

Earth as Client

AIARG All-Ireland Architecture Research Group
Ninth Annual Conference

Limerick, 23 and 24 January 2020

The **All-Ireland Architecture Research Group (AIARG)** consists of members of the schools of architecture in the Republic of Ireland and Northern Ireland as well as professionals interested in research into, through and for architecture.

The AIARG annual conference is eligible for **RIAI CPD** points. Please visit the RIAI website to register your participation. <https://www.riai.ie/careers-in-architecture>

Ninth annual conference hosted by
SAUL School of Architecture University of Limerick

Organised by
Anna Ryan, Jan Frohburg, Morgan Flynn and Claire Downey, SAUL

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<https://aiarg2020.wordpress.com>

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Introducing “Earth as Client”

All-Ireland Architecture Research Group (AIARG) promotes innovative academic research as well as the practice, pedagogy and progress of architecture in the widest sense. In 2020, the AIARG with their ninth annual conference chose to highlight issues related to architecture and the climate crises.

The theme for this year’s conference – Earth as Client – draws on the FREESPACE MANIFESTO for the 16th International Architecture Exhibition of La Biennale di Venezia, in which Irish architects and curators Yvonne Farrell and Shelley McNamara wrote, “We see the earth as Client. This brings with it long-lasting responsibilities. Architecture is the play of light, sun, shade, moon, air, wind, gravity in ways that reveal the mysteries of the world. All of these resources are free.”¹ We recall the power embodied in the photographs that emerged from the first moon landings – *Earth Rising* of 1968 and *Blue Marble* of 1972 – and how they enabled us, as dwellers on Earth, to see and understand our world differently. Fifty years on, with our Earth in increasing crisis, we know how urgent it is for immediate action to be taken – on micro and macro scales – so that the Earth can remain a place of human inhabitation.

In 2018, Mary Robinson, former President of Ireland and former United Nations High Commissioner for Human Rights, observed that, “what we need is the cultural world to help us invent the narrative of the world we must work for... the narrative of how we will live... to imagine the world we need to get to very fast... the narrative that will move people in a positive way.”² The visions, research, thinking, ideas, images, stories and designs from the variety of ways in which architecture is practised play a potentially significant role in leading this new narrative of keeping our earth as a liveable world for future generations. As it has the capacity to span scales, to engage deeply with context and society, with technology and economy, architecture has a responsibility to take cultural leadership in this global crisis.

The Earth is an atypical client for architectural services, in that it cannot pay for them directly and in that architectural acts are also inscribed directly onto its surface. Thus this theme also offers the opportunity for a complex debate on the management of architect-client relationships, on the concept of architecture as a public service, on aspects of alternative economies, and on architecture’s respect for its social obligations.

¹ Yvonne Farrell and Shelley McNamara, FREESPACE MANIFESTO for the 16th International Architecture Exhibition of La Biennale di Venezia, originally issued in June 2017. <https://www.readingdesign.org/freespace-manifesto>

² Mary Robinson, *Meeting on Architecture 09: The Earth as a Client*, at the 16th International Architecture Exhibition of La Biennale di Venezia, 24 November 2018. <https://youtu.be/7zAAlMvC5y8>

Venues

The conference is held at several venues in the Georgian quarter in Limerick's city centre, all within easy walking distance of each other:

Fab Lab Limerick, 7 Rutland Street

Fab Lab Limerick started in 2012 as an elective course at the School of Architecture, UL in which open-source 3D printers, CNC routers and laser cutters were built. In 2014 this self-build equipment was moved to an empty building in the city centre owned by Limerick City Council. Since then, Fab Lab Limerick has evolved into a fully functional digital fabrication laboratory that offers cultural, educational and research programmes on digital fabrication, bridging the gap between these technologies and creatives from all disciplines.

The Belltable Arts Centre, 69 O'Connell Street

In the heart of Limerick City, Belltable was established in 1981 as the first regional arts centre in Ireland. Previously known as The Coliseum and the Redemptorist Confraternity Hall, the arts centre was named after Henry Hubert Belltable, a Belgian army officer who founded the Holy Confraternity in Limerick. It hosts a wide range of performances, from local, national and international theatre to cinema and music.

Limerick City Gallery of Art, Pery Square

Limerick City Gallery of Art is in the historic Carnegie Building, designed by Dublin architect George P. Sheridan and completed in 1906, on the grounds to the People's Park in Limerick City. LCGA occupied the Carnegie Building since 1985, undergoing two major renovation and expansion in 1999 and in 2010/11, with extensions by local architects Hugh Murray and John A. O'Reilly. LCGA is the largest contemporary art gallery in the Mid-Western Region, annually exhibiting national and international artists in a diverse exhibition programme.

Narrative 4, 58 O'Connell Street

Narrative 4 harnesses the power of the story exchange to equip and embolden young adults to improve their lives, communities, and the world. In 2016, Narrative 4 opened its first global centre in Limerick. In partnership with Limerick City and County Councils and the J.P. McManus Benevolent Fund, Narrative 4 together with local architects Feeney McMahon renovated a dilapidated Georgian townhouse that once served as a public library for Limerick from the 1930s until the 1990s.

Cornstore Restaurant, 19 Thomas Street

Schedule

Thursday, 23 January 2020

9.15 – 11.15	<i>Bus departs at Limerick City Gallery of Art, Pery Square</i> SITE VISIT Irish Cement factory Castlemungret
<hr/>	
	<i>Fab Lab Limerick, 7 Rutland Street</i> STUDENT THESIS SYMPOSIUM UCD, TUD, WIT, QUB, UU, CCAE, SAUL graduates Presentation of recent thesis projects Lunch provided for all graduates and students <i>Continued:</i> Presentation of recent thesis projects Discussion of recent thesis projects
11.30 – 13.00	
13.00 – 13.45	
13.45 – 14.45	
14.45 – 15.30	
<hr/>	
15.30 – 17.00	<i>Fab Lab Limerick, 7 Rutland Street</i> INTERVARSITY THESIS WORKSHOP UCD, TUD, WIT, QUB, UU, CCAE, SAUL students Thematic group sessions on current thesis projects
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Narrative 4, 58 O'Connell Street

MAKING RESEARCH HAPPEN - WORKSHOP

As part of ongoing discussions about architectural research in Ireland, AIARG is running a public workshop that seeks to:

