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Built and Natural Environment Research Papers

SPECIAL ISSUE: ARCHITECTURE

The toughened glass ceiling: women in architectural education in 2012
Feral City: a Dystopia
Portmeirion, Perspective and Pleasure
Restoration: Authenticity and Deception
Learning through making in architectural education: developing the curriculum at Northumbria University
Pier Luigi Nervi, the Quadrante years
Memory + Meaning in Modern Architecture
The changing patterns of architectural design education in the UK and some implications for practice
Marxist Planning in Little Moscow
'The fallen fishermen': the religious maritime buildings of the River Tyne

2012 Volume 5 pages 1-115

Built and Natural Environment Research Papers

2012 Volume 5, No.1, pages 1-115

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Purpose of Built and Natural Environment Research Papers

The aim of this Journal is to provide an opportunity for preliminary publication of material that is in progress, or likely to be developed further in the future. Contributors will primarily be members of staff of Northumbria University School of the Built and Natural Environment and its partner organisations. Articles are welcome in any discipline (or interdisciplinary fields) relating to the Built and Natural Environment. Enquiries should be made to be.editor@builtenvironmentjournal@northumbria.ac.uk. A template of the format will be provided on request

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Editorial

Welcome to this special issue of Built and Natural Environment Research Papers, which provides a long-overdue opportunity to celebrate Northumbria University's diverse research activities and achievements in the subject of Architecture.

Northumbria's Architecture programmes are based upon narrative, place and context. This approach informs methods of teaching and learning, and is evident within student project work. It is an ethos that goes beyond a sense of regionalism, yet remains situated within an authentic locale, making use of proximate histories, narratives and landscapes to inform and promote ideas around place and its formation. The recognition of, and contribution to, the genius loci of the territory is central to our approach to design studies, producing well-rounded, employable and inquisitive graduates with a coherent understanding of architecture and the wider context.

The Architecture degree course was established in 1997 and the Professional Diploma course began in 2006, becoming the Master of Architecture programme in 2009. Both courses are prescribed by the Architects Registration Board (ARB) and validated by the Royal Institute of British Architects (RIBA). The Interior Architecture course was established in 2011 with a focus on the re-use and adaptation of existing buildings and their interiority. It uses existing sites to exploring theories of narrative, place and context, aiming to help graduates develop a critically-informed attitude towards the built environment. Its first cohort will graduate in 2014.

Architecture courses at Northumbria University are highly regarded within Architectural education and the wider profession. Student achievements have included winning the RIBA Serjeant Award for Excellence in Drawing (2008), the 3D Reid Student Prize (2009), the APS National Student Designer Award (2010), plus regular nominations and shortlisting for the RIBA President's Medals, and numerous regional RIBA Hadrian Awards and practice-sponsored successes. Our graduates secure professional posts in a wide range of regional, national and international practices, bringing valuable and transferable skills into the discipline. The teaching staff come from a wide range of academic and practice-based backgrounds, and share common beliefs regarding approaches to the subject disciplines and teaching and learning.

The production of this special edition coincides with the retirement of Peter Beacock, the outgoing Head of Architecture and the principle originator of Architectural Studies at Northumbria University. Peter has steered the embryonic course into an exemplary suite of Undergraduate and Masters studies. The subject discipline has grown to over 300 students across its programmes, which consistently excel in terms of student satisfaction and subject league tables. Peter's expertise, efforts and knowledge have been instrumental in Architecture becoming central to the academic activities of both the Faculty and University, for which he deserves our sincerest gratitude.

This special issue reflects the diversity of research interests among Architecture staff and students at Northumbria, with papers covering a range of issues from architectural teaching and practice to explorations of the work of noted architects. Peter Holgate, Teaching Fellow, and Kelly McKinnon, Senior Lecturer, have developed a paper from a thesis by Jenna Salter, a former student who graduated as a Master of Architecture (MArch) in 2010. The paper, *'The toughened glass ceiling: women in architectural education in 2012'*, explores the low representation of women in architectural practice,

Continued overleaf

using findings from a qualitative research inquiry into the experiences of female architectural students at Northumbria University. *'Feral City: a Dystopia'*, by another 2010 MArch graduate, Abbas Norozi, and Sebastian Messer, Senior Lecturer, considers Dr Richard Norton's view of societal collapse and the breakdown of economy, security and services, with reference to the social, geographic and political features of today's cities. A second paper by Sebastian Messer, *'Portmeirion, Proportion and Perspective'*, written in collaboration with former student, Francis Ellis (MArch, 2010), analyses the development and shifting perspectives within Portmeirion, the Welsh holiday village created by Bertram Clough Williams-Ellis. Katy Lomas (MArch, 2010) and Paul Ring, Senior Lecturer, have produced a paper on *'Restoration: Authenticity and Deception'*, exploring attitudes and approaches towards the decay of buildings, and the potential problems associated with their restoration and further development. Lecturer Will Campbell's *'Learning through making in architectural education: developing the curriculum at Northumbria University'* examines the role of practical learning in modern Architectural education and proposes a number of guidelines to support the development of a curriculum to enable students to develop key skills. *'Pier Luigi Nervi, the Quadrante years'* by Manuel Cresciani, Senior Lecturer, is a study of writings by the Italian structural engineer, exploring the development of his own architectural style, and the contribution he made to architectural debates of the time. BA Architecture Programme Leader, Ben Elliott, and former student Mark Todd, who received a Diploma in Architecture in 2009, explore issues of memory and meaning in modern architecture, and asked how modern architecture can establish a creative relationship between past and present in their paper, *'Memory + Meaning in Architecture'*. Professor Bob Giddings, and Margaret Horne, former Principal Lecturer, explore the use of Computer Aided Design (CAD) in teaching, in *'The changing patterns of architectural design education in the UK and some implications for practice'*. Senior Lecturer Stephen Roberts and another 2010 MArch graduate, Christopher Permain, present *'Marxist Planning in Little Moscow'*, a study of the industrial, political and community history of the former mining village of Chopwell in the North East of England. The final paper is *'"The fallen fisherman": the religious maritime buildings of the River Tyne'* by Mark Whiting (2011) and Peter Beacock. It explores the historical relationship between the Church and the fishing industry, and the religious and other buildings that are evidence of this link.

We would like to thank all of the authors and reviewers for the time and hard work they have devoted to ensuring that this special issue is a success. Thanks also go to Emine Mine Thompson, former BNERP Editor, for her help and support in bringing the issue to fruition, as well as Paul Greenhalgh, Associate Editor, members of the Editorial Board, and staff of the former School of Built and Natural Environment for their continued support.

This edition is published at a time of change for the University. The School of Built and Natural Environment merged with Computing, Engineering and Information Sciences in September 2012, forming the new Faculty of Engineering and Environment. This is part of a wider programme of transformation, Vision 2025, which will attempt to enhance the University's profile and standing within the UK higher education sector. Many changes lie ahead for staff and students. Unfortunately, one such change is the disestablishment of this publication due to a lack of support at Faculty management level. The editorial team involved with producing the School Journal wish to express their gratitude towards its authors, reviewers, supporters, and readers for their interest and loyalty over the past five years.

Gill Davidson
Special Issue Editor

Paul Ring
Editorial support

The toughened glass ceiling: women in architectural education in 2012

Jenna Salter¹, Kelly MacKinnon² and Peter Holgate³

ABSTRACT

Low representation and poor retention of women practitioners in architecture remain as failings within the profession. Recent surveys reinforce the fact that architecture suffers in comparison with law and medicine with respect to equity between the sexes. Following initial, broader research by one of the authors (Salter, 2010), a small scale qualitative research inquiry into the experiences of female architectural students at Northumbria University (NU) was conducted in 2012. Questionnaire responses were elicited from NU graduates in response to recommendations arising from a report commissioned by the Royal Institute of British Architects (RIBA) in 2003. This paper reports on the responses provided, and their practical potential to improve the architectural programmes at NU with respect to diversity, equality of opportunity, support and provision for all students.

INTRODUCTION

Gender inequities in the established professions are not news; however, recent reports have highlighted continued prejudices and obstacles for women practitioners of architecture in the UK. A survey of architecture graduates commissioned by the RIBA produced some key observations:

'...men were more likely to be working in architecture with 82% compared to 71% of women respectively employed in architecture. Men were also more likely to be employed on a permanent or open-ended contract on a full-time basis than women (38% compared to 26%). Furthermore 42% of those women who did not work in architecture stated that they

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were prevented from working in architecture as a result of a 'lack of confidence' compared with only 21% of males. Gender already seems to be impacting on female respondents even at this early stage in their career.'

(Samuel and Foster, 2011)

In 2012, the Architects' Journal devoted an issue to 'Women in Practice' which argued that the architectural profession had failed to progress substantially with respect to gender equality. This journal cited ARB figures that only 20% of the profession's registered architects were female, with around 40% of architecture students being female (Architects Journal, 2012). Concurrently, an RIBA survey reported that the proportion of women in the architectural workforce had reduced from 28% in January 2009 to 21% in December 2011 (Young, 2012). To compound the issue, further analysis of the AJ research has revealed significant disparity in pay between men and women architects, with 84% of men at director level or similar receiving pay in excess of £51,000 per annum compared with only 47% of women with equivalent professional standing in the same financial bracket (Murray, 2012). This is in direct contravention of the Equality Act 2010.

Architectural practice by necessity interacts with the cultures of other professions within the building industry, and is influenced by normative attitudes to a host of issues, including women in practice. This paper aims to specifically interrogate the programmes of architecture at Northumbria University (NU), seeking to identify key issues and to consider how these could be tackled, and educational practices improved. Gender-specific issues are compounded by anomalies and contradictions inherent in the education of an architect. Numerous commentators have identified systemic failings and poor practices that continue to flourish in schools of architecture; for example, the cult of the individual rather than collaborative enterprise: *'...within architectural culture, the collaborative nature of architecture is repressed in favour of the star system and the hero architect – invariably male – who embodies the values of design genius and intense individuality.'* (Walker, 1997); the hegemonic and uncritical use of white male western architects as paradigms of quality in the syllabus of architectural history; studio learning with all its associated benefits and problems; and dominant cultures of power, exclusivity and entitlement (AIAS, 2002; Dutton, 1991; Cuff, 1992; Till, 2010)

ESTABLISHING THE RESEARCH PROBLEMATIC

The graduate author commenced her research with a review of key secondary data sources concerning women in architecture, and architectural education in particular. While undergraduate numbers at NU appear to demonstrate parity between female and male students, elsewhere the gap between numbers of men and women entering and pursuing practice appears to widen considerably. In response to such statistics, RIBA commissioned a report in 2002 into *'Why Women Leave Architecture'*, led by the University of the West of England (UWE). This report's aim was to identify causes for gender inequities in the profession, and to propose recommendations for change. As this study had a wide remit, it was only able to 'consider' educational aspects (de-Graft Johnson, et. al., 2003). The report did not uncover any particular hierarchy of reasons for women leaving architecture; however, similar themes repeatedly emerged in the data:

'- low pay – unequal pay – long working hours – inflexible/family unfriendly working hours – sidelining – limited areas of work – glass ceiling – stressful working conditions – protective paternalism preventing development of experience – macho culture – sexism – redundancy and/or dismissal – high litigation risk and high insurance costs – lack of returner training – more job satisfaction elsewhere'

(de Graft-Johnson et.al, 2003, p3)

The report identified that architectural education to some degree contributed to levels of dissatisfaction:

'Women felt that this (macho) attitude started at University. One cited an example where she had been forced to work almost continuously over a weekend, including at night in order to meet a completely unreasonable deadline imposed by a tutor.'

(de Graft-Johnson et.al., p20)

The report's authors made several recommendations for both practice and education. Of particular note for universities were: better dissemination of employment legislation and good practice; mentoring and advisory help and support; more diverse representation of the profession to the public; the embedding of gender equality in both the curricula and practices of architecture schools; more diverse staff profiles in schools of architecture; monitoring of the performance of schools in improving diversity targets and equal opportunities practice; and advisory practice notes for both architectural practices and schools of architecture to be produced by the RIBA. An evaluation of these report recommendations, with specific focus on their relevance or otherwise to the programmes at NU, formed the core of this paper's data collection.

INQUIRY DESIGN

The original student investigation which provided the impetus for this paper focused upon gender issues in architectural practice and education within the regional context of North East England. Qualitative data was gathered through a survey of undergraduate and postgraduate architecture students at both the University of Newcastle and Northumbria University, supplemented by interviews with professionals in North East architectural practices. Secondary quantitative data was provided by a variety of university and national statistics. A survey of open questions allowed female architectural students to raise their concerns anonymously. Students were asked their opinions concerning their experience of the architectural profession; their aspirations before entering architectural education; their experiences during undergraduate and postgraduate education; the quality of their year out placement experience; and their future career plans. The graduate author secured 67 responses to the undergraduate survey and 46 replies to the postgraduate inquiry. Analysis of the results found that key issues (not all of which were necessarily gender-related) surfaced consistently amongst the student respondents: stress and pressure; long hours; the learning culture; the 'crit'; 'macho' cultures; destructive criticism; opinionated and biased marking; cost, content and length of programmes; poor connections to industry; and negative year out experiences. However, by combining the results from both universities, the practical application of this analysis was effectively hindered by not assigning specific comments or issues to particular institutions or programmes.

With this practicality in mind, the current paper confined its research aims to the programmes of architecture at Northumbria University. As a small scale action research inquiry, it focused on: establishing the key issues for NU female graduates with respect to gender equality; seeking emergent themes from the questionnaires; and gathering suggestions for improvements to the courses. Sampling was therefore restricted to women graduates who had either a) studied exclusively at Northumbria University at Parts I and II, b) completed the Part II programme at NU after studying Part I at another institution, or c) left the architectural profession after completing Part I at Northumbria. This sampling strategy sought to ensure that responses were informed predominately by respondents' experiences in their year out practice, and during their studies at Northumbria. As the first graduates of the Northumbria Part II programme qualified in 2008, the sample size was consequently restricted to the 20 women who had graduated from the Part II programme over the four academic years from 2008 to 2011 (excluding the graduate author), plus two Part I graduates of Northumbria who had subsequently left architecture to join other professions. The inquiry was limited to graduates in order to encourage freedom of comment, without any possible or perceived threat of penalty from the institution. Responses were gathered by means of a semi-structured

questionnaire, enabling respondents to reply in depth to the issues presented. This document provided a wide remit of questions that allowed students to *'freely express their opinions without being directed'* (Punch, 2003). These questions were developed to directly address the recommendations made in the *'Why Women Leave Architecture'* report. The questionnaire, accompanied by a letter explaining the purpose of the inquiry and requesting the informed consent of participants, was emailed to the sample group. All responses were collated and anonymised by a third party prior to being forwarded to the authors for analysis.

RESPONSES

Six graduates submitted responses to the questionnaire. A larger response may have warranted a more systematic coding of the qualitative responses, using NVivo or similar methods, and could be deemed to have more widespread significance. The small number of submissions, however, enabled simple analyses and comparisons to be made. The quality and depth of the responses provided relevant, purposeful and insightful narratives (Cousin, 2009, Biesta, 2010), beneficial to the development of both future research inquiries and curricula. As aforementioned, the survey questionnaire focused on the key recommendations made by the original UWE report with respect to architectural education. These are listed below, together with specific responses garnered from the participants in response to these suggestions.

Recommendation 9: Schools of architecture need to change the staff profile to reflect diversity of the population.

Although under-representation of women staff members was acknowledged as an issue at NU, key responses concerned the quality of education rather than the enforcement of diversity:

'I think that there are more important things that could be done to improve rather than just appoint loads of women' (Respondent A).

'It shouldn't be a question of gender – it should be about who is best for the job'
(Respondent D).

The pastoral aspect of under-representation was also highlighted:

'...I'd have spoken more openly to a woman' (Respondent F).

Suggestions were also made that female NU alumni could usefully contribute to the community of learning, providing exemplars and mentoring to women undergraduates.

Recommendation 10: Schools of architecture should review their publicity, including websites, to ensure that it is accessible...and inclusive. Staff profiles should be included.

Interviews are normally conducted for applicants to both Part I and Part II degrees at NU, a factor which appears to have positively influenced applicants, although a stronger female representation at this stage was also suggested. Respondents also recommended that the undergraduate website should bridge the knowledge gap between secondary and higher education: *'Sixth form careers advice was terrible'* (Respondent E).

Recommendation 12: Reinforce need for and monitor teaching of diversity issues. Assess this through attitudinal assessment in coursework/exams.

Increased teaching of diversity (and wider practical and professional issue) was to be welcomed by the respondents:

'As part of further development, particularly for post-graduate students, I recommend lectures/CPDs to be organised on employment rights which touch on equality and diversity...would be useful knowledge and increase awareness' (Respondent B).

It was also acknowledged that 'diversity' could be even more diverse:

'In my opinion, NU has great links to industry which is perfect for many students. For me however – diversity is what makes architecture interesting and to fail to fully acknowledge the inherent diversity in all projects is to do architecture a disservice' (Respondent A).

A wider approach to 'soft skills' was recommended:

'In my experience females definitely seem to be more adaptable to engaging with aspects of the community...Being able to communicate with clients is vital' (Respondent E).

Recommendation 13: Embed Equal Opportunity Policy issues into curriculum and validation.

This was also felt to be an area which needed reinforcement in the curriculum.

(Describing professional practice) 'I have often felt patronised by some of my male colleagues. This is something that has made me feel uncomfortable and has been raised at HR, however not entirely sure what actions have been taken towards the issue' (Respondent B).

Generally, issues of employment rights and legislation were seen to be of timely and critical value:

'More about diversification, what you can do with your degree/qualifications in times of austerity' (Respondent C).

'I don't think with just regard to gender...particularly considering current climate aspects of employment law, your rights and obligations should be covered in greater detail. More graduates are now being employed on a temporary or contract basis, and also having to go through processes relating to redundancy ...this isn't covered by the course' (Respondent D).

Recommendation 15: Curriculum to cover and address working with diverse groups/people from different cultural backgrounds etc.

The general response was that this was rarely covered at NU:

'Not sure how this could be addressed through teaching other than raising student awareness as to what the public expect from an architect' (Respondent E)

Recommendation 17: Embed and embrace more diverse historical and theoretical content.

Respondents differed in their opinions on this point. While one respondent championed the use of female precedents in the teaching, another called for self-directed learning to address this point:

'Certainly at Part 2 there is freedom to approach this aspect from a personal perspective which I think is the most appropriate route' (Respondent D).

Field study visits beyond Western Europe, and a wider variety of guest lecturers were suggested as potential drivers towards these aims.

Recommendation 18: More diverse range of work presented and valued e.g. more women and minority architects profiled.

Consideration was recommended of separating the work from the personality:

'I don't really think this matters – I think what is important is that the type of architecture used is wide-ranging' (Respondent A).

It was also suggested that the architecture programmes should encourage a wider view of other design disciplines where female representation was possibly higher.

Recommendation 21: Sustained staff development across the board including senior ranks, support staff, admin staff, technical staff.

Thankfully, none of the respondents reported discriminatory behaviour from either NU teaching staff or fellow students (although staff 'favouritism' was highlighted by one participant.)

Recommendation 29: Review of and change in attitude within crits.

'I found the whole 'crit' idea very masculine and old school boys club attitude...Tutors and guest reviewers on a power trip to make themselves feel better' (Respondent C).

Generally however, respondents did not believe they had suffered gender discrimination at NU, where the core teaching team are continually endeavouring to replace the confrontational 'crit' in favour of constructive reviews and dialogue.

Recommendation 30: Develop new methods of presenting and assessing design work to increase the variety and types of representation which more accurately reflect the range of presentation and discussion in practice.

Parity, equity and transparency of assessment methods were highlighted in responses as being of key value, rather than the adoption of new methods:

'I think NU have trialled various methods of communication with varying degrees of success and shouldn't necessarily do more. I worry there is too much 'spoon feeding'...'
(Respondent E).

The excessive length of architectural education and professional accreditation was also highlighted as an issue of particular pertinence to women.

Recommendation 33: Mentoring for students.

Respondents were not supportive of positive discrimination:

'I don't think there should be any special mentoring for women students – in my experience they are highly motivated and organised and match their male counterparts' (Respondent D).

The quality of advice and mentoring proffered was stated to be of more importance. Peer-mentoring was generally considered to be a positive aspect of the studio system run at NU, and was regarded as something to be nurtured.

Recommendation 37: Commitment to developing a comfortable, supportive work environment for all which embraces diversity and promotes respect.

Generally, NU was reported to be providing a supportive learning and social community:

'...a 'mothering' of female students would surely be counterproductive to the long term goal of equal opportunity and mutual respect from male peers.' (Respondent E)

Supplementary comments which may benefit women in studying architecture at Northumbria University:

'Don't just focus on women...I don't think giving women special treatment such as mentoring or extra time with tutors will be beneficial in the long run. I believe that a more rounded focus would help, and maybe confidence building in a holistic way...to enable students to professionally and assertively articulate their opinions or requests' (Respondent A).

'I don't feel there are changes that can be made at universities to ensure (gender equality) will be the case, it will be down to the industry as a whole' (Respondent D).

'I currently know of somebody who is experiencing sexual harassment and bullying within the workplace and can see how difficult it is for these issues to be raised to an employer (particularly as the responsible party is within a position of power). This shouldn't be tolerated and should always be tackled' (Respondent E).

'Peer-mentors. Tutors giving honest and first hand experiences of the challenges they have witnessed' (Respondent F).

DISCUSSION

This inquiry, albeit very limited in its scope and response, highlighted some key, but bounded concerns of women architecture students at NU. The greater scale of sexism within the wider profession should, however, not be underestimated (Fowler & Wilson, 2004). Generally, the six respondents appeared to prioritise course content, aims and quality above any form of positive discrimination. Their positive and assertive responses provided encouraging signs that architectural teaching at Northumbria is developing successful programmes in terms of both pedagogy and social values.

Issues regarding policies and rights appeared to resonate with every respondent. As a result of this inquiry, it is hoped that a more comprehensive teaching of these issues will be incorporated into the architecture curriculum. In preparation for the year out of practical experience, the inclusion of diversity and equality presentations (possibly delivered by Human Resources staff from the University) would provide preliminary tools for students to consider whether their employers are meeting the diversity responsibilities enshrined in legislation.

Pragmatic concerns appeared to dominate the respondents' replies with respect to wider employment and societal concerns. These covered the profession as a whole, and echo the speculations of other commentators:

'What happens when men are also home-workers and part-timers? Will they not be competing like mad for anything that is going, be it a permanent job or short-term contract to be carried out on the kitchen table? Just at the point where the particular work experiences of women might be seen as a pattern for future employment, and therefore to their benefit, so the general situation of architects makes it increasingly unlikely that most within the profession will be able to do anything except struggle'

(Finch, 1996)

A wider curriculum could therefore also include issues such as general employment rights – including the enforcement of the minimum wage, which in the current economic climate is being wilfully disregarded by some offices in order to secure cheap, or free labour.

Future research at NU may build upon this paper, through deeper inquiry into the key concerns of the six respondents. As more academic years are completed in these relatively new programmes, such an

inquiry will clearly benefit from the increasing number of women graduates from the NU architecture programmes, who will bring a wider breadth and wealth of experiences in both education and practice. Sharing such experiences through a strong learning community will also be encouraged in response to the prominence of peer learning as a positive factor for all respondents in this inquiry.

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Feral City: a Dystopia

Abbas Norozi¹ and Sebastian Messer²

ABSTRACT

Arts, literature and philosophy mirror the spirit of their times and so too utopian works embody the fears, experiences, aspirations and desires of the people who imagine them.

With reference to literary examples, this paper begins with a description of the themes defining the Utopian/Dystopian tradition. It then considers Dr. Richard Norton's 2003 concept of an urban-military condition, which he terms the "Feral City", in relation to this tradition. It elaborates on the three conditions – economy, security and services – which contribute to societal collapse once a city has become "feral". These conditions are explained with reference to the social, geographic and political features that define today's cities.

Keywords: cyberpunk, economics, dystopia, military, security, infrastructure, urbanism, utopian tradition

INTRODUCTION

Man has long been fascinated with the idea of cities: their form and buildings, their builders and their dwellers. From Plato's *"Republic"*, written around 360BC, via the retelling in the Book of Genesis of the stories of Sodom and Gomorrah and the Tower of Babel, to the present day, many authors have narrated scenarios to predict, advocate or warn of the state and shape of future cities.

From the mid-19th century and throughout the 20th century, the Utopian/Dystopian tradition has explored the human condition. Novels including, *"A Sojourn in the City of Amalgamation"* by Jerome B. Holgate (1812-1893); *"News From Nowhere"* by William Morris (1834-1896); *"We"* by Yevgeny Zamyatin (1884-1937); *"Brave New World"* by Aldous Huxley (1894-1963); *"Nineteen Eighty Four"* by George Orwell (1903-1950); *"A Clockwork Orange"* by Anthony Burgess (1917-1993); *"Woman on the Edge of Time"* by Marge Piercy (b. 1936); *"The Children of Men"* by P.D. James (b. 1920); and films such as Fritz Lang's *"Metropolis"* (1927), George Lucas' *"THX-1138"* (1971; based partly on Zamyatin's *"We"*), and Ridley Scott's *"Bladerunner"* (1982; based on Philip K. Dick's *"Do Androids Dream of Electric Sheep?"*), have questioned ideas of authority, politics, race, fertility and birth, environment, technology and science, and the relationships between individuals.

The word Utopia, coined by Sir Thomas More as the name of a fictional Atlantic island, translates literally as *"no-place"*; however, in the introduction to the Faber Book of Utopias (1999, p.xi) John Carey suggests it is usually the case that *"utopias are expressions of desire whereas dystopias are expressions of fear"*.

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More's austere Utopia (1516), set in the then New World, enabled him to test the parameters of communism and Catholicism, satirising the venal politics and febrile religion of his own time whilst maintaining a deniable distance from his unreliable and subversive narrator.

One of the recurring features of Utopian places is the elimination of real life. In Utopian literature, people are converted into Utopian inhabitants, "cured" of their deficiencies and faults by punishment, drugs or surgical procedures. Dystopias, by contrast, are an extrapolated or exaggerated version of real places and real life. This means they also embrace the darkest dimensions of human experiences.

FERAL CITIES

In 2003, Dr Richard J. Norton of the US Naval War College published an article entitled, "Feral Cities: the New Strategic Environment", in which he illustrated a possible future where failed metropolises will characterise large parts of the world.

"[The Feral City,] once a vital component in a national economy, this sprawling urban environment is now a vast collection of blighted buildings, an immense Petri dish of both ancient and new diseases; a territory where the rule of law has been replaced by near anarchy in which the only security available is that which is attained through brute power."

(Norton, 2003, p.1)

Norton's article provides a table in which governance, economy, security and infrastructure are ranked according to their effectiveness and from which it can be determined if a city is becoming feral (figure 1).

Norton's portrayal of a troubled future has fundamental similarities with the cities portrayed in the category of dystopian literature termed, "cyberpunk". Referring to the work of writer William Gibson, Dani Cavallaro (2000, p.133) suggests space in this literature is often depicted in "immaterial terms" as a product of "electronic and abstract data", yet the cities remain "emphatically material", by-products of their millions of inhabitants.

Whilst the main protagonists in the cyberpunk novels of Gibson, Neal Stephenson and others may be poor, they are also usually highly technologically savvy. Food and shelter may be hard won, but advanced technology is almost throwaway. Typically, Western nation states are portrayed as weak, but infrastructure is maintained through free-market private companies.

What differentiates Norton's Feral City from its fictional counterparts is the reliance on low-value economies, the lack of security and control and, above all, the lack of infrastructure, which prevents civil society from operating. We will consider each of these in greater detail in the following sections.

THE ECONOMY OF SLUMS

In a report entitled "World Urbanization Prospects" (2001, p.6) the United Nations Department of Economic and Social Affairs predicts rural populations will peak in 2020 and, by 2050, 75% of the world's human population, some 6.38 billion people will be dwelling in cities, as a result of massive migration from rural areas. Ninety five percent of the consequent expansion of these megacities will take place in developing countries. It seems likely megacities will be characterised by sprawl, stretching mostly along coasts and rivers.

Furthermore, only one fifth of this new urban fabric will be built by a formal construction industry. The majority will be improvised shanties with a rental market promoted through a network of "Dallals" (a Pakistani word meaning middle men or pimps) acting as developers, using bribes and other illegitimate means to obtain a degree of security for the areas on which the slums will be built.

Figure 1: based on “The Health of Cities” (Norton, 2003, p101)

	Government	Economy	Security	Services	Example
Healthy (green)	Enacts effective legislation, directs resources, controls events in all portions of the city at all times. Not corrupt.	Robust. Significant foreign investment. Provides goods and services. Possesses stable and adequate tax base.	Well regulated by professional, ethical police force. Quick response to wide spectrum of requirements.	Complete range of services, including educational and cultural, available to all citizens.	New York City: Police are well regulated, well educated and responsive. Hub of national and international investment. Has stable tax base. Provides wide range of educational and cultural opportunities.
Marginal (yellow)	Exercises only “patchwork” or “diurnal” control. Highly corrupt.	Limited/ no foreign investment. Subsidised or decaying industries and growing deficits.	Little regard or legality/ human rights. Police often matched/ stymied by criminal “peers”.	Can manage minimal level of public health, hospital access, potable water and trash disposal.	Mexico City: corruption is rife in police and judiciary. Air quality is so poor it is routinely rated medically unfit to breathe. There are many square miles of slums without drainage or running water. Serious crime doubled between 2000 and 2003.
Going Feral (red)	At best, has negotiated zones of control; at worst does not exist.	Either local subsistence industries or industry based on illegal commerce.	Non-existent. Security is attained through private means or paying protection.	Intermittent to non-existent power and water. Those who can afford to will privately contract.	Johannesburg: although relatively small (pop. 2.9 million) records 5000 murders per annum and twice as many rapes. Police admit they do not control large parts of the city. Foreign tourists and investors have pulled out and the Central Business District has been overtaken by squatters. Health problems exacerbated by the AIDS epidemic. Nationally, AIDS may affect 20% of the population.

