social, and pedagogical processes. Through this she has examined situated forms of knowledge, care practices, and spatial agency which emerge through codesign and co-governance of urban spaces. Through funded research projects, including Commoning Kirklees and Climate Action and Visual Culture, she has investigated experimental modes of architectural and spatial practice that operate between design, everyday use, and community-led governance. She is passionate about exploring embedded and visual research methodologies in architectural research.

On 28th and 29th July, 1977, the Coal Research Establishment (CRE) at Stoke Orchard opened its doors for an open day (NCB, 1977). Visitors walked through its laboratories, toured its pilot plants and learned about coal utilisation operations. It was one of the rare occasions when the gates of such a research institution with technologically advanced facilities, which normally circulated within technical committees and classified government files, were opened to the general public. The CRE was not unique. Comparable institutions in other major European coal-producing countries were developed throughout the twentieth century. These include the Experimental Mine Barbara and the Central Mining Institute at Mikołów and Katowice, Poland; the Westfälische Berggewerkschaftskasse and its successor institutions in Bochum, Germany; and the Institut National de l'Industrie Charbonnière in Liège, Belgium.

Using previously unpublished archival material and spatial analysis, and drawing on Peter Galison's argument that scientific buildings shape the social and epistemic order of the sciences practised within them (1999), this paper reads the built environment of coal research institutions – until now almost entirely overlooked within architectural history – as a social text, examining its siting, spatial expansion and design strategies as material arguments about the relationship between coal extraction and its scientific organisation.

With a focus on the CRE at Stoke Orchard but reaching across and forming comparisons with other key European sites, the paper traces spatial typologies and design strategies for organising and developing the industry, including the competitive demands of a shifting energy economy, a drive for cleaner and more efficient fuels, management of industrial hazard and public legibility. It also reveals a transnational network in which researchers moved between institutions and convened through publications and conferences - exchanging methods, materials and ideas across national programmes. What emerges is an unacknowledged ecology of industrial knowledge production with nationally distinct nodes in various political and international contexts (including the development of the European Coal and Steel Community (ECSC)) that are connected by the people, practices and knowledge that moved through it. As built environments, they were simultaneously functional research infrastructures and political projects embedded in architecture, mediating industrial policy, environmental regulation, and domestic culture.



Source: cover of illustrated brochure, around 1965/66 (privately owned, Silke Haps)

FROM THE RUHR REGION TO THE WORLD:

"THE FUTURE OF PREFABRICATED HOUSE CONSTRUCTION HAS ALREADY BEGUN"

Steel and Coal Industry, Architecture, Construction History

DR SILKE HAPS Montanhistorisches Dokumentationszentrum, Deutsches Bergbau-Museum Bochum

Silke Haps (born 1976) studied architecture at the former University of Dortmund, where she also obtained her doctorate ('Industriebetriebe der Baukunst – Generalunternehmer des frühen 20. Jahrhunderts. Die Firma Boswau & Knauer', https://eldorado.tu-dortmund.de/handle/2003/33887). From 2006 to 2008, she was employed at ETH Zurich, and from 2009 to 2020, she was a research assistant at the Technical University of Dortmund. She worked as a building archaeologist on projects for the German Archaeological Institute, Rome Department, and since 2021, she has been working on research projects at the Montanhistorisches Dokumentationszentrum, Deutsches Bergbau-Museum Bochum, which are embedded in the DFG Priority Programme 2255 'Construction as cultural heritage – Principles for engineering-based and interlinked conservation strategies for the built heritage of the high modern era'. Her focus is on considering practical influences on the construction process, questions of the history of disciplines, the history of knowledge and science in the building industry.

Based in the Ruhr area, the steel and mining company Hoesch played an active role in the urban regeneration of post-war West Germany. From the mid-1950s onwards, articles in the company's magazine reflected the general assumption that technological advances would improve living conditions. Titles ranged from 'Black Future [referring to coal] Full of Rays of Hope' to 'Better Living – Happier Life'. Concurrently, Hoesch began to diversify its product range due to its location in the eastern Ruhr area, where poor access to major waterways hindered the transportation of increasingly necessary foreign ore and coal. Products included plastic-coated steel, named 'Platal'. 'Platal' was originally made with polyvinyl chloride (PVC) produced by Chemische Werke Hüls, a company that was also looking for new markets. 'Platal' was used to manufacture consumer goods and building components intended for sale to end consumers. To develop prefabricated houses, Hoesch collaborated with companies, engineers, and architects experienced in system construction. Around 1965, Hoesch began collaborating with DuPont, using polyvinyl fluoride (PVF) sheets ('Tedlar') to plate the steel. Just as with the Krupp company, prefabricated house construction at Hoesch ended during the recession of the mid-1960s. From then on, 'Platal' components were used primarily in office and commercial buildings; however, the further-developed materials and components were marketed internationally and are still produced today.

Focusing solely on the brief history of prefabricated houses and their established narrative as a progressive development fails to tell the full story. Instead, it obscures subsequent developments made possible by this, which continue to influence our built environment to this day. Key players in this development - the steel, coal, and chemical industries - were often overlooked. Understanding the composition of materials and construction methods is essential not only for handling these structures, but also for grasping the interconnectedness of the construction industry in recent decades.



Coal Mining Museum in Zabrze

COAL AS A CATALYST FOR TRANSFORMATION: UPPER SILESIA FROM THE 18TH TO THE MID-19TH CENTURY

Role of coal, Mining culture, Transformation

EWA WOJTOŃ / ŁUCJA ZAWADZKA Coal Mining Museum, Zabrze & International Cultural Centre in Krakow

Ewa Wojtoń is a historian, curator and cultural heritage specialist working with the Coal Mining Museum in Zabrze and the International Cultural Centre in Kraków. Her work focuses on the management, research and protection of tangible and intangible heritage. She has coordinated major international and UNESCO-related projects, including the World Heritage Young Professionals Forum. In Zabrze, she supports work towards UNESCO inscription of the city's mining complexes and coordinates initiatives connected to mining traditions, including Barbórka and miners' brass bands.

Łucja Zawadzka has over 20 years' experience working with European funding programmes focused on industrial heritage. She is Deputy Director for Development at the Coal Mining Museum in Zabrze and has served on the board of ERIH since 2024. She played a central role in the revitalisation of the Guido Mine and Queen Louise Adit, transforming 10 kilometres of historic underground workings into one of Europe's largest post-industrial heritage complexes. She also led a pioneering project to digitise every coal mine in the Silesia region, the first initiative of its kind in Europe.

This paper examines the pivotal role of coal as the structural foundation of Upper Silesia, which emerged as the most significant center of continental coal mining between the late 18th and mid-19th centuries. Beyond its economic function, coal acted as a catalyst for the region's legal, social, and cultural systems. Central to this development was the Prussian government's ambitious industrial strategy, exemplified by the construction of the Main Key Hereditary Adit (1799–1863).

Spanning over 14 kilometers, this engineering marvel served not only as a critical drainage system for the Queen Louise and King mines but also as a sophisticated logistical artery. By envisioning a connection between the Vistula and Oder basins, Prussian engineers sought to integrate Silesian coal into broader European markets, predating the widespread use of steam power. This paper argues that such large-scale projects established the region's geopolitical importance and provided the industrial base for Prussian military expansion.

Finally, the study links this historical legacy to the contemporary transformation of Upper Silesia. Today, the Coal Mining Museum in Zabrze-preserving over 10 km of post-mining infrastructure-serves as a vital center for heritage tourism and the preservation of a unique mining culture for future generations.



Johan Conrad Greive Jr., Westergasfabriek, 1885. © Stadsarchief Amsterdam.

