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NORTHERNNESS

Editors: Anne Elisabeth Toft and Magnus Rönn

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CONTENT

FOREWORD

Anne Elisabeth Toft and Magnus Rönn

The Nordic Association of Architectural Research (NAF/NAAR) is an independent and not-for-profit association of architectural researchers from universities and schools of architecture in the Nordic countries. Creating encounters, interactions, and dialogue between peers has always been central to the association, which was founded in 1987. Its primary function is to facilitate the research collaborations of its members and their exchange and dissemination of research results. Through its research symposia and its peer-reviewed publications, NAF/NAAR sets a standard for the scientific and artistic level of architectural research produced in the Nordic countries. The present book, published by NAF/NAAR, is the proceedings publication from the association's 2020 symposium, which had the title *Northernness*.

The event, which took place on 22–23 October 2020, was also the 12th Annual Symposium of Architectural Research in Finland.[1] Due to the coronavirus pandemic, it was the first virtual symposium in the history of NAF/NAAR. It was hosted by the Oulu School of Architecture, University of Oulu, which collaborated with NAF/NAAR on organizing the event. As a joint venture, NAF/NAAR curated the symposium programme held on Thursday, 22 October, while the Oulu School of Architecture was responsible for the symposium programme on Friday, 23 October.

During the symposium, thirty-two international researchers presented research papers. Articles in this publication are based on the presentations given on Thursday, 22 October 2020, and NAF/NAAR has conducted their peer review. All seven articles in this publication—except those by the invited keynote speakers Thordis Arrhenius, professor at KTH Royal Institute of Technology, Stockholm, and Peter MacKeith, dean and professor of Architecture at the Fay Jones School of Architecture and Design, University of Arkansas, Fayetteville—were submitted to a double-blind peer-review process, based on a peer review template developed by NAF/NAAR.

As president and vice-president of NAF/NAAR, we extend our warm thanks to our colleagues at Oulu School of Architecture: Janne Pihlajaniemi, professor and Head of Unit, and Sari Hirvonen-Kantola, postdoctoral researcher, for the collaboration and their support of the event. They were instrumental in conceptualizing the theme of the symposium and organizing it. We would also like to express our gratitude to Aulikki Herneoja, Henrika Pihlajaniemi, Piia Markkanen, Hanna Kosunen, Johannes Jutila, Matti Lakkala, and Simo-Pekka Kekäläinen for contributing to the organization of the symposium.

In the same manner, we express our gratitude to Thordis Arrhenius and Peter MacKeith, all of the individual authors who submitted articles to the publication, and the many peer reviewers who supported NAF/NAAR and its work by offering their time and professional expertise for reviewing articles.

Finally, we would like to direct our thanks to Brandförsäkringsverkets Stiftelse för Bebyggelsehistorisk Forskning. The publication of the present book was made possible thanks to the generous support of this institution.

Anne Elisabeth Toft
President of NAF/NAAR

Magnus Rönn
Vice-President of NAF/NAAR

NOTES

[1] An annual symposium organized by the three schools of architecture in Finland: Department of Architecture at Aalto University, School of Architecture at Tampere University of Technology, and Oulu School of Architecture at the University of Oulu. See https://journal.fi/architecturalresearchfinland/about (accessed in July 2022).

INTRODUCTION

Anne Elisabeth Toft

The *Northernness* symposium reflected a shared interest between The Nordic Association of Architectural Research (NAF/NAAR) and the Oulu School of Architecture, University of Oulu. This interest pertained to architectural research and its knowledge production. It involved the two institutions' positioning in the discourse of architectural education and architectural research, what it means to be Nordic in that context, and what narratives and images we attach to that.

NAF/NAAR critically engages in discussing architectural research as an evolving practice. For thirty-five years, NAF/NAAR has been a unifying platform for architectural research in the Nordic countries, and thus also a noteworthy representative for the different research cultures and regimes in architecture that have developed in Sweden, Denmark, Norway, and Finland. Its comprehensive open access archive of research articles published in its scientific journal *NJAR* is a testimony to this.[1] As an independent and not-for-profit association of researchers, NAF/NAAR has an ongoing interest in investigating different aspects of the relevance of its mission and position in academia.