Shanties are most likely to be located in marginal or hazardous geographical areas such as flood plains, within 10m of sea level or on unstable terrains and hillsides prone to landslides. Counter-intuitively, their topography, geology and compromised ecology can give their residents a degree of security of tenure, as the land is not seen as suitable or desirable for more formal development.

This is, of course, not a new phenomenon, as illegal and informal markets have provided most of the land for such developments since the 1950s. However, it is the scale of the shanties and the rate of acceleration in their development which now raises the fear that the Feral City will become a widespread reality.

In a slum economy, the working class is marginalised and dispossessed of legal rights and recognition. As Jan Berman and Arvind Das, who study urban poverty in India, argue, the informal sector is defined by its unprecedented exploitation of labour due to the absence of legal contracts and regulation, primitive forms of technology and an “excessively manual nature of production” (2000).

Inevitably, “out of public view, it is usually the weakest and smallest shoulders that have to bear the heaviest burdens of informalisation. The image of shared poverty does not do justice to the inequality with which this form of existence, too, is permeated within the sphere of the household.” (Davis, 2006, p.181)

However, “Informal Survivalism” (Davies, 2006) is not limited only to housing and infrastructure, but also to access to basic facilities, work and sustenance. An increase in urban poverty also results in the disappearance of gestures of solidarity and community which sustain the rural poor. Traditionally, survival in pre-industrialised communities was secured by mutual exchanges: providing food, assistance and services on the promise of a future favour.

Thus, in the absence of labour rights and regulations, what seems to sustain the tyrannical nature of the informal sector is the disenfranchisement of individuals from their communities and the lack of (non-criminal) opportunities by which they can improve their own conditions. This is further reinforced by the ghetto-isation and segregation created by the shanties.

TERRORISM, WAR AND SECURITY

Following the coordinated suicide attacks against the World Trade Centre in New York, the Pentagon in Virginia, and the failed attempt to fly United Airlines flight 93 into the Capitol Buildings in Washington on 11 September 2001, fear of terrorism has been used to enact laws rescinding rights and to promote the interests of the state and commercial corporations rather than the security of individual citizens. This has created global businesses out of the privatisation of security. Domestically, private security companies now operate prisons and police stations in the UK, and in post-conflict hot spots such as Iraq and Afghanistan they were contracted in front line roles in the absence of a police force or national army. Historically, city states maintained the rule of law over territories, exploited the raw materials within their demesnes to generate wealth, and directed violence against each other (either where diplomacy failed, or else to seize the wealth, materials or terrain of another city state).

Stephen Graham, editor of “Cities, War and Terrorism”, suggests that cities still continue to exert an influence upon each other through war and terrorism, notwithstanding the economic and industrial gap between the globalised (predominantly Northern hemisphere) cities and the developing cities of the Southern hemisphere. Furthermore, he suggests future wars may become increasingly urban.

“It is now clear that the days of the classical Clauswitzian definition of warfare as a symmetrical engagement between state armies in the open field are over. War has entered the city again – the sphere of everyday life, the realm of the private house...”

(Graham, 2004, p.4)

The United States, Russia and the UK have all experienced the complexity of urban warfare in conflicts in recent decades. The US invasion of Panama in 1989 (figure 2), Russia’s invasion of Grozny in 1999, and recent invasions of Iraq and Afghanistan by allied forces have posed serious dilemmas for military planners and their political masters, leading to a more reticent and limited international involvement in the civil wars in Libya and Syria.

“Collateral damage” (the loss of civilian lives) and “friendly fire” (coming under attack from your own side), plus sensitivities around the destruction of culturally and historically significant sites, have become major obstacles for the military and a cause of loss of public support for wars.



Figure 2: US invasion of Panama, 21 December 1989 (Photograph: Elliott, 1989)

As in Fallujah and Gaza, the architecture of the Feral City, its horizontal and vertical planes, and its interior and exterior spaces can become the battle scene. Weapons can be located in unpredictable spaces, improvised explosive devices and suicide attacks increase the risks to the assaulting forces. In an asymmetrical war, where a large army engages a smaller armed group, assaulting soldiers may kill civilians, mistaking them for combatants since they are indistinguishable from the guerrilla enemy. To limit the exposure to risk faced by professional soldiers, the armies of rich countries have invested in the development and deployment of remote technologies such as drones, un-manned vehicles and arms. These weapons have raised legal questions about sovereignty and moral questions about the fairness of warfare, in which one side of the conflict may, in fact, be thousands of miles away.

In Feral Cities, as the division between various strata of society widens, civic authority breaks down and law enforcement becomes ineffective, and the number of armed groups increases to a point where territorial wars between them may become inevitable. Militarisation of public space means that the Feral City's symbolic buildings, squares and streets appear to continue to function, but within parameters determined by the prevailing paramilitary, sectarian or criminal groups. Control of strategically important functions, buildings and spaces, such as media outlets or sea and airports, will provide a great deal of political leverage due to their economic value nationally.

This would offer safe havens to armed resistance and terrorist groups, especially if they had cultural affinity with at least a significant section of the population. The vast size of megacities and the density of the informal structures would offer cover from satellite and aerial detection whilst control of ports would allow free, unregulated passage of people, arms, narcotics and other contraband.

SERVICES AND INFRASTRUCTURE

In the Feral City, centrally organised services and infrastructure collapse or disappear, and energy availability and access to clean water and drainage are unreliable or non-existent.

Even in democratic and comparatively affluent nations, infrastructure is coming under increasing pressure. Charles Perrow, the author of *"The Next Catastrophe"*, identifies three Concentrations of Vulnerability (2007, p.6) within the United States, which he considers have been given insufficient attention by policy makers.

- Concentration of energy production
- Concentration of populations
- Concentration of economic and political power

Perrow suggests the potential for major disasters, as a result of the lack of strategic planning in these areas, is a far more significant threat than foreign terrorism.

"Much of our critical infrastructure is in the hands of large corporations and, like our government, these private organisations are prone to error, in the form of industrial accidents as well as their failure to provide ample protection from natural and terrorist disasters. These risks are national in scope, rather than confined to an area impacted by hurricanes or floods. The private sector contains some of the largest vulnerable concentrations with [the most] catastrophic potential."

(Perrow, 2007, p.9)

Concentrations of fuel and the means of energy production are vulnerable. For example, nuclear power plants can enter meltdown if the cooling system fails or generators are damaged, as happened at the Fukushima Plant, in the wealthy and highly-industrialised nation of Japan, following an earthquake and tsunami on 11 March 2011. Inadequate inspections and safety regimes in developing or failing states further increase the risk of a disaster. Electric power distribution grids are inherently insecure with theft, for the scrap value of the metal, prevalent on train lines in the UK.

Densely populated areas are more prone to pandemic illnesses. In a functioning city the source of the infection can often be detected at an early stage, but in a Feral City the environment and lack of regulated and organised health infrastructure will conceal the spread of bacteria and viruses, allowing them to take hold before they are detected.

Pandemic threats in the last couple of decades, including Avian Influenza (1997), Severe Acute Respiratory Syndrome (2003) and the H5N1 strain of Swine Flu (2011), have all first been identified in urban centres in Asia before spreading to the rest of the world. The H1N1 strain of Avian Flu was first diagnosed in Hong Kong in 1997. Its spread was limited to those in close contact with infected birds until the first reported human-to-human transmission in Thailand in 2004. A mutant strain, which may have been resistant to the current vaccine, was identified in China and Vietnam in 2011. Severe Acute Respiratory Syndrome (SARS) was first diagnosed in China in 2002. Between February and July 2003 it was spread worldwide via international air travel. During that period, 8,098 people were infected, of whom nearly 800 (9.6%) died.

NORTON'S PROPHECY

Noam Chomsky suggests western governments are, in part, responsible for the conditions which may lead to cities going feral. He questions whether they are able to abandon their pursuit of global dominance based on inequality, exploitation of human and natural resources, and the failure to recognise the true costs of waste and pollution for the benefit and, ultimately, survival of the species (Chomsky, 2003, p.12).

The globally-connected, deregulated, free market has created economic benefit for some but has also increased global financial instability. As previously described, this has also led to a geographical underclass, labouring in a black market of “informalisation” and exploitation, sowing the seeds for the Feral City.

“The Feral City may be a phenomenon that never takes place, yet its emergence should not be dismissed as impossible...”

“While it may be premature to suggest that a truly Feral City... can be found anywhere on the globe today, indicators point to a day, not too distant, when such examples will easily be found.”

(Norton, 2003 pp.97-98)

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Portmeirion, Perspective and Pleasure

Francis Ellis¹ and Sebastian Messer²

ABSTRACT

The holiday village of Portmeirion was created by Bertram Clough Williams-Ellis (1883-1978) over a period of fifty-one years, starting in 1926. It was grade II listed in 1971.

However, Portmeirion has become a part of western popular culture rather than of mainstream architectural history. Its use as the setting for the cult 1967 television series “The Prisoner” ensures continued worldwide interest and a constant stream of visitors.

Williams Ellis’ design methods were empirical, initial designs being adjusted by eye on site in close collaboration with trusted builders.

This paper analyses the development of Portmeirion as a *gesamtkunstwerk*; considering the experience of movement through the village as a dynamic composition of shifting vistas, focusing the visitor on a series of constructed views. Through this analysis, Portmeirion is revealed as both a manifestation of the architecture of pleasure and an exercise in the pleasure of architecture.

Keywords: *Baroque, empirical, narrative architecture, perspective, pleasure, urban design*

INTRODUCTION

Williams-Ellis’ architectural training was curtailed after a mere three months so his development as an architect happened informally. He adopted his middle name, Clough, as a *nom d’artiste* by which he was commonly known, so his chosen nomenclature is used hereafter.

Clough was a keen sailor and his ad hoc education was augmented by travelling widely; a tour of northern Italy proved especially significant as it introduced him both to the coastal village of Portofino and to Geoffrey Scott, the author of *The Architecture of Humanism* (Williams-Ellis, 1971, p.193). The former would inspire Clough aesthetically, whilst Scott’s psychological analysis of the Baroque would refine his approach to design. The village of Portmeirion can therefore be seen as a physical manifestation of both an empirical and psychoanalytical approach to architectural beauty.

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Clough developed a parallel career as an essayist alongside his architectural and landscape practice. In the aftermath of the First World War, he became recognised as a vocal advocate for the countryside and a supporter of development control, confronting the contemporary building boom.

In his writings, he tried to educate the public about the importance of good proportions over rich detail, a possibly surprising stance in view of the works for which he is best known. The term '*Clough-up*', coined by Sir John Summerson (Haslam, 1996, p.16) during the interwar period to describe the process of making-over a dull building with colour and additional details, was an early example of the public's perception of Clough's work.

During his travels Clough began to dream of creating a coastal settlement as an exemplar and his gradual success made it economically possible to consider this in earnest. Clough sailed round the coast of Britain during holidays looking for a possible site. However, the ideal location was eventually discovered within five miles of his home in North Wales. The Aber-lâ peninsula estate had been occupied by a reclusive tenant. Clough visited it on her death, discovering that it offered the ideal combination of rural beauty and developmental autonomy for which he was searching.

METHODOLOGY

This paper first considers the village holistically, looking at the experience of movement through the composition and considering the pauses and vistas along the way. The horseshoe-shaped promenade around the valley affords a sequence of views to the buildings ranged along the cliff edge. These groupings of buildings are then considered in more detail.

Portmeirion is famous for its density of style, colour and detail, so the diagrams in this paper attempt to strip the compositions to their basic forms in an effort to reveal the formal juxtapositions.

Clough (1973, p.26) referred to the development of the village as being "*dozens of competing ideas*" bound by "*certain basic principles in common.*" The result is a curiosity; seemingly a late-flowering of nineteenth century eclecticism and exoticism, out of step with modernity. However, from our perspective Portmeirion can be re-framed as a simulacrum – a reproduction without an original – proto-typical of what became known in the 1980s as "*narrative architecture*". The final section of this paper considers this reading in relation to Clough's own theoretical writings.

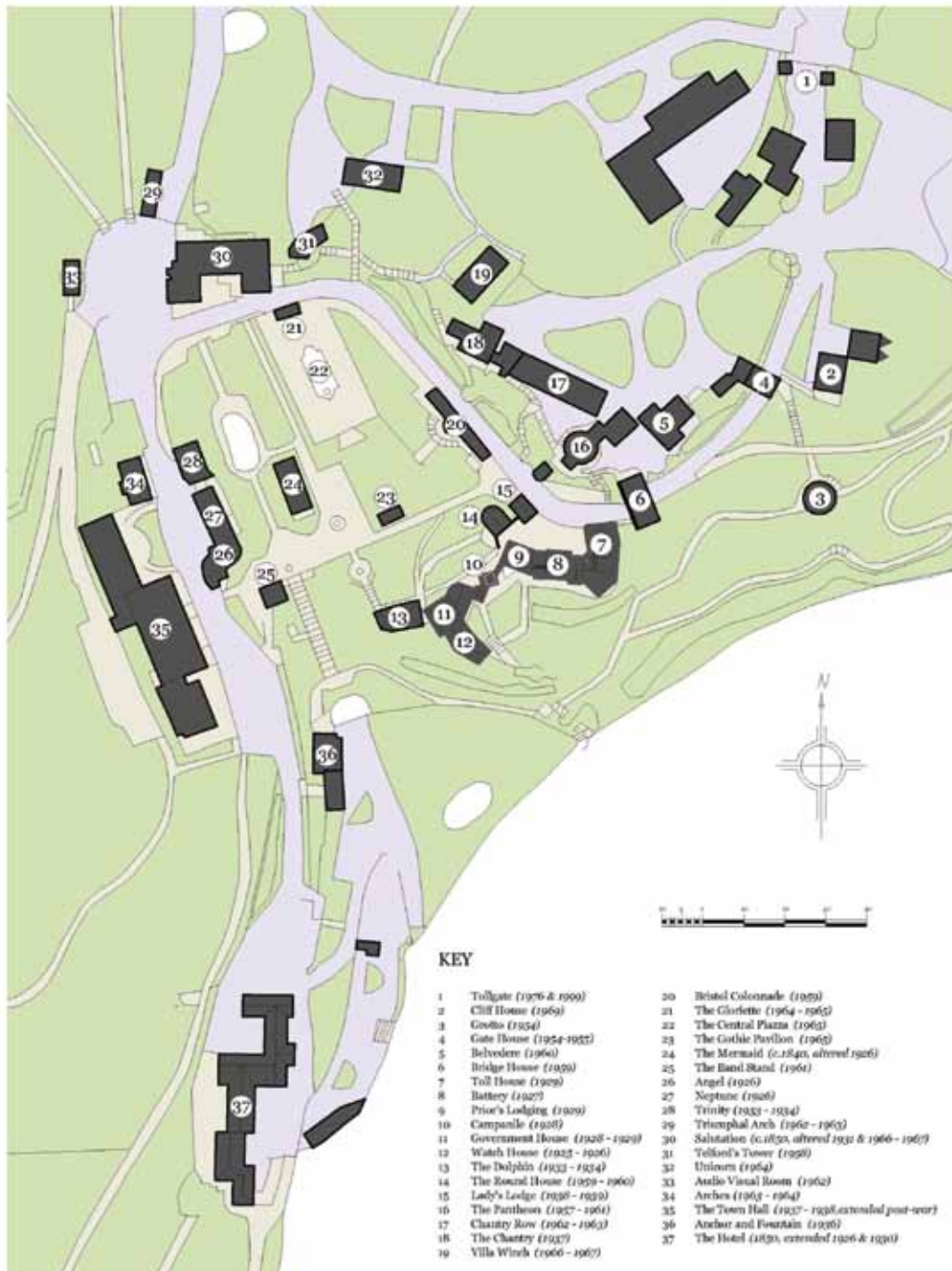


Figure 1: Portmeirion village plan (image: F. Ellis)

THE VILLAGE

Portmeirion's commercial origin as an eccentric seaside hotel is pertinent to the understanding of the village. New structures could only be justified by the demand for accommodation so the village grew with the success of the venture as a destination for staying guests.

EARLY DEVELOPMENT

In the early years, the village began at the east side with the Toll House [7]. The horseshoe-shaped promenade along the existing access road that curves around the valley remained as he found it until one reached the original stable block [30] on the north side. The first modest new accommodation blocks, Angel [26] and Neptune [27], were placed between the access road on the west side of the valley and the existing fish pond and cottage to create the initial village setting. The access road continued down to The Hotel [37], converted from the original house, which was the focal point for both staying guests and day visitors before cafes and shops were established in the village.

Clough began to establish *"the essential dominant structures on their respective pre-selected key sites"* – referring to the Watch House [12], the Campanile [10] and the Chantry [18], occupying prominent, elevated positions along the cliff edge and the east side of the valley – which were completed during the initial phase of development prior to the outbreak of the Second World War.

Besides the cliff top grouping – described later in more detail – the other works of this period consisted of the alteration and redevelopment of the existing buildings.

The Town Hall [35], built at the end of this period, came about to make use of architectural salvage. Its location, at the junction of the east-west axis and the western leg of the *'horseshoe'* leading south to The Hotel [37] suggests this site was earmarked for a significant structure. The perception on site, however, is of a façade, constituting a piece of opportune scene setting, reinforcing the 'High Street' theme. Despite the Town Hall's actual bulk, its position low down on the west side of the valley and domestically-scaled surroundings restrict the views so it is not overbearing (figure 2).



Figure 2: The Town Hall, viewed from the east (photograph: F. Ellis)

POST WORLD WAR II DEVELOPMENT

Post-war, the village developed to the east. A dedicated car park was created north east of the valley and the approach to the village is punctuated by two houses that bridge the road before the Toll House [7] on Battery Square is reached. As well as defining the day visitor's position as an outsider – a “*silent ‘remember where you are’*”, as the architect called it – this is a deliberately theatrical move.

Between 1954 and 1969, additions were made to the north and east sides of the valley, which can be recognised by a more severe, often classical, aesthetic, whilst architectural salvage added to the material palette and mixture of styles.

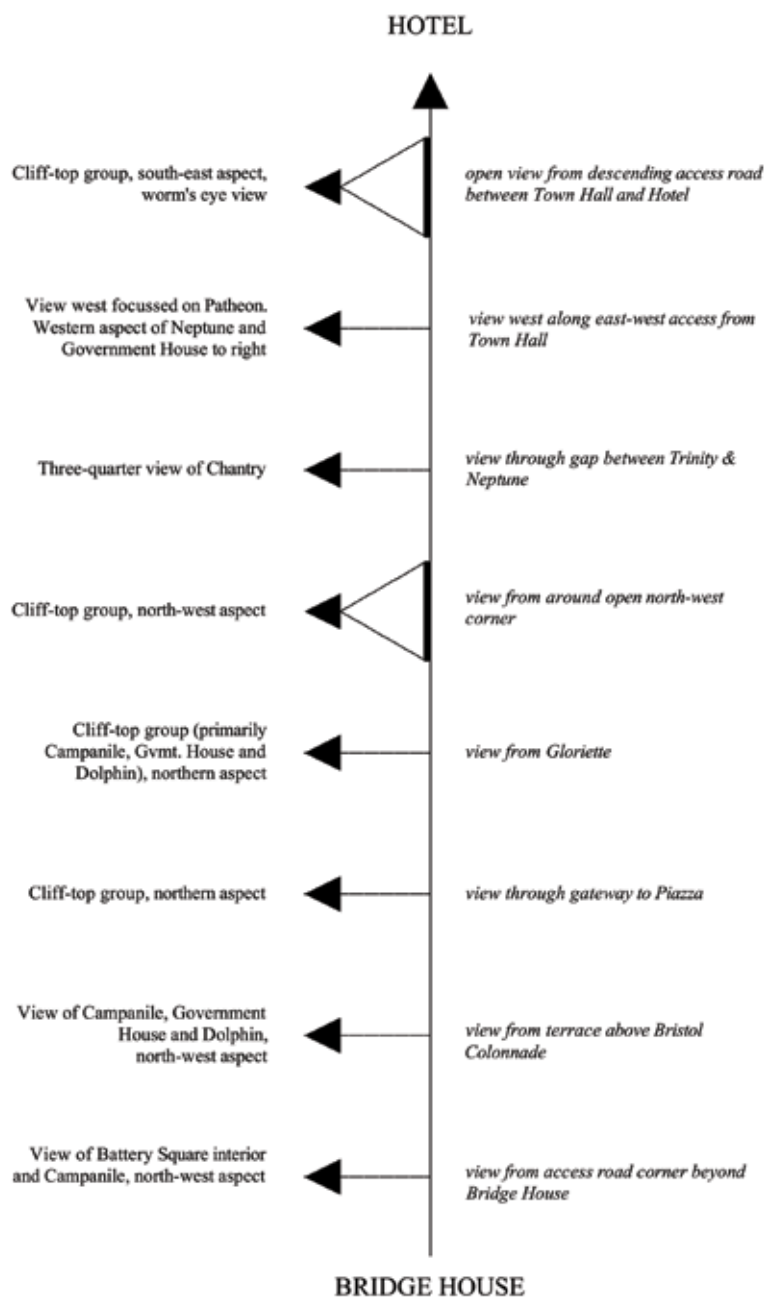


Figure 3: The sequence of vistas along the promenade (image: F. Ellis)

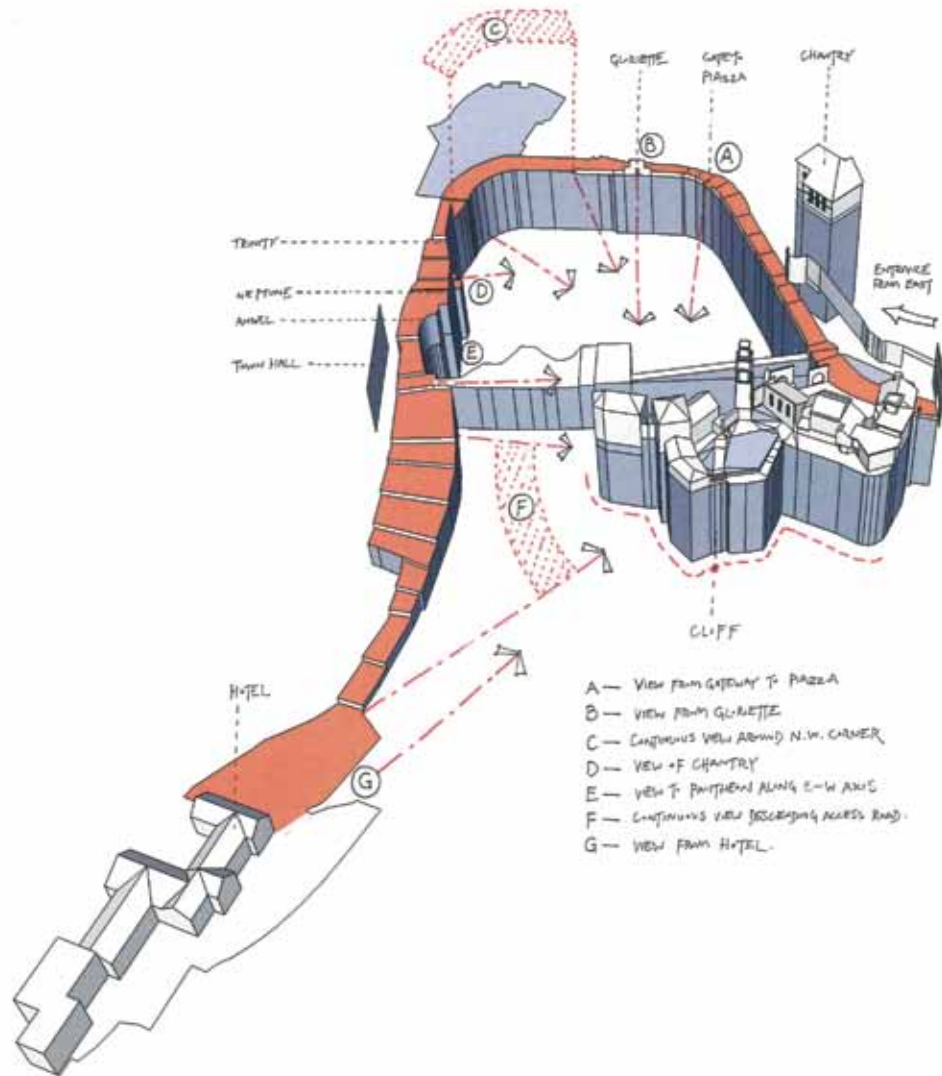


Figure 4: The sequence of vistas around the horseshoe-shaped promenade (image: F. Ellis)

THE SEQUENCE OF VISTAS

The access road, extant when Clough acquired the site, was largely retained as found and forms the spine around which most of the buildings are arrayed. This road guides the visitor's steps to the extent that it can be considered as the central organising force linking a sequence of key vistas (figures 3 and 4).

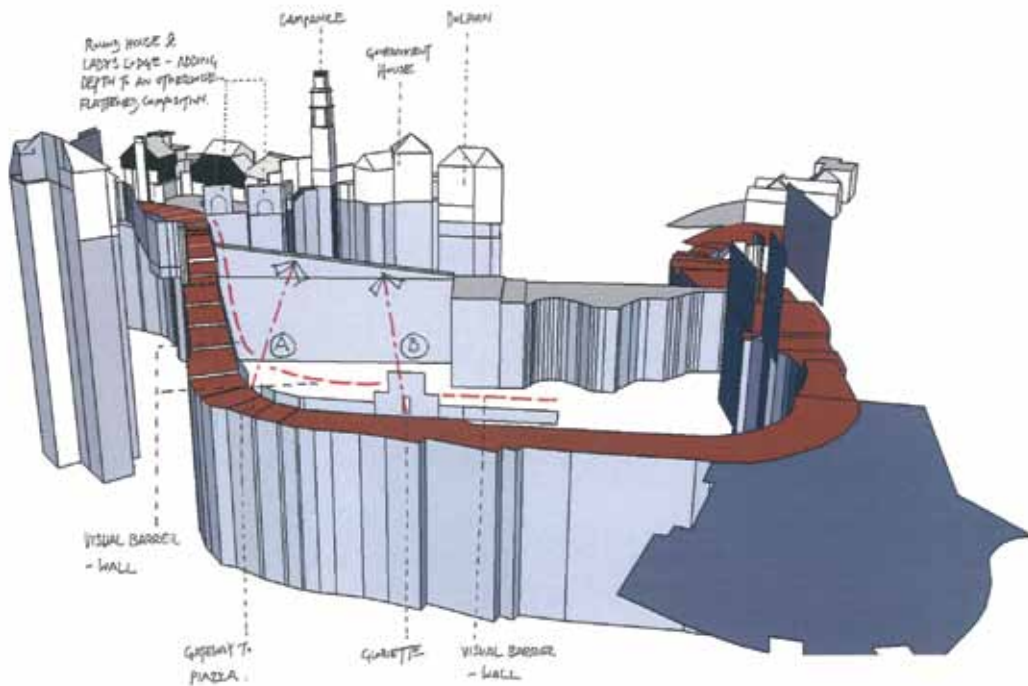


Figure 5: Controlled vistas – view from the north (image: F. Ellis)

The old, inner wall around the north-eastern side of the valley basin hides the piazza until it is revealed, first through an arch at the north corner looking diagonally south (figure 5 (A)), then by encouraging visitors to enter the back of the Gloriette [21] at the head of the piazza (figure 5 (B)). Following these two theatrical set pieces, the obstructing wall is broken down around the north-west corner to give the impression that all can be seen, but this is illusory. The architect is still in control through the placement of trees and the hard landscaping guides where one stands. The views of the cliff-top massing from these three points tend to flatten the composition and dispel the impression of a greater settlement so trees and the eye-catching piazza complex in front work to make this less apparent.

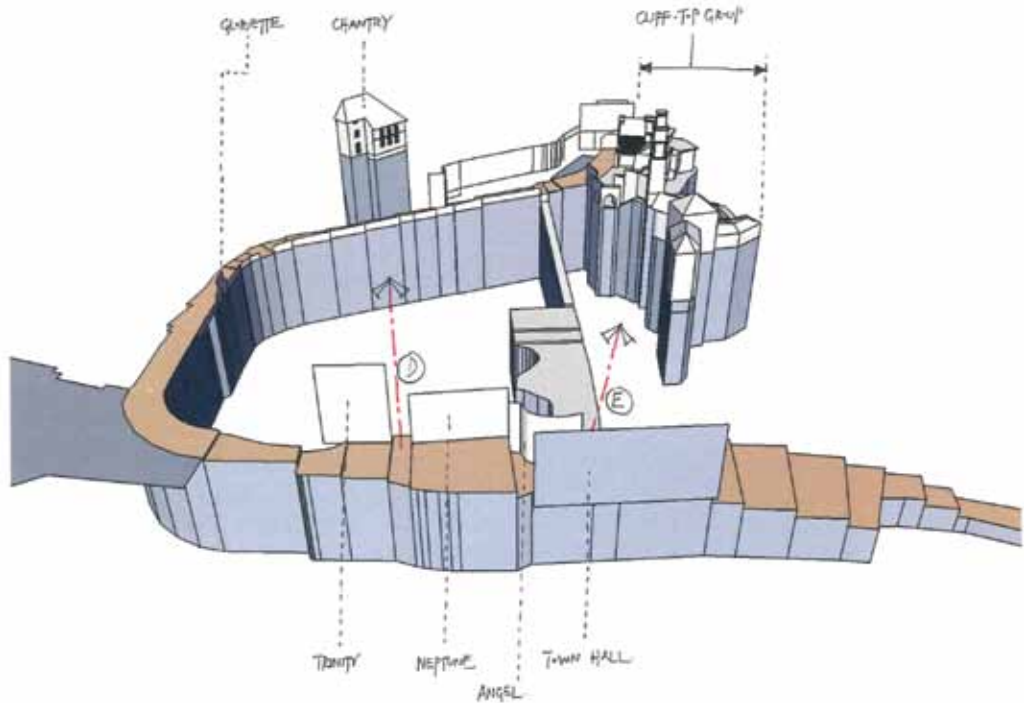


Figure 6: Controlled vistas – view from the west (image: F. Ellis)

The western leg of the ‘horseshoe’, forming a north-south axis along the access road passing in front the Town Hall [35] and leading to The Hotel [37], evolved to provide a series of linked pauses in the visitor’s promenade, rather than a set-piece view in itself.