CARBON AMNESIA:
THE ERASURE OF DUTCH URBAN COAL-GAS INFRASTRUCTURE, 1959-1980

Carbon amnesia, Coalscape, Gasworks

DR. IRIS BURGERS Vrije Universiteit Amsterdam

Dr. Iris Burgers (i.s.burgers@vu.nl) is assistant professor of architectural history at Vrije Universiteit Amsterdam. Her interdisciplinary research intersects architectural history, cultural history, and visual culture. She received her PhD in 2021 with the dissertation "Imagination, Visualization and Architecture: Amsterdam Airport Schiphol from 1919 until 2006", which examined the interplay between architectural imaginaries, visual media, and architectural development, using Amsterdam Airport Schiphol as a case study. In her current project, The Architecture of Gas: The Spatial and Cultural Implications of Gas as an Energy Source in the Netherlands (1810–2023), she investigates the history of gas in the Netherlands through the lens of architectural and cultural history. Her most recent publication is Schwake, Gabriel and Iris Burgers. 2025. "Towards a Spatial History of Debt: Planning and the Production of Value in Amsterdam 1870–2010." Planning Perspectives 40 (5): 1155–84. https://doi.org/10.1080/02665433.2025.2504609

The 1959 discovery of one of the world's largest natural gas fields in the Netherlands is often characterized as an economic miracle. Yet this "miracle" also set in motion a large-scale architectural erasure: the dismantling of a century-old coalscape. Moreover, it provided a political impetus for what this paper terms "carbon amnesia", a state-organized forgetting of the nation's coal-based energy past. Following 1959, the Dutch government approved a national transition away from coal, closing the state coal mines by 1974 and dismantling the urban coal-gas industry. While existing scholarship has largely focused on the closure of the mines and its socio-economic consequences, almost no attention has been paid to the disappearance of Dutch urban coal-gas infrastructure.

From the nineteenth century, the "architecture of coal" left a significant imprint on European cities through gasworks. In the Netherlands, these factories became part of a public energy infrastructure integrated into the urban fabric. Local gasworks provided cities with employment and gas for heating and lighting. After over a century of continuous service, these gasworks were declared obsolete from 1965 onwards and dismantled within a relatively short time.

I argue that the speed and scale of the Dutch energy transition were aimed at fostering this "carbon amnesia", in which the material and spatial legacy of gasworks was rapidly erased from both the built environment and collective memory. Drawing on government archives, municipal planning documents, and case studies of urban gasworks, this paper examines the political decision-making and spatial consequences of dismantling coal-gas infrastructure between 1959 and 1980. It shows how material energy histories reshape not only economies but also cultural memory and urban form, even in their erasure.



Photograph: author's own

POST-SOCIALIST COALSCAPES

AND ENERGY METAMORPHOSES IN CONTEMPORARY ART

Extractivism, Metabolism, Geohistory

JOANNA SOKOŁOWSKA University of Wrocław

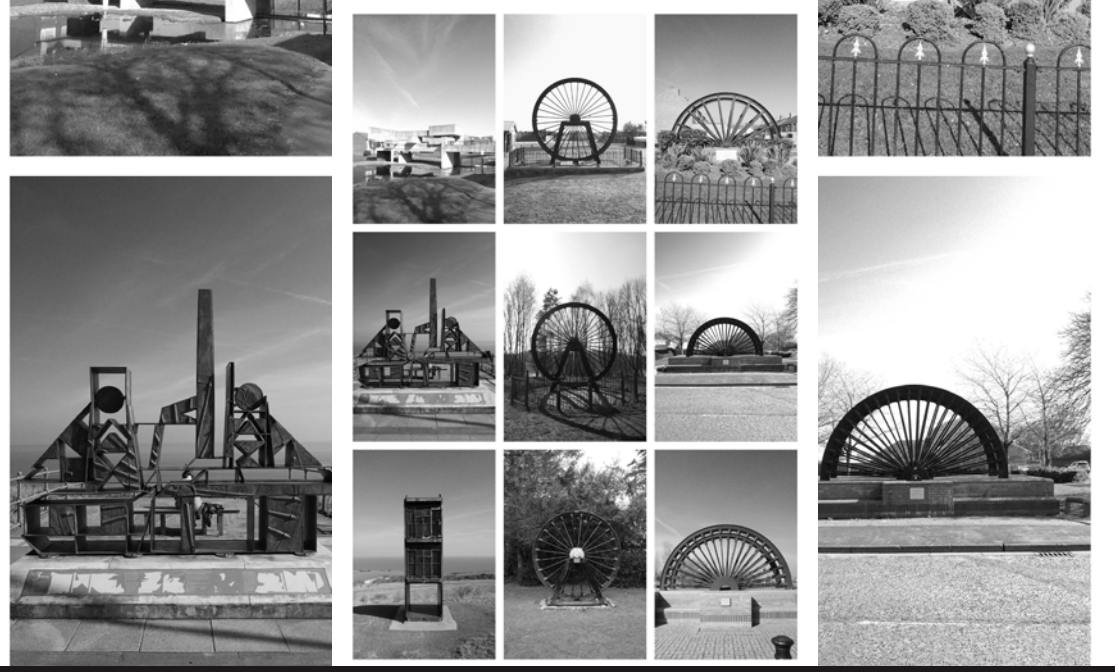
Curator, art historian and PhD candidate in Art History at the University of Wrocław. She teaches at the Academy of Fine Arts in Wrocław. Her research focuses on energetic transformations as reflected in and envisioned in post-socialist art. She has curated and co-curated numerous exhibitions addressing issues such as post-socialist transformations of urban space, global transformations of labour, feminist emancipations, the contemporary potential of avant-garde utopias, and speculative futures in the face of the planetary ecological crisis. Her major curatorial projects include Renewal/Odnowa. Biennale Zielona Góra 2022 (with Marta Gendera and Bartek Lis); Pangea United (Muzeum Sztuki, Łódź 2019), For beyond that horizon lies another horizon, (Edith-Ruß-Haus für Medienkunst, Oldenburg, 2017) Exercises in Autonomy: Tamás Kaszás featuring Anikó Loránt (ex-artists' collective) (Muzeum Sztuki, Łódź 2016); All Men Become Sisters (Muzeum Sztuki, 2016) Workers Leaving the Workplace (Muzeum Sztuki, 2011), Another City, Another Life (Zachęta Narodowa Galeria Sztuki, Warsaw, 2008).

This paper examines the metamorphoses of coal-based energy systems under socialism and post-socialism as articulated in contemporary art in Central and Eastern Europe. To conceptualise the role of art within these transformations, I adapt the notion of energy metamorphosis proposed by anthropologist Gretchen Bakke. I use the term to describe a profound shift in how energy is imagined and understood: its histories, social functions, ecological implications, and the systems that organise its circulation. Whereas discourses of energy transition or transformation may remain focused on replacing one energy source with another within essentially unchanged political and epistemological frameworks, energy metamorphosis implies a more fundamental reconfiguration of energy imaginaries.

My central argument is that contemporary art can enact such a reconfiguration in the aesthetic realm. Drawing on works by Oto Hudec, Justyna Mędrala, and Diana Lelonek, I analyse artistic strategies that reframe coal and coalscapes beyond their status as extractable resources and beyond dominant narratives of decarbonisation and green transition. These practices reposition coal and fossil energy within an entangled geohistory that critically reassesses both socialist and capitalist narratives of development, progress, and economic growth.

In the works of Hudec, Mędrala, and Lelonek, landscapes transformed and degraded by mining in former Czechoslovakia, the Czech and Slovak Republics, and Poland become critical sites through which extractivism is examined across socialist and capitalist formations. At the same time, these works raise broader questions about the limits of human production within planetary metabolic processes.

Through material, visual, and narrative strategies, the artists rearticulate extractive coalscapes as spaces of more-than-human relations and multiple, entangled temporalities. Fossil matter becomes a relational site in which the deep time of decomposed organic life and geological processes intersects with recent local socio-political histories. In doing so, these practices reconfigure dominant modern conceptions of coal in particular, and energy more broadly, as resources for production, labour, and progress, resituating them within the metabolic processes of the Earth.