The University of Oulu, on the other hand, being one of the northernmost multidisciplinary universities in the world, has always reflected on its Northern context—close to the Arctic region—and on the meaning this context holds for the university and its role in society.[2] Founded in 1958, it is a rather young university. The Oulu School of Architecture, which is part of the university, has a clear focus and centres its research efforts on 'changing northern built environment'.[3]

Critically questioning whether it makes sense or is appropriate to talk about regional architecture or the specifically Nordic in a globalized world, the symposium set the stage for discussions about the underlying cultural forces

in society that shape—and have shaped—the notion of 'Northernness' in architecture, architectural education, and architectural research.

Day one of the symposium, curated by NAF/NAAR, in particular focused on the cultural construction of the notion of 'Northernness'—its history in architecture, landscape architecture, and urban design; its architectural representations and aesthetics; and its challenges in architecture, landscape architecture, and urban planning as design practice.

Day two, curated by the Oulu School of Architecture, offered a practice-oriented framework for discussions focusing on smart and resilient cities in the North; sustainable living in the North; and light and materials as elements of Northern architecture.

The symposium was framed by the following questions: What is the common sense understanding of 'Northernness' in architectural research and practice today? What defines it, and in which ways does it inform the related research and practice?

Against this background, NAF/NAAR and the Oulu School of Architecture wanted to shed light on the theme of the symposium, having invited both academic scholars and practitioners to present and critically discuss their research findings at the event.

The symposium fostered specific discussions of 'Northernness' (considered by many scholars to be a contested or even politically incorrect term), the canon of architectural history, and the epistemological construction of the so-called Nordic in and by architecture, architectural education, and architectural research. It also addressed how 'Northernness'—or the image of the specifically Nordic—is expressed in and by architecture and its representations, focusing on its dissemination in various mass media, such as architectural books and magazines, architectural exhibitions, and architectural television programmes. Reflections on the impact of mass media and their representations led to questions regarding the aesthetics connected with the so-called Nordic in Northern architecture and how this is—and has been—interpreted and valued in the built environment, in its infrastructure, and in its arts-and-crafts traditions and industries. History and different historiographies were also a focal point of the symposium discussions, touching upon notions of

cultural heritage and collective memory in architecture and its discourse—bringing to the forefront, for instance, the legacy of the Scandinavian welfare model. Taking on a future perspective, the symposium also spoke of how so-called Nordic architecture may contribute to the understanding of global challenges facing society and its built environment, and in what way these challenges may in retrospect influence how the term 'Northernness' will be interpreted in years to come.

A recurring reference during the symposium discussions—central also to several writings in this publication—was the influential mid-twentieth century architectural thinker Christian Norberg-Schulz and his theories on architecture and the specifies of place. Born in Norway and trained as an architect, he rose to international prominence with a number of publications on architecture including *Intentions in Architecture* (1965), *Existence, Space and Architecture* (1971), *Genius Loci* (1980), and *The Concept of Dwelling* (1985).[4] His thoughts on genius loci and 'the art of place'—long ago part of the architectural canon—are closely connected to nature and architecture in the Nordic countries, and not just Norway. At the same time, it seems as if Norberg-Schulz's theory on the connection between humans and places has also heavily informed architectural thinking and design in these countries.

Much contemporary architecture in the Nordic countries is characterized by an interest in specific local and regional conditions, with a focus both on the physical environment and on cultural and social situations. This interest, rooted in tradition, but responding to current challenges in society, may point to a reinterpretation—or reinvention—of Nordic identity and its constitution.

The latter are some of the aspects that Peter MacKeith picks up on in his article 'The Building Art, the Social Art: Reflections on a Nordic Public Architecture'. In this contribution, MacKeith, who was a keynote speaker at the symposium, aims at assessing an ongoing tradition of Nordic public building, and of a Nordic cultural community. More specifically, he investigates the Nordic understanding of community, how this understanding is constructed, what characterizes it, and how it manifests itself in architecture and urban design. First published in the journal *Louisiana Revy* in 2012, in connection with the exhibition *New Nordic: Architecture & Identity*, an exhibition at the Louisiana Museum of Modern Art in Denmark focusing on how the identity

and culture of the five Nordic countries are reflected in contemporary Nordic architecture, the article discusses its subject matter through the lens of the exhibition and its representations.[5]