Jones (1996, p.131) notes that the refectory added later alongside the Hall is one of the less successful aspects of the composition, despite its undoubted functionality. The Town Hall’s standalone importance is undermined by this side wing and terrace; an instance where the crowding of the massing does not add delight and distraction. A glimpse of the Chantry [18] (figure 6 (D)), situated on the high ground of the east side of the valley, is possible across the piazza between the Trinity [28] and Neptune [27] buildings, reinforcing the Chantry’s importance in the overall visual composition.

The next pause comes opposite the Town Hall [35] entrance, looking back across the valley along the east-west axis (figure 6 (E)). With more recent additions, this is now a very formal composition framed by wrought ironwork and focused on the dome of the Pantheon [16], with statues and small structures placed at alternate steps along the way. As well as accentuating the height and grandeur of the dome, the composition works to counter the appearance of the rise in the ground level of over seven metres and reinforces the false-scale applied to the Government House [11] terrace above and to the right of the viewer.



Figure 7: The Dolphin, viewed from the east-west axis (photograph: F. Ellis)

Heading south from the Town Hall [35], the access road drops more steeply towards The Hotel [37] and the buildings step back, leading the visitor's eye to the middle distance. The trees and the estuary assume prime importance, although the gable end of The Dolphin [13] looms above and on the left. Heightening the perceived scale of this building, the brightly-rendered, three storey block projects beyond the side of the promontory sturdily, but discreetly, supported on elongated stone arches (figure 7).

Clough's application of a graded hierarchy of privacy and visibility throughout the village complex meant that the steps became something to be discovered rather than a route to other discoveries. The view over the balustrade to the east affords an at-arm's-length view of the private lawn and swimming pool at the foot of the cliff.

On the hillside opposite there are glimpses of another path and tiny white structures that step from the Watch House [12] down to the water. Although the public can reach the bottom by another route, the pleasure of this sequenced descent is reserved for resident guests.

The Hotel [37] retains its original importance as the culmination of the promenade, despite an Observatory Tower camera obscura situated beyond it at the southernmost tip of the site. Viewed from The Hotel, the cliff-top cluster is most convincing as the upper reaches of an Italian fishing village, as the

restless orientation and forced perspective combine with the elevation and natural features to suggest a more extensive settlement.

THE CLIFF TOP CLUSTER

The cliff top cluster of buildings remains constantly visible as one promenades around the village, and seem to form the key intervention on the peninsula. They define two of the main external spaces (one public – Battery Square – and one private – Battery Lawn) and three movement axes.

Drawings of the initial proposals for the cliff top cluster illustrate a single building designed to appear as if an assemblage accreted over time. Roof silhouettes are distinctly angled and the angular juxtapositions of the components either emphasise or mask the adjusted ridge lines, depending on the position of the viewer. The proportions are clearly being manipulated to achieve the appearance of greater scale and distance, particularly as viewed from the Hotel [37]. The grouping, as eventually realised, has a larger footprint and greater vertical emphasis in the elevations (figure 8).

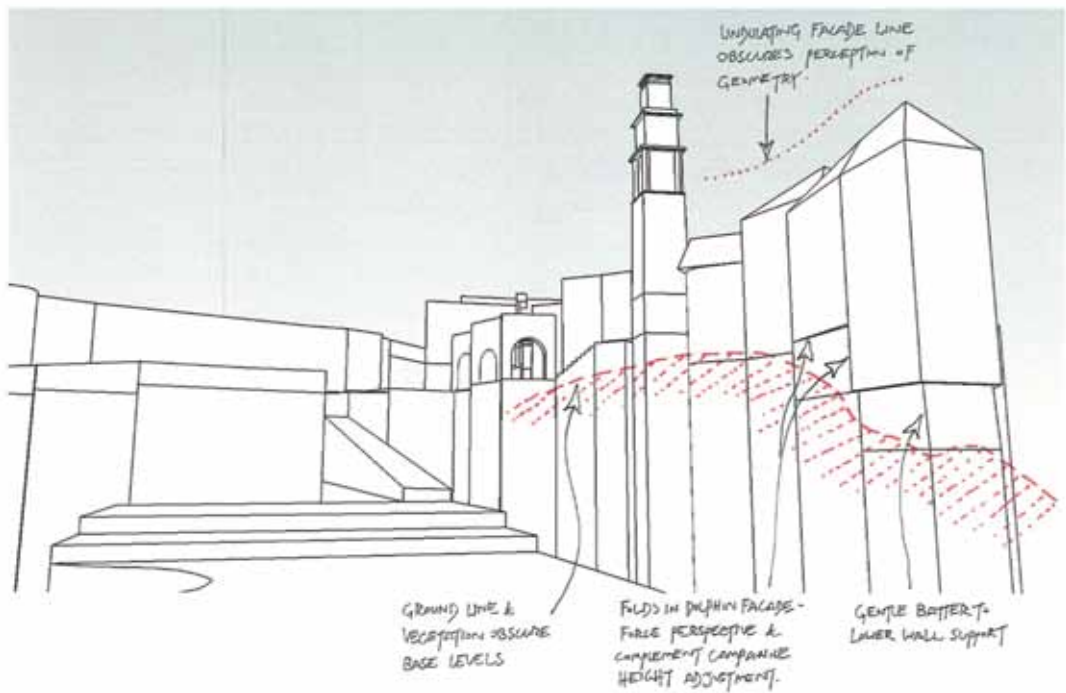


Figure 8: View of cliff top grouping from the west (image: F. Ellis)

The wide arc around the peninsula from which this group is visible presented both problems and opportunities to Clough. A “false perspective” has to be viewed within a particular range, and it will soon break down with variance of proximity and multiple viewpoints. To overcome this, Clough employed the restless re-orientation of the elevations to address the view from some locations and mask it from others. In doing this, the composition defines Battery Square on the north side and Battery Lawn on the south.

A CLOSER LOOK

In the following section, the relationships between the cliff-top cluster, the Chantry [18] and other “essential dominant structures” are examined in greater detail.

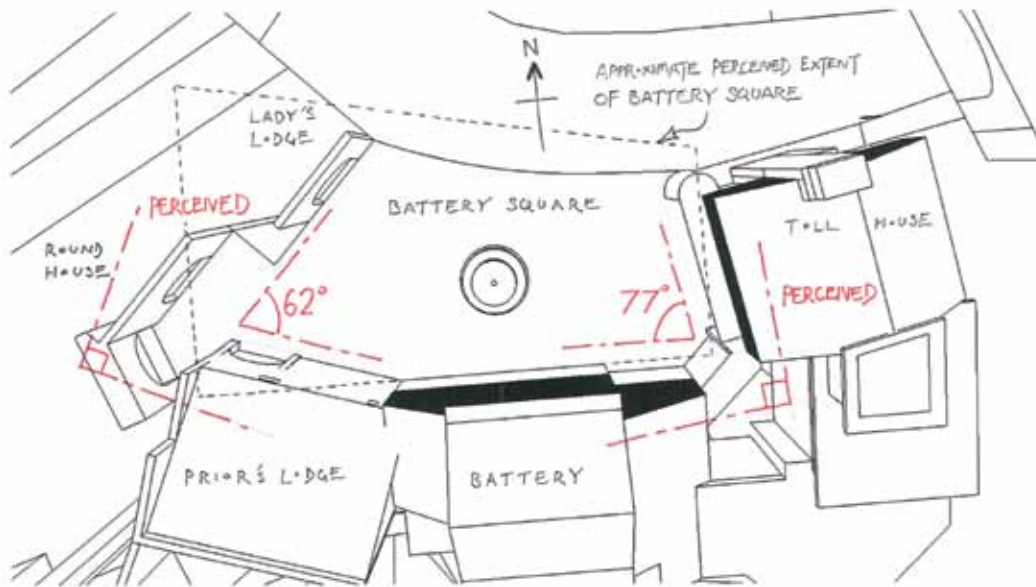


Figure 9: Aerial view, illustrating the actual and perceived geometry of Battery Square (image: F. Ellis)

BATTERY SQUARE

Compressed on three sides between buildings, with the access road to its fourth, Battery Square is distorted to a shallow arc. The perception from either end of the space is, however, quite different (figure 9).

Clough exploited the eye's instinctive tendency to “correct” at each end of Battery Square to affect the near view, whilst also using the multiple orientations of facades already described to address the distant views of these buildings throughout the village.



Figure 10: View of Toll House and Battery from the north-west (image: F. Ellis)

The use of clapboard on the Toll House [7] and Battery [8] facades means there is always a vertical scale held up to these buildings, making the apparent window and eaves heights difficult to manipulate. No attempt has been made to vary the gauge of the timber boarding; instead the Toll House facade is progressively stepped out with each rising storey while the Battery facade leans in towards the top (figure 10). This is gently assisted by the overlap of the boards. The result is a gentle diminution of the perceived scale and the corner is easier to appraise within the constricted space. The Toll House [7] has a much modulated appearance with a first floor balcony hiding the play in scale.

Standing in the corner between Toll House [7] and Battery [8] looking west, the diminished perspective of the Prior's Lodging [9] facade assists in 'opening up' the acute angle between it and the Round House [14], resulting in the external space appearing more regularly square (figure 9).

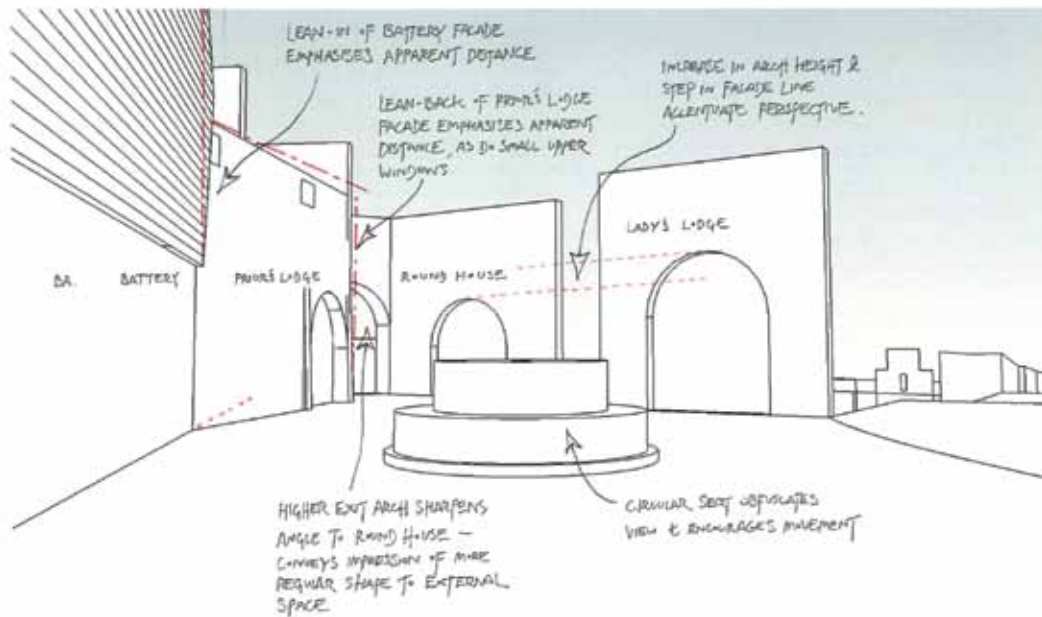


Figure 11: View of Battery Square from the east (image: F. Ellis)

As the eye pans round to the south-west the reversal of the perspective is assisted by the battered western corner and small upper windows of Prior's Lodging [9] (figure 11).

The original use of the ground floor storeys of the Battery [8] and Prior's Lodging [9] as garages resulted in wide, arched openings. However, these serve to exaggerate the apparent width of the Lady's Lodge [15] and Round House [14] facades.

The seat and statue, set centrally in the square, distract the eye as it sweeps across the facades and encourage the bystander to circulate for a better view, so the reversal of perspective is not at first apparent.

The addition of the Round House [14] in 1959 and the adjacent arch to the path to Government House [11] had a considerable effect on Battery Square due to the enclosure it gave to the west end. The effect of the enclosure is to draw attention to the square itself and the opening at the west end is only revealed as one crosses the Square, when the disconnection of the wall becomes apparent. Clough used those additions to infer a wider and more regular 'square' than is actually the case.

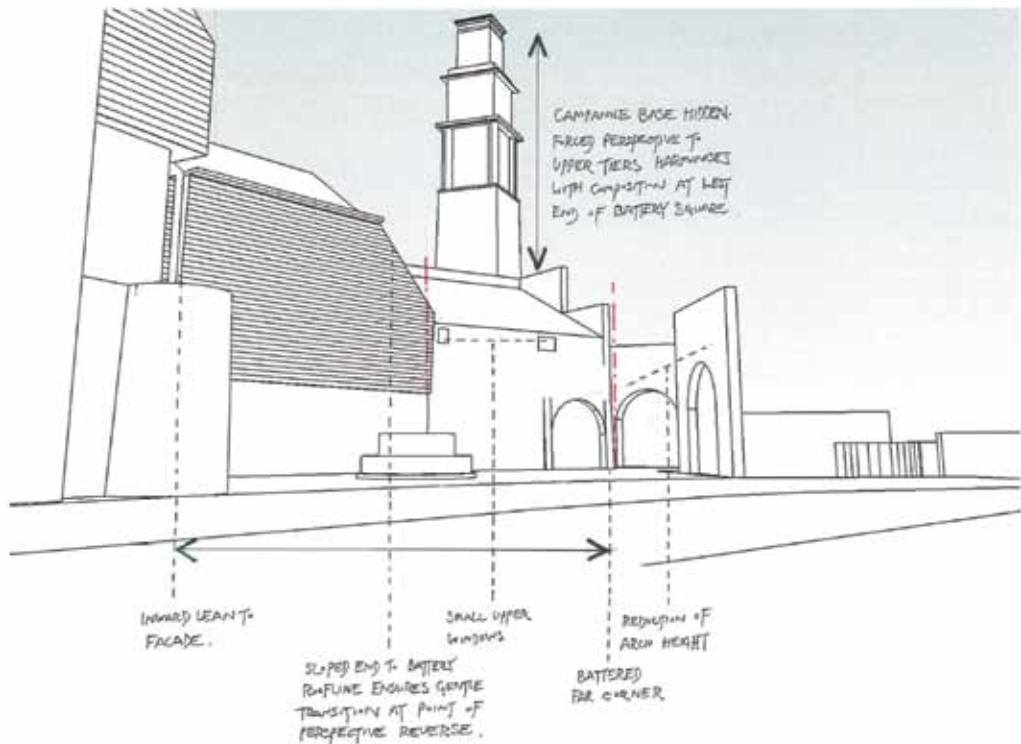


Figure 12: View of the Campanile from Battery Square (image: F. Ellis)

THE CAMPANILE

The base of the Campanile [10] is masked from within Battery Square so the tapering, forced perspective of the visible upper portion makes it appear taller and further away, working in harmony with the view to the west within the square (figure 12). Prior to the construction of the Roundhouse, a distant view of Angel [26], Neptune [27] and The Mermaid [24] cottages was possible from within Battery Square. The base of the Campanile [10] is concealed, and combined with the effect of the false perspective of the façade on the Prior's Lodging [9], suggests a greater distance across the valley.

A similar effect is achieved when viewing the Campanile [10] from the north side of The Dolphin [13] and Government House [11]. Masking of the base again allows it to combine with the apparent perspective of these structures to increase the appearance of scale and distance.

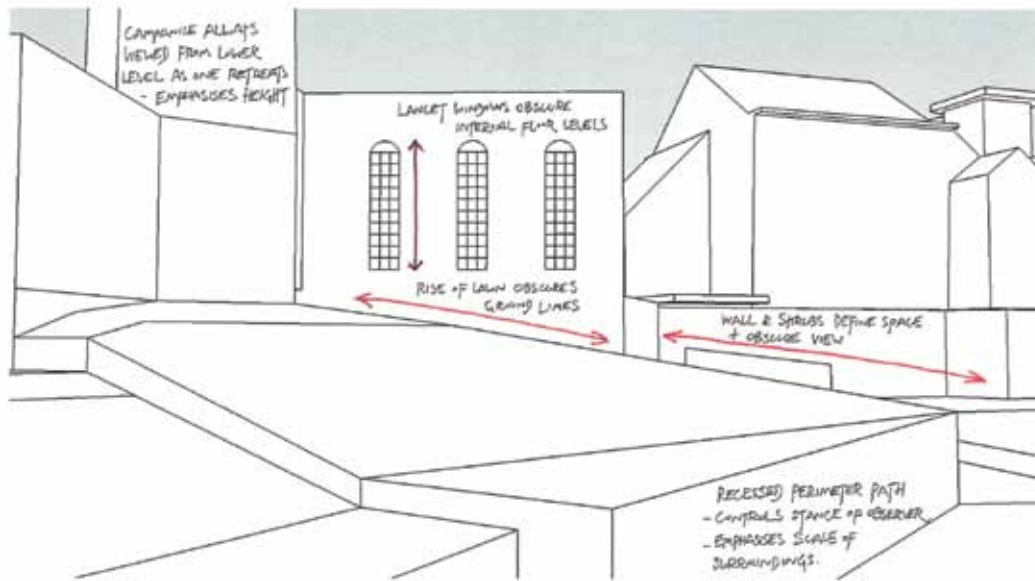


Figure 13: View of Battery Lawn from the south west (image: F. Ellis)

BATTERY LAWN

From the private Battery Lawn, on the south side of the Campanile [10], one cannot retreat far enough to read the whole as one composition (figure 13). The narrow, lancet windows to Prior's Lodging [9] suggest an increased verticality and disguise the line of the first floor level. The lawn is raised and rounded above the surrounding path to emphasise the height of the Campanile [10] but hide the base of the buildings on the opposite side. Façade orientation and partial concealment are used to the same purpose as in the vista from the shore line, offering the suggestion of additional buildings just out of view.



Figure 14: The Chantry, view from the Round House (photograph: F. Ellis)

THE CHANTRY

The apparent scale of the Chantry [18] has been manipulated using the fenestration and the building's connection with its rocky promontory (figure 14). Half visible arches suggest a basement storey while the full-height lancet windows, similar to the south façade of the Prior's Lodging [9], make the actual storey divisions unclear. These windows and the clock tower over the roof give the composition a vertical emphasis while the tiny dormers infer the presence of an extra storey beyond the actual two-plus-attic. The location and orientation of this building give it prominence from all round the village itself, but not

from the east and south-west approaches. This appears to be a significant piece of stage-management by Clough, part of an expression of progressive degrees of privacy as one moves around the site.

THE PERCEPTION OF BUILDINGS AND LANDSCAPE

To a stationary observer, the buildings of Portmeirion can be perceived as either a matrix of solid objects or as the backdrops to larger external space. Clough's writings indicate a leaning toward the latter reading, but not as a frozen tableau. "*Treating mankind as a mere foreground to inanimate beauty, as just figures in the landscape, cannot...be intellectually defended.*" (Williams-Ellis, 1937, p.91)

The relationship between people and architecture was explored by Clough several years earlier in '*The Pleasures of Architecture*' (1924). In this he asserted his belief, '*that in the complex and often fragmentary process of identification we shall find the source of architectural pleasure*', and followed by quoting Scott's argument that, '*Beauty of disposition in Architecture, like beauty of line, arises from our own physical experience of easy movement in space*' (Scott, 1924, p.224).

In Bernard Tschumi's essay '*The Pleasure of Architecture*' (1977) he uses garden design to explore the dynamic and reciprocal relationship we have with space. Describing Stowe Landscape Gardens – Clough was commissioned to convert Stowe House to an independent school in 1922 – Tschumi suggests the various garden structures "*are to be read less as elements of a picturesque composition than as the dismantled elements of order*" (1994, p.85).

Tschumi applies a Freudian concept, the language of dreams, to the perception of architecture. The idea postulated by Tschumi is that one can only ever see fragments (walls, rooms, streets) at any one time but an understanding of the whole is extrapolated from memories and fantasies filling the gaps in perception. Tschumi's name for this movement between fragments was "*desire*" (1994, p.96), deliberately comparing the process of seduction and pleasure to how architecture affects us. Tschumi later developed this theme when voicing his concern that architecture had become, "*a passive object of contemplation instead of the place that confronts spaces and actions*" (1994, p.141).

CONCLUSION

Clough remained defiantly light-hearted when describing Portmeirion, seemingly in response to repeated disapproval and bewilderment. Perhaps, however, the constant emphasis on the joy and fun of architecture, what Haslam calls '*the light opera approach*' (1996, p.14), is the key to a more mature understanding of the village. Clough's adherence to Scott's analysis of Baroque architecture shows an un-dogmatic sophistication that sits well with more recent architectural theory.

Portmeirion's sugared presentation makes it accessible but this is only the populist introductory level to a deeper exploration of harmonious composition. Against expectations, at Portmeirion the visitor's awareness of spatial disjunction and narrative artifice prevents the village being reduced to a "*passive object of contemplation*". An evolving engagement between the visitor and their surroundings reveals further events to be experienced.

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Restoration: Authenticity and Deception

Katy Lomas¹ and Paul Ring²

"I do love these ancient ruins. We never tread upon them but we set our foot upon some reverend history."

Webster (1612, 5.3)

RUIN AND NARRATIVE

Within the narrative language of the arts, the image of the ruin is utilised as a metaphor for polarised conditions; it can support the visceral territories of the romantic scene or tell of apocalyptic events. As an image or art object, the ruin has the capacity to establish plot, place and event in a manner that is as powerful as it is subtle. The beauty of the ruin is a similar collage of polarities and subtleties: the inferred image of the original is present simultaneously with that of the remaining assemblage of material culture. The ruin is more than the remains of a building; it is a living museum, a narrator of histories, an *objet d'art*. The ruination of a building liberates it from the tyranny of function and use, transferring it into the sublime territory of antiquity and sculpture.

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Figure 1: A bird's-eye view of the Bank of England, 1830. John Soane (rendered by Joseph Gandy)

Perhaps Sir John Soane (1753–1837) wished to witness his architecture thus when he commissioned Joseph Gandy (1771–1843) in 1830; to witness his works as transcending function into the realms of history and art. Considered a master of English Romanticism, Gandy was commissioned to illustrate Soane's works for display in the Royal Academy Exhibition and there can be little doubt that their inception was influenced by experiences whilst upon The Grand Tour.

Through interpretation of Soane's scheme for the Bank of England, Gandy depicts the ruined remains of the building in a prophetic view of the destroyed remains of London (Figure 1). In doing so, Gandy's role as architectural illustrator goes beyond simple representation and becomes synonymous with narration, abstraction and prophecy. The work comments on the exponential growth and eventual collapse of the British Empire. It is a meditation symbolic of Babylon, Carthage, Atlantis and Athens; of apocalypse and neglect. And yet it is at the same time an enchanting and sublime testament to permanency and the grandeur of ruins. The building becomes melancholic and majestic within the same depiction, characteristics that can be associated with ruins. Perhaps Soane's ambition was to bear witness to the eventual fate of his work, or to realise his ambitions as an architect of historic import within his own time. He was without modesty in his assurance that his works would become historic monuments of the future and the ruination of the Bank of England would thus be the evidence of his artistry. What is clear are Gandy's attempts to elevate the edifice to equitable historic import with that of the Parthenon; the earth falls away from the south elevation, creating a vision suggestive of the monumentality of the Parthenon upon the Acropolis. When Soane catalogued the piece he quoted (and amended) a passage from Le Sage's 18th century comic novel *'La Diable Boiteux'* (1796), a tale in which the devil flies over the city lifting the rooftops to expose the lives within. The revelation of the building as a ruin allows us to see its autogenous workings, revealing a truth that would have otherwise been disclosed.

“Je vais enlever les toits de ce superbe édifice national ... le dedans va se découvrir à vos yeux de meme qu’on voit le dedans d’un pâté dont on vient d’ôter la croûte. [I am going to remove the roofs of this proud national edifice ... so that what is within will be revealed to your eyes, like seeing the inside of a pie who’s crust has been removed.]”

Le Sage (1796) cited in Lukacher (2006, p162)

Yet within this truthful revelation there is a deceit, for the building is depicted to us in a manner that has never been or is likely to be; it is an idealisation and an interpretation, even though an uncharacteristic one. Soane’s ambition for aesthetic representation and the sensibilities of his time is found within the romanticism of the ruin as opposed to the empirical stature of the building. The depiction of treasure hunters and archaeologists in *‘Architectural Ruins – a Vision’* (1830) transforms the Bank of England into a fragmented object of archaeological enquiry, reserving its place in the architectural antiquity of the future (figure 2).

If indeed Soane’s Bank of England was to fall into such ruination, as depicted by Gandy, to what extent would it be allowed to do so? The work is a monument to the socio-political and economic culture of Britain at the time of its inception and many buildings of a similar significance have been tirelessly preserved or restored to avoid such occurrences. The ‘factual’ representation of history through these means is contrary to the interpretative and speculative depiction of history that is established within archaeology and the remnants of a ruin. It is difficult to determine if Soane will ever get his wish: for the ruins of the Bank of England to be among the few left within a future London. Our heritage of restorative works has extended beyond the simplicity and romanticism of Soane’s epoch, and the approaches to ruins are as contentious and polarising as was the reception received by Gandy’s illustrations when they were unveiled in the Royal Academy of Arts.



Figure 2: *‘Architectural ruins – a vision’*, 1830. John Soane (rendered by Joseph Gandy)

"This building, with those of Wren and the bridges, will be almost the only ruins left to indicate its [London's] present greatness."

Elmes (1823, p163)

MONUMENTALITY AND THE RESTORATIVE PEJORATIVE

It is interesting to consider the ruinous monument and Soane and Gandy's ambition to categorise the Bank of England as one. Such structures are often conceived to transcend their own determined functional and utilitarian need; that is, they were not necessarily built with a limited life in view, but to persist as 'intended monuments'. For such buildings, preservation becomes an issue from the moment of their completion, as does the manner by which they are maintained, restored or preserved in the epochs that follow. Indeed, Fred Scott (2008) within his work *'On Altering Architecture'* infers that from completion, all buildings are in a state of gradual ruination, and that the attitudes of a given society determines the moments of authenticity within the adaptive and ruinous history of a building. Our context and value systems are driven by the attitudes that emerged from the instigation of the Society for the Protection of Ancient Buildings, SPAB (1877), and later the Venice Charter (1964), and have established a mechanism to determine the restorative worth and methodology applied to buildings and ruins. The application of such measures is more complex when you consider the ambition of authors such as Soane, or indeed the evolving and adaptive history of a structure as an occupied object. It is possible, for example, to consider the material fabric of a structure as a series of layered adaptations and ambiguities, stretched over the frame of an original truth. Favouring a particular 'moment' is in itself as deceitful a practice as the fakery of reconstruction, or interpretative corrections, as practiced by Eugene-Emanuel Viollet-le-Duc (1814–1879).

"To restore a building ... is to re-establish it in a state of completion which may never have existed at any given moment in the past."

Viollet-le-Duc (no date) cited in Earl (2003, p54)

This practice of restoration, often referred to as the 'vandalism of completion', led to the development of additional works, which develop an architectural homogeneity never previously possessed. The interpretative ambition for an unspoilt completeness to historic monuments and structures developed a practice that was driven by the sensibilities of their author and time, above that of the original. They draw into the debate the very idea of originality and authenticity, as they are a violation of the original object and the original idea, yet they are a valid remnant of the structure's own history.



Figure 3: Castelvecchio, Verona, by Carlo Scarpa (image: P Holgate)

The idea of restoration takes on greater complexity when each epoch attributes its own systems, strategies and sensibilities over impropriety, method and value. If, for example, the works of Viollet-le-Duc and James Wyatt (1746–1813) are considered to be deceitful, are we to erase them from the history of the structure as a violation, or are we to recognise them as valid aspects of the fluid history of a structure and by virtue our attitudes to architectural heritage, if disagreeable none-the-less? As an example, it is said that during the adaptation of Castelvecchio, Verona (1956–1964), Carlo Scarpa (1906–1978) chose to remove built reference to the Fascist reign in Italy by erasing all construction attributed to that period (figure 3). Driven by socio-political ideology rather than that of aesthetic value or architectural heritage, he altered the layered history of the structure towards the development of an adaptation which is highly revered as a paradigm for future adaptation works, yet is as deceitful as those works carried out by the ‘great destroyer’ James Wyatt and Viollet-le-Duc.

The restoration of Le Corbusier’s (1887–1965) Villa Savoye (built 1930; restored 1985-1997) attempts to erase all trace of the neglect met upon this monument of modernity from the collective consciousness of the architectural establishment, yet it happened, and is a valid fragment of the structure’s history. It is possible to consider this period of misguided neglect as being as important to our future understanding of 20th century societal attitudes towards architecture, modernity, preservation and restoration as we perceive the need for the villa’s preservation to be today.

“The authenticity of a historic building ... depends crucially on its design and on the integrity of its fabric. The unnecessary replacement of historic fabric, no matter how carefully the work is carried out, will have an adverse effect ... and seriously reduce its value as a source of historical information.”

English Heritage Advisory Leaflet, Principles of Repair (1989) cited in Earl (2003, p77)

There is a degree of hypocritical reiteration in this practice of restoration. As with criticised previous restorers, there is a practice of applying the value systems of our time during an aesthetic process of determining what is of worth.

“The first and clearest case (for protection) is that of the building which is a work of art, the product of a distinct and outstanding creative mind.”

Instructions to Listening Investigators (1946) cited in Earl (2003, p11)

Historic and contemporary ruins are subject to the same conditions. They are, at some point, arrested by the elements. Each passing society's desire to preserve such structures seems to intensify with age, yet the dilemma with ancient ruins is that they are likely to have spent as much of their lifespan as ruins as they have as living structures. Therefore the ruined phase of their history is just as relevant as any other. Thus we are faced with the predicament of how to ensure that the ruin remains for future generations to enjoy, without denying its very nature. The ancient ruin embodies the romantic aesthetic admired by Soane and Gandy, of softened dilapidation and decay. The contemporary ruin has yet to be considered as such and perhaps society will no longer allow for the creation of new ruins. Modern materiality and construction methods negate the opportunity for such romanticism; neglect, in this age, is simply neglect.

“The natural destiny of a ruin is, after all, that it becomes steadily covered with ivy or old man's beard and that the pieces of masonry drop off from time to time.”