Images: author's own

BANAL MONUMENTS:

COAL, MEMORY AND EVERYDAY LIFE IN POST-EXTRACTIVE LANDSCAPES

Banality, Monuments, Extractive Landscapes

JOSEPH OWERS / PROFESSOR TOM JEFFERIES Queen's University Belfast

Joseph Owers is a Master of Architecture student at Queen's University Belfast whose research focuses on the post-industrial condition and architectural legacies of extractive industries. His work examines monuments of the Durham and Northumbrian coalfields and how they communicate industrial memory across generations. His dissertation, The Pit Wheel, explores the legibility of post-extractive monuments through a typological lens, combining site-based analysis and theoretical inquiry.

Professor Tom Jefferies is Professor of Future Cities in the School of Natural and Built Environment at Queen's University Belfast. A prize-winning architect and urban designer, his research explores relationships between culture, space, landscape and technology, with particular interests in contemporary urbanism, sustainability, heritage and architectural typologies. Prior to joining Queen's, he was Head of the Manchester School of Architecture and Birmingham School of Architecture.

This paper examines monumentality within the architectural afterlives of coal mining settlements in the North East of England. These are understood as single-function extractive places, in which life was organised around the industrial production of coal. Extractive monuments emerge here not as isolated commemorative objects, but as residual elements embedded within a broader architectural and spatial system. The paper argues that pit wheel monuments and other commemorative forms do not sustain industrial memory through symbolic prominence but gradually absorb into routine.

Pierre Nora and Paul Connerton's theories of collective memory and habitual practice are drawn upon to reframe the understanding of monuments, viewing monuments as ordinary, decontextualised objects rooted in the spatial history of coal extraction. The study involves a photographic survey of former coalfield settlements in North East England, examining the spatial features of mining monuments. This approach enables a comparative typological analysis of how the placement of these monuments in daily environments influences how people encounter and recognise them.

The study demonstrates how many monuments are encountered incidentally rather than intentionally and spatially marginalised to residual spaces such as roundabouts. Stripped of function, these forms retain embodied recognition for those with lived experience of the mining industry, embodying how coal became a structural force in everyday life. However, for later generations this significance becomes increasingly opaque, with these forms receding into the background of the built environment.

Rather than framing this condition as a failure of memorialisation, the paper positions banality as a distinct architectural and mnemonic mode within the afterlives of coal infrastructure. The persistence of industrial memory depends less on symbolic clarity than on its integration into everyday spatial experience, where architecture operates not as an object of attention but as a continuous, culturally informed presence.

PLENARY PANEL DISCUSSION

17:00 CHAIRED BY PROF GARY A. BOYD

PROFESSOR TOM AVERMAETE
ETH ZURICH
AN EXPERT IN ARCHITECTURE AND THE WELFARE STATE, WITH PARTICULAR KNOWLEDGE OF THE BELGIAN CONTEXT.

PROFESSOR STEFAN BERGER
RUHR UNIVERSITY BOCHUM
A LEADING VOICE IN GERMAN COAL HISTORY AND THE SOCIAL AND CULTURAL HISTORIES OF INDUSTRIAL REGIONS.

PROFESSOR KATHLEEN JAMES-CHAKRABORTY
UNIVERSITY COLLEGE DUBLIN
A LEADING HISTORIAN OF MODERN ARCHITECTURE, WITH PARTICULAR EXPERTISE IN GERMAN MODERNISM, CULTURAL IDENTITY AND THE RELATIONSHIP BETWEEN ARCHITECTURE AND POLITICS.

DR ARIANE MAK
UNIVERSITÉ PARIS CITÉ
WIDELY RECOGNISED FOR HER WORK ON COAL MINING, LABOUR HISTORY, WARTIME PRODUCTION AND THE SOCIAL WORLDS OF MINING COMMUNITIES.

DR DENNIS POHL
TU DELFT
AN EXPERT ON THE RELATIONSHIP BETWEEN ENERGY, POLITICS AND ARCHITECTURE IN THE POST-WAR ERA.

HOLOBIONT EXHIBITION

MASTER OF ARCHITECTURE | UNIVERSITY COLLEGE DUBLIN

HOLOBIONT

DESIGN RESEARCH STUDIO

The South Wales Valleys exemplify a post-extractive condition which is still evolving. Here, coal shaped the valleys as a territorial, architectural and social project, organising its landscape, settlements, welfare infrastructure, workforce and embedded modernity into everyday life. Extraction of coal has ceased, but its socio-spatial impact persists.

Across the 2025-6 year, the Holobiont Design-Research Master's Studio at University College Dublin's Architecture Department used the Welsh Valleys as a vehicle to examine coal as a driver of modernity - one that altered towns, institutions, bodies of knowledge and policy, but also, critically, whose afterlife demands new architectural manifestations.

In unpacking this afterlife, Year II Masters students created a wide ranging of proposals responding to coal's legacy of derelict infrastructure, fragmented communities, and contaminated land – exploring pathways to community activation, repurposed materials and mine water, and networks of mobility, cultivation, and care.

Led by students in Year I, the group also collectively developed an ambitious post-extraction Faniffesto (Welsh for Manifesto), identifying issues and opportunities for the South Wales Valley. Holobiont Volume I is a print and online publication available on Type.ie (scan QR below).

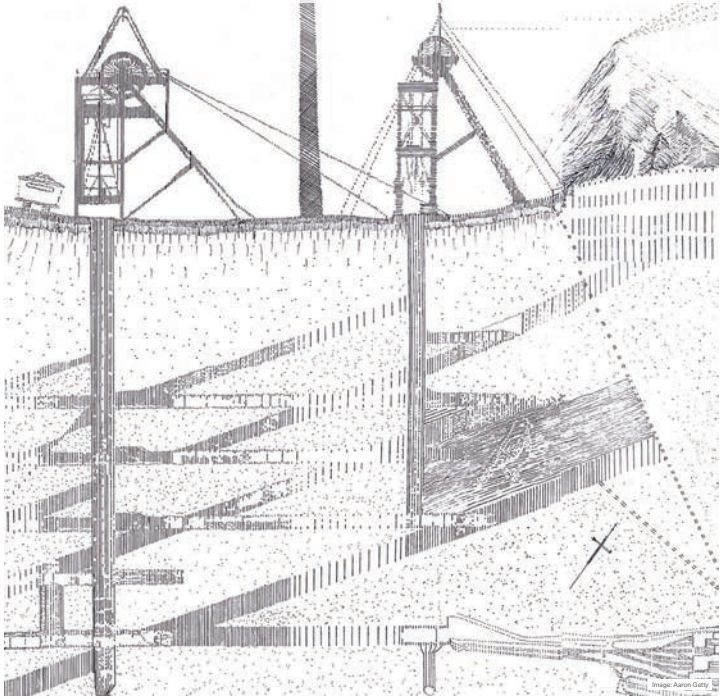


Image: Aaron Getty

COLLABORATORS

Tutors
Gary A. Boyd, Oran O'Siochain, Rebecca Jane McConnell, Tabassum Ahmed, Emma Campbell

Guest critics
Hugh Campbell, Anna Cooke, Cathal Crumley, Seán Cullen, Greg Keeffe, Tara Kennedy, Ray Moore, Aoibheann Ní Mhearain, Rachel O'Grady, Niall Patrick Walsh, Bryan Ward

Year II Masters students
Aidan Byrne, Neil Carder, Ahana Chakrabarty, Aaron Getty, Éilis Keogh, Shannon Lee, Archie MacLean, Brune Michel, Fiyinfoluwa Oluokun, Faith Peter-Olabiyi, Daniel Windle

Year I Masters students
Lucy Cassidy, Svante Jonsell Zetterquist, Hanna Nilfyr, Lucas Ó Broin, Alexandra Sedláková, Kaaviyhakannan (KK) Senthilkumar Vijayalakshmi