Thordis Arrhenius, also a keynote speaker at the symposium, who is currently working on a cross-disciplinary project about the Swedish welfare state, is interested in understanding how the material heritage from the post-war period is valued today. Her research interests concern the exhibition of architecture in mass culture, the relation between architecture and the museum, and the curatorial aspects of preservation.[6] In her presentation given during the symposium, Arrhenius, with the research question 'What is the Nordicness of the Nordic welfare state model?', elaborated on the Nordic welfare state model and its particularities, pointing out what, in her opinion, makes it different from other welfare models. Her article 'The Welfare State, Counterculture, and Heritage', originally published in 2010,[7] pursues this issue further, taking as its point of departure a discussion of the formation of a critique and rejection of the modernization programme in Sweden in the early 1970s and its effect on preservation discourse. Focusing on the modernization of Stockholm in the 1960s, which was one of the most radical and costly urban projects in post-war Europe, describing how it led to many people's distrust in the Swedish welfare state's planning system, Arrhenius reflects on the purpose and scope of preservation, its development, but also on the democratization and popularization of Swedish heritage.

Minna Chudoba, in her article 'Designing with Nature: An Interpretation of the Legacy of Eliel Saarinen, Alvar Aalto, and Reima Pietilä', discusses the representation of nature in both vernacular and modern architecture in Finland, pointing out how foreign interpreters have almost always associated Finnish architecture with nature. The article reflects on the strong association of Finnish architecture with nature, with the aim of shedding light on 'the constructed narrative of one specific aspect of Nordic architecture, while raising questions of individuality and universality in the architectural design process'. More specifically, Chudoba is interested in exploring how 'interpretive descriptions of architecture (by others) [are] related to the way the architects themselves viewed the premises of their design, especially from the perspective of the design process'. Through studies of different texts written about the architecture of Eliel Saarinen, Alvar Aalto, and Reima Pietilä, texts in which modern design and international styles go hand in hand with the application of old craftmanship traditions and local building materials,

Chudoba examines the way Nordic nature metaphors are described in their architectural works, along with their significance, origin, and discursive development. In parallel, she pursues the texts authored by the architects themselves, texts in which they often reflected on their respective architectural language of form, design approaches, and sources of inspiration. Based in this comparative reading, Chudoba gives us insight into Finnish architecture, the way it is represented, and its textualization in terms of discourse.

In the article 'Mediterranean Echoes: Understanding Northernness through the South', Carlotta Torricelli reflects on Nordic Classicism and its motifs taken from classical Greek and Roman architecture. Discussing analogy, quotation, and assemblage as design techniques, her article 'examines the possibility of designing the features of regional identities using archetypes and figures extracted from a distant universe, within a dynamic process of dialectic oppositions'. Focusing on Swedish examples, Torricelli traces a compositional approach particular to architects and artists who were working in Sweden at the end of the eighteenth century. In her reflections on Northernness, she proposes 'understanding their work as a cultural basis' on which certain iconic works of modern classicism from the twentieth century build.

Writing on preservation and cultural heritage in a Danish context, Birgitte Tanderup Eybye's contribution to this publication, titled 'Architectural Durability: Investigated through Studies of Danish Heritage Dwellings', offers a reflection on architectural durability and the life span of buildings. Tanderup Eybye argues that carrying out a study of the factors that promote the long life cycle of Nordic architectural heritage would be relevant, as sustainability considerations predict that we will need to preserve our built environment. Her investigation of the notion of architectural durability is based on a literature study and a case study on Danish residential heritage. She places the focus on housing because, according to the author, this is an area of construction that puts particular strain on the environment and where people still do not consider sustainable approaches and strategies. As she writes, 'there is little architectural focus on ordinary housing, and most single-family houses are built by standard house builders, with no regard for the particular site, craft, or any aspects of sustainability other than energy consumption in the operational phase'. In this respect, her aim is to explore what characterizes architectural durability and how aspects of architectural durability can contribute to improving the life span of future building.

Stine Dalager Nielsen also discusses sustainability in her article 'Architectural Sustainability as a Cultural Practice', with a focus on whether potentials of sustainability might already figure in our historical building practice as intrinsic aspects to be reintroduced in current practice. A student workshop on vernacular architecture in Denmark, Sweden, Norway, Finland, Iceland, and the Faroe Islands forms the backdrop for her reflections on the subject area, looking into how various vernacular building practices have developed and dealt with climatic and cultural changes in the North throughout the centuries.