Earl (2003, p70)

Even minor alteration to the natural state of a ruin is the creation of a fabrication. The stabilising of a wall and the cutting back of vegetation which constantly tries to overcome the structure is nothing other than human intervention into the natural processes of the ruin and by its very nature the production of a falsification. This may go almost unnoticed and in relation to our discussion can be considered as worthy, but it is corrective surgery towards the idealisation of the ruin. Visitors to Fountains Abbey may stand in the exact position in which Turner stood to create *'The Dormitory and Transept of Fountain's Abbey – Evening'* (1798), and exclaim at how little the view has changed when of course, without human intervention and parenthood it would have changed beyond all recognition; resembling a thicket of brambles, trees and ivy as opposed to the manicured landscape they see before them. The ruin continues to escape the tyranny of utility, with control over such vegetation and 'making safe' considered to be adequate to maintain the desirable 'time-denying' state which is so revered. Yet even this most rudimentary form of preservation gives rise to purist debate as to the extent of acceptable intervention. Should the decay of a structure be halted or permitted to continue? Should the current image of Fountains Abbey be that of Turner or nature? Altering the physical appearance of the ruin in any way can diminish the accuracy of the depiction of its factual history, reinterpreting it as an art object as opposed to the remains of a once functioning building. To quote Walter Benjamin (1892–1940) in his later published 1925 paper *'The Origin of German Tragic Drama'*, a ruin is simply *“history ... physically merged with the setting”*.

IDEOLOGY AND PRACTICE

Two principle positions emerge: to restore what we perceive to be the original or desirable nature of a structure, or to maintain the intactness of what remains, limiting intervention or further deterioration. Modern approaches and opinions on the subject would seem to promote the latter; however, the

alternative resolutely refuses to die. It is in the subject matter of *restoration* where the fervour of debate exists, a debate that is as historic as the practice itself. At its most innocent, restoration can be viewed as the repairing, making good and reinstating of the original. However, it can also represent the practise of complete alteration of the existing to the supposed former state of the original. It may be debated as to whether the continued and longstanding process of minor restoration may lead eventually to the complete remodelling of the original, beyond recognition.

"[Restoration] ... means the most total destruction which a building can suffer ... Do not let us deceive ourselves in this important matter; it is impossible, as impossible as to raise the dead, to restore anything that has ever been great or beautiful in architecture. Do not let us talk of restoration. The thing is a lie from beginning to end."

Ruskin (1849) cited in Earl (2003, p58)

In opposition to the work of restorers whose occupation was to 'scrape' back in the name of restoration, removing plaster and weather damaged facades, SPAB coined the phrase 'anti-scrape'. The Anti-scrappers were opposed to modification in the name of improvement and many a critical attack at this time fell upon the most notable restorer of the time, George Gilbert Scott (1811–1878). Scott professed only to adhere to current guidelines and claimed that his fundamental beliefs were entirely praiseworthy, claiming them to be based on, *'the importance of arresting decay, of making authentic records of the found state of ancient buildings, of avoiding conjectural reinstatements'* (Earl, 2003, p60), when in fact many of his works were uncanny re-enactments of his contemporary, Viollet-le-Duc. The SPAB manifesto was one of the first attempts to place on paper ideology and principle with regard to preservation and restoration. However, its relevance and longevity remains well beyond the historical context in which it was written. The SPAB manifesto has formed the blueprint for almost all contemporary documentation on the subject and its applicability remains. Contemporary arbitration has attempted to limit opportunities for modern day Viollet-le-Ducs, and goes beyond being the collation of ideologies. The Venice Charter, for example, establishes a rhetoric that is unambiguous in establishing an ideology and methodology for restoration. This establishes an approach to restoration that is as concerned with the living history of what remains as it is with the manner through which that living history is protected and revealed, and provides the opportunity for clarity of juxtaposition. This is perhaps the principle difference between contemporary approaches to adaptation and restoration, and that of Viollet-le-Duc et al: that a structure can indeed be adapted, providing the adaptation is not in itself a deceit or pretence, but is unambiguous in its differentiation from the original. In this instance, the historic and contemporary histories of the ruin are concurrent.

"[Restoration] must stop at the point where conjecture begins... and any extra work must be distinct from the architectural composition and bear a contemporary stamp...additions cannot be allowed except in so far as they do not detract".

Venice Charter (1964) cited in Earl (2003, p62)

There is inevitability to the life of a building, where a continued lack of maintenance or use will lead to a state of decay where preservation is inadequate; where 'daily care' is not sufficient recourse to avoid the necessity of restoration. Historically, scholars in the field appear to neglect to comment on this aspect of the argument, that buildings long forgotten or outwith an aesthetic code do not have the luxury of

constant maintenance. When their plight is given consideration, many of the ideals of SPAB are no longer plausible or attainable. Economy requires their usage, or in the case of ruins, their continued visitation, to ensure their survival. If a monument is unable to achieve these goals simply through the use of minor preservation techniques then the question must be asked whether the option of complete loss in the spirit of a given ideology is preferable to the utilisation of restoration techniques. This particular debate, whether intentional or otherwise, appears to be fixed upon the context of the occupiable building and the historic monument. Within the context of the ruin, the structure that has passed the point of being inhabitable, the debate of authenticity and restorative adaptation is as applicable, and the juxtaposition of historic intervention becomes manifest in the minute junctions to the material and spatial characteristics we may witness in adaptation works.

“All reconstruction work [to ruins] should be ruled out a priority. Only anastylosis, that is to say, the re-assembling of existing but dismembered parts can be permitted. The material used for integration should always be recognisable and its use should be the least that will ensure the conservation of a monument and the reinstatement of its form.”

Venice Charter (1964) cited in Earl (2003, p. 136)



Figure 4: Roman Theatre Cartagena (image: Nanosanchez)

Whereas the accusation levelled at Viollet-le-Duc was of rewriting history through an architectural representation that was pastiche and ego, the deceit performed by anastylosis is the suggestion that ruination has not occurred, or has not occurred to the extent that it is visible (figure 4). The very nature of the ruin, the partially destroyed and dilapidated shadow of the former, raises the question: can re-erection to resemble the original ever be justified as conservation? Should the re-erection of the former ever be attempted, even with the use of original material? The use of anastylosis can neither be categorically defined as preservation or conservation; its actions are too extreme to warrant either of these headings. There are few cases, if any, where the large scale reconstruction of the original can be

classified in conservation terms. This level of intervention is rarely an issue with everyday monuments, but when speaking in terms of ancient antiquity the question of partial reconstruction is raised with surprising regularity. With particular reference to archaeological sites, visitors are often considered to be unable to read the remains effectively; to interpret the embodied histories within the relics that remain. With consideration to the experience of the visitor, anastylosis aims to give some physicality to that which has since disappeared, adding materiality to understanding. The role of the restoration of archaeological sites goes beyond the simple exposure and revelation of a ruin, but begins to reconstruct the ruin in an attempt to aid experiential understanding. Yet in doing so, it performs a deceit, for the image of the ruin may not be fully decipherable from the image of the reassembled representation, despite being constructed from the fragmented parts of itself.



Figure 5 & 6: St Peters Seminary, Cardross (images: Ramon Roberston)

DECEPTION

Ruins and ruinous monuments are important aspects of our architectural material culture. They allow us to experience and visualise history; our predisposition to history as a means to understanding the human condition has fixed them firmly within our sense of place (figures 5 & 6). The monumentality of St. Peter's Seminary by Gillespie, Kidd & Koia (1961) for example, is in fact enhanced by its current state of ruination. Furthermore, our post-enlightenment history has developed a discourse into the methods through which we should care for our architectural material culture and history. Yet in doing so, we have denied the buildings the opportunity to simply be. They are interpreted, modified, adapted or reconstructed, depending upon their condition and the wills and attitudes of a given time. Few ruins are truly ruinous, for they are never given back to the earth or permitted to rest.

Attitudes towards our architectural heritage are wide ranging and include: the complete recreation of the previous; halting of further ruination; the fabrication of idealisation; and the continuation of validity via adaptation and re-use. The latter attempts to be the most honest, allowing each epoch to maintain its own characteristics as they are manifest within the ruin or monument. A structure in use, even if that use

becomes adaptive, is a relevant structure. It is perhaps easier to consider the continual maintenance of a structure under use, protected from the elements and with each moment of its history inscribed in its fabric, than that of the exposed ruin, so revered by the romanticism of historic practice.

Or perhaps more simply, all buildings are like this; all are adaptive, interpretative, changeable structures that have changed throughout history, containing parts of other buildings, or spolia, additions and removals, reorientations and varied occupation ("*Spolia (Latin, 'spoils') is the re-use of earlier building material or decorative sculpture on new monuments*") (Spolia, 2012). Their true beauty as ruins and monuments is the fact that they reveal these marks appose to any attempt to disguise.

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Learning through making in Architectural education: developing the curriculum at Northumbria University

Will Campbell¹

ABSTRACT

This paper will examine the role of learning through making in the context of modern Architectural Education. The study will investigate the Architectural Programmes at Northumbria University, comparing the Undergraduate Architecture BA (hons) with established pedagogic models through a literature review that considers good educational practice. The Research will examine the range of policies and guidelines established by formal professional bodies including the RIBA, ARB and the QAA, which highlights the approach to design orientated learning in Further and Higher Education in the UK. The research will address areas of concern following a critique of the Architectural Programme at Northumbria University and a literature review of historic and contemporary precedent, areas of opportunity will also be highlighted in the research. In conclusion, the paper will propose guidelines that provide a curriculum that is relevant and effective so students can develop key skills when undertaking the Architectural Programme at Northumbria University.

Keywords: learning through making, studio, workshop, experiential learning, model, digital technology, craft, vocational, skills.

INTRODUCTION

Casakin and Goldschmidt (1999) believe that modern design education should facilitate innovative problem setting and solving skills in a graduate's development. Graduates require a broad toolset to address the challenges posed by project briefs. Architecture, by its very nature, is a vocational profession and consequently, in terms of educational aspirations, addresses the notion of authenticity and hands on practice through working processes in preparation for practice in the profession.

Historically, learning through making has been an important vehicle through which students develop a knowledge and understanding of their given subject. This said, the professional world and the educational arena face a new set of challenges with the increasing emphasis on the application of digital technologies. Ball (1998) outlines that: *“learning through making is the process by which mankind has always developed”*, however; *“advancements in automation and information technology have challenged our direct relationship with the experience of materials and the act of making things by hand”* (Ball, 1998, p3). Ball states that technology is vastly useful; however, it should not become a substitute for the process of making by hand; learning through making is fundamental to any design based course.

Northumbria University (2012) announced their commitment to address the evolution of Higher Education in their Vision for 2025, specifically outlining that technology *“will play a key role in the development of the student experience and it will allow us to improve our approach to delivery. Teaching formats need review...”* (Northumbria University, 2012). The Vision proposes the integration of new and emerging digital technologies within the architectural programmes, this must be considered carefully. The Architectural Programme must also ensure it equips graduates with the set of skills and understanding that potential employers and prescribing bodies including the RIBA, ARB and QAA stipulate.

YEAR 01 ARCHITECTURE + INTERIOR ARCHITECTURE

“Higher education is capable of making a significant contribution to the development of individuals, and the first academic year can be highly formative in that experience.”

(Bovill, et al. 2011, p2)

The Architectural programmes at Northumbria draw upon the importance of authenticity and regionalism. Student projects engage with realistic project briefs on local sites challenging students with scenarios that closely mirror practice, this happens throughout the programme. Year 01 Architecture at Northumbria University has historically consisted of a series of taught modules which supplement and reinforce a succession of contextual and thematic design projects that vary in focus. Studio design projects develop throughout the academic year in terms of scale and complexity alongside the range of skills and knowledge learnt by the students. Design modules account for approximately 50% of the programme and taught modules are constructively aligned with activities and projects undertaken in design modules. The staging and organisation of material delivered in taught modules is carefully coordinated with studio design projects.

The academic year 2011-2012 saw the introduction of a revised studio project programme. The project programme moved away from a series of singular projects, towards a yearlong focus through authentic street sites (figure 1) in Newcastle’s city centre. These projects were structured in a similar manner to previous years; at the beginning of each project a brief and introductory presentation was introduced to the full year one cohort. Students are encouraged to engage with self-directed studies throughout the duration projects; however, the experience of independent study is ‘scaffolded’ by learning in the form of a series of student centred tutorials and weekly project guidance sheets. Guidance sheets identify a number of key learning outcomes and outputs this facilitates the accumulation of structured development work for students.

Project briefs are designed to facilitate the application of theoretical knowledge, skills and understanding gained during prior projects as well as supporting taught modules undertaken throughout the year. Final project outputs allow students to revisit and reapply skills and knowledge gained previously in a new setting, in a bid to develop a culture of what can be referred to as ‘deep learning’ opposed to ‘surface learning’ (Biggs 2007).



Figure 1: Allocated student plots on High Bridge Street Newcastle upon Tyne (image: W. Campbell)

In previous years of the course, student applied skills and knowledge during design processes and final project output (including drawings, models and photographs) which used a range of both analogue and digital skills. The academic year 2011-2012 saw the introduction of purely analogue skills used for final outputs for project work, with a major emphasis on the importance of gaining an understanding and competence in traditional drawing and model making techniques. In Years 02 and 03 students move onto the use of digital technologies. The aim of this paper, therefore, is to outline the use of learning through making within Architectural Education at Northumbria University and discuss whether this choice is appropriate.

EDUCATIONAL CONTEXT

Exploration of architectural ideas through physical models and prototypes can be traced back as early as the early 15th century; Brunelleschi addressed the design solution for the cupola dome of the Cattedrale di Santa Maria del Fiore (the Cathedral of Florence) by constructing a model for the scheme spanning 2 meters and rising 4 meters comprising of five thousand bricks.

Architectural education has historically operated within a structure closely associated with the apprenticeship model concurrent with medieval antecedents. Throughout this period the guilds and workshops employed a defined hierarchical structure; Master, Journeyman and Apprentice. Skills and knowledge were considered to be collected and accumulated over time as a result of exposure and practice under the supervision of a practised individual, the Master.

Learning within the guilds addressed tacit knowledge derived from processes which could not be verbally explained or described; they had to be practiced. The products and processes in question required hands on practice and the kinaesthetic experience of making to establish appropriate levels of understanding and skill.

The master and apprentice educational structure became formalised by the Beaux Arts during the 17th C, and can be associated with curriculum structures for learning commonly implemented in modern Architectural Education. When the academic (master) directs the student (apprentice) in the design studio, Schon (1990) states learning “by practicing the making or performing where they seek to become adept, they are helped to do so by senior practitioners who - again, in Dewey’s terms - initiate them into the traditions of practice...” (Schon 1990, p16-17). However, academics on the whole could be prone to relying heavily on verbally directed teaching in contrast to demonstration and hands on practice, as seen in the workshop model for education that has been developed over time.

Teaching practice at Northumbria University aims to move away from the Master / Apprentice model, where academic staff distance themselves from the role of ‘director’ in favour of ‘facilitating students

learning'. As Marchese (1999) summarises, learning is a collaborative process. First year students undertake a 'Design Communication' module which seeks to outline an essential knowledge base through a programme of seminars and workshops; this develops practical skills for exploring ideas physically. Students use the design project following these foundation sessions, as a vehicle to apply and test their taught communication and development techniques. Students attend group tutorials regularly and academics provide the opportunity to discuss and reflect on progress in terms of the project work and general student development. Physical working models are produced during projects and provide a primary focus for discussion within the studio tutorials.

The studio environment (figure 2) and projects undertaken form the backdrop for the process of learning through making. In the medieval model the apprentice would observe the master, however, in the studio; students ordinarily exchange and develop ideas collectively as a learning community. Students draw on skills actively and absorb knowledge from the whole tutorial group. The studio operates as an open forum of ideas, where students and staff from all year groups interact and share knowledge and skills. Students who are more advanced, in many respects, undertake the role of Journeyman (or even Master) passing on accumulated knowledge they have gained through their time in the studio.

"Apprenticeship has typically been a cohort activity. That is, there were often 2 or 3 masters and a whole set of apprentices. The master was both task master and mentor. Among the masters and the apprentices there was always a rich conversation about what it is they are learning...the important knowledge was tacit, seldom written down and had to be learned by doing and talking. Very importantly, too, care was always undertaken that the young person understood the context, the real life meaning of each lesson or step... the classic example is from stone cutting where the apprentice knew the stone had to be absolutely square to fit just so in the wall of the cathedral."

(Marchese, 1999, cited in Nicol, and Pilling 2000, p 231).



Figure 2: Year 02 Students collaborating on project work in the design studio (image: S. Messer)

THE ROLE OF MAKING IN ARCHITECTURAL EDUCATION

Dunn (2007) states that physical models are an essential tool that develop and evidence an understanding of design ideas and evolution: what opportunities and threats may arise and have an impact on education in a more digitally driven programme in terms of wider learning? In Architectural Education models are considered the basis for a design dialogue as students' progress through their studies.

Models are used for development when designing, they can be used to improve or eliminate design ideas, extracting the decisions and proposals in a students work. With each time the process is carried out; the student's ideas and understanding is strengthened. (Dunn 2007).

Dunn (2007) also defines that models perform two primary roles within Architectural Education:

1. The exploration and development of design ideas (figure 3)
2. The representation of a finalised idea or scheme (figure 4)



Figure 3: Massing model studies



Figure 4: Scheme proposal final model studies (image: W Campbell)

It is important to understand the purpose of an architectural model; it represents the making and the presentation of a design idea, this can be achieved in a number of ways.

The presentation of ideas can be stated as:

“The representation of reality, where representation is the expression of certain relevant characteristics of the observed reality and where the reality consists of objects or systems that exist, have existed or may exist”.

Echenique 1970, p25-30

Models are traditionally represented by abstract and simplified forms. It is not possible to physically represent reality unless the model produced takes the form of a 1:1 scale prototype. A series of key decisions must be made by students to establish the level of information required for the purpose of the model. Sheil (2005) examines this stage of the design process, suggesting that a maker equipped with a “critical understanding” of how things are made is able to approach decision making and design progression with confidence. In other words, “the system is studied with a certain purpose in mind; everything that does not affect this purpose is eliminated” (Apostel 1961, p unknown). Through a process of elimination, the purpose of the model becomes clearly defined and information taken from the study becomes concentrated and clear.

Echenique (1970) identifies several stages to consider throughout the process of creating a model:

- Defining the object or system that will be investigated.
- Selecting the key parts of the objects or systems to include.
- Abstracting and refining these key elements.
- Translating these abstractions into physical forms.
- Testing the model and making conclusions.

Stages in the design process punctuate points for reflection within the development of an idea. These stages become important areas of discussion during design tutorials. However, does virtual modelling have an effect on this process of sieving and compressing a mass of data and distilling it into a focussed model? Sheil (2005) summarises this by suggesting that making becomes a responsive act, a demonstration of how a design is represented through detailed information. The design process becomes one journey with little or no punctuation; it becomes difficult to define intervals for reflection throughout a project.

Abstracting ideas from a physical model helps to break down a design into legible component parts. These can be developed to produce and refine clear proposals. This key skill is vital for any design profession.

Hesse (1966) provides an alternative conceptualisation of the two types of model appropriate to architecture: material models are based on assumptions taken from phenomena existing in the real world; new design proposals are informed by knowledge of a series of known constraints.



Figure 5: Conceptual development models (image: B. Vautravers)

Conceptual models propose new phenomena, based on imaginative properties with no prior (or fewer) constraints.

Once the type of model has been established, the function of the model can be decided. The primary function of a model, according to McMinn and Russel (1975) is to provide a simplified and understandable representation of reality to comprehend it better. Another theoretical approach from Echenique (1970) establishes three primary forms of model:

The Descriptive Model: This establishes a particular aspect of reality through explanation, a site model, for example, could be used to describe the location of existing buildings, public realm and circulatory routes. These models are considered explanatory and can be quantitative in nature.

The Evaluative Model: This is used to represent aspects of a design which cannot be physically measured, for example the perceived mood of a space. Evaluative models examine qualitative data and the perception of an idea.

The Predictive Model: This is used to represent what could be reality, for example the external envelope of a building may be modelled and set in context within a descriptive contextual model.

Finally, the medium of the model needs to be established. The classification of the model process refers to the way the model is represented, and falls into three categories (Dunn 2007):

Physical models: formalised scale representations of an idea. Formal scale models can be considered in 2 categories; developmental process models and final output presentation models.

Model scale and complexity has implications on decisions related to materials and construction of the model. Traditionally, formal scale architectural models are made using a limited palette of materials. This allows key architectural ideas such as scale, mass, and spatial quality and to be read easily. The development and refinement of ideas are typically constructed through process models in materials which are easy to manipulate, cut and fix allowing for quick and easy development of ideas. This form of making is seen as a key part of the process of design. Students use card, paper and balsa wood, but may also experiment with challenging materials such as plaster, resin, metal and timber. Final presentation models make use of the same range of materials; however, a finished output model is ultimately more refined. The final output model reflects the intended use for presentation and visualization.

Conceptual models; three dimensional diagrams of no particular scale investigate a loose idea.

Conceptual model studies without a scale are associated with the development of ideas at an early stage in the design process. Students undertake studies to physically explore and interpret abstract concepts and ideas through use of tangible objects. Materials chosen become dependent on individual preference and interpretation of ideas and concepts, the range of materials utilized by students is therefore wide ranging at this stage.

Virtual models; produced through computer modelling packages, manipulated and explored through a virtual three dimensional environment: they commonly exist on screen, as two dimensional images. Students experience and interpret virtual models through a range of materials and means. A model can be reviewed digitally and experienced on screen in 2D and 3D. The nature of the virtual model is important when assessing the type of materials and construction employed. When virtual models are used as process and development tools, the importance of a material finish and overall accuracy can be considered less important. The model essentially exists as a digital equivalent of the concept and formal scale model.



Figure 6: Year 01 Composite observational street study models (image: W. Campbell)

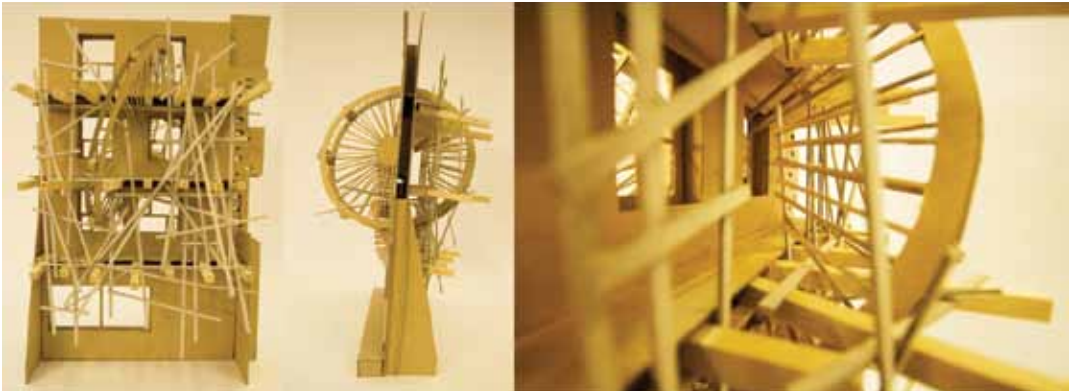


Figure 7: Janis Melders' Invisible Cities physical representation of a passage of text (image: W. Campbell)

The idea of developing a craft in a particular area stretches beyond physical labour and is linked to the development of technique. Every maker conducts a dialogue between the 'concrete' practice, i.e. making, and psychological processes, i.e. thinking irrespective of the process. This relationship between action and thinking is central to the development of any craft. Sennet (2008) suggests that as we begin to engage with a process, a dialogue between acting and thinking begins to evolve:

- Habits begin to form as a task is executed.
- Sustained habits establish a rhythm between problem solving and problem finding.

Practising a skill or craft reinforces the dialogue between thinking and making, there comes a point where the focus shifts from the act of making and the energy used to perform the physical 'concrete' tasks becomes smaller as technique becomes more refined and understood. The thinking process absorbs

a greater proportion of energy. As a skill is used to address familiar types of problems, the craftsman becomes more attuned to solving the problem and this process requires less thought and the process becomes more intuitive. Consequently, the maker is then able to focus their attention on the process of problem finding, which in turn leads to the development of a deeper understanding of the design process, leading to new more innovative solutions.

Sennet (2008) outlines two schools of thought describe the development of craft:

- Skills develop as a bodily practice reinforced by physical repetition.
- Technical knowledge underpins any task.

One theme links these two ideas together; through experimentation and repetition we can find new ways to solve problems and refine existing techniques, therefore developing our abilities to address such problems or tasks.

EDUCATIONAL CHALLENGES

“...the learner is directly in touch with the realities being studied...It involves direct encounter with the phenomenon being studied rather than merely thinking about the encounter or only considering the possibility of doing something with it.”

Keeton and Tate 1978, p2

Modern education faces a new range of challenges as the profile of students evolve. The learner profile has changed dramatically in recent years with the emergence of students commonly referred to as Generation X, Generation Y, the Net Generation and Digital Natives. Born between 1980 and 1996, Prensky (2001) describes Digital Natives as those who have spent their entire lives immersed in technology, surrounded by the products and processes of the digital age and as a consequence develop an inherent reliance on digital information and communication. The Net Generation's increased exposure to digital culture means their preferences, skills and attitudes towards education in particular have changed. Net Gen students have developed a culture of immediacy; expecting to receive information quickly in a range of different formats (Frاند 2000).

EdExcel, AQA and OCR structure curricular designed to guide students towards exploration of ideas and learning through a range of established analogue processes and activities including drawing and making by hand. Despite the evolution of a new student profile, examining bodies continue to retain traditional methodologies. Whilst incorporating established and emerging digital technologies such as CAD, CAM, Virtual Reality and Rapid Prototyping techniques there is still a prescribed requirement for the use of traditional techniques in both design and fine art based curricula.

“... candidates to take a broad view of technology and design, to develop their capacity to design and make products and to appreciate the complex relations between design, materials, manufacture and marketing.”

AQA 2004, p4

A high proportion of students applying to study architectural subjects at Northumbria University come from design and art based backgrounds following A Levels, Foundation Degrees or Diplomas. As a result these applicants join university degree programmes with prior knowledge based on the curricula studied at both school and college. It is important to establish, acknowledge and evaluate this prior knowledge.

Kolb (1983) outlines education as a process which is not finite; experience is considered the unifying catalyst essential throughout learning. It is essential that knowledge, skills and experience gained during earlier education are drawn upon and transferred into the realm of university education. Formative years

provide important thresholds as students' progress from directed learning environments into more self-directed settings.

DISCUSSION

The origins and established use of making in architecture as a vehicle for learning have been discussed alongside current changes and challenges faced by Northumbria University as a result of changing student profiles and developments in terms of digital technologies.

Hale (2005) recommends that technology in architecture should not be avoided, recommending, that digital technology is an ally not an alternative, CAD and CAM are associates not alternatives. By combining the use of digital experimentation with the act of transferring data into a tangible physical object using prototyping and digital making, Sheil (2005) suggests that the act of exploring architecture can still a physical one. Three key factors must be addressed:

1. Educational experience

Physical making sits at the core of architectural education at Northumbria University; it is recognised as an integral vehicle for learning, because of the spectrum of skills and knowledge associated with architectural practice. Nonetheless digital technology poses a significant challenge. Further research is required into the implications of learning, designing and making using digital technologies. This paper establishes a series of working methods and strategies associated with learning through making. Digital technologies and associated skills, knowledge and understanding require the same investigation. A greater understanding of the digital design development process will facilitate a more coherent integration of the topic within the architectural programme at Northumbria University.

2. The changing student profile

Research begins to identify the mixed methods used by students during both development and presentation of architectural ideas. Evidence suggests students engage with traditional physical and contemporary digital techniques. To understand the nature of the modern student profile, structured research must outline the attributes and learning styles associated with new students undertaking architectural studies.

3. Employability – graduate attributes

The Architectural Programme at Northumbria University retains a successful employment rate; 85% of graduates from the Part 1 qualification enter employment in practice within six months of graduating. Further research and consultation with industry will inform how relevant traditional skills are in modern practice, whilst also considering the application of skills and knowledge associated with digital technology. Students leave the programme having amassed a broad and varied understanding of Architecture. In view of the competitive employment market; desirable skills associated with modern architectural practice require investigation in greater depth.

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Pier Luigi Nervi, the Quadrante years

Dr. Manuel Cresciani

ABSTRACT

Pier Luigi Nervi (1891-1979) has been one of the most acclaimed structural engineers of the last century; his achievements have been celebrated both by engineers and architects, a very rare occurrence. Winner of numerous international awards and academic recognitions, he arguably reached the apex of his career with the 1960 RIBA Gold Medal.

His international reputation has been supported by a discontinuous literature which celebrated his achievements during his career, but went very quiet after his death in 1979. However in 2010, fifty years after the 1960 Olympiads in Rome, of which Nervi was the absolute protagonist, a series of new studies, international conferences, and workshops took place. The renovated interest and consequential investigations of the academic community are mainly based on the study of his buildings; little has been done on his contribution as a scholar, with the exception of the volume entitled '*La Lezione di Pier Luigi Nervi*' (Trentin and Trombetti, 2010), based on the transcription of a series of lectures by Nervi.

This paper considers the scholarly activity of the Italian engineer. It is indeed in this capacity - as a scholar, critic and academic - that Nervi probably best managed to convey widely his ideas, principles and methods influencing generations of designers.

In particular, this paper takes into consideration the very earliest writings of Nervi: three papers conceived for the vibrant environment of *Quadrante*, a controversial magazine firstly favoured and subsequently closed by the Fascist Government. Written between 1931 and 1934, these three papers contained most of the seminal principles which underpinned Nervi's long career.

Along with a critical review of these writings, this work intends to provide an initial chapter for a critical and systematic assessment on Nervi's written contribution to the architectural debate of his time.

Keywords: *Pier Luigi Nervi, Quadrante, The Charles Norton Lectures, design process, Aesthetics.*

INTRODUCTION

As for the majority of the most influential architectural personalities of modern times, it is possible to distinguish two kinds of literature on Nervi: his own writings and texts written by others about Nervi. This paper focuses only on the former category.