ACME
Architecture of Coal in Modern Europe

COALSCAPE.EU

HOLOBIONT BOOK

REMEDIAL REGENERATION IN A ~~POST~~ MINING LANDSCAPE



AARON GETTY

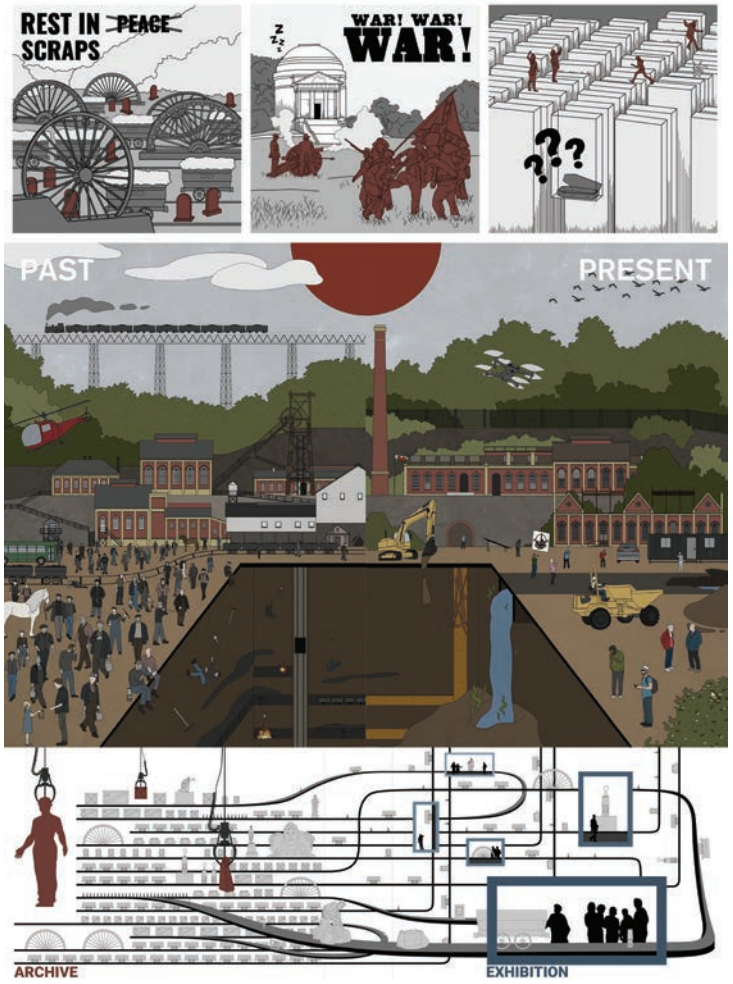
The South Wales Valleys are labelled a post-mining landscape, yet there is nothing "post" about them. The land and the communities structured around it still suffer the consequences of coal extraction. Vast coal tips remain above ground, their contaminated spoil supporting little ecological life. This project examines these sites not as dead ground, but as places where new systems might take root. The soil resists life, yet plants such as hemp and sunflower — with their deep taproots and phytoremediating properties — offer a means to restructure, stabilise, and heal.

From this act of remediation unfolds a wider proposal: a network of new infrastructure that meets the urgent demand for renewable construction resources, while revitalising communities shaped and then abandoned by coal. Once among the richest regions in the world, the valleys now face depopulation, decay, and the slow unravelling of local life. This project imagines a different trajectory — one in which the crop becomes the catalyst for a new economy.

This thesis proposes a new-age infrastructure from which architecture can emerge: a system designed to regenerate landscapes scarred by extraction anywhere in the world. At its core lies a single conviction — that the cost of doing nothing is greater than the cost of intervention.

Image above: A planometric system of hemp and sunflower production with mine water heating factories and nearby housing

FUTURE MEMORIALISATION



SHANNON LEE

Communities that have experienced trauma often memorialise events or individuals as a way of coming to terms with the past. The post-industrial mining towns of the South Wales Valleys illustrate this, continuing to erect memorials to coal mines and miners. Similar pressures are seen in museum collections across Wales and the UK, which are expanding at an unsustainable rate, overwhelming storage and creating management challenges.

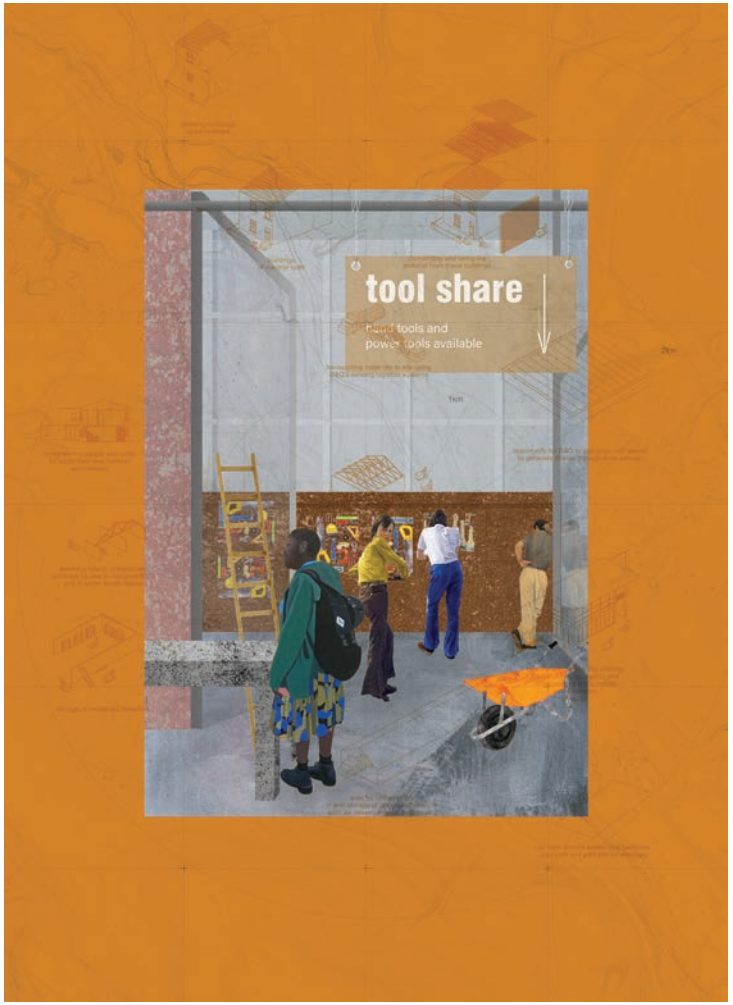
To address these issues, this project proposes a new type of museum system using former mining infrastructure to store and manage surplus artefacts and memorials.

Underground storage would allow objects to be autonomously moved to the surface for temporary public display in a rotating exhibition. This approach enables forgotten artefacts to re-enter public view without being permanently lost, ensuring both preservation and ongoing engagement with local and national heritage.

The method of working was research-based, revolving around identifying a system that could remedy issues of memory in the South Wales Valleys. This resulted in the design of a museum archive system. To represent and communicate these ideas, the project relied on maps, research data, illustrative storyboards, diagrams, marketing materials, and architectural drawings. These were made by hand or through CAD work, drawing on personal and investigative research, which has been cited throughout.

Image above: Issues with memorials and an archival strategy for coal memorabilia

REPAIRING SOUTH WALES



FIYINFOLOWA OLUOKUN

How does one reconcile the irony of urban decay in deprived communities alongside a booming home improvement industry? Potholes offer one example: decay occurs regardless of economic standing, but is far more sprawling and infrastructural in less affluent areas.

Tin Tabernacles — steel 'flat pack' churches built by Irish migrant miners — offer a historical precedent: once numerous enough to earn Wales the title 'Land of Tin Tabernacles', only six remain in use today. Martin Pawley's *Terminal Architecture* argues that mass production is accepted in consumer products but resisted in the built environment.