Seen through the lenses of actor-network theory and the phenomenological concepts of Christian Norberg-Schulz, Turid Borgestrand Øien writes on issues of dwelling in the North in her article 'On Dwelling in the Cold and Dark Nordic Countries: Two Contemporary Issues in Housing'. More specifically, she addresses the everyday life of dwelling in the Nordic countries, guided by the question: 'In a situated, complex, and changing everyday life, how are local issues in indoor environments understood, enacted, and solved by professionals and non-professionals?' While keeping a focus on her research on mould issues in housing and domestic lighting in low-vision rehabilitation, Borgestrand Øien's article sets out to analyse human-environment relations and the interaction of contemporary Nordic life.

Engaging with the notion of 'Northerness', this compilation of articles reflects discussions taking place during the 2020 NAF/NAAR Symposium. It illuminates a shared interest between The Nordic Association of Architectural Research (NAF/NAAR) and the Oulu School of Architecture, University of Oulu, concerning architectural research. Based on a belief that thoughts, concepts, and the development of the same invariably require a background and a framework, this book wishes to revisit, expand, and question the canon of architectural history and historiography by raising questions about 'Northerness' in the discourse of architecture, architectural education, and architectural research. By offering this reading, NAF/NAAR wishes to bring forward new perspectives and knowledge that can contribute to developments in both research and practice.

NOTES

[1] *Nordic Journal of Architectural Research*, http://arkitekturforskning.net/na/index (all URLs accessed in July 2022).

[2] 'Our arctic agenda', University of Oulu, https://www.oulu.fi/en/our-arctic-agenda.

[3] Oulu School of Architecture, University of Oulu, https://www.oulu.fi/architecture/node/5377.

[4] See the following publications by Christian Norberg-Schulz: *Intentions in Architecture* (Cambridge, MA: The MIT Press, 1965); *Existence, Space and Architecture* (London: Praeger Publishers, 1971); *Genius Loci: Towards a Phenomenology of Architecture* (New York: Rizzoli, 1980); *The Concept of Dwelling* (New York: Rizzoli, 1985).

[5] *New Nordic: Architecture & Identity*, Louisiana Museum of Modern Art, 2012.

[6] Profile of Thordis Arrhenius, https://www.kth.se/profile/thordis?l=en.

[7] Thordis Arrhenius, 'Preservation and Protest: Counterculture and Heritage in 1970s Sweden', *Future Anterior: Journal of Historic Preservation, History Theory and Criticism* 7, no. 2 (2010).

THE BUILDING ART, THE SOCIAL ART: REFLECTIONS ON A NORDIC PUBLIC ARCHITECTURE

Peter MacKeith

ABSTRACT

Architecture in the Nordic countries characteristically reflects the fundamental values of Nordic society: the built environment must be inviting, democratic, humanized, and organized around a sense of community. This article explores the Nordic understanding of community and how that understanding is manifested in architecture and urban design.

To an outside observer, designs for culture, education, childcare, and performance seem to demonstrate the ongoing vitality of 'the modern project' across the Nordic countries. The projects presented express a general agreement in the society to provide housing, cultural amenities, healthcare, and education—public services for local communities of great quality and available to all, designed to reflect the values and ideals of an open, progressive society. The economic and environmental crises of today have not lessened the value of architecture and urban design, but have in fact intensified the need for quality in public spaces.

At the end of this article, two important and interlinked issues are raised. How should we assess a society? And how should we assess its culture? One way to seek answers is to look at how children and the elderly are provided with care, quality of life, and architecture. Culture may be expressed in how a society provides the architecture for literature, education, and well-being—public space as a social art. From this point of view, there is evidence of a Nordic sense of culture and community in the built environment.

KEYWORDS

Nordic architecture, public space, societal values, tradition, new identities

If there is one trend which can be perceived in the history of the Nordic region over the last half millennium, it is the movement away from tyranny towards a social world in which the voice, desires and efforts of the individual have increasingly played a significant role, one in which the maintenance of a prosperous, modern democratic nation has been crucial. In this development, the benefits of growing public education and literacy have been of primary importance, even during the long centuries in which the lot of the common man and woman was dominated by poverty.