Nervi's activity as a critic started almost at the same time as his career as a designer. For thirty five years, between 1931 and 1966, Nervi consistently wrote about his work, architecture, engineering and related issues. As a practising designer he was a remarkably prolific writer, producing three books and dozens of papers and articles. Indeed, the main body of existing literature on Pier Luigi Nervi has been written by the man himself. Of course, it is questionable as to whether Nervi's capacity to assess his own work is critically valuable; indeed, despite the quantity of his writing, Nervi's analytical approach to his own work was generally superficial as he did not investigate in depth the nature of his design process. Nervi's attitude in defining his projects only as consequences of compliance with the laws of physics was deliberately circulated through his writings and interviews, but questioned even by his closest professional partners. Nervi's writings reflect three different periods of his career as a designer.

Firstly, in his early writings (1935-1945), and thanks to the vibrant atmosphere of *Quadrante*, an energetic and controversial magazine in which young designers, but also musicians, poets and artists expressed their beliefs, Nervi considered the current state and future possibilities of architecture and engineering. In 1945, possibly influenced by all the various personalities of *Quadrante*, Nervi published his first book, whose title expresses his uncertainties: *Scienza o Arte del Costruire?* (Is Construction a Science or an Art?). This book, now out of print, was Nervi's first attempt to define the nature of construction, a cardinal theme throughout his writing.

Then, in the post-World War Two era (1946-1960), Nervi concentrated his views, writing more technical texts as comments on his work. His thoughts and opinions were published mainly through architectural magazines. In 1955, Nervi published his second book, *Costruire Correttamente* (Building Correctly), a bold statement in Italian, translated into English with the anonymous Structures.

In the latter part of his career (1961-1970), Nervi, already an acknowledged master of reinforced concrete, commented on his own buildings as a list of pragmatic advantages, largely based on economic or static constraints and related solutions. Only occasionally would he return to his earlier speculation; during his formal collaboration with *Casabella*, invited by the Editor in Chief, Ernesto Nathan Rogers, Nervi wrote five articles of unexpected dialectic vigour.

As a passionate teacher in the School of Architecture in Rome, where he taught 'Construction Techniques and Material Technologies' from 1945 to 1961, Nervi had the opportunity to freely express his points of view within the architectural debate of those years. Moreover, with his growing international recognition, many were the cultural institutions which invited the Italian engineer for conferences and series of lectures. The most famous of these was the call by the University of Harvard in 1961 to receive his Charles Eliot Norton Professorship of Poetry. The book, *Aesthetics and Technology in Building*, translated by Roberto Einaudi, which reported this series of four lectures, represents both the memories of a designer and his legacy in terms of written contributions.

NERVI'S EARLY WRITINGS: QUADRANTE 1931-1936

In his early writings (1931-1945), Nervi addressed some cardinal themes of the architectural debate of his time and started to express his ideas on buildings. In this period he developed some seminal concepts which became the basis of his later design principles. His pioneering ideas on construction were developed simultaneously, both theoretically in his writing and practically in his buildings.

Nervi's first ideas were published by an innovative magazine of art and architecture: *Quadrante*, a monthly magazine of art, literature and life.



Figure 1: The first issue of *Quadrante*, May XI [image: M. Cresciani]

This magazine was founded by Pier Maria Bardi and Massimo Bontempelli in May 1933 and edited by some of the youngest and most influential personalities of the Italian culture, like Mario Sironi, Luigi Pirandello, Giuseppe Terragni, and Ernesto Nathan Rogers, as well as Pier Luigi Nervi. The environment of *Quadrante* was extremely various and lively. It promoted modern art and architecture and represented the progressive and innovative counterpart of other more traditional 'official' magazines, like *Architettura e Arti Decorative*, magazine of the Syndicate of Fascist Architects, edited by Marcello Piacentini, the chief architect of the regime. Regular interventions by Le Corbusier, Gropius and Breuer are just some examples of the international link and mutual respect between *Quadrante* and the Modernist movement.

Despite its modern approach and enthusiastic promotion of rationalistic architecture, *Quadrante* was linked to and supported by Fascism. Its founder, Bardi, wrote in 1931 '*Rapporto sull' Architettura per Mussolini*' (Report on Architecture for Mussolini), a text in which he investigated the chances for a fascist architecture. Indeed, for many young artists and designers the advent of Fascism was perceived as an opportunity to express a new form of art and architecture, and this is why many young talents saluted the regime with fervent enthusiasm. However, when the dictatorship showed its real face, the price to pay for their naivety was immense for some of them: Giuseppe Pagano, one of the most promising architects of the time, having promoted the ideas of Fascism, later became one of its strongest opponents. He died in Mathausen concentration camp in April 1945.

Quadrante became soon too progressive for the conservative ideas of Mussolini, and was financially abandoned by the institutions, resulting in its early and symbolic closure in 1936 with a monographic issue on the Casa del Fascio by Giuseppe Terragni, arguably the masterpiece of the Italian Rationalism.

PAPERS FOR QUADRANTE

Nervi wrote a total of five articles for *Quadrante*. Only three of them have been taken into consideration in this paper. The reason for this selection is that two of them - *Idee sulla costruzione di uno stadio per 120.000* (Ideas on the Construction of a Stadium for 120.000 spectators), which appeared in issue 4 (Nervi, 1931) and *Una casa girevole* (A Revolving House), which appeared in issue 13 - consist of mere

descriptions of the architectural device and the structural components of these unrealised projects, and therefore do not contain valuable material for the purpose of this paper.

Nervi's first paper for *Quadrante* (issue 2) (Nervi, 1931), *Arte e tecnica del costruire* (Art and Technique of Construction) was published in 1931, one year before the completion of his first important project, the Stadium Berta in Florence (1932). Interestingly, the title of this paper is very similar to the title of his first book, *Scienza o Arte del Costruire?* (Is Construction an Art or a Science?). In this paper, Nervi foresaw a new kind of building, 'necessarily sincere'. In his opinion, because of the inevitable physical constraints of the new typologies of large infra-structures for the contemporary world, a new direction for architecture would create buildings which adhered only to the laws of nature, and therefore to organic forms. In Nervi's terms, organic forms were dictated by natural forces such as gravity. His understanding differed from that of Bruno Zevi, the main promoter of Organic Architecture in Italy, who essentially referred to the principles of Frank Lloyd Wright. This, and other differences of opinion, determined a difficult relationship between the two men, both Professors at the Faculty of Architecture of Rome.

It is interesting to note that a very similar approach is present in the very last section (pp. 196-198) of his last book *Aesthetics and Technology in Building* (Nervi, 1966), where a photographic display of (then) modern jets and transatlantic liners aims to demonstrate the inevitable adherence of such functional products to the laws of nature, in these cases to hydro and aerodynamics. In Nervi's mind the design of large buildings and structures should not differ from that of products like those cited above. Hence to strictly follow the law of statics when designing buildings was for Nervi a safe way both to construct correctly and to achieve a relevant aesthetic result at the same time. Additionally, in this book Nervi also considered who should be responsible for the delivery of such buildings. His answer was, perhaps, surprisingly for an engineer:

'The Architect, as the complete creator of the building, would return to his/her real function as defined by the etymology of the word itself, Architect = Master Builder.'

A similar claim appears in his second book, *Structures* (Nervi, 1956):

'The proper title of a man capable of conceiving and building structures is architect', and hence the departments capable of training this kind of person should be the departments or schools of Architecture.'

Nervi's prediction is evidently contradicted by the contemporary use of extensive team-working and by the plethora of roles present in the current construction environment. Whilst this is understandable in such a complex field, for Nervi it was essential to have a single professional able to master and control the whole process, in order to guarantee the expected performance. An inspiring parallelism was traced by Nervi between such a figure and the orchestra conductor. The prime importance of the construction process and who is in charge of it was a central point in Nervi's philosophy. The point was not only to define what a correct building consists of, but also who, ultimately, should be responsible for its design. In this, his approach differed from contemporary engineers; an example by Torroja (1958), in his eponymous-titled first book, *The structures of Eduardo Torroja*, which revolves around similar topics, does not mention at all who should govern construction process.

Nervi's idea to entrust the built environment to architects posed the question on how they should be trained and by whom. It is not a coincidence that Nervi taught from 1945 until 1961 at the School of Architecture of Rome. Nervi was a passionate teacher, loved by his students, although as a Professor of 'Construction Techniques and Material Technologies', his relationship with his architect colleagues was not always easy. The structure of his lecture programme served as guideline for the delivery of the four plenary lectures at Harvard University in 1961.



Figure 2: A lecture by Nervi, Rome 1960

In *Pensieri sull' Ingegneria* (Thoughts on Engineering) (Nervi, 1932), Nervi questioned the indistinct boundary between architecture and engineering. In Nervi's mind, these are two names for a single discipline. He also defined engineering as the balanced relation between stability and economy. This was a leitmotif of his philosophy. Furthermore, he emphasised the distinction between mathematics and engineering. Nervi, like other engineers (Torroja, Isler) expressed doubts as to the true advantage of the analytical approach to structures compared to what he defined: intuition.

In his mind, mathematics was:

'A means (wonderful and to be taken in the highest regards [...]) but not the entire Engineering, as the telescope is not the Astronomy, of which it is the most powerful instrument of research.'

His adverse position to the analytical approach to design explains why, in his career, Nervi tried to avoid structures which involved a large amount of complex calculations (mainly based on partial derivatives for the definition of curvatures). In order to achieve this Nervi favoured simple and symmetrical schemes, where the calculations can be repeated, and supported the mathematical results with tests on models. In the last of his papers, *Monumento alla Bandiera* (Monument for the Flag) (Nervi, 1933), Nervi proposed the creation of a commemorative monument for the national flag which, in his own words, would be:

'The most meaningful one can imagine'.

The monument was to be a 250 metre tall tower, designed in steel and travertine and erected on one of the surrounding hills of Rome, Monte Mario, but was, in fact, never built. The nature of the project, which reveals his availability to the requests of the Fascist Government (the tower was to celebrate the first ten years of its political advent), opens a discussion on how much Nervi identified with the

nationalist values of the Fascist regime, especially in view of the fact that in those same years Nervi was completing his Stadium in Florence dedicated to a 'Martyr of the Fascist Revolution': Giovanni Berta, killed under uncertain circumstances by Communist opponents. Moreover, the footprint of the Arena, commissioned by an influential Florentine party official, resembles a capital D, possibly an homage to Benito Mussolini, the Duce.

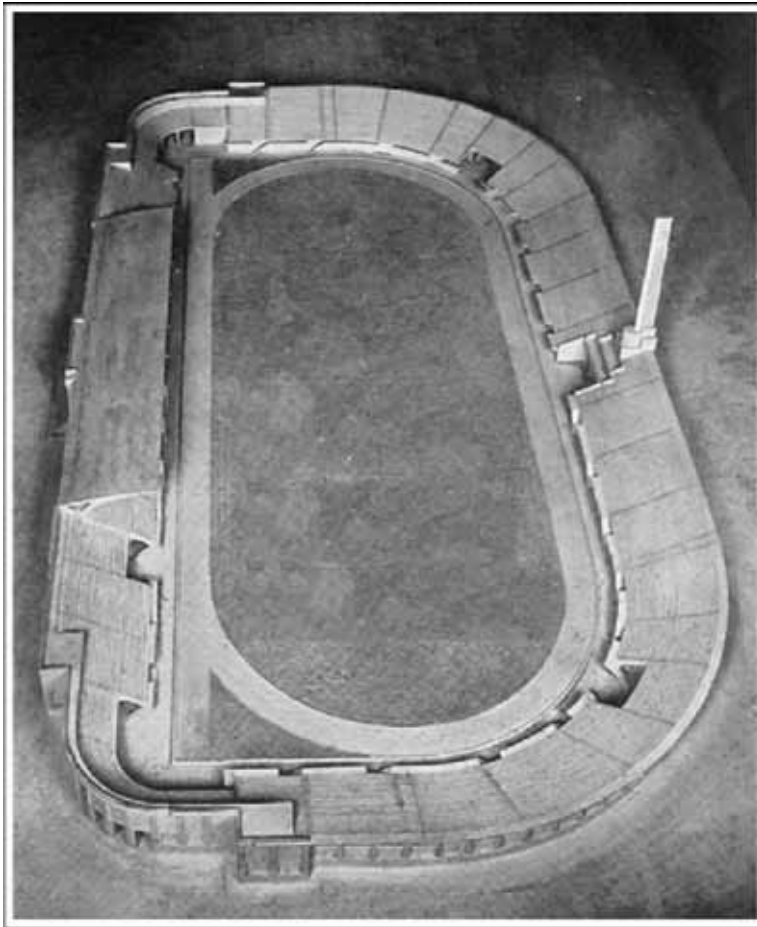


Figure 3: Stadium Berta: The D shape - Original Model. [image: www.artefascista.it]

Apparently Nervi was never a fervent Fascist and by the account of his relatives he was in fact annoyed by the Fascist propaganda. Politically, in the post-Fascist era he was considered a liberal man, close to the powerful party 'Democrazia Cristiana'. However, in the years of Fascism, to gain public recognition, Nervi (as did anyone else at that time) designed public buildings like the stadium and, later, hangars, both of which were commissioned and financially supported by the Fascist Government.

From a more technical point of view, the project of the tall tower shows all his structural audacity, not just in terms of the overall dimension, but also because of the static mechanism which Nervi conceived to stiffen the tall tower. Nervi introduced a heavy mass at the bottom of the tower linked to its top via a series of reinforced concrete tie rods, so that the whole structural section works purely in compression.

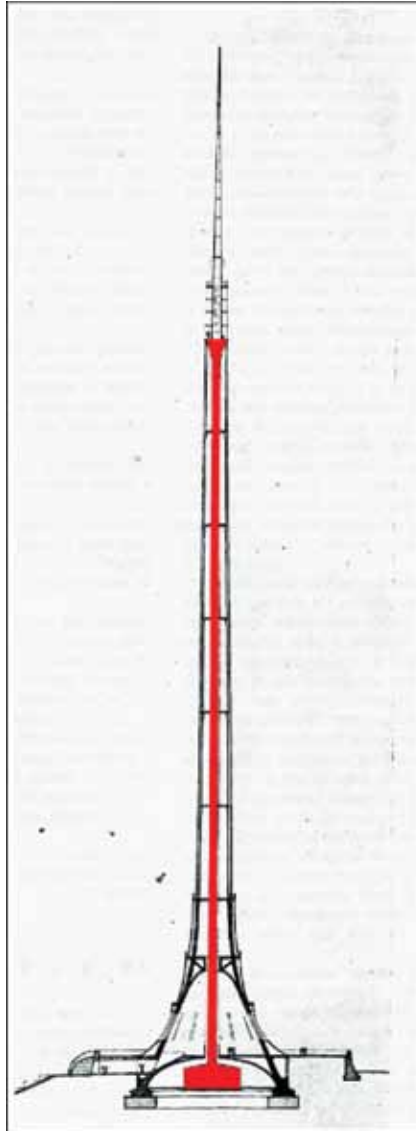


Figure 4: The Monument to the Flag, with stiffening structure in red [image: Architettura MAXXI]

CONCLUSIONS

The relationship with *Quadrante* was very valuable for the Italian engineer. On one hand, the magazine allowed Nervi to express his ideas and to publish his first projects in a true international context. This had two advantages: the chance to reflect on and refine the theoretical premises of his designs before building any of them; and the possibility to display his projects in an international publication. On the other hand, through *Quadrante* Nervi was exposed to personalities, theories, styles, and trends which influenced his contemporary production. Despite there being no evidence of a specific and direct influence on his design approach, it is otherwise difficult to explain certain solutions adopted in Nervi's first large work, the Stadium Berta in Florence (1929). The external staircases based on double helicoidal matrices look like tridimensional representations of the dynamics expressed by artists such as Giacomo Balla and Umberto Boccioni. Similarly, the Marathon Tower closely resembles the investigations of the Futurist architect Antonio Sant'Elia, highly praised by the architectural group at *Quadrante*.

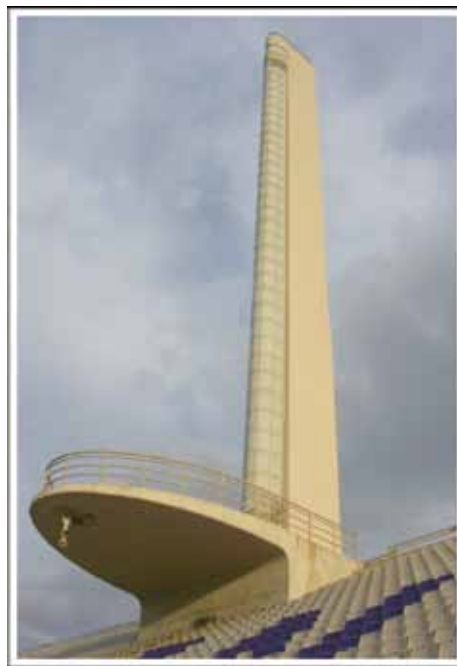


Figure 5: The Stadium Berta: the stairs and the Marathon Tower [images: M. Cresciani]

The opportunity to express his ideas amongst some of the most brilliant minds of his generation provided him a dialectic verve and a clarity of exposition which, as a structural engineer by training, he did not necessarily possess before. This ability to illustrate his projects and defend his choices contributed to his teaching skills in the Academia, but also enabled him to respond firmly to the occasional criticisms made to his designs. Furthermore, thanks to *Quadrante* Nervi is likely to have formed some friendships and, possibly, an international network of colleagues. In particular, Ernesto Nathan Rogers and Le Corbusier, who both contributed articles, proved to be useful when they were looking for a structural engineer for the UNESCO Headquarter in Paris at the beginning of 1950s.

The three papers taken into consideration are relevant for the understanding of Nervi's design approach

in many respects. Indeed, most of the principles of his thought and production were clearly expressed in these writings.

Firstly, the centrality of architects in the built environment, as expressed in his article *Arte e tecnica del costruire* (Art and Technique of Construction) for *Quadrante* (2) (Nervi, 1931). The role of architects and their education and training was always a strong element within Nervi's ideology, which perhaps explains his long professorship in the Faculty of Architecture (and not Engineering) in Rome.

Secondly, the identity of architecture and engineering, the necessity of economics, as an ethic value rather than a material advantage, and the 'sincerity' of buildings in terms of building materials and structural solutions were drafted in *Pensieri sull'Ingegneria*. These were to become recurring themes in Nervi's designs and were later developed in his further writings. Even the use of statics, not as a numerical verification to test the structural efficiency of a design, but as a tool to produce (good) architecture, was suggested in this paper. Nervi used to refer to the intrinsic beauty of structures designed according to the physical laws.

Finally, the project for a 250 metre tall tower, as detailed in *Monumento alla Bandiera*, demonstrates the ambition of Nervi to build a large public building. In the years to come this was his preferred typology and he became renowned for delivering cost-effective and beautiful structures, which culminated in the two domed sport venues for the Olympiad in Rome in 1960. The smaller one, the Palazzetto, became one of the most iconic reinforced concrete buildings of last century, while the larger of the two (the Pala EUR) had the largest dome in reinforced concrete of the time.

Nervi's consistency in architectural designs was therefore underpinned by a strict set of principles that he was able to identify right at the beginning of his career. The ideas expressed in the articles for *Quadrante*, together with his first experiences as a designer, resulted in Nervi's first book, *Scienza o Arte del Costruire?*, published in 1945. This volume, a standard text in the Italian faculties of architecture, has influenced generations of architects.

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Memory + Meaning in Modern Architecture

Benjamin Elliott¹ and Mark Todd²

'I think often modern architecture is a little over-concerned with trying to demonstrate invention. Although this is a completely valid preoccupation, I think it ought to be within a framework that accepts the importance of memory and meaning. Invention and novelty should look for ways of operating within a continuum and not just, as it were, start from nothing. You don't want to be held captive by history or tradition, but you have to find ways of locating things both physically and historically. That might be a literal idea, a very abstract idea, but I certainly think you have to find something by which people, not just architects, can understand what the idea is about'

David Chipperfield, interviewed by H. Wessely (2005)

INTRODUCTION

Is there a relationship between the language of modern architecture and the history and tradition of its context? The question describes a familiar debate in architectural theory and raises the issue of an apparent discontinuity in modern culture - the past is preserved but not necessarily made part of the future. One priority for architects must be to rediscover how our cultural heritage can become vibrant and relevant to what we design today. With the enormous repository of knowledge and experience contained in our history and culture, the architect has the responsibility to integrate memory and meaning into modern architecture – allowing a creative relationship between past and present, and to operate an active rather than passive engagement with history.

Architecture, like literature and art, is part of society's collective memory. It can be incorporated into our present experience – a text of cumulative history that can build meaning into how we might see our modern world. Whilst dealing with the application of meaningful language and form in modern architecture we must also consider the significance of the phenomenological concern of how people experience buildings in terms of the immeasurable qualities of thoughts and emotions.

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Inspired by the works of Heidegger, some architects have pursued the role of architecture as a more meaningful experience - informed by history, culture and traditions. His critical views of technology, the power he realised in bodily experience and his perception of place have inspired the designs of architects as diverse as Peter Zumthor, David Chipperfield, Louis Kahn, Frank Lloyd Wright and Hans Scharoun. However, it is in the work of contemporary architects like Zumthor and Chipperfield that this paper takes particular interest. Swiss architect Peter Zumthor has always emphasised the sensory aspects of his architectural experiences. He believes that memories are the deepest and most meaningful architectural experience and that they are the '*reservoirs of architectural atmospheres and images*' that he explores in his work as an architect (Zumthor, 2006, p.12).

British architect David Chipperfield has also maintained the philosophy that architecture must operate within a framework that accepts the importance of memory and meaning. He believes that modern architecture should be placed both physically and historically – acknowledging the importance of, but not being restricted by, history and tradition.

REMEMBERING WITH ARCHITECTURE

John Ruskin, the influential architectural theorist and critic of the Victorian era, wrote '*The Seven Lamps of Architecture*' in 1849 (Wheeler and Whiteley 1992, p.62). The sixth chapter is entitled 'The Lamp of Memory', in which he states, '*We cannot remember without architecture*'. The chapter resonates with words like monument, memory, history, tradition - all of which emphasise the concept of remembering. He encourages a realisation that architecture, like literature and art, is part of our collective memory, which we must incorporate into our present experience.

Ruskin's work poses a question about modern architecture - is there a relationship between the language of '*modernism*' and the historical tradition represented in Ruskin's thought? For example, consider Peter Zumthor's Gugalun House in Graubünden, an extension of an 18th Century timber house located remotely in the Swiss Alps. Zumthor has harmonised the new with the old by combining the two under one roof, clearly articulating the passing of time – almost 300 years. The materiality, form and language of the new are reminiscent of the old, showing respect, yet the modern displays its own structural expression, creating a harmony eloquently articulating age, history and origin.

A more recent example of remembering through contemporary architecture is the Neues Museum restoration in Berlin by David Chipperfield. The museum was built between 1843 and 1855 by German architect Friedrich August Stüler; however, the building was heavily damaged during World War II and in some parts only the outer walls remained. Some German critics believed that the restoration should have replicated Stüler's original work and that it should have been built exactly as it was before the war. This approach was not considered appropriate by Chipperfield – to build Stüler's museum exactly as it was would have been a sterile imitation of the past, disregarding a series of significant historical events and political issues that kept the museum a ruin for over 60 years: 'To imitate the past is to mock it' (Ted Cullinan lecture, Northumbria University, 2008).

Instead Chipperfield followed the principle of respecting the historical structure in its different states of preservation (Chipperfield, 2003). Parts of the building that had been lost during the war left gaps in the existing structure – Chipperfield's response was to subserviently fill in the missing parts, so that they did not compete with Stüler's original work in terms of colour and texture, but were a genuine contribution of his own that represented the present.

Restoration and repair was driven by the idea that the original structure should be emphasized in its spatial context and its original materiality – the new reflecting the lost without imitating it (Chipperfield, 2003). Formed from large pre-fabricated concrete elements consisting of white cement mixed with Saxonian marble chips, the new main staircase repeats the form of the original but without replication - preserved only in terms of volume but devoid of its original ornamentation; the new staircase sitting

perfectly within Stüler's surviving hall.

Informed by the past, Chipperfield thus demonstrates the expressive power of memory and meaning in modern architecture by operating within the continuum of time – a clear articulation of past and present that knits the new into its historical context. Rather than slavish replication of Stüler's original building, Chipperfield's approach to the restoration of the Neues Museum allows people to understand its meaningful history and to see the new in contrast with the old, whilst facilitating an awareness of which parts have been lost, but are now remembered through contemporary architecture.

Chipperfield and Zumthor demonstrate that modern architecture can have a greater representation in our lives – involving shared, meaningful traditions which enable new buildings to relate to their historical context (Sharr, 2007). By acknowledging the past and its cultural heritage, architecture can become vibrant and relevant to the present.

A WAY OF LOCATING THINGS

There are of course, much more avant-garde examples of modern architecture that are devoid of memory and meaning, rather than embracing the more sensual qualities that Chipperfield and Zumthor display in their work. It could be argued that buildings like these are perhaps solely concerned with visual impact rather than their cultural or historical context.

Superficial visual impact has never been more obvious in the art of architecture than in the past thirty years, as the culture of media and technology have elevated the importance of the visual image. Instead of responding to context, culture and tradition, architecture has instead adopted the mass media strategy of 'advertising' and instant persuasion; buildings have turned into 'image products' detached from existential depth and sincerity.

Furthermore, this type of architecture has proved to be controversial in instances where it completely compromises the existing fabric of its surrounding context – a deliberately dislocated, abstract, technological language from which historical associations have been lost.

Perhaps an obvious example of this would be Peter Cook's Kunsthau Graz in Austria. The form and materiality of the so called '*friendly alien*' dramatically contrasts with the traditional baroque context of Graz – an imposter, amidst the clay roof landscape, that symbolizes the new experimental, technological modernism which the architect has pioneered since Archigram in the 1960s. The Kunsthau Graz was built as part of the European Capital of Culture celebrations in 2003 and has since become an architectural landmark.

The Kunsthau makes no physical reference to the tradition of its historically rich context - in fact it could be anywhere. Is this, perhaps, what Chipperfield (Wessely, 2005, p1077) means when he describes modern architecture as '*sometimes being a little over-concerned with invention*'?

However, is it not important that we, as architects, are indeed innovative? Zumthor (2006 p.21) states that '*Designing is inventing*'. Should there be a balance between innovation and reference to cultural context – a way of locating things both physically and historically without, as it were, starting from nothing? Certainly, innovative architecture like the Kunsthau Graz offers the opportunity to experience a truly unique environment, attracting people in huge numbers and aiding the regeneration of a town or city – the aptly named '*Guggenheim Effect*'. In its first year, Frank Gehry's Guggenheim Museum in Bilbao attracted more visitors than the entire population of the city, placing it firmly on the world's cultural map. Following the decline of its heavy industry and the collapse of the shipbuilding industry, Bilbao might have become a city facing steady decline, held back by nostalgia. Instead there was an extreme move towards regeneration through innovation with the iconic Guggenheim Museum as the centre piece.

Acting as a catalyst for regeneration, perhaps buildings like the Kunsthau Graz and the Guggenheim

Bilbao, which bear little or no reference to their historical context or tradition, may be successful when measured against certain criteria. This architectural approach, however, may have a limited shelf life, with the superficial architectural 'icon' becoming the globalised norm.

PLACING FORM

The role of referencing and communicating ideas in architecture is necessary in order to provide a compelling concept to build upon – it also helps other people, not just architects, understand the cultural meaning of the work.

The potency of a metaphorical image lies in its ambiguity, because, not being one thing, it can be many. It is neither literal nor abstract. In terms of architecture, it is this ambiguity that distinguishes a metaphorical image of the past from an architectural form of the present, allowing a creative relationship between past and present and an active rather than passive engagement with history – a way of remembering through architectural form.

Sergison Bates (2007, p41) see it as necessary for modern architects to familiarise themselves with the work of past generations – recognising that their buildings contribute to an existing and evolving cultural fabric. In this sense, architects like Sergison Bates are perhaps the opposite of Frank Gehry. They do not seem to be driven by a compulsion to create unprecedented forms for their own sake, but rather create contemporary interpretations of forms that already exist. With this approach, new architecture may then become part of its surroundings, evoking individual and cultural meanings that help people locate themselves with respect to a continuum of place and community.

A consistency within the work of Sergison Bates is their continual reference to the classical characteristics of architecture – proportion, order, mass and a sense of permanence. They believe that these aspects contribute greatly to the essence of place making and the continuity of architectural form and urbanism (Sergison Bates, 2007, p201). Finsbury Park beautifully demonstrates the classical representation of proportion, order and mass which is discussed in their writings – an example of placing past architectural forms in a modern context. The project involves the complete redevelopment of an urban site on the edge of Finsbury Park in North London. Three new urban villas of varying height are arranged around a shared space and are treated as a tightly knit cluster, thus continuing the typology of the context – a way of blending the environment both physically and historically. They display a sense of solidity, with a strong expression of brick and concrete elements, lending a sense of permanence and weight reminiscent of the nineteenth century villas that exist in this area of London.

Sergison Bates (2007, p82) comment:

'Referencing engages a landscape of memories, associations and emotions, some of which are personal, others shared. These elements can assist the making of new spaces and places.'

THE MEASURING OF SENSES

The influential essays of Martin Heidegger, most notably, *'Building, Dwelling, Thinking'* (1954), continually describe the notion of 'space' or 'place' being understood as a tactile and imaginative experience, and not as a detached object devoid of significance or meaning. Sharr (2007, p70) comments that Heidegger believed a building to be 'part of a continuous ongoing human experience', not just a product of a construction process. Heidegger challenged the concept of space being considered solely in terms of mathematical boundaries. His work explores the appreciation of space through its non-physical sense, thus enhancing people's thoughts and emotions and offering enrichment of meaning that a purely Cartesian reading of space lacks.

Heidegger pursued this argument in his essay *'The End of Philosophy and the task of Thinking'* (1969) in which he asked: *'If a mathematical formula for life were written would everything then be known about life? Would motivation for human intellectual endeavour remain?'*

Mulhall (2005, p183) comments that Heidegger found significance in the sensitive aspects of human existence, aspects that scientific language could not relate to. For Heidegger, emotions and experiences were essential to a person's identification of a *'place'*. Sharing similarities with the work of Heidegger, Louis Kahn practiced this philosophy throughout his career. Kahn was concerned with the *'immeasurable'* – the thoughts and feelings of people in space. Norberg-Schulz (2003, p.402) comments that Kahn described these *'immeasurable'* aspects as *'silence'*, referring to the hidden aspects of architecture that could only be revealed through the experience of a space.