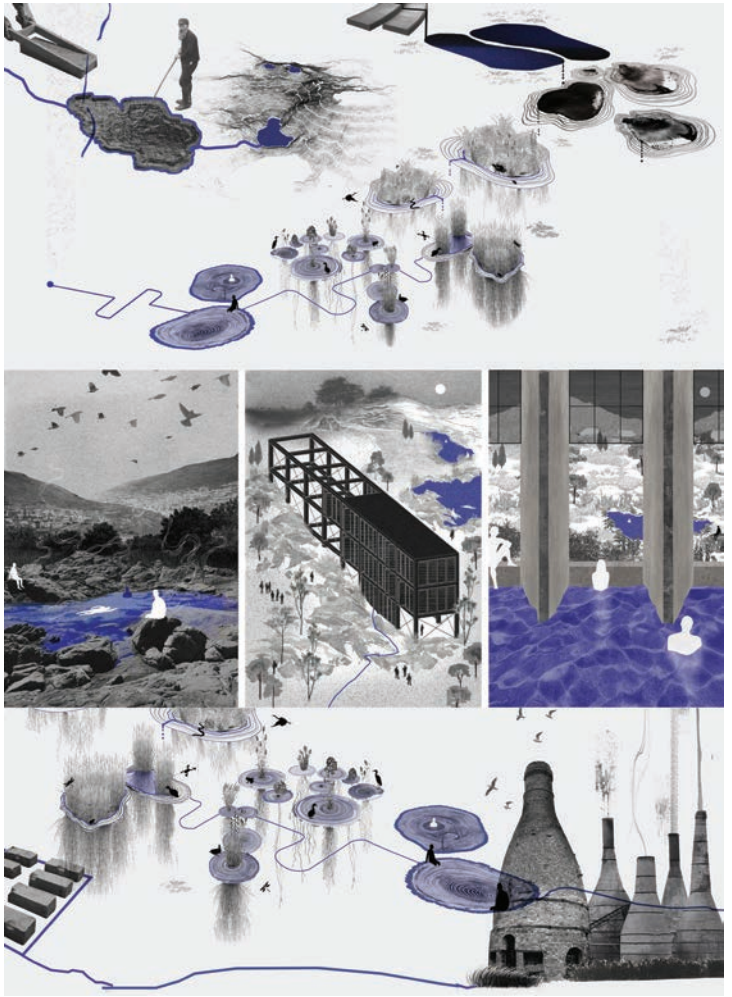
Decay is especially visible in South Wales: potholes plague the roads in Newport, while hundreds of buildings remain derelict in Merthyr Tydfil.

At the same time, a home improvement industry is booming. South Wales alone hosts 11 B&Qs and 11 Screwfix stores, both owned by Kingfisher, whose linear, extractive model consumes vast amounts of land without equipping people to repair their own environment.

Research during tutorials and site visits to Wales shaped a proposal for a centre teaching self-repair, material storage, and tool exchange. The proposal is a time-based system that gradually takes over B&Q, using materials from derelict Merthyr Tydfil buildings earmarked for rewilding to build temporary storage and educational facilities, until it becomes a parasite within the existing store.

Image above: B&Q tool sharing facility

REGENERATIVE REPARATIONS



AHANA CHAKRABARTY

Regenerative Reparations is set in Six Bells, Abertillery, one of the most deprived towns in the valleys. This project is divided into three parts: the problem, the opportunity, and the solution.

The problem is the collapse of the town's social and economic fabric. More than 60% of the population leaves daily for work, creating a ghost-town condition and leaving behind the elderl and the young, who face an identity crisis through the loss of community.

The opportunity lies within the flooded coal mines beneath the town. The Coal Authority currently treats and releases the mine water into the river, but embedded within this process are several latent opportunities: geothermal heating, clay and mineral extraction via sedimentation tanks, alternative farming, reed beds, and biodiversity.

The proposal introduces a system that runs alongside existing infrastructure, extracting these opportunities and redirecting them back into the town. Heat transferred from treated mine water powers hot springs and bathhouses for the elderly, while clay and minerals support a small-scale industrial cycle and material research lab for young people. Reed beds aid filtration while producing essential oils and ecological habitats. The proposed speculative landscape explores the hierarchy created by layering these three parallel systems — social, industrial, and ecological — to imagine a regenerative future: a common ground for Six Bells.

Image above: A circular residue strategy for Six Bells

HARVESTING HEALTH



AIDAN BYRNE

Harvesting Health combats food-related health issues by reimagining a future food system for Wales, from field to classroom. This project investigates obesity in Wales as a spatial and systemic condition produced through the organisation of land, food systems, and infrastructure, rather than as an individual behavioural issue. It traces how dietary patterns are shaped by economic deprivation, industrial legacy, and global supply chains, with particular focus on regions such as Merthyr Tydfil, where health inequalities are most acute.

Through mapping diet to land use, population density, and territorial food production, the project reveals the hidden spatial and environmental costs of different dietary models and exposes the imbalance between consumption and local capacity. Drawing on precedents from wartime food production, global productive landscapes, and theories of energy and civilisation, it reimagines food as a primary organising force of territory. The work proposes seasonal school meals as a design intervention that reconnects education, agriculture, and landscape through cyclical systems of growing, cooking, and eating.

Ultimately, it argues for a reconfiguration of food infrastructure as an architectural and ecological framework capable of improving health, autonomy, and resilience across Wales. In doing so, it reframes the school meal as a starting point for reconnecting people with the land that feeds them.

Image above: A masterplan for Wales to produce food for school meals

REACTIVATING THE RUINS



DANIEL WINDLE

The post-industrial towns of South Wales face a dual condition: a widespread lack of cultural infrastructure and a significant number of derelict buildings left by the decline of mining. Reactivating the Ruins proposes restoring these buildings as a connected network of shared cultural infrastructure, addressing both problems without erasing the character that makes them worth saving.

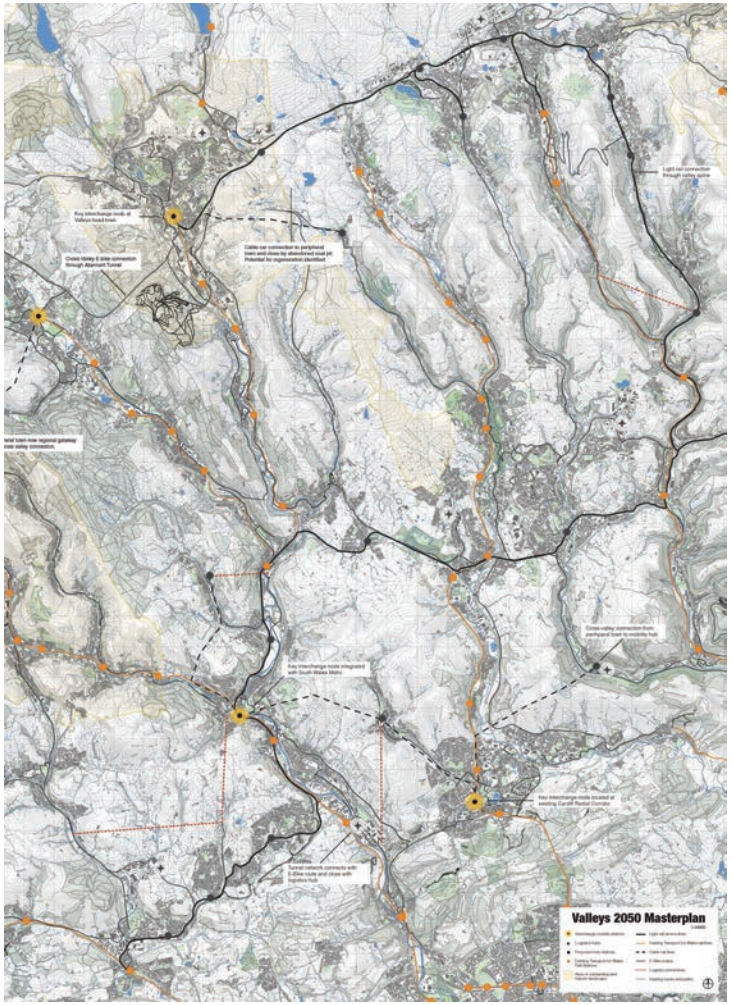
Reactivating the Ruins produced two significant findings. First, a distributed network of restored buildings, connected through shared mobile infrastructure, offers a viable model for cultural provision in post-industrial communities that lack the population or economic base for permanent institutions. Spreading investment across multiple sites, rather than one building, makes the system more resilient and equitable.