Neil Kent, *The Soul of the North* (Reaktion Books, 2004), p. 370

. . . the 20th century Nordic presumption [is] that art and design—Arne Jacobsen chairs, Dansk tableware, Marimekko textiles, Alvar Aalto buildings—are integral to how people perceive and inhabit their surroundings.

Cynthia Zahn, 'Seeing Things: The Art of Olafur Eliasson', *The New Yorker*, 13 November 2006

BUILDING: A PARABLE

In the summer of 1903, the Finnish artist Akseli Gallen-Kallela painted six frescos in the central hall of the Jusélius Mausoleum in Pori, Finland, among them a powerful work entitled *Rakennus* or *Building*. 'The frescos encircling the main hall are a significant artistically consistent ensemble', the monument's guide observes. 'In this monumental work, natural cycles go hand in hand with the human cycle of life from birth to death.'[1] *Building* follows upon *Spring* and precedes *At the River of Tuonela* (the underworld), and hence the painting is composed of a significant set of symbolic settings, figures, objects, and activities. As with so many of Gallen-Kallela's works, much can be inferred from his composition, and, as with any work of great art, much can be projected upon it. But this is self-evidently a painting about the importance of building, about the importance of building well in a given, specific, challenging forested landscape—and above all, about the importance of such well-crafted building to shelter and support its inhabitants: to sustain the family depicted to be sure, but, by extension, to sustain the community and society that the family represents. That the skeletal figure of Death assists in the sustaining construction only highlights the sense of contingency and mortality that must necessarily thread throughout our frail attempts to construct a world for our inhabiting.

Building is a work of inspiration and succour, of tenderness and directness, commissioned for a specific place and purpose, but with resonances well beyond the moment of its completion and its Finnish proto-nationalist origins. The painting is an expressive demonstration of the Finnish historian Matti Klinge's assertion of a culture resonant with 'a noble poverty'.[2] The painting is also an emphatic illustration of the abiding conviction in the Nordic region that the art of building is also a social art, an art fundamentally devoted to place, people, and community. Indeed, the newborn child at the centre of the painting's compositional energies—the undeniable focal point of the construction project—may be taken as the moral centre of both Nordic society and architectural culture, presaging the later twentieth-century assertion that 'the child is the true citizen of the city'.[3]

NATIONAL ASSESSMENTS, SOCIETAL VALUES

A century later, in August 2010, *Newsweek* magazine released an online assessment of the world's nations, quantitatively scored and then ranked as a listing of 'The World's Best Nations'.[4] Accounting for factors of education, health, quality of life, economic dynamism, and political environment, the *Newsweek* survey placed four of the Nordic nations in the top ten (along with Switzerland, Luxembourg, Austria, Australia, Canada, and Japan) with the United States hovering just below at eleven. While the online interactive website allows for interesting comparisons of tabled information, there is little of qualitative, cultural character available for more in-depth consideration. Thus, the Louisiana Museum's 2013 exhibition surveying contemporary Nordic architecture attained something beyond simple illustration. Viewed through the admittedly reductive filters of the *Newsweek* survey, these examples of contemporary Nordic architecture possess more absolute values of cultural representation. For an outside observer, in particular, even a cursory review of the designs for culture, education, childcare, and performance demonstrates the ongoing vitality of 'the modern project' in all its guises across the contemporary Nordic region. The cross-section of projects amply demonstrates the societal agreement on the provision of housing, cultural amenities, healthcare and education, in particular—community buildings and spaces of great quality and available to all, within buildings and learning environments designed to reflect the values and ideals of an open, progressive society. If we now live in a time of necessary economic austerity, and increasingly limited natural resources, this new survey of Nordic architecture may yet reveal two things. Firstly that, significantly, the economic and environmental crises have not lessened the value of architecture within the

society, but rather in fact intensified it. And, secondly, that the societal values themselves have not been diminished by the economic pressures, but have been intensified as well.