- *identify the bodies that have funded research in architecture and potential sponsors of future architectural research;*
- *identify partnerships and networks which will support architectural research;*
- *identify research themes in relation to the Government Policy on Architecture and to National Research Priorities; and*
- *agree upon a course of action to improve the architectural research eco-system on the island of Ireland.*

14.30 - 14.40	Prof. Hugh Campbell (UCD) Opening Remarks
14.40 - 15.00	Emmett Scanlon (UCD) Research Scoping Study in Architecture 2017
15.00 - 15.20	Carole Pollard (TU Dublin) Irish Research Council Enterprise Partnership Scheme
15.20 - 15.40	Dr. Nessa Roche (Senior Architectural Advisor, Department of Culture, Heritage and the Environment) National Policy on Architecture
15.40 - 16.00	<i>Coffee Break</i>
16.00 - 17.00	Discussion chaired by Prof. Hugh Campbell

The Belltable Arts Centre, 69 O'Connell Street

17.30 - 18.00 RECEPTION

The Belltable Arts Centre, 69 O'Connell Street

Presented with support from Irish Cement:

18.00 - 19.30	KEYNOTE LECTURE
	Kerstin Mey (VPA UL) Opening Remarks
	Tom Moylan Introduction
	Yvonne Farrell (Grafton Architects, Dublin) "The Earth as Client"

Cornstore Restaurant, 19 Thomas Street

From 20.00 CONFERENCE DINNER

Friday, 24 January 2020

9.15 – 11.00	<i>Limerick City Gallery of Art, Pery Square</i> LIFEWORLD <i>Kathleen James-Chakraborty – chair</i> Hala Younes (Beirut) Geography as alphabet: The experience of the terrain model and other tools Ka-man Lam (Weimar) Environmentalism and Phenomenology as the Common Task: How may Edmund Husserl's practical philosophy contribute to post-sustainability approaches in architecture Irénée Scalbert (London/Limerick) On vernacular architecture: Architecture "of the people, by the people, but not for the people" in times of environmental crisis
9.15 – 11.00	<i>Narrative 4, 58 O'Connell Street</i> CONTROLLED EXPERIENCE <i>Robin Parmar – chair</i> Morgan Flynn (Limerick) Made Ground: The image of the Irish landscape as a 'natural' place Sarah Mannion (Dublin) Defining 'place' through personification and personalisation: opportunities for representation of landscape Eimear Tynan (Oslo) Time exposures in the Arctic: Exploring the different temporalities inherent to a site Phoebe Brady & Sarah Doheny (Dublin) Darting Sounds and Sonic Spaces: alternative narrations of site through sound

11.15 – 13.00	<i>Limerick City Gallery of Art, Pery Square</i> ANTHROPOGENIC FIRE <i>Adam de Eyto – chair</i> Donal Lally (Dublin) Immersion: the hearth, the data centre, and dirty matter Ruairi O'Brien (Dresden/Cairo) Sustainable futures – Light and energy: The need for re-thinking the use of artificial lighting in the built environment Oliver Kinnane (Dublin) Architecture with the big foot that leaves such a large (unmeasured) print Miriam Dunn & Graham Petrie (Limerick) AGE: Educating architects in the late Holocene
11.15 – 13.00	<i>Narrative 4, 58 O'Connell Street</i> SOCIAL ECOLOGY <i>Hugh Campbell – chair</i> Sarah Sheridan & Brian Ward (Dublin) Marion Mahony Griffin: Re-covering the Irishness within a trans-national identity Jack Lehane (Cork) A Grounded Theory Approach to Understanding Participation in Live Projects Abroad André Tavares (Porto) Fishing Architecture: tracing a complex social ecology Zhengfeng Wang (Dublin) The Vital City and the Mechanised Space for Meat: The Shanghai Municipal Abattoir in 1933
13.00 – 13.45	<i>Limerick City Gallery of Art, Pery Square</i> LUNCH Soup and sandwiches
13.45 – 14.15	<i>Limerick City Gallery of Art, Pery Square</i> Lunchtime presentation, in association with ESB Ireland: +CITYxCHANGE Helena Fitzgerald, Rosie Webb et al. (Limerick) Enabling the co-creation of a liveable future

14.30 – 16.15	<p><i>Limerick City Gallery of Art, Pery Square</i> DISPLACEMENT / PLACEMAKING <i>Meg Harper – chair</i> Gul Kacmaz Erk (Belfast) Sharing the earth: Online existence of young refugees and their spaces Mary O’Donoghue (Limerick) Not all houses are created equal: using Bourdieu’s concept of habitus to explore how working-class mothers understand place and home Orla McKeever (Cork) Implicit Narratives of the City: The city as language and “repository of possibilities” Anna Ryan (Limerick) The provocation of Kevin Barry’s <i>City of Bohane</i> as an environmental future for Ireland</p>
14.30 – 16.15	<p><i>Narrative 4, 58 O’Connell Street</i> EMERGE / SUBMERGE <i>David Fleming – chair</i> Christos Papastergiou & Christiana Ioannou (Nicosia) The Leftover City: Exploring the Alternative Uses of Leftover Sites in Urban Environments Peter Carroll (Dublin/Limerick) Coast as Client: Rebuilding the coastal baths in Dun Laoghaire Irene Ruiz Bazán & Chiara Occelli (Turin) Dwelling when “the” earth disappeared: The case of the submerged settlements Carole Pollard (Dublin) Moving Mountains – Power in the Hills: the ESB, Sylvia Crowe and Andy Devane</p>

Saturday, 25 January 2020

10.00 – 12.30	<p><i>Bus departs at Limerick City Gallery of Art, Pery Square</i> SITE VISIT ESB hydroelectric power station Ardnacrusha</p>
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Keynote lecture “The Earth as Client”

Yvonne Farrell | Grafton Architects, Dublin
www.graftonarchitects.ie

Yvonne Farrell and Shelley McNamara co-founded Grafton Architects in 1978, having graduated from University College Dublin in 1974. They are Fellows of the RIAI, International Honorary Fellows of the RIBA and elected members of Aosdána, the eminent Irish Art organisation. Teaching at the School of Architecture at University College Dublin from 1976 to 2002, they were appointed Adjutant Professors at UCD in 2015. They have been Visiting Professors at EPFL, Lausanne in 2010 – 2011. They held the Kenzo Tange Chair at GSD Harvard in 2010 and the Louis Kahn chair at Yale in the Autumn of 2011. Currently, they are Professors at the Accademia di Architettura, Mendrisio, Switzerland.