The second finding concerns the relationship between architectural heritage and community identity: derelict industrial buildings in the South Wales Valleys retain strong cultural significance despite their physical deterioration. Their preservation is therefore as much a social question as an architectural one, making reactivation for community use more appropriate than conversion to private housing.

Reactivating the Ruins is ultimately about the people of South Wales — not a building, but a network of shared infrastructure that lets communities sustain a cultural life rooted in their own history, owned and run by the people it serves.

Image above: A process and equipment for setting up a rave in a heritage building

VALLEYS 2050



ARCHIE MACCLEAN

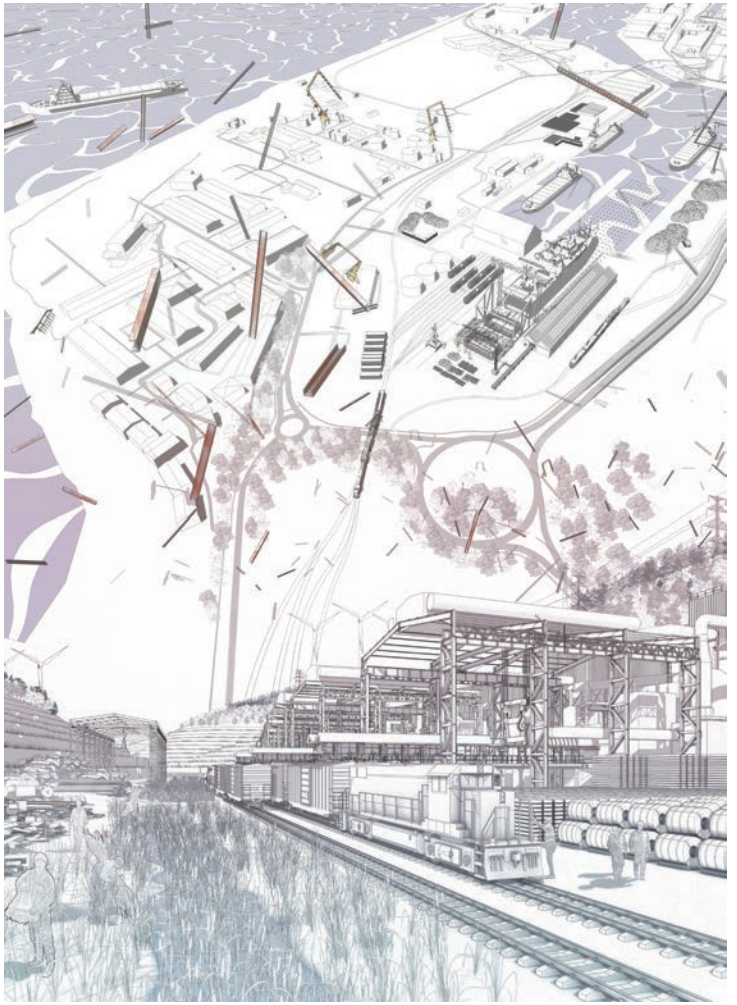
The South Wales Valleys is an area containing strong local identities, with towns ranging in size, density, and population. However, geographical constraints and post-industrial decline have left Valley towns fragmented, challenging the local economy and well-being of residents. The transport infrastructure is centred on connecting the region to larger coastal cities such as Newport and Cardiff, and other towns around the coastal belt. The collapse of coal, steel, and iron industries has left considerable transport infrastructure lying idle within the landscape.

Publicly funded proposals such as the South Wales Metro recognise the need for integrated public transport and have introduced important improvements to the current rail and bus services. However, this delivery has largely prioritised core radial corridors, leaving lateral inter-valley connection, especially to peripheral communities comparatively weak. This limits access to jobs, education, leisure, healthcare, and local economic exchange between the valley towns themselves.

Valleys 2050 proposes a next-generation mobility framework that builds on current metro investment while rebalancing movement towards east-west and community-to-community connectivity. Through the re-use of historic industrial infrastructure, and the implementation of a layered transport system, the project mobilises valley spines, ridge-to-ridge connection, and activates localised mobility and logistical hubs. Valleys 2050 reimagines the often disparate and fragmented valleys as an (re)interconnected network of communities, coming together through shared infrastructural inventions.

Image above: Valleys 2050 masterplan

DOWNWIND: IT HAS TO GO SOMEWHERE



NEIL CARDER

This thesis examines how the flows of materials and energy in steel production generate spatial and atmospheric inequalities across local and global scales. While parts of the steel industry are framed as undergoing a "green" transition, this project argues that environmental harm is often displaced rather than reduced. Focusing on South Wales, a region shaped by mining and industrial history, the work uses data mapping to reveal the sources of steelmaking pollution, and sectional analysis to propose a distributed, landscape-based alternative.

Drawing on Ludwig Hilberseimer's proposed replanning of Chicago, the project presents a speculative, localised steel system that redistributes production into a network of mini electric arc furnaces across the South Wales Valleys. Air pollution is contained through a climatic condition known as cold air pooling. It is supported by reactivated rail infrastructure and regional ship breaking. Heat, waste, and pollution are redistributed and reabsorbed within the landscape. The project constructs a scenario in which the environmental and ethical burdens of steelmaking are made accountable and visible.

The project does not promote the use of steel. It acknowledges instead that steel is unavoidably embedded within existing systems. It proposes measures to mitigate its current hazardous effects through material accountability and scalable landscape infrastructure.

Image above: Decentralised, hyper-local steel production in the Welsh Valleys

POLLINETWORK



BRUNE MICHEL

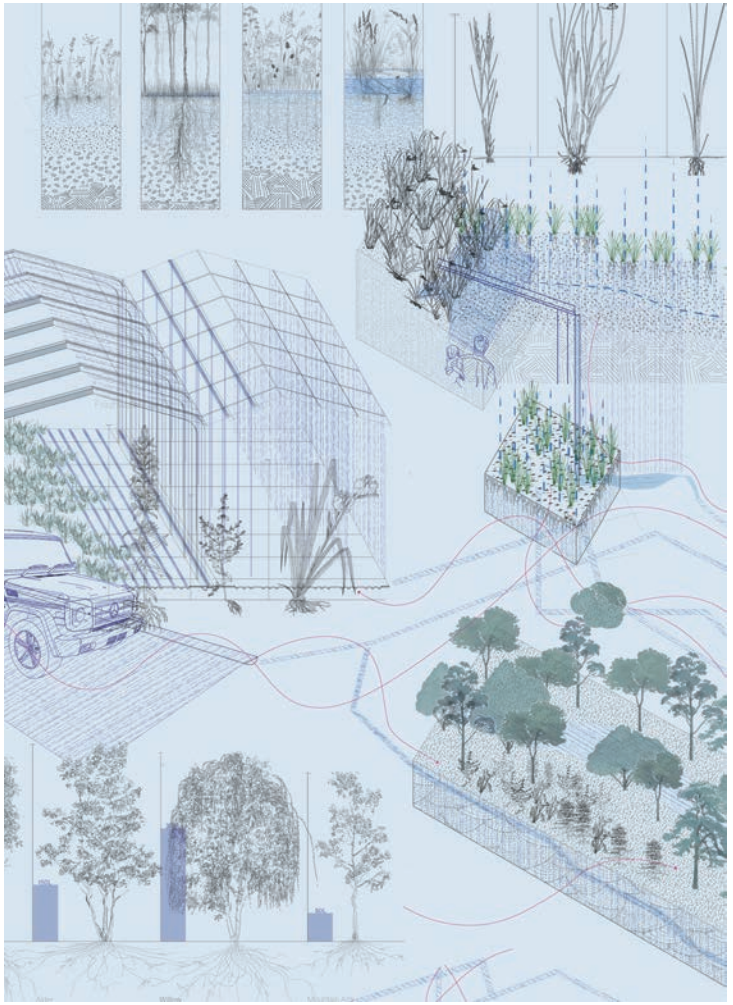
This project explores how architecture can serve non-human inhabitants, focusing on pollinators that remain largely overlooked in traditional urban planning despite their role in stabilising ecosystems. PolliNetwork reimagines Cardiff as a permeable, biodiverse landscape by treating pollinators as architectural clients. Initial research analysed their biological needs - how they feed, reproduce, and navigate - and identified four major threats: climate change, disease, agrochemical use, and habitat loss.