ON THE WATERFRONTS

Indeed, Nordic architecture at present can be said to be undergoing a 'renaissance' of public design both across the region and across all aspects, from urban design to furniture design, with buildings for culture, education, and community in the foreground. The waterfronts of the Nordic capitals, in particular, are emblematic of the vitality and effectiveness of these new cultural energies. Helsinki, World Design Capital 2012, contemplates new visions for its South Harbour, including a Guggenheim Museum Helsinki, as well as new bridges, a city central library, and a new Aalto University campus to add to its just-opened Helsinki Music Centre. Stockholm, European Green Capital 2010, is now understood as an intense locus of sustainable urban design activity, with weekly visits by international urban planners to Hammarby Sjöstad and the Stockholm Royal Seaport; the competition to re-conceive Slussen, the city's historical waterfront locus, has intensified public debate on the character of the city. Oslo's harbourscape and waterfront life in Bjørvika have been altered dramatically by the inauguration of the Oslo Opera House—and the evolving development of the BARCODE master plan, along with several other planned areas; the Munch Museum, a new National Library, and a transformed Central Railway Station are soon to come. Reykjavik now boasts a new concert hall and conference centre, Harpa, whose glass-faceted sculptural form draws upon the surrounding geography. Lastly, Copenhagen's pre-eminence as the city of contemporary urban design practice—'the liveable city', to use renowned Danish urban designer Jan Gehl's phrase—is nowhere more visible than in its revitalized harbourfront, south to north, punctuated by new housing, new cultural landmarks—the Royal Library, National Theatre, and Opera House—and new pedestrian, cycling, and swimming amenities.[5] For inhabitant and visitor alike, this comprehensive reimagining, revitalizing, and repopulating of the region's capital cities possesses a clear density and presence and suggests that the entire Nordic region is fully alive, in contemporary architectural, community, and cultural terms.

'FORMS WHICH INVITE': A TRADITION OF NORDIC PUBLIC ARCHITECTURE

Of course, the last century (not Neil Kent's last half millennium!) of Nordic

architectural production and assessment contains sufficient proof that this commitment to public architecture has been a consistent focal point, if not one sufficiently emphasized or assessed. From Thomas Paulsson's 1959 landmark survey, *Scandinavian Architecture*, to Nils-Ole Lund's 1991 (and recently reprinted) *Nordic Architecture* and Marianne C. Donnelly's 1992 *Architecture in the Scandinavian Countries*, to Henry Plummer's just published *Nordic Light: Modern Scandinavian Architecture*, Nordic architecture has its own histories of evaluation.[6] But beyond the employment of chronologies and typologies, and the appreciation of phenomenal qualities, the evaluative tools of these publications have been less explicit on the character of Nordic architecture as public architecture—as architecture emerging from, and reflecting, the character of the society and community in which it exists. Christian Norberg-Schulz's admirable 1997 *Nightlands: Nordic Building*, for example, deftly and in great detail examines Nordic architecture as 'a manifestation of the environment in which it is placed'. The categories pursued throughout the book—'the natural', 'the universal', 'the regional', 'the national', 'the international'—revolve around the central emphasis of geography, climate, and light.[7]

But Norberg-Schulz's lifelong explication of these themes surely has an appropriate parallel counter-form: architecture as the manifestation of the society which it shelters. This 'public' or 'community' approach has been implicit for many observers: that is to say, available all along through the canonical examples used to punctuate these self-same histories of Nordic architecture. But the defining architectural qualities of such a public architecture have been less well identified, even as the world has given great value to the Nordic welfare state. In this as yet unwritten history, there is strong evidence that the Nordic emphases on cultural identity (beyond the affections of style), on societal optimism, and on the welfare-state commitment to community generosity and care (to name but a few characteristics of public and community value) are visible and palpable in the tradition of Nordic public building. A century ago, Erik Gunnar Asplund described Hakon Ahlberg and Sigurd Lewerentz's designs for the Gothenburg exhibition as 'forms which do not threaten, but invite'.[8] Asplund's observation resounds down the decades: the entire modern tradition of Nordic architecture could be characterized by the intention to provide society with 'forms which . . . invite'. That simple phrase frames an understanding of the public qualities of Asplund's own Stockholm Public Library and Gothenburg Law Courts; of Jacobsen's Arhus Town Hall and Aalto's Saynatsalo Civic Centre; of Lewerentz's sublime landscape at the

Woodland Cemetery or the interior of his St. Peter's Church at Klippan; of the interwoven landscape and museum galleries at the Louisiana Museum; of the open structure of Sverre Fehn's light-filled Nordic Pavilion and Kaija and Heikki Siren's quiet Student Chapel in Otaniemi; or more recently, in the details of Studio Granda's Icelandic Law Courts or Juhani Pallasmaa's SIIDA Sami Museum in Inari.