In 2018, Yvonne Farrell and Shelley McNamara were the Curators of the Venice Architecture Biennale, adopting FREESPACE as the title of the Biennale.

Grafton Architects have participated in numerous exhibitions including: the Sensing Spaces Exhibition in 2014 in the Royal Academy in London; a Pavilion for the 2014 Tercentenary of the City of Barcelona; ‘the Ogham Wall’ installation in 2015 in the Victoria & Albert Museum, London.

The practice has won numerous awards for their work. In 2016, Grafton Architects were honoured by being awarded the inaugural RIBA International Prize for the Universidad de Ingeniería y Tecnología (UTEC) in Lima, Peru. It has recently been announced that they have won the 2020 RIBA Royal Gold Medal.

Directors Gerard Carty and Philippe O’Sullivan have been with the practice since 1992. They are accomplished teachers and architects and play a central role in the life of the practice

Current projects include The Marshall Institute, Lincoln’s Inn Fields, for the London School of Economics; Town House Building, Kingston University London; The School of Economics for the University of Toulouse 1 Capitol; Institute Mines Telecom University Building, Paris Saclay; City Library, Parnell Square, Dublin with Shaffery Architects; Headquarters for Electricity Supply Board (ESB) with OMP architects in Dublin; all won by international competition.

Geography as alphabet: The experience of the terrain model and other tools

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In the statement of Yvonne Farrell and Shelly McNamara “We see the Earth as Client. This brings with it long-lasting responsibilities”, it is the act of seeing that triggers awareness, responsibility and action. “The Place That Remains” was a final year architecture design studio at the Lebanese American University in Beirut before it became, in 2018, the Lebanese contribution to the 16th Architecture Biennale in Venice. The exhibition is an ongoing inventory of the un-built territory, fostering the visibility of land as an essential condition for its preservation and buildability. The land, described as the “last monument”, is represented through terrain models, relief maps, aerial imagery, photography, and video, with the focus placed on a river water basin. After a memorable run in Venice, the exhibition is coming back to Lebanon to be seen by the Lebanese public, especially school children.

The main cartographic installation reveals what cannot be seen with the naked eye, but it remains a subjective reading of the geography of Mount Lebanon, highlighting ecological continuities in their relation to urban sprawl. It posits that the readability of the geographic question and challenges is essential for a democratic society to collectively take appropriate planning decisions. Thus, the initiation to geography, landscape reading and analysis must be reintroduced at the core of education if we want our societies to stand by the earth and to “fulfil their long-lasting responsibilities”. The paper will examine horizons and directions for this education, and the way to propose a new geographic understanding of the world, an earthed geography, stemming from the experience of the exhibition and especially the feedback of the public in Beirut.

Environmentalism and Phenomenology as the Common Task: How may Edmund Husserl's practical philosophy contribute to post-sustainability approaches in architecture

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Envisioning the earth as a client seems to entail a fundamental rethinking of architectural practice, both as a means of production and as organizational structure of societies. Strangely, current approaches to our environmental crisis are split between two disparate poles – either an apocalyptic view of the Anthropocene, or an accelerationist view that advocates technological innovations and statistics-informed monitoring systems for sustainability. The scientific paradigm of sustainability since the UN's definition in 1987 has long been criticized by environmental historians (e.g. Donald Worster) and scientists alike, but nevertheless remained a hegemonic status in the architectural industries, its agendas formalized in green standards and even smart city development.

If architecture is to meet the task of reinventing itself under the paralyzing pressure of Anthropocene and the paradoxical definition of sustainability, the first and foremost intellectual task is a re-conceptualization of the instrumental role of science and technology in relation to the structure of our consciousness in the crisis. This paper proposes that architects today may learn from mathematician-turned-philosopher Edmund Husserl's (1859–1938) response to the dangers of Scientificism and Industrialization in the early 20th century, through his countering approaches known as the pure phenomenological methods and the concept of 'lifeworld'. Through bringing today's prevalent technological approaches to sustainability at household scale under Husserl's and followers' (e.g. philosopher of architecture Karsten Harries) philosophical lens, this paper aims to redirect the notion of sustainability to emergent forms of environmentalism, and thus illuminate the common ethos shared by environmentalism and phenomenology that may contribute to possibilities in post-sustainable practices.

On vernacular architecture: Architecture "of the people, by the people, but not for the people" in times of environmental crisis

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To most people, the notion of vernacular architecture is unambiguous. In all essentials, it remains the same notion which Bernard Rudofsky briefly outlines in his introduction to *Architecture without Architects*. His cursory definition has been subsequently adopted by Paul Oliver with minor changes. It described an architecture that is “of the people, by the people, but not for the people.” There has been renewed interest in the subject in recent years and the idea remains broadly unchanged. Notably there has been brave but unsuccessful attempts at integrating spontaneous settlements (including slums) within it. For this reason, it seems useful to clarify the idea of vernacular architecture, see where it comes from (human geography in the early twentieth century) and how it might inform the present time and assist in the environmental crisis.

Made Ground: The image of the Irish landscape as a 'natural' place

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The paper is an exploration of the image of the Irish landscape, in particular the image of that landscape as a 'natural' place. It is an exploration of the origins of that idea from the earliest written descriptions of the landscape in the medieval period up until the present day, how the idea of landscape has emerged and changed over time, particularly since the foundation of the state. It also seeks to understand how the image of the landscape as held by citizens and policy makers has influenced current policies and practices which regulate and form that landscape. It ultimately seeks to challenge how that image measures up to the reality and describe the landscape in a different way and how that different understanding might change how we build and form and build the Irish landscape.

Defining 'place' through personification and personalisation: Opportunities for representation of landscape

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This paper will position the topic of Earth as Client in relation to the notions of viewpoint and representation of landscape, through stories, language, and imagination. It will address the personification of the earth as the figure Gaia in the context of Greek storytelling, and how architecture lent itself in ancient times to solidifying representations of this figure and others in the Greek countryside in various early attempts at place-making and controlling the experience of landscape.