To address habitat fragmentation at the intersection of biology and design, the project utilises ecological corridors structured around stepping stones, defined as isolated green spaces suited to the flight-based movement of pollinators. By evaluating species-specific dispersal capacities, the research determines travel distances required to reconnect isolated habitats across the urban fabric. While comparing human-impacted farmlands and cities, design efforts centre on urban core, where fragmentation is most severe.

The project addresses fragmentation through targeted interventions at multiple scales. A spatial analysis applying 125m and 250m radii around existing green spaces revealed significant flower deserts in industrial and residential zones. To bridge these gaps, the project deploys localised strategies such as vegetalised streets, retrofitted backyards, transformed public parks, urban meadows, and a greened Crossrail transit corridor establishing a continuous network of habitats. Rather than relying on large-scale construction, PolliNetwork demonstrates how low-cost, decentralised interventions, paired with community involvement and tailored botanical palettes, can restore urban biodiversity.

Image above: A pollination strategy for Cardiff

EMERGING AQUASCAPES



ÉILIS KEOGH

Emerging Aquascapes of Galway 2100 challenges conventional approaches to landscape management and infrastructural planning, arguing that the climate crisis and its wider social and environmental consequences demand a radical rethinking of how architecture engages with water. As Ireland's climate grows more volatile, designers must confront these risks if development is to remain viable, resilient, and equitable.

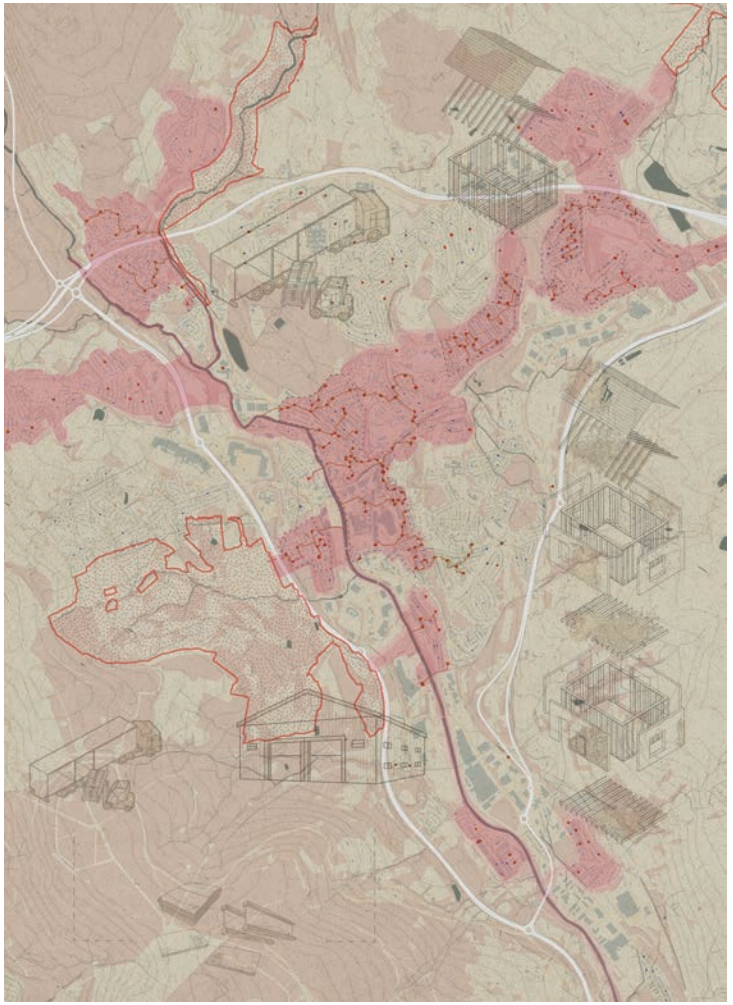
A persistent tension between urban and rural environments shapes the Irish landscape, influencing resource distribution, settlement, and ecological health. This thesis proposes that these long-standing divisions can be reimagined through dynamic connectivity landscapes. A review of current development and zoning strategies reveals the need for more adaptive, water-literate design.

Water systems, engineered or natural, possess complex qualities that shape their environments. Rachel Carson's assertion in *Silent Spring* that "In nature, nothing exists alone" underscores this work's premise: ecosystems are deeply interdependent, and many are shaped by water. Emerging Aquascapes deepens this understanding, imagining futures where human and aquatic systems coexist more harmoniously.

Buildings in Ireland currently engage with water — atmospheric, precipitable, or embodied — in ways insufficient for the challenges ahead. Designers must cultivate meaningful relationships between architecture and water, treating it not as a threat but as a force to be integrated. This integration is essential for preparing Galway, and Ireland more broadly, for the century ahead.

Image above: Nature-based Solutions for flood management in Ireland

REMOVE . REVEAL . REWILD



FAITH PETER-OLABIYI

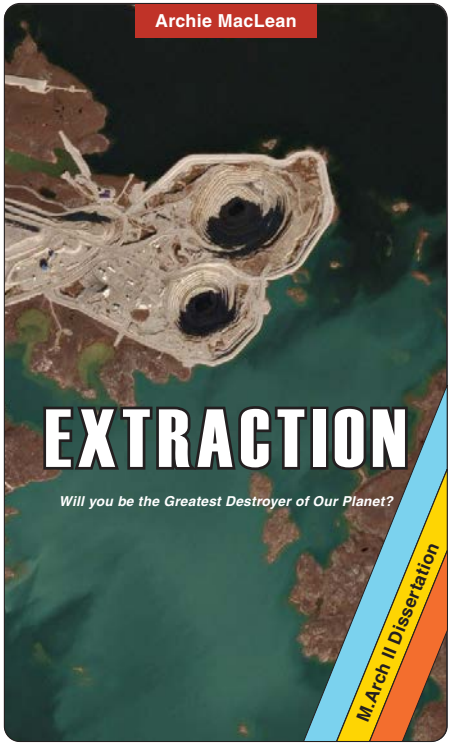
Remove, Reveal, Rewild explores the post-industrial landscape of Merthyr Tydfil as a site of ecological potential. It repositions urban decay not as failure, but as evidence of a contraction process already underway, gradually returning the valley to its pre-industrial state.

The research begins with vacancy and infrastructure studies of Merthyr Tydfil across six periods from 1850 to 2024, tracing the life cycle of collieries, ironworks, railways, churches, schools, and factories through phases of expansion, peak, and decline. This is overlaid with a building-level vacancy survey, WIMD (Welsh Index of Multiple Deprivation) data, and NRW (Natural Resources Wales) flood risk mapping. Together, they reveal that the valley floor's most ecologically significant, socially deprived, and flood-exposed areas occupy the same stretch of land, where nature is already beginning to reclaim the landscape.

In response, a Multi-Criteria Analysis toolkit prioritises vacant sites for rewilding intervention across three tiers — ecological, social, and flood risk — forming a connected ecological corridor along the River Taff. The intervention draws on Rotor's deconstruction methodology and BAMB material passports — frameworks for salvaging and tracking reclaimed building materials — to selectively dismantle buildings, redistributing materials like Welsh slate, cast iron, and rubble stone as salvage, habitat infrastructure, and growing medium within the corridor itself.

Image above: Remove-Reveal-Rewild approach to degrowth in Merthyr Tydfil

MINE GAMES: THE COST OF EXTRACTION ARCHIE MACLEAN



ABSTRACT

This dissertation explores the global politics of material extraction and how these dynamics shape and influence their consumption in an urban setting. It takes inspiration from the popular children's card game Top Trumps, as a method of curating some of the world's most significant open-pit mines, alongside a selection of mining corporations. These firms are represented through their main headquarters building and differ in size, scale, influence and geopolitical reach.

As the transition into 'green' energy expands and accelerates, demand for rare earth minerals is already on the rise and this will have a direct impact on the scale of mining across our planet. The environmental and social cost of this growth in extraction will undoubtedly inflict irreversible harm to regions with high mineral reserves and for the local populations of these areas.