Peter Zumthor has always emphasised the sensory aspects of his architectural experiences. He believes that memories are the deepest and most meaningful architectural experience known and that they are the *'reservoirs of architectural atmospheres and images'* that he explores in his work. He believes that the physicality of materials can involve people with their surroundings, creating personal experiences and a sense of place through memory and meaning (Zumthor, 2006 p12).

In his book, *'Thinking Architecture'*, Zumthor (2006, p6) reflects Heidegger's celebration of experience and emotion as a way of informing his buildings. In the opening chapter he begins by describing a childhood memory of a door handle:

'I used to take hold of it when I went into my aunt's garden. That door handle still seems to me like a special sign of entry into a world of different moods and smells. I remember the sound of the gravel under my feet, the soft gleam of the waxed oak staircase; I can hear the heavy front door closing behind me as I walk along the dark corridor and enter the kitchen.'

The measuring of senses, the perception and judgement of a building, become a way of designing for Zumthor, helping him create buildings on the basis of remembered feelings. It also becomes the context within which he believes people will experience his work in reference to their own personal as well as shared cultural memory.

This philosophy is clearly demonstrated in Vals Spa, perhaps his most famous project to date, about which Sharr (2007, p106) comments that *'Zumthor imagines experiences of the spa to be punctuated by things that evoke memories, which represent associations'*.

Zumthor (2006, p18) describes how Vals Spa was conceived to appeal to the senses first, and to interpretation second. He imagines experiences of the spa to be punctuated by things that echo several traditions and cultures - like drinking from a fountain, which was common in ancient baths, or the processional stair which introduces people to the Spa from the changing rooms, a reference to the notion of making a graceful entrance that Zumthor (Spier, 2001, p302) likens to the actress Marlene Dietrich walking down a flight of stairs in a 1930s film.

The design of Vals Spa was inspired by the loosely stacked plates, split material and layering of stone at the town's local quarries and the natural source of water from the 80 million year old Vals Valley; also the qualities of stone within the mountain, darkness and light, light on water or in the steam-saturated air, the feeling of skin on stone and the ritual of bathing, all of which people can understand and relate to. Zumthor believes that the physicality of materials can involve people with architecture, which is one reason why he selects materials according to their sensory qualities and the texture, colour and smell of these materials are orchestrated obsessively throughout his work.

INTERVENING WITH HISTORY

In instances where modern architecture intervenes with a historical context, it must embody qualities that form part of a meaningful dialogue, so that we can see what is already there in a new light, a way of

bringing the existing fabric back to life (Spier, 2003).

An example is Zumthor's competition entry for the '*Topography of Terror*', one of Europe's most infamous sites, the administrative centre of Nazi Germany's security services and police in Berlin. Spier (2003) comments that Zumthor's concept was based on the idea of a building that touched the ground lightly and enclosed the site, a meditative place that would not imitate or replicate the brutality of the past, but rather provide an environment where people could understand and experience the place and its meaning.

The perimeter of the building consists of a series of vertical piers that are connected by frameless glass. From the inside the viewer is always drawn to the site visually through the columns, thus providing a connection with the ground – which contains the remnants of the past in the form of mounds and rubble. The idea of the place itself as being almost sacred directs not only the design of the building but that of the interior as well. Nothing is covered, plastered or concealed. The ground floor exhibition contains excavations and an area filled with rows of tables to place important documents. Nothing hangs from the walls or is connected to the building. Everything is connected to the historic ground, which is designed to be continuous with the ground outside, a building that is subsumed into its historic topography.

Zumthor (2006) describes his desire to design buildings that, in time, grow naturally into being part of the form and history of a place. Buildings that seem to be so deeply rooted into their context, it is virtually impossible to imagine the place where they stand without them – as Zumthor (2006) describes, buildings that seem to be saying '*I am as you see me and I belong here*'.

Equally, Sverre Fehn's Hedmark Museum in Hamar provides a strong relationship with the past. Built within a 12th Century fortified bishops' palace, the museum sits delicately within the ancient ruins, without touching them at any point. Fehn's contemporary architecture stands free of the old existing walls, always within arm's length but clearly separated from them – a clear articulation of past and present.

The museum is organised around a ramp that provides a continuous route through whilst involving a series of revealing installations of excavated artefacts and views of the landscape that skilfully orchestrate the perception and experience of the objects and their origins.

Parts of the 12th Century stone wall that have been lost have been replaced with frameless glass; huge laminated wood trusses span the space; everything else is board-formed raw concrete. Fehn's use of materials contrasts beautifully with the ancient stone ruin - creating an evocative relationship that emphasizes the presence of history and modernity. Norberg-Schulz (1997) comments that the Hedmark Museum is a clear demonstration of the philosophy that Fehn had developed for intervening with history - the new reveals something from the past that is directly related to us, but no longer exists. Like Cullinan and Chipperfield, Fehn believes that imitation or replication of history should not be considered. He comments: '*Those who pursue the past will never attain it, only the manifestation of the present can bring the past to life.*'

MEMORY + MEANING

This paper has attempted to explore the work and thoughts of architects and theorists who realise the importance of memory and meaning in modern architecture, and has asked how modern architecture can establish a creative relationship between past and present. Whilst dealing with the meaningful application of form, we have also considered the phenomenology of the immeasurable qualities within architecture that have concerned the likes of German philosopher Martin Heidegger or Swiss architect Peter Zumthor.

Without replication or imitation, architecture can offer a contemporary solution which celebrates the historic legacy of its contexts. Historic aesthetics need not be considered as archetypes, but rather as analogies of memory – as opposed to starting *de novo*, these images can form the basis of a concept

which remembers the depth of history.

Working within this conceptual approach requires sophisticated subtlety in order to prevent the design from degenerating into a building immersed in nostalgia or an imitation of the past which mocks the historic and cultural legacy rather than celebrating it.

This appreciation of context and subtlety strives to counteract ‘*placelessness*’ and lack of meaning by referencing the contextual forces of cultural heritage, attempting to restore meaning, identity and a sense of place.

Modern architecture can be, as Ruskin described, as literature and art – a text of cumulative history that can convey information.

The importance of memory and meaning in modern architecture is ultimately the way in which we respond to our culture, history and traditions so that they can become integrated into what we design today. For the architect this theory involves the difficult task of searching our daily and generic built environment to reveal its subtle poetry and finding a meaningful way to represent it.

‘.....what is more meaningful is the sense of tradition altogether, that we live rather than analyze and understand; we are historical beings; we are cultural beings; and we exist and live in the continuum of culture and it is our task to continue it – to maintain that sense of continuity.’

(Pallasmaa, in Wall, 2009)

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The changing patterns of architectural design education in the UK and some implications for practice

Bob Giddings¹ and Margaret Horne²

ABSTRACT

Digital technologies have been introduced to students of architecture for over two decades and at present it could be argued that students are producing some of the highest quality designs, and some of the most interesting forms ever to come from University Schools. The value of computer aided design (CAD) is also being demonstrated in architectural practice, with high profile, large budget, bespoke and iconic buildings designed by internationally renowned architects. This paper reviews the changing patterns of architectural design education and considers the contribution digital technologies could make to buildings with more commonplace uses. This study offers a perspective on different kinds of buildings and considers the influence that emerging technologies are having on building form. It presents a balanced view with an appraisal of the role that can still be played by traditional media; and assesses the methods used by current students, graduates and practitioners.

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INTRODUCTION

Success in architectural education has often been defined as mastering three-dimensional thinking. Students have invariably struggled with this concept and their intellectual development may have been hampered by representational methods. Traditionally, the only methods of showing three-dimensional thinking have been by drawing – perspective, axonometric, isometric – and by constructing physical models. Both can suffer from the ambiguity of deciding whether they are design or presentation tools, which is a notion that some students may take some while to appreciate. Drawings have the disadvantage of not being truly three-dimensional, but merely two dimensional representations of three dimensional situations. They are also limited by a single viewpoint, although this can be carefully selected by students or practitioners to suggest a spatial quality in their designs that does not really exist. Models have a long tradition; even Alberti (1485) had a strong opinion about their appearance. They are powerful tools that can clearly demonstrate form, structure and spaces in a proposed design. Conversely, they have disadvantages. Generally, they are viewed from above, which produces less impact than from the human viewpoint; the observer can never feel inside the scheme; and they imply a neatness in the environment that cannot be replicated in practice (Giddings and Horne, 2002).

Yet, perhaps the greatest impediment of traditional tools has been the effect on the design process. Drawings and models can involve considerable time investment by students, in particular. Thus, presentation could take almost as long as the developing thought processes. Students also test their ideas less often than is desirable because of the time and effort needed to generate further drawings and models. This tends to lead to inflexibility in the students' progress and a willingness to accept a less favourable solution because the drawings and models for it have already been completed. As higher standards of presentation are constantly being required, the design process generally becomes curtailed at a relatively early stage. The design is fixed and the remaining project time spent on presentation. This means that design time is only a proportion of total project time, and proposals that are not fully resolved can be offered as final solutions.

This paper is not based on a specific research project; but is an exploratory paper reflecting observations on architectural education and practice.

DEVELOPMENT OF DIGITAL TECHNOLOGIES

Digital technologies have been introduced to students of architecture for over two decades. As computer aided design has evolved, it has witnessed several changes in research direction, from CAD which stood for computer aided drafting and simulated the use of drafting tools; to CAD which enabled the production of photo-realistic models of buildings; to CAD which became primarily concerned with design exploration and collaborative design activity (Duarte, 2005). Computer aided design today encompasses technologies based on purely geometrical principles; to technologies based on building elements; to technologies incorporating animation, interactivity and immersiveness (virtual reality (VR)); and more recently, augmented reality (AR). In the context of this paper, digital technologies encompass the ever developing range that is now available for architectural design. More progressive Schools of Architecture have long embraced the challenges that technology has brought and continued to evaluate the opportunities it offers to the design process (Petric and Maver, 2003), although for many students, CAD has meant computer aided drafting and an electronic medium for a traditional process. Despite the fact that digital media have been used in architectural design studios at universities for over twenty years, architectural students are generally taught to draw the same way their tutors learned – with traditional media first (Goldman, 2005). Nonetheless, the new generation of digital technologies is providing electronic three-dimensional representations that can be readily assembled, recorded, tested and adjusted. Design and presentation methods can be harmonized, reducing the traditional prolonged presentation period. Such representations enable the development and testing of designs to be faster and

more accurate; and students can now routinely produce designs to a much more sophisticated level. It could be argued that students are now producing some of the highest quality designs, and some of the most interesting forms ever to come from University Schools.

STUDENT PROJECTS

Even before the end of the 20th Century, digital technologies had a well established research track record (Asanowicz, 1998; Achten et al, 1999). Nevertheless, effective integration into the academic curriculum is an ongoing challenge for academics, who have to balance the expectations of increasingly computer-literate students with the demands of curricula devised to meet the needs of an increasingly sophisticated education process (Horne and Hamza, 2006).

In 2012, MArch students at Northumbria University have been adopting a plurality of techniques. Their view is that computer aided design is within the drawing tradition – it just uses a digital drawing board. These students mainly favour hand drawing in the exploration stage. As one student put it – when the designer is not sure where the design is going. The ways of working are linear or parallel, i.e. only facing forwards. Computer software demands a level of information that may not be available in the early stages of the design process. There is also a notion among the students that digital drawing does not offer the same freedom as hand drawing. The view is that the programmes limit creativity because they demand accuracy. Computer representations are more correct, good for testing and induce a (re)-iterative way of working, where there is checking that the requirements have been met and a refining of the design.

In the design of his Rehabilitation and Training Centre (Figure 1), MArch student Jonathan Dennis developed his concepts through hand drawing, although he recognizes that digital methods have a role in design development. His argument is that hand drawings may develop a precious quality and therefore to avoid that imposition, he uses them as only indicative notions. Such emotional attachment does not occur with computer generated plans. They can be printed and sketched over to highlight various aspects, such as a structural strategy for example. He notes that there is also flexibility in a computer model. The scale can be changed depending on the level of detail required, whereas by hand, a new drawing needs to be produced at each scale. A computer model can also be rotated to a selected point to frame a particular view, and photoshop can be used to provide materiality. There is no need to redraw, just build up the depth of information.



Figure 1: Jonathan Dennis: Rehabilitation and Training Centre, Team Valley, Gateshead, 2012

Computer generated models of the existing environment might be used as the basis for perspectives. The existing can then be hand drawn over with the proposals added. The people, cars, trees etc. offer a sense of scale, and may be derived from an on-line library and traced onto the drawing. Hand drawn effects such as textures can also be added. Part of the reason for working over in hand drawing is to give a distinctive style to the representation. It is argued that hand drawing presents a softer image which is more appealing. It is like the soul of a drawing – whereas computer images can be cold and sterile but they are good for final presentations as they offer accuracy and more detail as scales can be altered without losing any information. The students feel that the contrast in character demonstrated by the two methods is most pronounced with interior views. Computer drawings are perceived as mechanical and rather soul-less. Photoshop is used to insert hand-drawn elements to add warmth, so it is a mixed media approach to presentation in many cases. Computer programmes sometimes have a stylized presentation that expresses the software more than the individual design. Standard parameters in the software can show the same sort of visual style in terms of shadow, transparency of glazing, people, cars, trees etc., regardless of the project. Yet, traditional presentations on display boards do not

engender a feeling of being able to move through the design. Presentation in virtual reality could allow fly-throughs and navigation around the proposal. A day in the life of the users, with walk-throughs would help comprehension of complex circulation patterns; although there needs to be a static presentation as well, to show the complete proposal at one time. Hand drawing implies that it is an early stage conceptual process, whereas computer images imply a fixed design. Thus tutors tend to react against computer images, as they feel that design development should continue until the final presentation. There is no reason why computer images should be any more fixed than hand drawings – it is really just a matter of perception. Some students play to this reaction by hand tracing over computer images, to send a message to the tutors that the design process is continuing. One proposition is that it makes little sense for academicians to continue the traditional way of learning, which is significantly at odds with technologies that are impacting on learning communities. These students were born around 1990. Most studio tutors belong to previous generations. Students are faced with a fast-paced world of the information age and an era of lifelong learning. These young people have developed individual ways of learning and absorbing information; which may or may not be effective (D'Souza et al. 2011). A number of students view physical models as old-style learning. Three dimensional computer models are quicker to produce and the observer can stand in the space, rather than being outside, looking in. They also facilitate the recording of environmental issues such as shadows and sun paths.

To the students, building information modeling (BIM) is seen as a different approach to computer aided design, where a single model is developed from which plans, sections, elevations, and perspectives are automatically produced. The library of components has negative connotations for the students, and making their own components is time-consuming and complicated. So they fear the soft option in which a lazy design method is to adapt standard components. In their view, this stifles creativity. The students' perception is that computer aided design is still part of the traditional design process, similar to hand drawing – just another tool. However, they feel that the users of this tool need a background in hand drawing, so as to judge weight of line, perception of depth etc. BIM is a different kind of process, arguably not design led but based on building production and cost monitoring techniques such as value engineering. They also view the use of BIM as access to employment rather than enhancing the quality of their designs.

MArch student Neil Sedgley's Airship Port (Figure 2) is actually set around an existing building. The context has been modeled electronically to give the basis for a series of hand drawn perspectives, illustrating a number of proposed forms. The design for the airship itself and the docking bay are explored with hand drawing. This proposal has a complex circulation pattern, which was first developed through hand drawing and then transferred to computer format for presentation purposes.

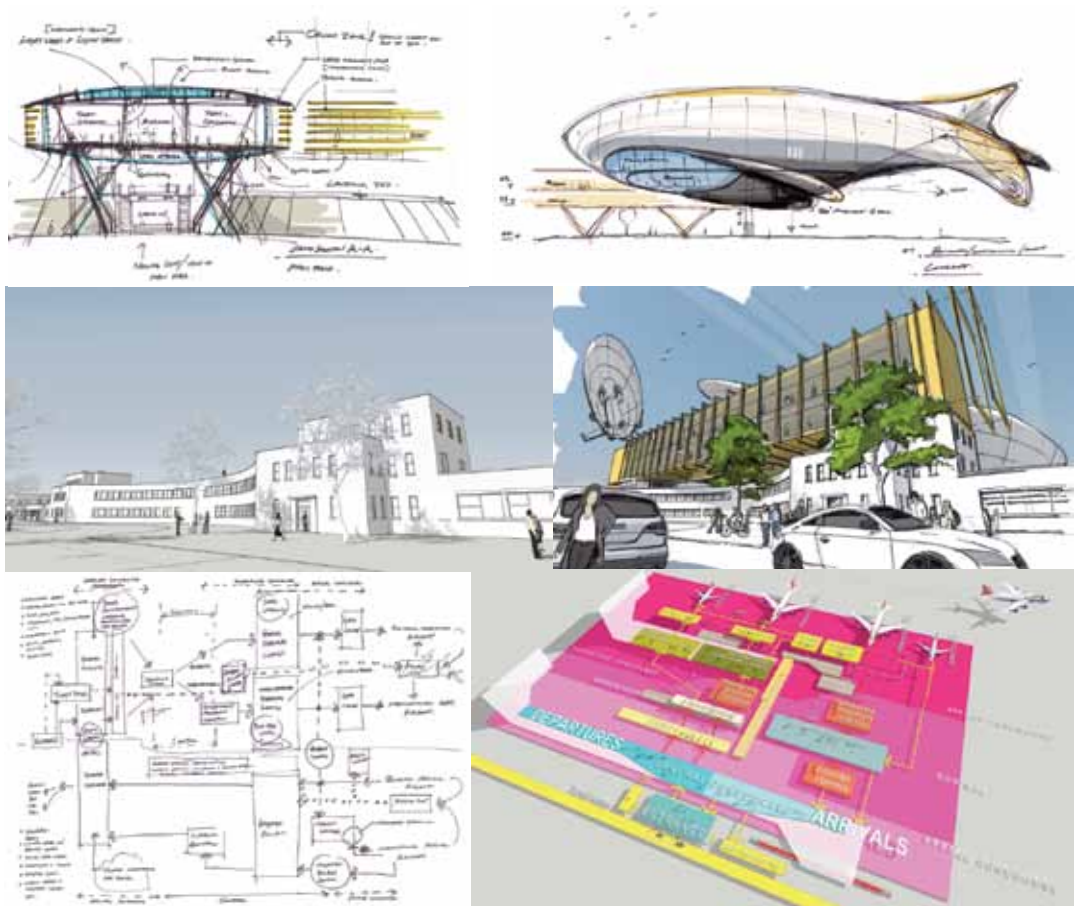


Figure 2: Neil Sedgley: Airship Port, Team Valley, Gateshead, 2012

Designs that demonstrate appropriate application of digital technologies alongside some traditional techniques, in both design and presentation are also apparent in the graduating students' work. Those who fully understand the functionality of the tools are beginning to harness their capabilities to enhance design exploration. Nonetheless, in the degree shows, students can identify a Northumbria House Style, which graduating students pass onto the next cohort. Tutors tend to influence the showcasing and some students argue that there is a tendency for presentations to look similar – as a kind of gritty realism. It is possible that having been in the same teaching environment for a period of time, both students and tutors have influenced each other and thus form a similar or even the same opinion and standard, which could be termed – the mainstream idea of the School – reflecting its philosophy. Nonetheless, the thoughts and methods of tutors may unconsciously bind students' creativity where students tend to rely on tutors and follow their ways when facing difficult problems. It can diminish the education process when this reliance becomes routine (Song at al. 2011). The following graduating student projects have been selected to illustrate how students are using traditional and computer aided design tools, in different ways.

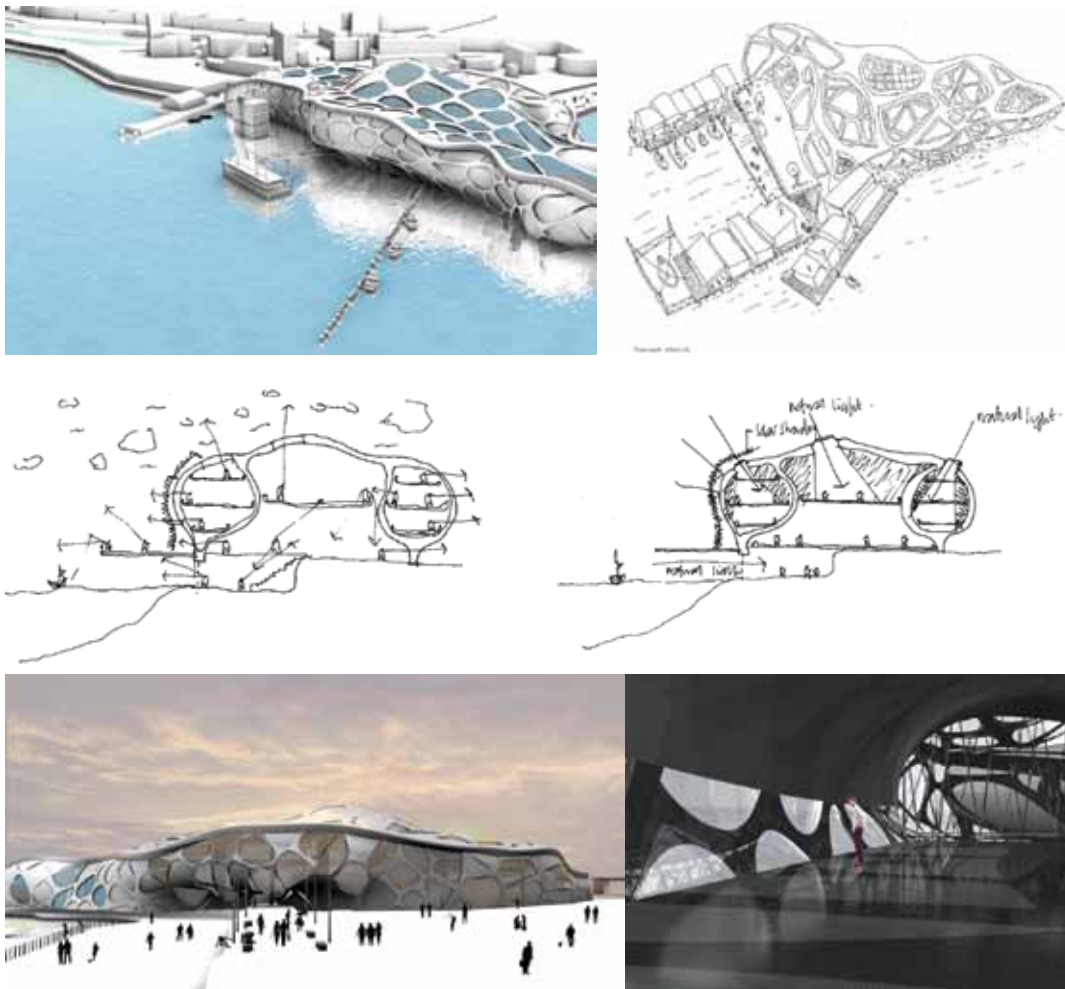
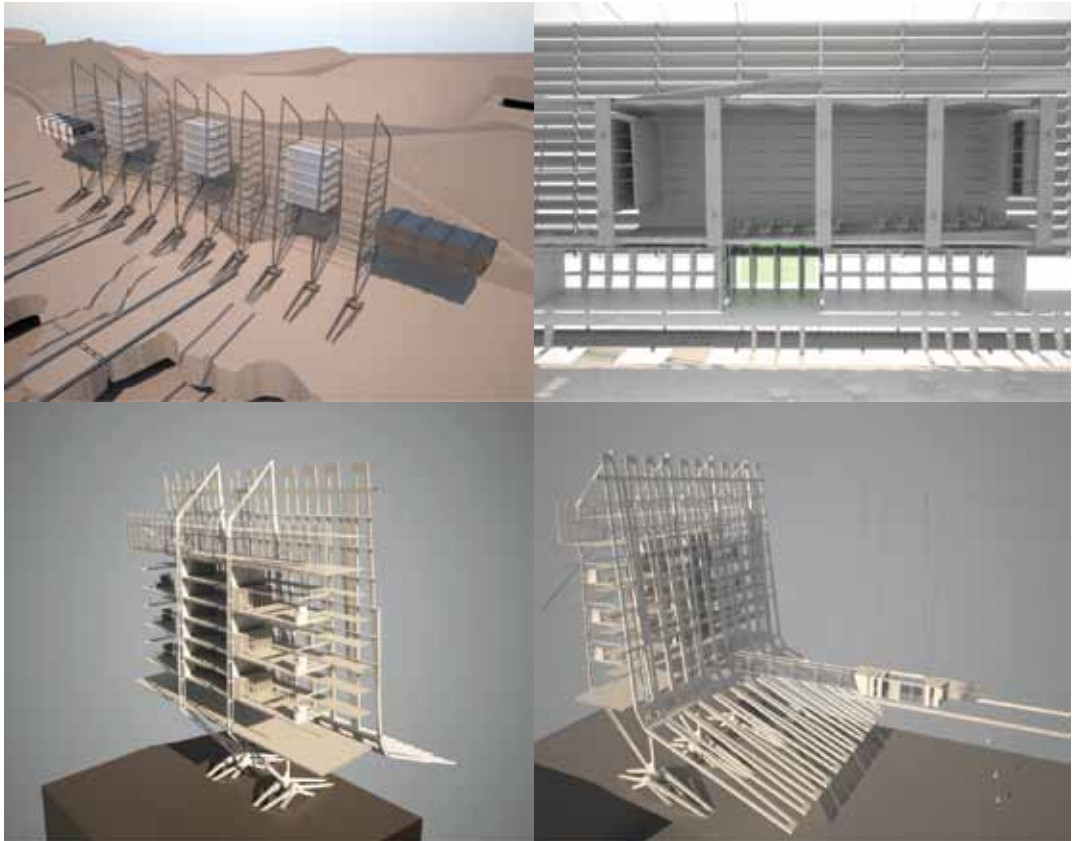


Figure 3: Rick Marsden: Maritime College 2011

The above figure shows a project in which the Rick Marsden considered form and space from the beginning. However, his work is part of a growing design typology in which initial conceptual design is still undertaken by free-hand sketching. According to the graduate student, the proposed Maritime College's biomorphic shape derives from a theory borrowed from nature, as seen in the work of Gaudi and Kiesler. Following the initial sketches, it was necessary to explore the possibilities of more complex geometries to generate the desired form. A Voronoi parametric modeling method was used to deconstruct the form into components. The graduate student customised a Rhino script which uses the two-dimensional articulation of the Voronoi graph to produce an extraordinary optical effect that brings the idea of fish cells to the envelope of the building as well as acting as a structural system. In this way the facade is activated to support the overall morphed portal frame structure to create an integrative and dynamic system. Attached to the inside of the structure are translucent polycarbonate panels which control the lighting and thermal demands to deliver a structure and envelope that integrates

the structural, constructional and environmental strategies (Marsden, 2011).

It might seem surprising that free hand sketching is a preferred method for the initial conceptual design, followed by the creation of a highly detailed interactive computer model. This could be because it is still difficult to conceive the precise nature of the computer model as a tool for creating and manipulating an embryonic organic concept. It may also be considered that the fluidity and ambiguity of lines generated by the freehand pencil unlocks possibilities of lateral thought in a way that cannot be achieved with digital devices (Latham, Swenarton, Sampson, 1998).



*Figure 4: Gavin Lowden: Regenerative Landscapes
3D Reid student prize winner 2009*

In the Regenerative Landscapes project at North Shields (Figure 4), Gavin Lowden favoured the use of computer technology to develop his design in terms of structure and assembly through a sophisticated three-dimensional model. He felt that the use of this computer model enabled interaction with, and navigation around the design during its formulation, contributing greatly to the decision-making process; and the photo-realistic images were used for presentation purposes. Being able to navigate around a developing model facilitates the generation of ideas, increases the time spent on design analysis and reduces the focus on final presentation.

With the International Cruise Terminal project (Figure 5), Ashley Dawson's architecture is constructed in a series of layers – firstly the new topography which denotes the landscape as skin; secondly, the organically shaped columns which represent the trees of the new surrounding green development; and thirdly, the terminal level is created in the form of a delta eroded landscape. The project aims to integrate the augmented landscape into an architectural intervention, while offering the notion of an architectural landmark for the region. The plan is organised as a fluid, continuous space, flowing towards the river (Dawson, 2011). From space to structure to form, this design is organic. It is precisely the type of concept that has eluded students who were bound by the traditional techniques that limited three dimensional thinking of this kind. The design was conceived, developed and presented with digital technology; and related to the detail of structure and construction which forms part of the same model.