Just as the client of a one-off house in the Irish countryside desires a house specific to his / her needs, a temple to his / her individual passions and representative of his / her uniqueness, the landscape lends itself to people to define it in their relative terms. Landscape by its nature is remarkably vast, imprecise and undefinable. This paper will question how language and other human forms of artistic expression attempt to rein in concise and specific descriptions of places occurring naturally or by design in rural settings. One word or image of a place can spark people's imaginations in different ways, inducing connotations and variations of that single place in those distinct and numerous minds. Consideration will be given to the processes and methods of place-making through the various languages of human expression in an attempt to define 'place'.

This research position could encourage the use of mechanisms from different forms of artistic expression to articulate and analyse its assertions, contextualised by select examples of place-making, with the possibility of expressing these at the conference through a medium such as experimental drawing, to accompany an essay and visual presentation.

Time exposures in the Arctic: Exploring the different temporalities inherent to a site

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With the increasing pace at which our environments are changing, due to climatic and anthropogenic causes, this paper highlights the need to pay closer attention to the different temporalities that are inherent to a site. From the initial site encounters the architect or landscape architect may tap into diverse temporalities that expose different processes embedded in each material within a site. How these processes interact with individual materials opens up an exciting entry point into understanding a site on the onset of the design process. As designers we have the ability to enhance, expose, manipulate or conceal these temporalities that play out in a site. Rather than a specific narrative developing in this process, a conversation emerges between the human (designer) and non-human where different interactions occur. The paper takes reference from research undertaken on selected coastal sites in the Norwegian Arctic through a heuristically driven approach. It demonstrates that exploring a site, with particular attention to time, reveals new insights into its past and present conditions or states. It proceeds to argue that by incorporating and working with diverse temporalities in design has the potential to enrich and better prepare for a site's future.

Darting Sounds and Sonic Spaces: alternative narrations of site through sound

Phoebe Brady & Sarah Doheny | Dublin

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“Sound is ubiquitous, unstoppable, immersive, the agency through which spoken language is understood and music is absorbed. Sound works quietly with other senses to scan an environment, define orientation and to register the feeling that we describe as atmosphere.”¹

This paper presents an ongoing urban study of the sequence of space and sound through a number of train stations in Dublin City Centre. By listening and observing, the study seeks to investigate alternative forms of mapping that narrate the common spaces experienced from both physical and phenomenal perspectives.

The dramatic and varied soundscapes of waiting, arrival and departure across these spaces of public transition are surveyed over the course of a day. When both are mapped, their patterns overlap but never completely correspond - the boundaries of the sonic and the visual are rarely identical. Sound comes and goes, it can be perceived throughout space, or even when it is out of sight. While vision, is fixed by the frame of view.² The tools of enquiry therefore, are recording and drawing, observation through the eye and ear, in order to study the relationship between the two. The ‘drawings’ made are neither plans, nor notations but are rather dimensional interpretations of the soundscape experienced using mixed media. They create a kind of noisy, psycho-geographic map that aspires to demonstrate a layered and multiple understanding of place. At the same time, they bring attention to the potential that sound has to change how we understand, design and transform the public realm as we are called to ‘invent narratives for how we might live’.

More and more studies are turning to the way cities sound and sound maps are emerging as tools that can benefit architecture, urban anthropology and spatial planning.³ This paper proposes a discussion on the aural reality of space in the modern city and its impact on our shared environments.

¹ Toop, David, “The Art of Noise” Tate etc., Article January 1, 2015

² “Sight isolates, whereas sound incorporates; vision is directional, whereas sound is omnidirectional. The sense of sight implies exteriority, but sound creates an experience of interiority.” (Pallasmaa, 2012)

³ *Recomposing the City*. Sound Art and Urban Architectures. International Symposium 2014. Queen’s University Belfast.

Immersion: the hearth, the data centre, and dirty matter

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In recent years there has been growing scholarly investigation of the data centre typology and in particular the energy they consume. However, very little work has been done to explore the output, i.e. the heat they produce; and the material effect that production of heat has on human and non-human habitats, both locally and globally. From the first domestic hearth; to the Roman temple of Vesta, to the coal-burning furnaces of the industrial revolution, anthropogenic fire has been a primary shaper in the production of urban space.

In 2018, South Dublin County Council and Amazon Inc. announced they were partnering on a scheme to reuse the exhausted heat from the fifth, and newest, of their data centres in Dublin suburb of Tallaght. As part of the arrangement, Amazon will build a new energy centre to collect and distribute exhausted heat into the local area. This paper will analyse the historical role anthropogenic fire has played in shaping the urbanisation of European civilisation. In addition, it will use a case study analysis to explore the new role data centres, and their advanced machine learning systems play as agents in the production of new forms of district heating infrastructure. In doing so, this paper will reveal how fire is once again a primary driver in the reshaping of our urban habitats; opening them up to a stealthier and more pervasive form of the Smart City.

Sustainable futures – Light and energy: The need for re-thinking the use of artificial lighting in the built environment

Ruairi O'Brien | Ruairi O'Brien Design, Dresden & German University, Cairo
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The need for re-thinking the use of artificial lighting in the built environment is my topic.

The correct artificial lighting of the built environment begins with a holistic understanding of what one is lighting and why one is lighting what. Too many heritage sites, buildings, public spaces, streets and rural areas are being “beautified” with artificial light at night for an uncritical tourist market or for an uneducated consumer market. This is not sustainable or desirable. The advancement of new technology and societal change require innovative rethinking in this area. The unfortunate “BOTOX Lighting”, (Static, frozen and unreal lighting of objects and spaces) does not do justice to the materiality and character of buildings and public spaces nor does it enhance the nature of night. In this sense we produce a “Fake News” lighting that depicts a narrative that communicates architectural and spatial misunderstandings and manipulates the memories of the space or object thereafter. The unique identity of all historical areas and buildings (also contemporary buildings) requires a dynamic lighting concept, that accepts the need for tourism and the contemporary expectations of visitors and citizens today, without creating either a false/fake kitsch narrative of the past or a polluting sauce of cheap and glaring illumination for the future. The true narrative of the past was darkness, this has a power and a beauty that should be re-discovered and built upon, light at night should be added carefully and responsibly. This is the future of architectural thinking, close to nature, the earth as client, achieving more with less. Insensitive artificial lighting destroys the special dusk transition between day and night and does not consider the importance of the silhouette of buildings against a changing sky or in dialog with the darkness and sparkle of stars and moon at night.