By highlighting the spatial and ethical extent of current open pit mining, the game enables players to strategically understand and confront the impact of mining, and the corporate behaviour associated with the production of goods. *Extraction* functions as both an educational tool and a framework for interrogating capitalistic logics that underpin mining, encouraging players to consider their implications for our planet's future.

GAME CONTENTS

Acknowledgements

Instructions

Holes in the Ground card deck (36)

Headquarters card deck (12)

Holes in the Ground, Card Ownership Map

Bibliography (A-M)

Bibliography (N-Z)

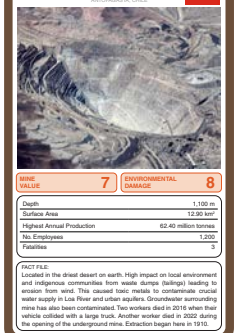
List of Illustrations

LINK TO GAMEPLAY VIDEO

Please skip to 23 min 30 secs for the 5 round game







CHUQUICAMATA MINE
ANTOFAGASTA, CHILE

MINE VALUE	ENVIRONMENTAL DAMAGE
7	8

Depth	1,100 m
Surface Area	12.90 km²
Highest Annual Production	62.40 million tonnes
No. Employees	1,200
Fatalities	3

FACT FILE:
Located in the driest desert on earth. High impact on local environment and indigenous communities from waste dumps (tailings) leading to erosion from wind. This caused toxic metals to contaminate crucial water supply in Loa River and urban aquifers. Groundwater surrounding mine has also been contaminated. Two workers died in 2016 when their vehicle collided with a large truck. Another worker died in 2022 during the opening of the underground mine. Extraction began here in 1910.



BINGHAM CANYON MINE
UTAH, UNITED STATES OF AMERICA

MINE VALUE	ENVIRONMENTAL DAMAGE
9	6

Depth	1,200 m
Surface Area	7.70 km²
Highest Annual Production	158.8 million tonnes
No. Employees	2,400
Fatalities	2

FACT FILE:
25% of copper produced in the US is from here. Mine value = $1.6 billion in 2024. Produced 243.2 million pounds of toxic chemicals in 2024. Resulted in significant impact on public health, especially in nearby Salt Lake City which is situated two miles north. Two fatality reports since 2000. One in 2008 when a truck driver was fatally injured and another in 2017 who died from exposure to sulfur dioxide. Mining activity commenced in 1909.



FIMISTON SUPER PIT
KALGOORLIE, AUSTRALIA

MINE VALUE	ENVIRONMENTAL DAMAGE
5	4

Depth	600 m
Surface Area	5.25 km²
Highest Annual Production	70 million tonnes
No. Employees	1,200
Fatalities	2

FACT FILE:
Located east of Kalgoorie-Boulder City. Gold extraction has contributed to significant dust and noise pollution. Local impact is relatively good with high local employment and economic benefit. Two fatalities have been reported since 2006. That year, a young man was killed when he crashed into an unlit truck carrying protruding rods. A woman who was driving a dump truck fatally fell from the vehicle in 2009. Extraction commenced at the open pit in 1989.



UDACHNY MINE
YAKUTIA, RUSSIA

MINE VALUE	ENVIRONMENTAL DAMAGE
5	4

Depth	640 m
Surface Area	3.2 km²
Highest Annual Production	12 million tonnes
No. Employees	1,200
Fatalities	4

FACT FILE:
Diamond extraction here has moved underground after the open pit closed in 2016. 90% of Udachny town residents work at the mine. Working conditions in this area are harsh, with winter temperatures reaching - 60°C. The excavated soil has contaminated surrounding vegetation and ecosystems. Four recorded fatalities. An underground



MURUNTAU MINE
KYZYL KUM DESERT, UZBEKISTAN

MINE VALUE	ENVIRONMENTAL DAMAGE
8	4

Depth	650 m
Surface Area	10.5 km²
Highest Annual Production	38 million tonnes
No. Employees	2,600
Fatalities	0

FACT FILE:
One of the largest gold deposits in the world. Owners NMMC have a good approach to environmental and social policies. Waste mine water is recycled not dumped. Other mine waste is managed well. Muruntau village is located 2 km north of the open pit. Dust complaints are common during blasting in the mine. However, air monitoring is carried

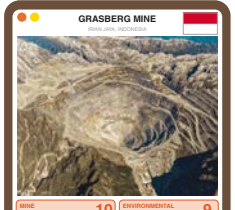


ESCONDIDA MINE
ATACAMA DESERT, CHILE

MINE VALUE	ENVIRONMENTAL DAMAGE
9	6

Depth	645 m
Surface Area	11.31 km²
Highest Annual Production	1.96 million tonnes
No. Employees	3,500
Fatalities	3

FACT FILE:
Largest producer of copper globally. In 2021, a lawsuit was issued against owners BHP by the Chilean State. The mine was overdrawing water supply from the Punta Negra Salt Flat. This caused critically low water levels in wetlands which resulted in considerable loss of vegetation and ecosystems. Three fatalities reported since 2010. A minor dust that



GRASBERG MINE
PAPUA, INDONESIA

MINE VALUE	ENVIRONMENTAL DAMAGE
10	9

Depth	550 m
Surface Area	6.3 km²
Highest Annual Production	67 million tonnes
No. Employees	19,500
Fatalities	35

FACT FILE:
Largest gold reserve and second largest copper reserve in the world. Sits over 4km above sea level. Mine tailings (waste) is dumped into the lower section of the Ajkwa River. Percentage of viable minerals from ore extraction between 1987 - 2014 was 1-1.5% with the other 97% of tailings dumped into the river. In 2013, a tunnel in the underground section of the complex killed 28 miners. In 2025, an 800,000 tonne landslide resulted in

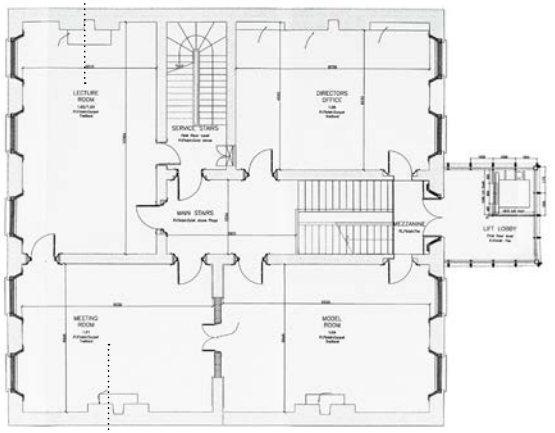


Arriving at the IAA

The front door is reached by three stone steps from the pavement to a landing, and then one further step at the front door. Beyond the front door is a glazed lobby. From here you can gain access by ringing the intercom bell marked IAA, which is reached at a height of c. 150cm.

If you are a wheelchair user, or find steps difficult, there is a platform lift which can bring you from footpath level to basement level. You then enter the building via a door with no step and can access all floors using the internal lift which is signposted as you move through the building.

Phone +353 1 663 3040 to use the platform lift.



FIRST FLOOR



ROOM B



ROOM A

ACME TEAM

Professor Gary A. Boyd, Dr Tabassum Ahmed, Dr Emma Campbell, Dr Rebecca Jane McConnell, Anna Cooke, Niall Patrick Walsh and Dr Jack Kavanagh.

SPECIAL THANKS

Invited Guests
Professor Tom Avermaete, Professor Stefan Berger, Dr Łukasz Galusek, Professor Kathleen James-Chakraborty, Dr Ariane Mak, Dr Dennis Pohl

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European Research Council
The research leading to these results has received funding from the European Union's Horizon Europe Programme under grant agreement n° 101140713
DOI: https://doi.org/10.3030/101140713

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BOOK OF ABSTRACTS

DARK MATTER.

REVISITING THE ARCHITECTURE OF COAL IN POST-WAR EUROPE

ACME
Architecture of Coal in Modern Europe

5 + 6TH NOVEMBER 2026