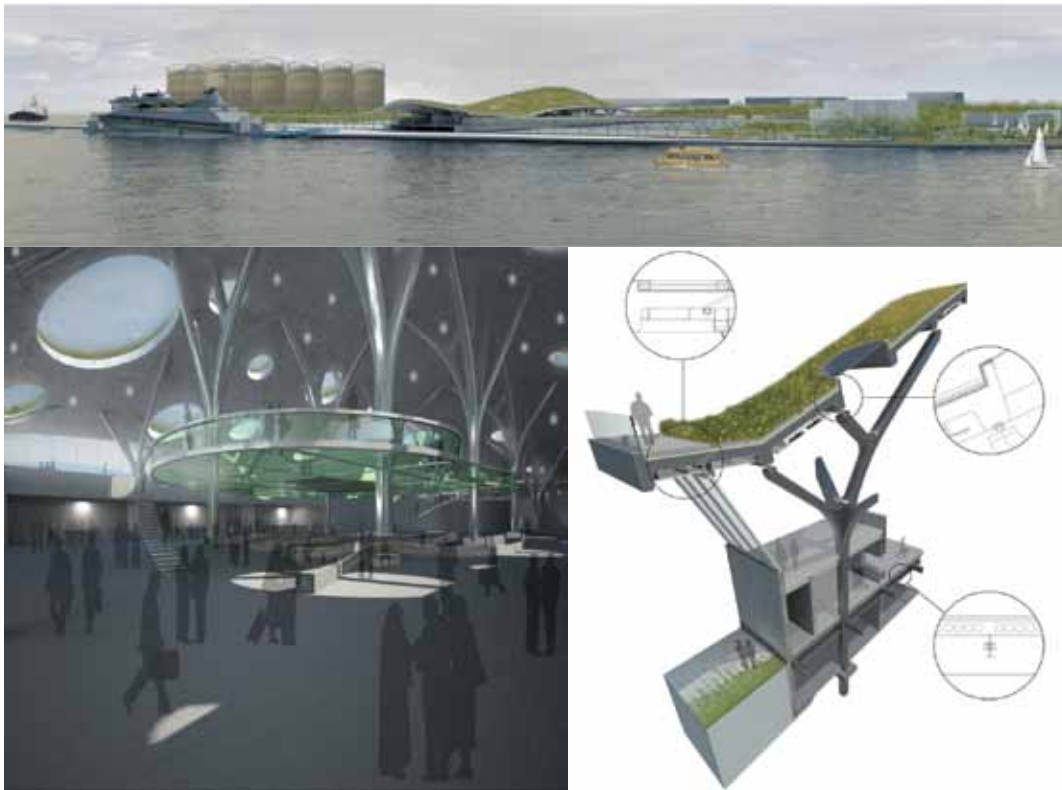
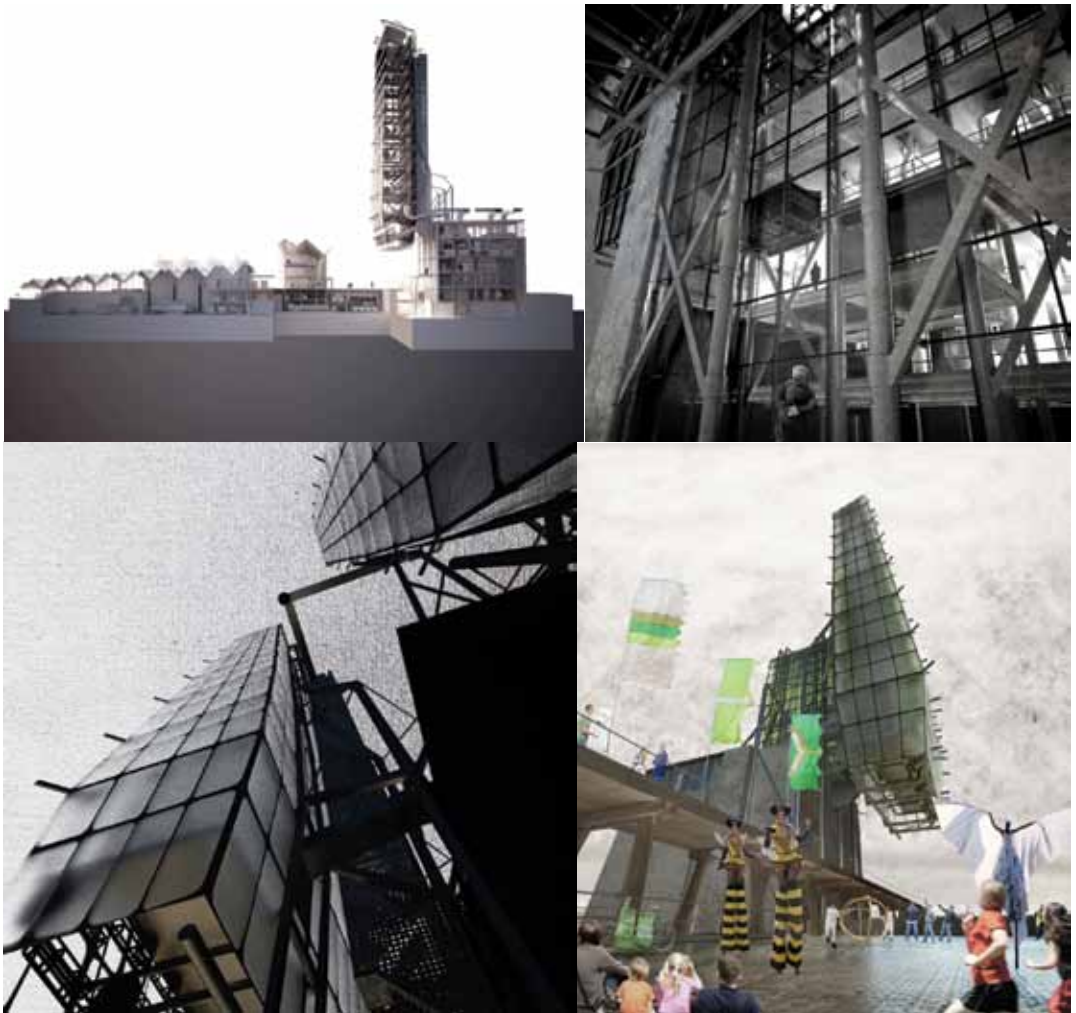


Figure 5: Ashley Dawson: International Cruise Terminal, 2011

In Jonathan Flavin's Pyrolytic Power Plant (Figure 6), the articulation between structure and envelope is developed with great conviction. The vertical towers are positioned above the power station in an almost monumental expression, although a heaviness often associated with this kind of robust architecture is avoided by a lightness and translucency that is expressed in the presentation. The towers act as beacons for large ships bringing produce into port (Jones, 2011). These are three-dimensional qualities that were produced through digital technology in a way that would have been very difficult to achieve with either physical models or traditional drawing. Moreover the close-up view of the structure and envelope demonstrates a realism that places the observer next to the completed building.



*Figure 6: Johnathan Flavin: Pyrolytic Power Plant
RIBA President's Silver Medal Runner-up 2011*

IMPLICATIONS FOR PRACTICE

High profile, large budget, bespoke and iconic designs by internationally renowned architects are also demonstrating the value of digital media. Designs such as the Eden Project (Figure 7) have demonstrated the possibilities opened up by digital technologies and offer inspiration to an increasingly computer literate student population who are excited by non-rectilinear geometry that can convey the essence of a building through its form (Giddings and Horne 2002).

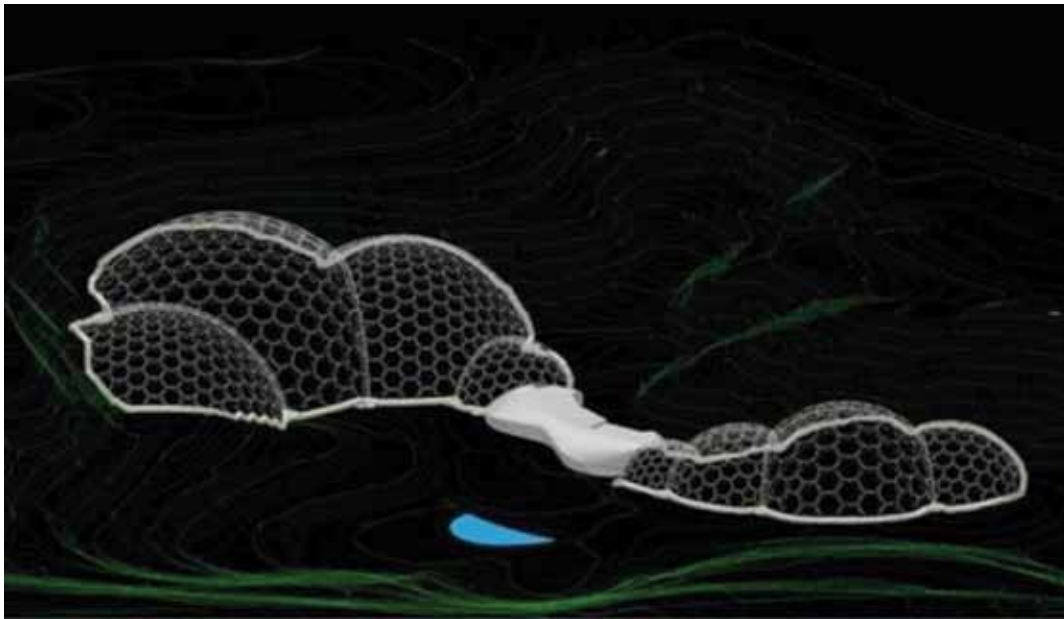


Figure 7: *Eden Project, Nicholas Grimshaw & Partners (Giddings and Horne, 2002)*

Located on the south bank of the Thames, the City Hall (Figure 8) is one of the capital's most symbolically important new projects. Advancing themes explored earlier in the Reichstag, it expresses the transparency and accessibility of the democratic process and demonstrates the potential for a sustainable, virtually non-polluting public building. Designed using advanced computer modeling techniques, the building also represents a radical rethinking of architectural form. It has no front or back in conventional terms. Rather, its shape is derived from a geometrically modified sphere, a shape that achieves optimum energy performance by minimising the surface area exposed to direct sunlight. Analysis of sunlight patterns throughout the year produced a thermal map of the building's surface, which is expressed in its cladding. A range of active and passive shading devices is also employed – to the south the building leans back so that its floor-plates step inwards to provide shading for the naturally ventilated offices (Foster and Partners, 2012). It is unlikely that the form of this building could have been conceived without computer modeling, but certainly the ease with which the form, thermal map and shading patterns were integrated would have been beyond understanding only a few years before this design was undertaken.

The future for these kinds of projects seems assured. Digital technologies have enabled extraordinary new buildings to be designed and constructed. Forms of nature are providing inspiration for increasingly complex built forms and architects are rediscovering the joy of sculpting unusual geometries (Novitski, 2000). The computer's processing capability in structural analysis, and production and fabrication techniques are major contributors to the changing shape of architecture. Architects are exploring the new possibilities opened up by CAD software, modern analysis and simulation methods (Mitchell, 2000).

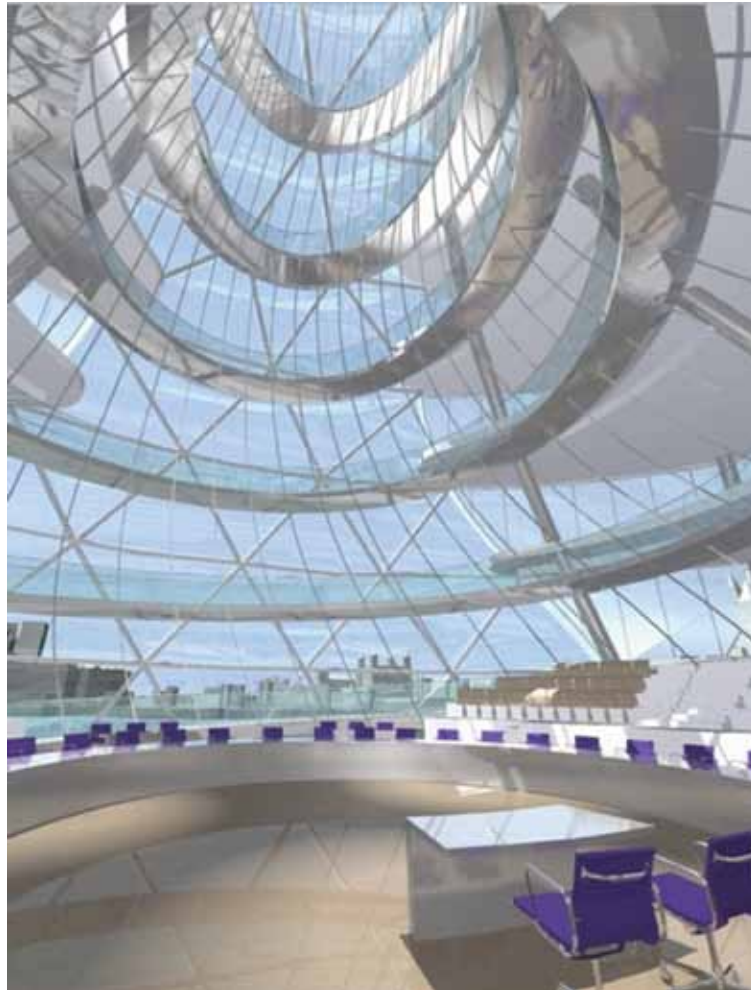


Figure 8: Digital Model of City Hall London, Foster and Partners (Giddings and Horne, 2002)

Whilst it must be acknowledged that the high-profile, well-publicised iconic buildings are receiving considerable attention, it can be argued that such projects occupy only a very small proportion of the built environment. It is likely that the vast majority of architectural graduates will design buildings with more commonplace uses, and these constitute the majority of built form and new construction. Figure 9 shows an exaggerated historical view of an iconic building framed by contextual buildings (Lozano 1990). Traditionally, the latter were constructed from custom and practice, rarely involved architects, and fitted into their localities.

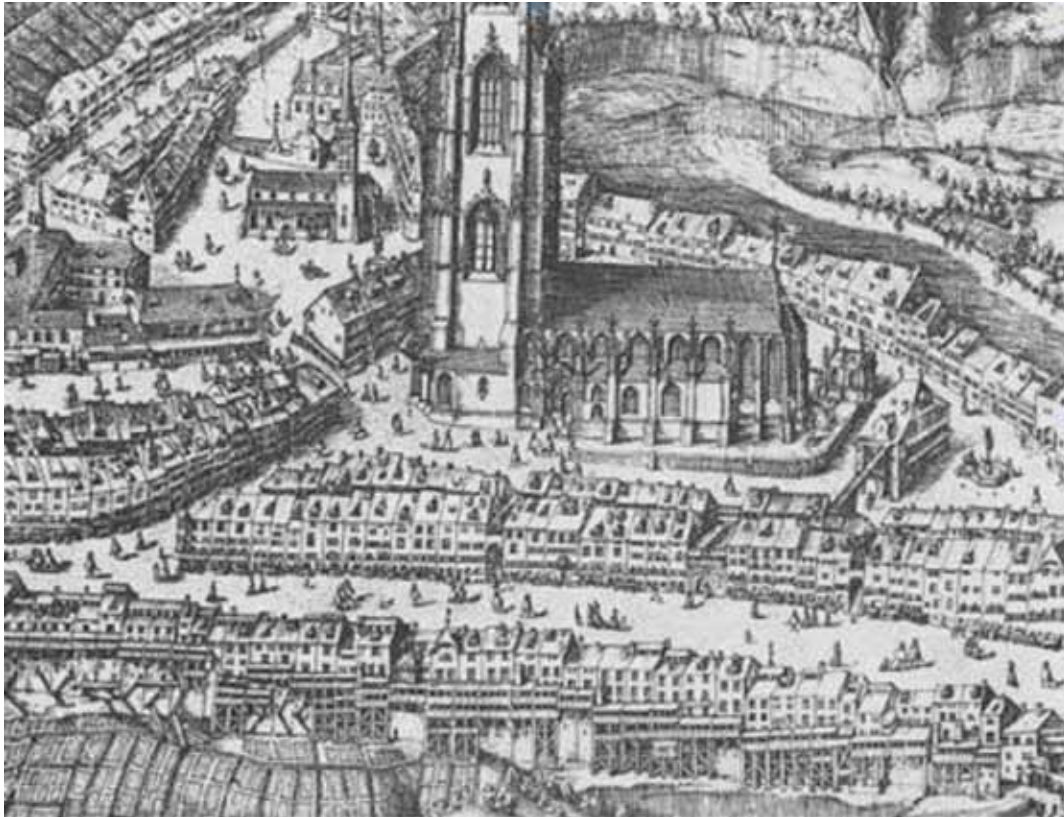


Figure 9: Iconic building framed by contextual buildings (Lozano, 1990)

However, as the 20th Century progressed, the scale of these developments and the loss of local builders, meant that what had been contextual buildings, increasingly became part of the design and construction industry. Before the end of that century, concern was already being expressed about their appearance. It has been considered that one of the major reasons for the decline of our towns and cities in visual terms is that ordinary buildings from the second half of the 20th Century onwards are each trying to draw attention to themselves (Sahai, 1991). At the other end of the spectrum, the demand for cheapness in the production of the built environment has generated the dull and mundane. National pervasiveness of some sectors, such as speculative house building, has produced a consensus lamenting the lack of regional distinctiveness in domestic design. There has been a continuing search for a shared architectural language. The likelihood is that digital information models based on building elements will become increasingly used for the design of these buildings. Much of the development of systems has been directed towards ease-of-use, and to a large extent this has been achieved. The benefits have already been considerable, in terms of use as a design tool rather than a drafting tool – reduced time in presenting the information, relationships between building elements, instant schedules for doors, windows etc., and many more. Conversely, every advance also carries dangers. In the hands of current graduates, such systems can assist subtle building design. The first danger is therefore related to a totally electronic design education. Even the students feel that unless all the benefits of the traditional education can be translated into electronic media, graduates may become increasingly detached from the nature of buildings, and just work within a virtual world. Working with physical models and drawings is an abstraction from reality, but at least

they are real objects that can be touched. In terms of models, it may be surprising to learn that even the pioneers of the modern movement enjoyed the tactile nature of real models (Figure 10).



Figure 10: Le Corbusier with the Model of Villa Curutchet (courtesy of Fondation Le Corbusier)

Science Fiction has presented various negative scenarios of the effects on human beings when they are deprived of real life experiences by living in a virtual world. The experiences in the book *Nineteen Eighty-Four* are readily brought to mind:

'Winston fitted a nib into the penholder and sucked it to get the grease off. The pen was an archaic instrument, seldom used even for signatures, and he had procured one furtively and with some difficulty, simply because of a feeling that the beautiful creamy paper deserved to be written-on with a real nib.'

(Orwell, 1949).

This desire for traditional methods in an increasingly synthetic existence, is often dismissed as nostalgia. Conversely, for Winston Smith it was related to recapturing reality from a virtual world. The fluid mechanics of ink flowing onto and into real natural paper was a cathartic experience

Another fear is that as the tools become more accessible, the ease-of-use that was so welcomed by architects may be their downfall. If systems become so simple that anybody can use them, then anybody will use them. Clients whose primary interest is generating floor space may feel that a BIM system could replace the architect, especially if the system has a standard library of components. Some clients may employ unqualified assistants to press the buttons, or may even undertake the process themselves. This

scenario is not encouraging for increased design quality and interesting building forms, which require intuition, spontaneity and exploration, as well as geometrical precision. In the hands of unqualified practitioners, this fear can easily become reality, and the built environment could turn into an ever-growing incoherent array of catalogue buildings. (Martins et al, 2007).

Only recently has research been undertaken into the effectiveness of communication through a range of tools. In a research project (Serginson et al. 2012), the same design was presented to a mixed audience by traditional drawings, a digital model and virtual reality. It was discovered that all three methods have a role to play but they are different ones. At the beginning of the project, there was a hypothesis that the presence of the other two techniques, would mean that the drawings would be redundant. It was actually found that understanding the overall design, and the distribution and relationship of spaces was best achieved with traditional drawings. In all other respects, drawings were not a good medium for communicating the design intent. The digital model was effective in interrogating the detailed design; and virtual reality produced overwhelmingly positive responses about the quality of the design, but the experience may have adversely affected the critical awareness of the participants. In the meantime, research is ongoing to develop computational tools which enable design exploration in an intuitive way rather than in a rigid parametric manner. This could involve some quite sophisticated computer skills, and most architects may be unwilling to become engaged at that level. Nevertheless, it is an attempt by the developers of computer aided design technologies to match their tools to the concepts around which designers wish to develop their skills (Aish, 2005) and to decrease the remoteness between designer and artifact. The research presents the challenges of teaching computational geometry to architectural students, and proposes a multi-level pedagogical scheme introducing associative geometry and post-parametric modeling into architectural design education (Iordanova, 2007; Burry, 2007).

CONCLUSIONS AND OBSERVATIONS

This paper has been submitted to foster debate on architectural design education which is incorporating digital technologies. There is no neat and tidy conclusion or specific direction that should be followed. The processes are in flux and therefore the paper merely identifies some of the issues. It has raised some concerns about the future use and application of such technologies from the architects' viewpoint, whilst proposing that computer modeling technologies emerging for current architectural students offer a truly three-dimensional form of design development. Architectural education that encourages the use of digital technologies is beginning to enable students to combine simple rectilinear shapes with sophisticated curved surfaces and asymmetrical forms. The divergence in architectural practice at the turn of the 21st century, into those who did *boxes* and those who did *blobs* (Mitchell, 2000), may be coming to an end with a generation of students who wish to see the two techniques converging, based on an architectural education which continues to strive for the integration of design and building construction. Digital technologies are now enabling a move from drafting and visualisation to the generation and optimisation of design, and will play an increasingly important role in the design of different building types. One of the central debates is whether these new processes can make a significant contribution to establishing a shared architectural language or whether they will generate an ever-growing incoherent array of catalogue buildings. The advancements in digital design and communications are already reshaping architectural design studio teaching and design practice, although schools still retain manual techniques. For a long time, design studio activities have been carried out using sketching, drawing and physical modelling. Yet, new media and its forms of representation are challenging traditional communication skills. It may be asked why it is necessary to provide digital media if it means that traditional methods of design, such as physical models and manual drawings would be excluded? The alternative perspective is why does it seem satisfactory to exclude digital media when exploring design with traditional methods? Digital media may change the process of design, forms of design, and how design ideas are communicated. In this context, it may be debated as to whether traditional and digital tools can be both used within a single

design process. The ability to utilize digital design tools comes with a responsibility of understanding their roles and limits as tools for design inquiry (Raffat, 2007).

FUTURE RESEARCH

The authors of this study support the school of thought that those architectural practices who are looking beyond the drafting and visualization solutions offered by digital technology are finding that they are changing work practices in the course of this interaction (Toamassian and Marx, 2006). An emerging generation of students who can understand how digital technologies can be applied to architectural design, as well as anticipating future applications, is important for the development of architectural practice, and its re-structuring in the digital era. Nevertheless, practices that are operating paperless offices may be missing out on the flexibility of conceptual design offered by traditional techniques. Also, the individuality of project presentations offered by mixed media in which hand drawing softens the mechanical nature of computer representations could be lost. The present position may be perceived as a cross-roads in design processes and architectural education with unprecedented challenges ahead. Further research is needed to lead and reflect upon this nexus.

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Marxist Planning in Little Moscow

Christopher Permain¹ and Stephen Roberts²

ABSTRACT

In the 1930s a letter was posted north. It was addressed to '*the Lodge Secretary, Little Moscow, Durham*'. The letter was knowingly directed to the village of Chopwell. Around the same time the union flag was taken from the nearby council offices and replaced with the Hammer and Sickle. Numerous communist emblems and references echoed around the community, a reflection of the powerful societal and educational values instilled by the miners and their institutes (Oswalt, 2006).

This paper will examine how, from its industrial inception in the nineteenth century, the village of Chopwell became a company owned settlement with comparisons to the post war urbanism of '*microrayons*' or micro-districts in the Soviet Union and how the subsequent contraction of the mining industry instigated a series of strikingly autocratic planning policies that would eventually destabilise this cohesive community.

Keywords: Planning policy, urbanism, socio-political conditions, housing, microrayons

INTRODUCTION

Sometime in the 1930s a southern letter writer sent a note north. Addressed to '*The Lodge Secretary, Little Moscow, Durham*', it was delivered to the village of Chopwell, in the county of Tyne and Wear. Chopwell's existence can be traced back almost two thousand years; however, its derivation is a matter of speculation. Romans using the woods for hunting near Ebchester Fort, or Anglo-Saxon farmers forming a clearing in the woods for farming could have contributed to its naming (Turnbull, 1978).

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Chopwell's abundant natural resources secured its development. The village's early history was defined by a large timber industry; Chopwell timber was used in the repair of the great northern castles of Dunstanburgh, Norham and Bamburgh, whilst tree bark was supplied to Newcastle tanneries, and charcoal to the local steel industries. Mining activity was also evident, taking advantage of the easily extracted high grade coal and iron ore deposits within the area. Iron ore was smelted in the Derwent Valley and by the 1600s the area experienced a large upsurge in the quantities being mined (Turnbull, 1978). These once ancient operations had become industrialised processes requiring an increasing workforce that in turn generated a more permanent and expanding settlement.

THE RADICAL VILLAGE

From the mid-1800s until the early 1900s small settlements of terraced houses supported by basic public amenities emerged in these remote areas around the coal mines (figure 1). Constructed by and remaining in possession of the mining company, these '*company owned villages*' offered the worker a humble yet secure home for life. Whilst seemingly philanthropic, the company, by attending to the welfare of its workforce, was simply attempting to guarantee a long-term supply of healthy employees.

The mining company controlled the allocation of homes, offering accommodation commensurate to personal status, i.e. single, married, families and retired. These regimented rows of terraces were simply planned and economically constructed, some benefiting from small front gardens (figure 2). Villages generally contained fewer than 3,000 inhabitants, and the housing was supplemented with a small number of shops, a school, possibly a church and a working man's club. All facilities were within walking distance, including the mine.



Figure 1: The village of Chopwell; view from Clayton Terrace Road (Photograph: S Roberts)

A job, a home for life and the isolated nature of the villages created self-reliant, close-knit communities; consequently a contradiction in the evolution of the County Durham mining villages became evident.

Despite evolving from the capitalist beliefs held by the mining company, the inhabitants of the villages developed strong left-wing political views. The educational philosophy within these communities was founded within the miners' institutes and their libraries, which existed in virtually all coalfield towns and villages. Employment levels and working practices reflected the changing fortunes of the mine and as unemployment increased in the early to mid-1900s, communities became increasingly politically active. Chopwell, radical since the 1880s, had high unemployment and was a '*one-industry community, which encouraged a two-class society*' (Mates, 2006, p383). Weekly meetings at the socialist Sunday Club, which contained a well-stocked library of socialist and anarchist literature, meant that residents were given an unusual and left wing education.

By 1913 Chopwell became one of only three places in the country to have a communist club (Mates, 2006). In April 1914 an anarchist conference in Newcastle attracted numerous people from Chopwell and the pit villages of County Durham. In 1924 Blaydon Urban District Council erected terraced houses on the flat land to the south of the village centre, and the streets were officially named after communist pioneers Karl Marx and Vladimir Lenin. However, the main organised demonstration of political resurgence was during the general strike of 1926. Brought on by the imposition of long working hours for lower wages, the consequence and lasting legacy of the 1926 strike and subsequent miners' lockout was an emerging '*alternative society*' founded upon socialist principles. Increasing poverty and unemployment alienated large sections of the working class, and the government of the day became very anxious at the increasing threat of revolution or anarchy.



Figure 2: Typical terrace housing off South Road. (Photographs: S Roberts)

Chopwell received the epithet '*Little Moscow*' largely due to events beginning in 1925 and ending with the 1926 lockout. In a symbolic act representative of the changing societal values, the union flag was taken from the nearby council offices and replaced with a flag decorated with the communist symbol of the hammer and sickle. This emblem still features on the miners' banner, and the faces of Karl Marx and Vladimir Lenin remain evident on the village banner (figure 3).

Chopwell men remained on strike until December of 1926 when the threat of starvation forced them to return to work. Throughout this period, there is wide evidence of intense hardship amongst the unemployed in the Durham coalfields. Large-scale demonstrations followed, with the cause receiving

sympathy and support from the Communist Party and its front organization The National Unemployed Workers Movement, both of which had significant influence in the coalfields.

The defeat of 1926 had a long lasting psychological impact in the villages. Dick Beavis, a Durham miner, recalled the disheartenment of miners during the 1930s following the 1926 defeat: *'The Durham coalfield became politically dormant. Creeping paralysis, I've called it!'* (Mates, 2006, p378).



Figure 3: Chopwell village banner. (Photograph: flickr)

A SOVIET ALLIANCE

The political influence on the inhabitants of Chopwell at this time was wide ranging, manifested in part by international revolutionary politics such as the 1936 Spanish revolution. No settlements were established in the North East by Spanish anarchists; however, its influencing ideology within the dogma of village life resulted in inhabitants taking part in an increasing number of socialist practices.

The village's isolated geographical position and left-wing political ideologies draws comparisons with the microrayon worker settlements established in the Soviet Union during the 1950s. These self-supporting societies became the key concept in post-war residential urbanism in the Soviet Union. Built to house between 4,000 and 20,000 people, they became a model of extreme architectural and constructional standardisation which reflected and suited the Soviet confidence in prefabrication and rigidity of planning. The microrayon became an efficient model for developing settlements in outlying, hostile environments (figure 4). The planning conditions set by Soviet planners dictated all aspects of the design, from the amount of urban space afforded to each inhabitant, the size and format of the school buildings, the number of markets, to the quantity of stock on the stalls. Often several housing blocks formed part of a district characterised by a school at their centre. Minimal walking distance between home, school and other essential amenities dictated the layout of the settlements.



Figure 4: Microrayon housing. (Photograph: Andrea Petrecca)

The concept employed standardised construction techniques to generate large volumes of affordable, flexible accommodation that perfectly embodied the socio-political beliefs, values and power of the state. The absence of private property meant all open space became public, so parks, squares and other outdoor spaces were hugely important in providing relief from the compact living spaces:

'Modest housing complemented by nurseries, kindergartens, canteens, baths, laundries, libraries and reading rooms, sports grounds and clubs which functioned as adult education institutions'

Goldhorn and Sverdlov, 2009, p.19.

In this instance it was the state rather than the company guaranteeing the welfare of its workers. Another similarity with the Durham mining villages was an engendering of a strong community spirit within these remote compact settlements. Neighbours were also co-workers; party comrades had a responsibility to look after one another, and a means to prevent such problems as excessive drinking, domestic violence, poor hygiene or poor housekeeping. The microrayon model was a sound typology for what was a production complex:

'The soviet corollary to the capitalist factory town, it centred on the production line but also included housing and amenities for the workers. The linearity of the production often forced its way into other structures, resulting in a generally linear unit of development. Past urban development was exposed as a bourgeois artefact and replaced by the purely functional and output orientated unit of the productive complex'.

D'Hooghe, 2004, p17

Remarkably, opposing political systems created similar social structures and community values; however, the cultural premise underpinning the planning of the Soviet microrayon was different to that of the Durham mining villages. In Chopwell, dislocation from urban centres was a huge problem, particularly before the ubiquitous use of motor vehicles. Such villages were designed economically rather than socially, with the unity of the inhabitants being generated by the equality of housing. From the outset, the Soviet microrayon was conceived and planned as a model for the most remote state outpost, and the travel distances from established centres of commerce were not important.