Architecture with the big foot that leaves such a large (unmeasured) print

Oliver Kinnane | University College Dublin

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The value of architecture is (mostly) obvious, but what are architecture's values? Many/most engaged in architecture and associated disciplines are well-intentioned, public-minded people. Yet the architecture and(/or) construction industry is damaging and increasingly dangerous. This is particularly concerning today when remaining carbon budgets, which should not be exceeded to avoid climate catastrophe, are so tight. The footprint of every building constructed must be viewed as another slice taken from that increasingly diminutive budget. Research published in *Nature* in 2018 predicted a 2.2 trillion tonne of CO₂ budget to limit warming by a further 1°C.¹

Architecture produces considerable CO₂ when it consumes the client-called-Earth's resources during the construction, and through the life, of each building, but pays remarkably little attention to the efficiency or impact of doing so? Of course, efficiency (an essential indicator in science) can only be achieved if impact is measured, and improvements are quantified against past iterations. In architecture ironically little is ever measured. Lines might be measured out on a drawing, to represent the future intervention, but the resources the building will consume in the process of its construction, or during its operation, are commonly never measured.

A small residence might consume 1,500 Million Joules of energy to construct – a quick back of the envelope calculation equates that with the energy necessary to support seven human lives to eighty-five years, assuming a healthy diet (2500kcal/day). The new nZEB standard of 2020 stipulates a net energy load of 15–30kWh/m²/yr for such a residence – not far off an efficiency increase of over 10 times today's standard for (measured) residential energy use. Architecture take note.

Here's another measure; globally it is expected that we will double our current built floor area by 2060 (to 520 billion m² of floor area).² In Europe – where we are presumed to have mainly built our cities, and hence future construction levels are expected to be amongst the lowest globally - it is expected that an additional 25 billion m² of floor area will be added, of which approximately 75% in the EU is residential.³ Given these numbers, more than 18,750 billion m² of housing will be developed in Europe alone. The carbon intensity of electricity in Ireland is 437gCO₂/kWh, equating to >13kgCO₂/m²/yr for a 30kWh/m²/yr nZEB home in operation.

Initial estimates quantify an energy load of $\sim 246 \times 10^{12}$ kgCO₂/yr (246,000 billion tonnes CO₂/yr) to run the expected addition to the European housing stock built to the aforementioned hugely ambitious nZEB standard. (Note: numbers calculated for 2060, assuming current energy carbon intensity conditions). 245,000 billion tonnes of CO₂ represent 11% of the total budget reported in that paper published in *Nature*. Even that small subset of architecture has a large footprint.

Why ask about architecture's values? This paper questions architecture's ignorance of science, measurement and quantification. If architecture values engaging in the prevention of environmental and societal collapse, it surely needs to reduce its impact, and to do so, it first needs to measure it.

¹ Millar et al, R. Emission budgets and pathways consistent with limiting warming to 1.5 °C. *Nature Geoscience*, 2017.

² Global Alliance for Buildings and Construction. UN Environment, Global Status Report. 2018.

³ BPIE. EU buildings under the microscope. 2011.

AGE: Educating architects in the late Holocene

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The design and construction of buildings, cities and infrastructures throughout the history of human civilisations variously reflect both a resistance to, and an engagement with, the fundamental forces of nature. One hundred years ago, Albert Einstein elegantly described the relationship between energy and matter, space and time with the simplicity of $E=mc^2$.

To echo this simplicity, our aim is to develop an integrated studio teaching environment to understand the core topics of Assembly, Gravity, and Energy: $A+G=E$ – by questioning how the forces of nature affect how and why we build.

Across the first three years in the School of Architecture, University of Limerick, AGE provides the opportunity for students to explore potential architectural responses to these forces with appropriate material, structure and environmental systems, within related material, technological and anthropological contexts. Over six semesters, these studies of the forces of nature takes place across a range of scales – from the atomic structures of matter, to the scale of human experience in the built environment, to the global systems and scales of climate, geography and geology.

The three courses of AGE – Assembly & Techniques, Gravity & Reaction, and Environmental Systems & Forces – are taught collectively in a project-based studio by architects together with engineers. Our shared discussions with the students, week by week, are underpinned by the development of integrated design thinking, evidenced through the student’s understanding of the relationships between material, structure and environmental thinking through drawing and model-making of particularly chosen projects. These projects are related to key moments in the Holocene – so-called ‘Golden Spikes’ – from the emergence of agriculture 12,500 years ago, to the professionalization and industrialisation of construction in the Enlightenment, and the ‘Great Acceleration’ of 20th century modernity.

By constantly asking the question “why?”, this pedagogical approach seeks to critically communicate the current climate crisis in a historical context, seeking lessons learned to consider how we might collectively act in the late Holocene.

Marion Mahony Griffin: Tracing an Irish line through her animism

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Born in Chicago in 1871, Marion Mahony was the daughter of Jeremiah Mahony, an emigrant from Cork, and Clara Hamilton from New Hampshire. Her father, a journalist and teacher who wrote poetry, died when she was eleven but passed on an appreciation of the Celtic Renaissance to his daughter. Mahony was the second woman to graduate from MIT with a degree in architecture and the first licensed to practice architecture in Illinois. Early in her professional life she worked in Frank Lloyd Wright's Oak Park studio, developing the drawing style through which many of Wright's Prairie Houses were designed and presented. With her husband, Walter Burley Griffin, she won the international town planning competition for Canberra in 1911. The couple moved to Australia and later to India, designing buildings and urban landscapes in both countries until Griffin's death in 1937. Returning to Chicago, Mahony Griffin wrote and compiled a memoir entitled 'The Magic of America'.

An attempt to situate life and architecture within nature runs through her work, an endeavour informed by a metaphysical, animistic understanding of the earth. Her belief in a spiritual dimension to nature drew on diverse sources from around the globe – American transcendentalism, German anthroposophy, Australian aboriginal dreamtime – but one of these sources was her Irish heritage. This paper draws attention to Mahony Griffin's use of this heritage within her 'worlding'.

A Grounded Theory Approach to Understanding Participation in Live Projects Abroad

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Constructivist grounded theory (CGT) is an increasingly established method for qualitative inquiry, particularly in fields such as nursing, education and psychology. However, its application in architectural research is underutilised, especially in emerging architectural contexts. In response to a lack of research into the role stakeholder participation plays in live projects (Harriss, 2015; Brown, 2012; Till, 2012)¹, a lack of ‘participation’ definition within design research (Sanders and Stappers, 2008; Halskov and Hansen, 2015)² – and in line with calls for a departure from traditional understandings of participation in an era of globalisation (Lisius, 2012; Bannon et al., 2018)³ – this paper investigates the appropriateness and suitability of CGT for understanding the role of participation in an emerging live project context. The paper draws on key grounded theory literature, delineates emerging methodological trajectories for CGT, and highlights key significances that exist for live project inquiry. Following a two-month volunteer-based case study placement for the live build of a coconut oil processing facility in Fiji, the author uses this project as a test case to assess the appropriateness and suitability of CGT for such contemporary architectural discourse. Progress in the study thus far is presented, in advance of beginning CAQDAS use through NVivo for ongoing qualitative inquiry – to help deliver a needed theoretical knowledge base of live project participation (Brown, 2012).⁴

¹ Harriss, Harriet. (2015). ‘The Absence of the Community Voice’ In: *Architecture Live Projects: Acquiring and Applying Missing Practice-Ready Skills*. [PhD Thesis]. Oxford, UK: Oxford Brookes University. p.254. ; “There is much to be learnt from research that consults the other participating stakeholders in the live project”, and “there is much work still to be done in developing a comprehensive theoretical knowledge base relating to live projects”. As written in: Brown, J.B. (2012). ‘10.4: Areas for Future Research’ In: *A Critique of The Live Project*. [PhD Thesis]. Belfast, Northern Ireland: Queen’s University Belfast. p.273 ; Attested to by: Till, J. (2012). Keynote Speech, Oxford Brookes Live Project Symposium. (Thursday 25th May, 2012). “Many Live Projects practitioners do not realise the scope and scale of the community to which they belong”.

² Sanders, Elizabeth B.-N. & Stappers, Pieter Jan. (2008). ‘Co-Creation and the New Landscapes of Design’ In: *CoDesign*, 4:1, pp. 5-18, DOI: 10.1080/15710880701875068. Available at: <https://www.tandfonline.com/doi/full/10.1080/15710882.2015.1081246?src=recsys>. [Accessed on 11 May, 2018] ; Attested to by: Halskov, K., and Hansen, N.B. (2015). “The Diversity of Participatory Design Research Practice at PDC 2002–2012” In: *International Journal of Human-Computer Studies* 74: 81–92.10.1016/j.ijhcs.2014.09.003. ; “Participation, as a matter of concern, goes against universal standards for participation and the ability to claim, as a matter of fact, what is and what is not participation”. As quoted in: Andersen, L. B., Danholt, P., Halskov, K., Hansen, N. B. & Lauritsen, P. (Oct 2015) ‘Participation as a Matter of Concern in Participatory Design’. In: *CoDesign: International Journal of Co-Creation in Design and the Arts*. 11, 3-4. pp. 250-261.

Available at: <https://www.tandfonline.com/doi/abs/10.1080/15710882.2015.1081246>.
[Accessed 25 Feb. 2018].

³ As noted by the purpose of the review by: Lisius, Peter H. (2012). Review of 'Scholarly Practice, Participatory Design and the Extensible Catalog' by Foster, N. F., Clark, K., Tancheva, K. and Kilzer, R. (eds.) (2011) in *Technical Services Quarterly*, 29:3, pp. 259-261. DOI: 10.1080/07317131.2012.682039. Available at: <https://www.tandfonline.com/doi/abs/10.1080/07317131.2012.682039>. [Accessed 22 Jun. 2018]. ; Bannon, L., Bardzell, J., and Bødker, S. (Dec. 2018). 'Reimagining Participatory Design'. In: *ACM Interactions* 26(1). pp.26-32. Available at: <https://doi.org/10.1145/3292015>. [Accessed 03 Apr. 2019].

⁴ As written in: Brown, J.B. (2012). '10.4: Areas for Future Research' In: *A Critique of The Live Project*. [PhD Thesis]. Belfast, Northern Ireland: Queen's University Belfast. p.273.

Fishing Architecture: tracing a complex social ecology

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This paper aims to trace the connexions and correlations between urban developments, architecture and fishing practices. Its purpose is to assess an history of architecture according to the history of marine ecosystems. Architectural history is grounded in social history, the behaviour of humans dictated by its land interactions, economic tensions and technological shifts. Nonetheless, it is possible to assess some of its practices through reading the fluctuations of natural resources, fishing efforts, species biomass and, by doing so, attempt to describe a level of the complex social-ecological systems where architecture intervenes.

Our hypothesis relies on the assumption that different fishing techniques produce different landscapes, and various fishing processing practices generate varied built environments. From the nineteenth century fish flakes for drying cod, to the early twentieth century canning factories, to the mid-twentieth century boat-factories, up to the contemporary aquaculture facilities, it exists a link between the form of architecture and fishing techniques. Different fishing techniques have different impacts on fish stocks and marine ecosystems, hence, it is possible to connect such various practices with their on-shore counterparts. This paper aims to discuss the feasibility of such research strategy, its potential and pitfalls, and to assess paths for further inquiry in order to relate fishing and architecture.

The Vital City and the Mechanised Space for Meat: The Shanghai Municipal Abattoir in 1933

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By the nineteen-thirties, Shanghai had become the world's fifth-largest city with around three million inhabitants. To furnish an appropriate meat supply for both Chinese and foreign community, the Municipal Abattoir was established as a modern and scientific institution in the International Settlement under the supervision of the Public Health and the Public Works Departments. Facilitated by the latest equipment, the mechanisation of mass slaughter not only disclosed the mutual alienation between human and animals but reflected the exportation of Western rationality and its adaptation.

Connecting the livestock lairage to the cooling chambers for meat storage, the dismembering process was in line with the continuous flow of industrial manufacture, which represented the technological mastery over nature. The three-floor reinforced concrete structure provided a hygienic environment open to staff inspection and its facade of dainty trelliswork shunned the public gaze. Following a disciplinary logic, the well-organised project in an economic and functional layout was an authorised agency for centralised provision, which epitomised the implementation of sanitary bureaucracy. By advocating the humane killing methods and the self-contained system, the municipal authority exhibited itself to be progressive and forward-looking. The ingenious design took local requirements into consideration and met the communal interests of public and private operators, which laid the foundation for its sustainable success.

Constructed as the then most up-to-date building of this kind in the Far East, the Shanghai Municipal Abattoir was an outcome of interdisciplinary cooperation and became the site of knowledge transfer. The project aimed to enhance the city vitality by providing appropriate food products and served as a social instrument. It played a civic role in safeguarding public health and was conceived and performed as part of the civilising mission to modernise the urban environment.