There was certainly a greater consideration given to the planning of public facilities in the Soviet settlement, with the County Durham mining settlements being terribly bare in their early years. Uncompromising in their urban plan, the uniform terraces within acres of forests, valleys and moorland were like an acropolis in the landscape. However, unlike the microrayons, the structure and form of the mining settlement

engages in a critical dialogue with the landscape; there is an engagement between place and building which is partly due to the familiarity of construction, the vernacular of the mining village.

A PLANNED DECLINE

From the 1930s a contraction in the coal industry within County Durham was followed closely by plans to abolish many of the villages that had supported the mining population. The government hoped that by acting early it could reduce the risk of the affected regions sinking into a spiral of depression, deindustrialisation, and unemployment.

By 1940 contradictory theories on population shift were being debated. Was it more effective moving population to the industry as opposed to moving industry to the population? The coal industry was nationalised in the following years and the unpublished *'North East Development Plan'* (Pepler and MacFarlane, 1949), which predicted a loss of 23,500 jobs in the mining industry over the next 25 to 30 years, was to influence new government policy.

The government, eager to reduce unemployment, hoped that the mining population would move closer to workplaces and areas of commerce if new housing was provided. These were to be new centres of population receiving focused investment. Larger areas of population with stronger prospects were to be expanded, while villages experiencing contraction would be allowed to decline. In 1951 the Durham County Council Development Plan categorised existing villages into one of four categories: 'A' graded villages were those likely to experience an increase in population, and they would receive economic benefits. 'B' category settlements were those with static populations receiving sufficient investment to maintain the existing population. 'C' category settlements were places of poor employment prospects where population was predicted to decline, and which could expect only limited investment to aid the remaining population. The fate of the final group, 'D', which included Chopwell, was summarised by the following Council response:

'Many of the rows of houses which grew up around the pitheads have outlived their usefulness. As the uneconomic pits close and coal working is concentrated in more economic workings, a gradual regrouping of population should take place. Indeed the very reason for the existence of some of these small and isolated places will disappear completely and new development and redevelopment in some of the better placed settlements will not only be better adjusted to the future pattern of employment opportunity but will also offer better conditions than ever before to many of the inhabitants.'

Pattison, 2004, p316

Policy makers were condemning in their reports on the future of the 'D' villages. Derek Senior, a key proponent of the policy, called these:

'Not villages in a meaningful sense of the term, but long, straight terraces of mean industrial housing strung along highways or packed close together in grid-iron blocks, like patches of Manchester slum set down on open moors and hillside.'

Pattison, 2004, p312

This unique policy actively planned for decline. This was the first time degeneration was seen as the most appropriate solution for village communities that were deemed too far from established centres of development. Once categorised, villages experienced a *'slow, lingering death, reflecting a lack of investment and increasing numbers of empty properties'* (Pattison, 2004, p319), which resulted in poor physical environments, few jobs, and inadequate amenities. Policy makers did not foresee or paid undue

attention to the consequences of ignoring existing social structures within the village communities; instead they *'saw economic development as the primary reason for the policy'* (Pattison, 2004, p329). Residents were nervous of moving to the new estates intentioned for them, regarding them as isolated and disconnected from the deeply held social values of the old village communities. The planners responded in the later phases of the policy, moving whole neighbourhoods from former 'D' villages into new locations, though this did not allay discontent: Even when new industries were attracted, the local work force, predominately ex-miners, were not always seen by factory managers as suitable employees.

Eventually, in December 1968, Durham Council resolved to reconsider the future of category 'D' villages, the subsequent outcome being a renewed interest from private housing companies in west Durham. Simultaneously and partly influenced by popular public opinion, national planning policy was undergoing a profound philosophical change, one based on the value of history and past culture. In 1975 *'A future for our past'* became the slogan for the European Architectural Heritage Year, and criticisms that post war planners had been too timid and had not demolished enough were replaced with *'too much had gone, and too much was worth keeping'* (Oswalt, 2006, p65).

Shifts in planning policy between the 1950s and 1970s provoked fear within the Durham mining villages. Established communities were hearing that the future of their villages were to be decided on economic factors that ignored personal relationships forged in close-knit neighbourhoods. When the outcomes of these planning policies became evident they were deeply criticised for their lasting and damaging social and economic costs. Even by 1999 the East Durham Task Force identified that:

'Many of the smaller settlements have poor physical environments, few jobs and inadequate private and public amenities and facilities. Many of these settlements had been starved of funding for many years by the village policy.... affecting the attitudes of local communities towards planning, leaving a legacy of mistrust and scepticism that is apparent even today.'

Pattison, 2004, p329

Although Chopwell and other villages of County Durham had distinct left-wing tendencies, the future advocated by the figures who adorned their mining banners was ultimately echoed in the autocratic decisions taken by the county planners. It was a decision which led to the destruction of villages, or at least a lasting legacy following ten or more years without investment.

'The social revolution of the nineteenth century can only create its poetry from the future, not the past. It cannot begin its own work until it has sloughed off all history in order to dull themselves to their own content. In order to arrive at its content, the revolution of the 19th century must let the dead bury the dead.'

Marx, 1973, p99

PROPOSALS AND PROMISES

Today, almost every village in Durham has re-constituted its mining banner. Taking place through community-led projects, it may be that the past political, or at least, collective cultures of the mining communities still have something to say in the regeneration of their communities. In 2008, Social Regeneration Consultants produced a new master plan for the village of Chopwell. Despite distrust towards the regional planners, there is a new reassurance which is seen as a positive step towards stabilising and protecting communities like this.

Current community-based planning procedures are in stark contrast to the autocratic planning policies implemented between the 1950s and 1970s. The beliefs and rationales behind old policies were uncompromising; by contrast, the recent master plan for Chopwell emerged from extensive public consultation. Current planning models *'no longer embrace the classical dichotomy of state and society,*

which sees the state as intervening player in the sense of the traditional 'comprehensive planning', of the 1960s' (Oswalt, 2006, p22). Instead they take into account the new relationship between members of the public and local authorities, with the planners' actions ameliorated by the desires and needs of the community.

During the period of high modernism, urban planning and architecture held on to political ideas of socialism and a faith in progress to create the ideal society: '*essential to this model is the idea of overcoming disparities of social space and producing living conditions based on equal value*' (Gentile, 2004). The model was based on providing economic aid to lesser developed areas, this being considered desirable to increase social value and yield further growth throughout the area.

Friedrich Engels (whose name is also dedicated to a street in Chopwell) believed that the productive settlement could be developed into a model for an economical village or town which '*acts as an interface between the rural and the urban, and which works as a cost effective unified whole, a functional assembly line system*' (Gentile, 2004). The future of Chopwell is contained within the new master plan; the desire to live in a rural environment amongst a close community has endured and secured its existence when current planning policy seems to favour densification of the towns and cities.

Chopwell no longer desires an association with the name '*Little Moscow*', nor do the proposals make reference to its socialist background. The proposals involve building on greenfield sites in the heart of the village, so that the existing terraces with their small gardens no longer have access to large green spaces and play areas. History suggests that the effects and consequences of any comprehensive planning exercise could lay dormant for another generation.

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‘The fallen fishermen’: the religious maritime buildings of the River Tyne

Mark Whiting¹ and Peter Beacock²

INTRODUCTION

This paper documents the relationship between the church and those whose livelihood is linked to the sea, which has influenced much of the history of the lower reaches of the River Tyne and adjacent coast. It could be argued that those engaged in hazardous occupations have always looked to some form of comfort and support, and fishermen certainly fall into this category. Indeed Samuel Johnson, the eighteenth century thinker, recognised the hardship and toil faced by fishermen at sea. Boswell, in his biography of Johnson, wrote:

‘No man will be a sailor who has contrivance enough to get himself in jail, for life at sea is like that in a jail; with the added chance of being drowned... a man in jail has more room, better food and commonly better company.’

(Hibbert, 1986)

What is of particular interest is the documentary or physical evidence that exists of a number of religious and other buildings that demonstrate the link between the beliefs of the fishermen and the aid provided by the church. The limited length of this paper allows only a small number of the key buildings to be addressed.

THE HISTORICAL PERSPECTIVE

The history of the link between the church and the sea can be traced back to the earliest years of Christianity in the North East, when religious houses were established on the headland at Tynemouth (1), on the south bank of the river where the church of St Hilda in South Shields now stands (2), up river at St. Bede’s Jarrow (3), and further down the coast at St Peter’s, Monkwearmouth, now part of Sunderland (4). Although the twin centres of St Peter’s and St Bede’s have significant remains and can justifiably lay claim to world heritage status, the sites at Tynemouth and South Shields can claim to have earlier significance.

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Oswald, King of Northumbria, embraced Christianity in the mid-seventh century, and appears to have had one of his royal seats at South Shields. There is evidence of Anglo Saxon occupation from the excavations at the Roman fort at Arbeia, and signs of an Anglo Saxon church beneath St Hilda's. According to Hodgson, the historian of South Shields, there is evidence in Bede's work of a monastery at South Shields. This was before the founding of the Jarrow monastery in 685 (3 miles to the west) and Monkwearmouth on the north bank of the Wear 8.5 miles to the south.

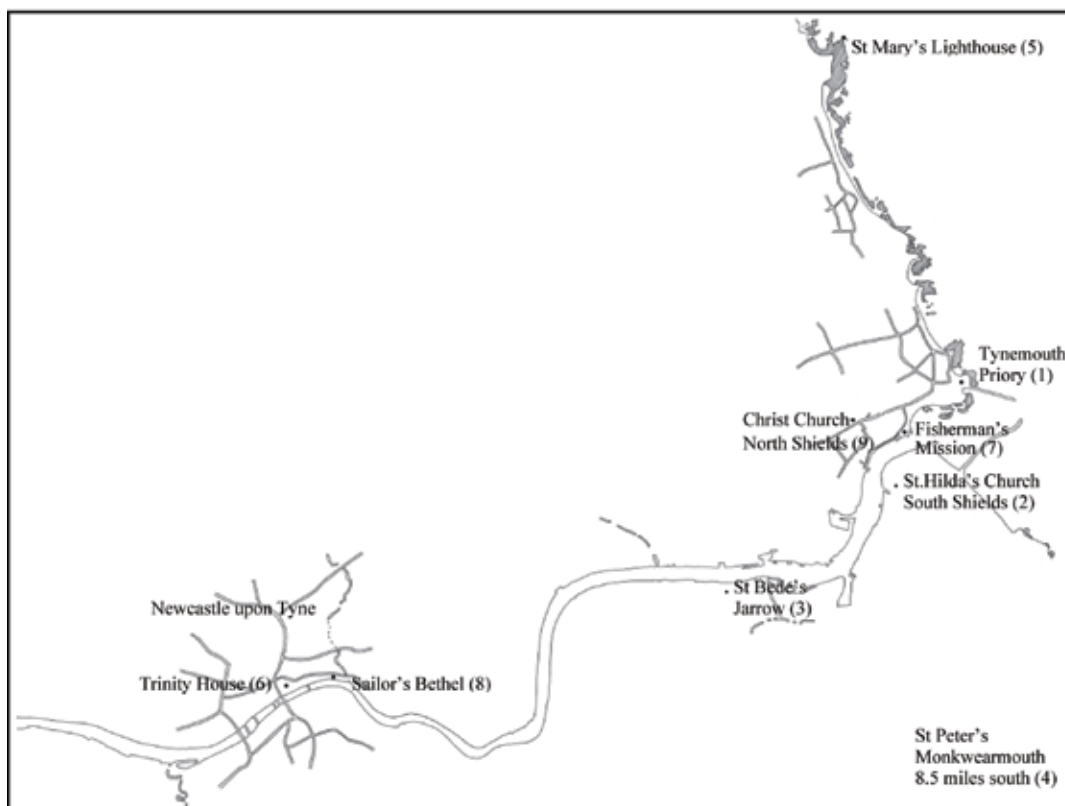


Figure 1: The River Tyne from Newcastle to the coast, showing the location of buildings and sites of importance (image: M. Whiting)

TYNEMOUTH HEADLAND AND THE ESTABLISHMENT OF THE PRIORY

It is on the northern headland that evidence of early religious settlement remains. The elevated position at the mouth of the Tyne where Tynemouth Priory now stands was strategically important from Roman times, and with the island Arbeia fort on the south side, it guarded the entrance to the river which effectively marked the edge of the Roman world. This marked the start of the long history of occupation, with the early Christians establishing a site which by the early medieval period had developed into a major religious foundation. The nineteenth century author, Harvey (1830), considered that the “*the natural grandeur of the situation, and the bold, majestic, and sublime scenery ... had a considerable share in influencing the first religious settlers in their choice of this place*”.

Harvey suggested that the first chapel was built here in the early years of the seventh century, and the

beginnings of the link between church, sea and the local inhabitants can be traced back to the influence of two major saints in the early Christian canon, St Oswin and St Cuthbert. Ford (2000) in his history gives more accurate information, recording that St Oswin, King of Northumbria, was murdered in 651AD and was buried in the churchyard of St. Mary at the mouth of the River Tyne. After his death, reported miracles led to him being hallowed as a saint and an oratory was built over his grave. Oswin became the patron saint for the monastery, and there are references to the 'Peace of St Oswin' that protected the resident monks, and the offerings left by grateful fishermen who benefited from the presence of the saint's relics (Antiques Digest, 1920). This developed into a Saxon priory which grew rich on the offerings left at the shrine. It became a popular place of burial for the local nobility, and the exiled King Osred II of Northumbria was laid to rest there in AD792.

The second saint to have had an influence on the fishermen of the River Tyne is St Cuthbert, the patron saint of mariners and of Northumbria. The Venerable Bede (721) recalls within his 'Life and Miracles of St. Cuthbert, Bishop of Lindisfarne' a series of incidents where Cuthbert's actions were related to the sea and mariners. Bede writes of how the great St Cuthbert spent his early and late years at the mouth of the Tyne, and:

'How, when the sailors were prevented from sailing by bad weather, he predicted that it would be fine on a certain day, and how he obtained food by prayer'; and 'How even the sea was subservient to his wants.'

(Halsall, 1997)

These incidents link the actions of a religious figure with the protection of mariners on the River Tyne. The most significant is where Bede recorded that a group of boats returning to the River Tyne close to the monastery at Tynemouth ran into a storm and could not return safely to port with their crew and cargo. The monks saw this from the cliffs and began to pray to the Almighty to spare the struggling boats. According to Bede, despite the jeering of onlookers, Cuthbert fell on his knees to pray,

'and immediately the power of the winds was checked, the vessels, with their conductors rejoicing, were cast upon the land near the monastery, at the place intended. The rustics blushing for their infidelity, both on the spot extolled the faith of Cuthbert as it deserved, and never afterwards ceased to extol it.'

Cuthbert became very widely known and revered, and Oswin also became a popular saint with the monastery at Tynemouth prospering as a place of pilgrimage. As the riches and influence of the monks increased, so did their involvement with the fishing community. Fishermen would provide offerings to the shrine each time they went to sea in hope of returning safely and with a successful catch. This began a cycle which, once started, a fisherman would be wary of breaking for fear of bringing bad luck to his vessel.

In the ninth century repeated attacks by the Vikings made life precarious, and in 875 they finally destroyed the monastery (Walmsley, 2001). By the years around 1050 there are again records of a high status settlement on the headland, and in about 1080 Waltheof, the last English Earl of Northumberland, granted the ruined church at Tynemouth, including the body of St Oswin and all the lands belonging to the church, to the monks at Jarrow (English Heritage). Now the headland provided a place of learned religion that was protected by the castle, enabling the influence of the church to grow in the north east. It also enabled the body of St Oswin and his shrine to be returned from Jarrow in 1110. As the word of the church was passed on, so was the influence of St Oswin as a protector of mariners. A practice of leaving gifts and offerings at his newly returned shrine for a safe return from sea began again.

Monks *'would find a rich and ample source of revenue in the offerings brought to the shrine of St. Mary and St. Oswin, by the mariners who in those days navigated the German ocean.'*

(Harvey, 1830)

The result of this developing importance is documented in a thirteenth century letter from a monk at the Priory to a fellow monk:

'the Church is of wondrous beauty. Within it lies the body of the blessed martyr Oswin in a silver shrine, magnificently embellished with gold and jewels...The martyr's protection and the Church's beauty furnish us with a bond of unity. We are well off for food, thanks to the abundant supply of fish, of which we never tire.'

Walmsley, 2001

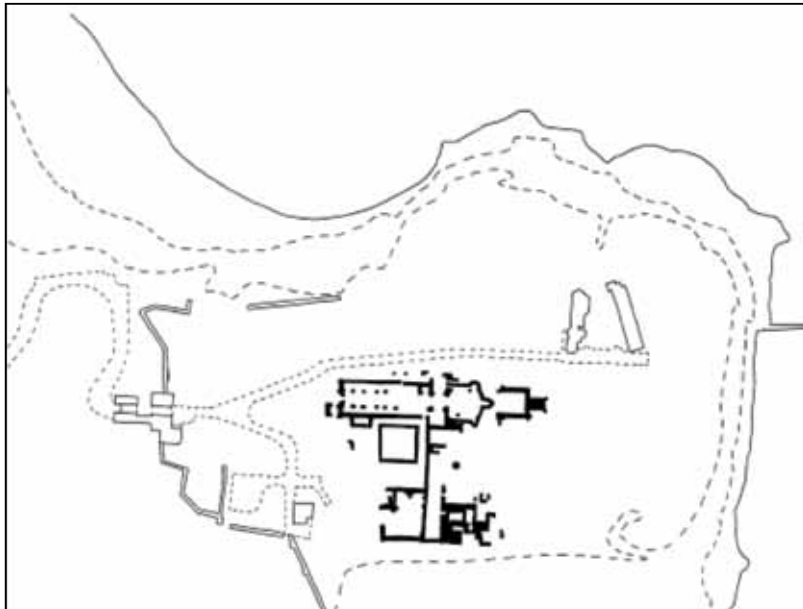


Figure 2: Tynemouth Priory (image: M. Whiting)

ST MARY'S LIGHT

Following the re-establishment of the priory, a small chapel dedicated to St. Helen was built on St. Mary's Island to the north of the headland. 'St Mary's Light' (5) was established to protect fishermen and seamen from the dangers of the rocks it was built upon, en route to the safety of the River Tyne and the ports of North Shields and Newcastle upon Tyne. It dates from 1085, when Tynemouth Priory was established with St Albans, and is one of the earliest lighthouses in the United Kingdom.

'At night they kept lights burning from towers to warn the passing mariner. The seamen knew where to look for these twinkling lights. They may have been feeble when compared with the modern lighthouses, but to the medieval sailor they meant more than mere material guidance for his ship. They were proof that the Church did not forget him. Every mariner knew that prayers were being offered on his behalf.'

(Anson, 1948)

During the medieval period this bond of mutual reliance between Church and sailors became firmly established. The Church needed the sea's harvest and in return protected the sailors who provided it, thus laying the foundation for their long association.



Figure 3: St Mary's Lighthouse, Whitley Bay (Photograph: P. Beacock)

THE ESTABLISHMENT OF THE 'SHIELS'

The development of the North and South Shields, and the fishing industry on the River Tyne, is inextricably linked to the direct involvement of the monks at Tynemouth Priory. In 1225 Prior Germanus gave permission for a small number of fishing huts to be built on the northern bank of the River Tyne. Seven huts known as 'shiels' were constructed close to the Pow Burn, on an area of land drained specifically for this purpose. This collection of houses had its own landing area alongside to provide facilities for the fishermen to tie up their boats and unload their catch. This permission was given to provide for the Church and the monks whilst enabling the fishermen to feed and earn money for themselves and their families. It is a clear indication of the Church being directly involved and supporting the fishermen of the River Tyne. The collection of 'shiels' grew as the rich seas around the Priory were harvested, eventually expanding to form the modern North Shields. Today fishing is still important to the town almost 800 years later, and its Fish Quay provides a continuous trading market. Having had a sustained period of trade for so long, there are a number of buildings and organisations supporting and associated with the fishing industry that have their roots or guidance from the Church. This is part of the long tradition, started by the monks at Tynemouth Priory, of helping the fishing community and supporting the families of the men who are lost at sea. However, one of the key organisations to support the activities on this tidal length of the River Tyne is located further upstream in Newcastle.

GUILD OF THE BLESSED TRINITY OF NEWCASTLE UPON TYNE

The next developments of significance lie further up the river in the establishment of what is now known as Trinity House (6). Formerly known as the 'Guild of the Blessed Trinity of Newcastle upon Tyne', its origins stretch back to a 13th century establishment in Berwick upon Tweed. Its mission was to improve the safety of mariners and seamen through educating navigation techniques and implementing river improvements. The attempts of the Guild to safeguard the local seamen were met fiercely, viewed with suspicion and ultimately unwelcome on the River Tweed. The historian Leland recorded the 'hounding out' of the Guild, organised by the Bishop of Durham, Anthony Beke, and its subsequent establishment in Newcastle (Leland, in Moir, 1958).

Although no date has been recorded of the start of the organisation's work in Newcastle upon Tyne, the relocation must have taken place between 1283 and 1310, during the years Beke was Bishop of Durham. During its early years in Newcastle, resistance continued to the Guild's aspirations to improve conditions for safe navigation and the welfare of seamen and mariners. This gradually diminished as the Brethren, as they became known, improved the navigation of the River Tyne, enabling seamen and mariners a safer route to and from the Port of Newcastle. The influence of the organisation became substantial enough for them to exert an influence beyond Newcastle to other north east ports and rivers.

The Brethren had begun to establish themselves in Newcastle through the Christian beliefs of safeguarding those in danger and assisting those less fortunate, providing "*charitable mission, rendering succour to distressed seamen and aged mariners*", and they established a hospital in 1363. The creation and maintenance of safe navigation routes of the River Tyne was directly influenced by King Henry VII who, upon visiting the town and seeing the activities of the Brethren, gave them permission to collect dues from the ships using the port and allowed them use this money to remove sands and silt from the river. This act was recognition of their work, promoting their organisation, ideology and support network. At the very heart of the organisation are Christian values, and the Brethren had a long association with All Hallow's Church (now rebuilt as All Saint's Church), where they regularly met and owned one of the galleries, using it for meetings and congregations (Moir, 1958).

In 1536, this work was given recognition in the first of a series of Royal Charters by Henry VIII. The brethren were permitted to levy dues on all ships trading in the river Tyne, and required that they "*build, fortify, moat, embattle and garrison two towers on the north side of the entrance to the river Tyne, in which would be maintained lights for the safety of navigation*". These were the original High and Low lights, which have been rebuilt a number of times but still stand in North Shields (Trinity House, 2013).

The growing importance of the Brethren and their work during this period, and their increasing wealth from benefactors and from the port dues, led to significant developments in its estate for the support of seamen and their families.

TRINITY HOUSE CHAPEL

In 1492 Ralph Hebborn, "*a man of substance and a land proprietor*", offered to the Brethren an area of land close to the River Tyne for a "peppercorn" rent, to allow them to establish a permanent headquarters. Hebborn was a strong advocate of their work and his generosity was accepted by the Brethren, beginning what we know today as Trinity House. Ultimately, a chapel was commissioned for the Brethren and the Mariners at Trinity House in 1505, with the style of roof "*frequently observed by visitors as imitating the underside of wooden ships' deck*" (Trinity House, 2009).

Trinity House is in fact a complex of buildings, built in response to the increase of the Brethren's work and influence. During its existence on Broad Chare the organisation has provided a place of worship and religious support, education through its school established in 1712 for the children of mariners and seamen, and pilot and navigation tutorage (Oliver, 1831). Support was also been provided in the form

of Almshouses, as a refuge to poor Brethren. In more tragic circumstances, the wives of seamen and mariners lost at sea were provided with widows' apartments, built in 1724.

The charitable work of the Guild towards mariners and seamen and their immediate families extended to financial aid raised each year (Moir, 1958). The Brethren are still active today, securing aid for those of the maritime community in difficult circumstances, and taking ownership of their welfare.



Figure 4: Entrance to Trinity House (photograph: T. Yellowley)



Figure 5: Trinity House Chapel interior - likened to the underside of a wooden ship's deck (photograph: T. Yellowley)

FISHERMAN'S MISSION

Having established the origins of North Shields and the fishing industry on the River Tyne as a result of the involvement of Prior Germanus, and the subsequent development of Trinity House, the next key stage in the link between church and sea was the development of an organisation set up to support the fishermen of the Shields and the River Tyne.

The existence within North Shields of an organisation supporting fishermen can be traced back to the early 1800s. During this period welfare and support was provided by the fishing community, whilst across the River Tyne in South Shields another mission with a stronger religious message was being

formed. The origins of the mission known as the Bethel Union can be traced to the early 19th century.

"The first recorded prayer-meeting was held on the brig "Friendship" on June 22, 1814. The first bethel flag – to show that a service would be held on board ship – was unfurled by Captain Hindulph of South Shields on 23rd March 1817."

(Denham, 2008)

The word 'Bethel' is Hebrew for 'House of God', symbolising a church under the flag bringing religion to the fishermen and mariners of the River Tyne. According to Nolan (2001), local groups of people, often relatives of seafarers, would provide hospitality in their own homes. Such generosity was welcome relief for the fishermen and its popularity progressed into an organised 'Seaman's Mission', which provided the same level of care and comfort as the residential groups but began to offer additional welfare, offering support for visiting seamen (Nolan, 2001).

Additional groups were established in North Shields to increase the support offered to fishermen and mariners during a period of expansion within the industry. 'The Town and River Mission' was formed in 1852 *"to provide spiritual, moral and physical welfare without distinction of creed or nationality"* (Nolan, 2001).

By 1857 a Sailors' Home had been funded and constructed on land gifted by the Duke of Northumberland, close to the Fish Quay in North Shields (7). The defining moment in the Mission's history was that of Ebenezer J Mather purchasing a fishing vessel to attend to fishermen offshore upon seeing the horrendous working conditions the industry employed (Nolan, 2001). Mather increased the number of these vessels to go to sea with fishing vessels during their work at sea, providing direct support and welfare. The boats would fish alongside commercial fishing boats, raising funds for the Mission to provide warm clothes, bibles and literature to fishermen and to treat the sick or injured. These boats became known as 'Bethel Boats', and they strengthened the resolve to provide welfare for members of the fishing community.

A permanent base for the Mission was established at Union Quay, North Shields, in 1899, and the Royal National Mission to Deep Sea Fishermen has since become a continuous presence in the port and along the North Sea coastline.

SAILORS' BETHEL, QUAYSIDE, NEWCASTLE UPON TYNE

The success of the movement on the River Tyne led to the development of further Bethel Unions around the country. The group that preached on the Tyne formed 'Newcastle upon Tyne Bethel Union Seaman's and Waterman's Society'. Its purpose was *"to promote the spiritual interests of seamen trading to or connected with this port, together with keelmen and others employed on the Tyne"* (Denham, 2008). This is further evidence of the support offered to fishermen of the River Tyne, by the Bethel Union, the Fishermen's Mission and other sections of society influenced by the work of the Church, providing them with the support and charity needed when they fell upon hard times.

The large numbers of river workers, keelmen and fishermen on the Tyne needing an element of comfort or support rapidly increased the membership of the Bethel Union in Newcastle. The Union originally operated from the Bethel Rooms on the Quayside and a public house in Sandgate, the heart of the keelmen community. The swelling numbers made it apparent that larger, more appropriate and permanent premises were needed.

A site on the corner of Tyne Street and Horatio Street, close to the Newcastle upon Tyne Quayside, was identified and leased by the Local Authority to Councillor William Stephens. He was an integral part of the Bethel Union and was an influential fundraiser for the building of a new Sailors' Bethel (8) (Denham, 2008).

The architect for the Bethel was Thomas Oliver Jr., son of Thomas Oliver who worked with Grainger

in the centre of Newcastle. It was opened to members and seamen in 1877. A Bethel provides an inter-denominational church serving travelling seamen and providing a point of rest for the night whilst in port. This is particularly evident during the post-World War II period when it served as a Danish Church (Denham, 2008).

It closed as a Bethel in 1949 and changed use several times before becoming the offices for a design company. Its significance is acknowledged by its English Heritage listing, and its construction was a direct result of an organisation with a religious message at the heart of its work.



Figure 6: *The Sailors' Bethel* (photograph: P. Beacock)

ST NICHOLAS' CHAPEL, CHRIST CHURCH, NORTH SHIELDS

As with the Sailors' Bethel in Newcastle, North Shields fishermen are provided with a dedicated place of worship in a chapel located within Christ Church (9). It is likely that acts of worship and remembrance for fishermen have been in existence since the building of the church in 1836, reinforcing the role of fishermen within the North Shields community. The chapel was established in 1951 following a series of alterations to the church as a result of bomb damage sustained during World War II. The organ was relocated and the space redesigned providing a substantial permanent place of worship and remembrance. Prior to the reorganisation, Christ Church allowed local fishermen and their families to pray for a safe passage at sea; and also for wives and children to gather at periods of loss and sadness, bringing together those who survived. Those who could not be returned from the deep were remembered at the chapel.



Figure 7: Seamen's Chapel, Christ Church, North Shields (photograph: M. Whiting)

Within the Seamen's Chapel is a stained glass window, The Lifeboat Window, depicting images of former lifeboats from the Tynemouth Volunteer Life Brigade (established in 1864) and the first self-righting lifeboat designed by William Wouldhave. The Lifeboat Window was commissioned and opened in 1962 by The Duchess of Northumberland 'to commemorate a Centenary Vellum being awarded to the station' (RNLI, undated).

CONCLUSION

Seamen and fishermen work in a dangerous industry within an environment that they cannot control. Throughout the centuries they have tried to 'tip the balance' in their favour by looking for external support. Superstitions were developed and observed, offerings made at shrines, and blessings received upon their boats. These superstitions were formalised through religious belief and were fully endorsed by the fishing community attending prayers at dedicated chapels and sites of religious significance. Belief in the Almighty gave the fishermen comfort that a presence would provide a safe passage through difficult conditions, and provide for them and their families, and the church itself benefited from the gifts and donations received.

Attendance at and formation of churches and other buildings along the Tyne grew alongside the fishing industry, illustrated by the buildings and organisations discussed within this paper. What is apparent from the research is the long established and deep rooted religious movement that underpinned an entire industry on the Tyne.

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