Sharing the earth: Online existence of young refugees and their spaces

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"It is only through architecture that we see the point of view that is no one's in particular and everyone's in general. Buildings do not lie to us: they tell the truth without taking sides. Every little detail in an urban configuration is an honest register of a lived story." – Marwa Al-Sabouni¹

This study aims to capture the significance of the built environment -be it temporary or permanent- in the context of forcefully displaced young people via YouTube videos made in their current city or camp. Focusing on migration, architecture and film, the study brings the subjective view of the film camera into the conference room via 4 videos commissioned in the last 5 years. Benefiting from Syrian architect Marwa Al-Sabouni's argument (above), it attempts to 'read between the lines' using the filmic representations of architecture to have a more objective view of the transported lives of refugees who are underage. There are more than 70 million displaced people worldwide, about half of whom are below the age of 18.² The study analyses the videos about Issa relocated from Syria to Istanbul, Turkey, Hamze from Mosul, Iraq to Idomeni, Greece, Hiba from Syria to Macedonia, and Rostislav from Minsk, Belarus to Montenegro commissioned by the CNN, Operation Blessing, UNICEF and UNHCR respectively. It aims to be a step in defining some of the misconceptions around these young members of the society, breaking down some of the barriers and, in the long run, towards integration, and celebration of diversity. The study uses film to understand the architectural and urban challenges and desires of refugee populations in different parts of the world. Audio-visual recording can be a powerful tool to disseminate young refugees' public and private spatial needs in their new environment.

¹ Al-Sabouni, Marwa. 2017. *The Battle for Home: Memoir of a Syrian Architect*, London: Thames and Hudson, p.10.

² United Nations High Commissioner for Refugees, the (UNHCR). 2019. *Trends at a Glance*. Accessed October 2, 2019. <https://www.unhcr.org/globaltrends2018>.

Not all houses are created equal: using Bourdieu's concept of habitus to explore how working-class mothers understand place and home

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This paper broadly explores the meanings a small sample of working-class mothers attach to the experience of places and home. Furthermore, drawing on the data it unpacks how the body is in the home and place, but also how the home and place are in the body and the implications of this in terms of how people undertake the ordinary encounters and work of life.

Other insights emerged from this data about how place, home, and body intersect and how the chaotic home and place become embodied and constitute a lens through which the world is encountered. Across all their conversations are subtle and powerful articulations of how houses, immediate environs, and place are known and read, and constitute 'the practical operator of the transmutation of things into distinct and distinctive signs' (Bourdieu: 1984: 175). Working class mothers are described as the shock absorbers of poverty and much research supports how they often go without themselves, how they extend out of themselves daily. In conversation with these mothers, practical mappings of 'what's reasonable for the likes of us', what's not for me, what's worth considering are laid down internally. Conditions for participation in social life are "deposited" in the body.

For Bourdieu (2000) the body, the biological individual is situated in a place, it is where that individual takes place, exists, but that place occupies a distinct and distinctive place which can be characterised by the position it occupies relative to other positions. Bourdieu's sociology of the body is a central chapter of his sociology of domination, the body and bodily schemes are linked to a place by a direct relationship of contact. "Corporeal knowledge" (Bourdieu: 2000) provides a pivotal way of comprehending the world and offer considerable insight in terms of understanding domination.

Implicit Narratives of the City: The city as language and “repository of possibilities”

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Acting as a “practitioner of the city”, (Michel de Certeau, 1984) walking is used as a method to make a section through the urban terrain. The continuum of the sectional cut passes through the connecting tissue of the city, reinforcing the equal importance of public space and the built form. The linking of a series of projects within the city reveals interconnected moments of detail along the route. Through the unpicking of these moments an implicit narrative of the city is revealed, a narrative of the juxtaposition of conflict and regeneration and the endless stories that animate it. The aim of this paper is to engage in a dialogue with the city where; “city is a language, a repository of possibilities, and walking is the act of speaking that language, of selecting from those possibilities” (Rebecca Solnit, 2001). – The paper is part of ongoing PhD research supervised by Dr. Denis Linehan and Professor Kevin McCartney.

Michel de Certeau, *The Practice of Everyday Life*, Berkeley: University of California Press, 1984
Rebecca Solnit, *Wanderlust: A History of Walking*, Verso, London, 2001

The provocation of Kevin Barry's *City of Bohane* as an environmental future for Ireland

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In this paper I will consider the fiction of Kevin Barry, in particular his award-winning debut novel *City of Bohane*, published in 2011. Barry is the literary architect of Bohane – a city on the western seaboard of Ireland, forty years into the future. The novel presents a functioning dysfunctional city, mired in social upheaval, rife with tribal tensions, loaded with the threat of imminent violent feuding.

My reading of *City of Bohane*, however, does not focus on the main plotline of the novel. My interest lies in how the story is built from a deep intertwining of climate, weather and ecosystem: the land and its people. I focus on land, as opposed to landscape; on violence in terms of the environment; and on the primacy of place in Barry's work through his foregrounding of the topography of the city and its surroundings, the bodies of the citizens as they navigate this territory, and the voice of the place and its people through language. Considering environmental humanities, Derek Gladwin and Maureen O'Connor (2017, p. 39) write,

“How to alter the ways we perceive and imagine our environmental futures depends upon who controls the social narrative of our time, or the ‘zeitgeist.’ The arts and humanities, including poetry, photography, cultural geography and history, have the power to change such perceptions and influence environmental policy.”

I wish to present Barry's *Bohane* as a contribution that speaks to this power: a fictional construction that has a deep, implicit understanding of the earth as our client, and through this proposes a possible environmental future for Ireland as a provocation to its contemporary readers.

Gladwin, D. and O'Connor, M. (2017) “Irish Studies and the Environmental Humanities” *Canadian Journal of Irish Studies*, 40, 38 – 49.

The Leftover City: Exploring the Alternative Uses of Leftover Sites in Urban Environments

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This paper introduces the term *Leftover City* in order to investigate the presence of leftover sites in urban environments and the impact that these sites had historically and still have in the work of architects, critical theorists, artists as well as policy makers and city users. We use the term *leftover* to describe sites that are abandoned, underused and, usually, neglected by the dominant patterns of use in the city. To understand the phenomenon of leftover sites, we consider both the historical conditions and the mechanisms that are responsible for their production.

The research question that we introduce is whether leftover sites can act as a resource for urban life by hosting temporary or alternative uses. The Leftover City is a term that describes the possibilities that the sum of leftover sites can have for the city when they are acknowledged as resources for satisfying present as well as future alternative needs, and when they are documented and treated as a network parallel to the dominant routine networks of the city. By exploring the concept of the Leftover City, the paper contributes to the broader discussion about urban sustainability and, in particular, the sustainable development of cities with a localised character. It also adds to our understanding of the role of architectural design as a means of enhancing the existing identity of a locale.

Our research on the Leftover City has been developed in parallel with our urban and architectural practice *draftworks architects*. In the paper we discuss two urban projects about two Mediterranean cities; The *Garden Archipelago* project in Nicosia, Cyprus and the *1000 Gardens of Mazara* in Mazara del Valo, Sicily. At the same time we discuss *Leftoverness* as a strategy for architectural design. Leftover parts of a building, as the by-products of the design process, are comparable to the role that the leftover sites have for a city: they are not considered necessary, they are often overlooked, yet they are the places that can host all the informal activities of the city, they are the places that enrich the city, and by extension a building, with a set of countless possibilities.

Coast as Client: Rebuilding the coastal baths in Dun Laoghaire

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The sea is the most important element of the Baths at Dun Laoghaire – people are drawn here to the sea for its ever-changing dynamic visual character, its recreational potential, maritime wildlife, the refreshing microclimate it creates and its spiritual qualities. The views are panoramic and spectacular – the local shoreline, of Sandycove and Dalkey Hill, of Dublin Bay and of the infinite sea beyond.

The existing materials of the site can be divided into two groups – natural and manmade. The natural include deposited rocks and weathered outcrops of the underlying granite and granite brought from Dalkey Quarry used to create walls and breakwaters. Manmade materials include concrete – both massed in coastal defences and somewhat elemental coastal structures and furniture. The effect of the salty seawater and the force of the sea on these and the synthetic materials are part of the intrinsic character of the place, making the area endlessly compelling as patterns are constantly created, destroyed and renewed.

The proposed works at the Dun Laoghaire Baths site provide for the continuing public use of the area: the retention and securing of the existing Baths Pavilion for use as artist workspaces, a gallery café and for the provision of public toilet facilities, the creation of a new route and landscaping that will connect the walkway at Newtownsmith to East Pier and finally the creation of new enhanced facilities for swimming and greater access to the water's edge by means of a jetty.

This presentation will highlight the relationship of the proposed works to critical considerations such as extreme tide and wave conditions, effects of climate change, in particular sea level rise and the frequency of storms, allowable overtopping requirements both for flood risk and public safety, changes to littoral processes (sediment movement), ground conditions and material choices.

Dwelling when “the” earth disappeared: The case of the submerged settlements

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We would like to present a research that is part of an international project involving Spanish and Italian researchers. The main objective of our research is a comprehensive examination of a case study common to Italy and Spain: the settlements that were submerged as consequence of the construction of water reservoirs to produce electricity and the settlements that remained as relicts after the submersion of whole valleys in order to allow extensive agriculture.

These operations, which were mostly located between the late 1920s–1960s, caused a great number of residences in mountainous areas to be flooded. Many villages, disappeared completely under water which led to the construction of new population centres with buildings and structures that replicate not only the external appearance of these lost villages and ancient buildings, but also in some cases their former topographic placement resuming the form that they had with respect to the earth.

In respect to the villages empty or consolidated as ruins, the citizens that were forced to leave, remained however linked to these places. Many of these populations come back periodically to maintain some traditions or rites. The same occur to the populations whose villages had been submerged: they come back when the increasingly frequent periods of drought expose their homes.

All these phenomena tell us about a relationship between dwelling and the earth itself, the one they were once physically attached to, and with which still these dwellers have a connection even if that earth no longer exists as they knew it; it is submerged, disappeared.

This situation allows us to ask ourselves to what extent dwelling is related to the earth itself and how it is possible to maintain this link, precisely, when it is physically broken. This reflection can help to find the roots for the reconstruction project of destroyed areas as a result of war or natural disasters, such as earthquakes. To do so we think that is possible to take as an example another kind of disasters, in this case programmed, such as the construction of dams.

A situation that do not allow to return never again to “that” earth; historically, however, as we have seen, people have tried to maintain a link, in order to relieve the trauma.

Moving Mountains – Power in the Hills: the ESB, Sylvia Crowe and Andy Devane

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In 1968, the ESB began work on what was to become the largest civil engineering operation ever undertaken in the State. Turlough Hill Pumped Storage Scheme, the lesser known sister of the ESB's pioneering Ardnacrusha Hydro Station on the River Shannon (1929), involved the construction of tunnels through the heart of the mountain and the carving out of an upper reservoir with the capacity to hold 500 million gallons (2.3 million cubic metres) of water. Located in one of Ireland's most scenic locations in the heart of the Wicklow Mountains National Park, the ESB, with the assistance of landscape architect, Sylvia Crowe, and architect, Andrew Devane, created an electricity power station which harnesses nature's strength without disturbing its fragile balance.

Fifty years on, climate change is a stark reality, and we are still grappling with how to generate energy to fuel our lives without destroying the planet. What can be learnt from Turlough Hill with regard to the integration of engineering, landscape design and architecture?

Sylvia Crowe (1901–1997) was a multi-award-winning British landscape architect and author of many books including *The Landscape of Power* (London: Architectural Press, 1958). Her appointment – her only Irish project – signifies the scope of the scheme and the vulnerability of its location. Andrew Devane's (1917–2000) intervention at Turlough Hill is typically modest; his design of the central administration building demonstrates restraint and sensitivity appropriate to place.

With the benefit of half a century distance from its completion, Turlough Hill presents the ideal opportunity to assess the importance of environmental design management as a key component of major infrastructural development, particularly in relation to the generation of clean power. Turlough Hill is an example of how, with true understanding of place, good design can "*invent the narrative of the world we must work for ... the narrative of how we will live*" (Mary Robinson).

"Faeries, come take me out of this dull world,
For I would ride with you upon the wind,
Run on the top of the dishevelled tide,
And dance upon the mountains like a flame."
(William Butler Yeats, *The Land of Heart*)

Authors

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Notes