'THE HUMAN FACTOR': A PARABLE

In 1958, soon after the completion of his designs for the National Pensions Institute building in the centre of Helsinki, the Finnish architect Alvar Aalto arranged for the building and its interiors to be photographed by the talented Heikki Havas. At the time, the KELA building (the Finnish acronym for the National Pensions Institute) was both national administrative headquarters *and* the primary point of direct citizen services for the dispensation of state welfare benefits. Aalto's design necessarily sought to represent the Finnish welfare state both in its most bureaucratic and in its most intimate aspects. Havas, known for his thoughtful compositions of form and light, produced a set of fine black-and-white images. However, as with so much architectural photography, the images were of the architecture only, and devoid of people and human activity—except for one quietly dramatic photograph.

In this image, since published numerous times, the photographer observes from above a KELA service representative in direct, face-to-face, discussion with an older citizen, a simply but carefully dressed woman. Framed by the rounded corners of an elegantly detailed semi-private enclosure of wood, glass and brass, the two are reviewing accounts and terms of benefits together, in close proximity, in intimate confidence. This was the nascent welfare state at its most compelling moment, and so too was this a manifesto of Aalto's design ideals on full display. The then sixty-year-old architect had spoken for his entire career of his democratic concern for 'the little man' and 'the human factor' in architecture; in the KELA interiors, this most intimately-scaled and finely constructed architectural place of encounter serves to humanize the bureaucratic moment, soften the technological apparatus, and encourage a sense of mutual trust, confidence, and integrity.[9]

CONTEMPORANEITY

What is the Nordic nations' sense of contemporary community, and how is it expressed in architectural terms? Is architecture fairly representing the growing (and in most cases, now established) ethnic and religious diversity of

the populations? Is architecture representing and addressing the developing economic and sociological strains of an aging population, or the actual challenges of economic and environmental limits? Is architecture capable of such representations, or of alleviating these societal tensions—or of even addressing them at any level? Certain default settings of a normative 'modernism' have long been associated with the Nordic architectural identity—abstraction and restraint in formal language, for instance, environmental responsiveness and a sensitivity to site, transparency and an alertness to natural light, a humanized technology and a wise employment of materials and techniques. Are these architectural means capable of expressing this complex contemporary character?

With their quiet strengths and resonant evocativeness, the architectural exemplars of the twentieth century mentioned above form a powerful body of work by which to comprehend a Nordic tradition of public building. The contemporary shift from precedent-based to performance-based design has not precluded continuing and contemporary emphasis on a rich public architecture, attuned to emergent societal values and diverse community ambitions. Drawing upon these long decades of socially attentive and responsible design, the exhibition makes manifest this Nordic preoccupation, in contemporary terms and examples. If nothing else—and it is already quite a lot—Nordic architecture's contemporary devotion to education, health and wellness, cultural performance, display and engagement, and the care of children, is a comprehensive demonstration of the vital sense of community.

At the same time, there are deeper structural reasons for this continuing architectural vitality and commitment to the public good, social justice, and environmental responsibility. Architectural education in the Nordic countries continues to emphasize 'the public building' as a specific field of design and a specific typology, with professorial appointments and required demonstrations of such approaches in studio design. Professional associations of architects in each nation are deeply engaged with the educational standards, and offer strong voices in determining policies on sustainable design, construction standards, and responsible professional ethics. Each Nordic nation possesses a strong, energetic museum or centre for architecture, along with comparable institutions for design, presenting well-organized exhibitions, symposia, lectures and publications to professionals, citizens, and visitors.

Importantly, public architecture commissions continue to rely on a century-old public competition system as a means to identify not only the best designs but also younger or new talents, and to further maintain a sense of ethical and fiscal responsibility to the larger society. While it is true that this competition system is being eroded by commercial and corporate pressures—leading to limited competition pools or tender-based selection processes—it remains the envy of the world and continues to result in productive results for the greater good; the recently completed Helsinki City Library competition received an astounding 534 entries! Further, over and above their historical commitments to individual and collective welfare, each Nordic nation has adopted legislation and national policy statements addressing environmental responsibility, and in some cases, policies in support of architecture and design as critical to societal well-being and national identity. Within and around these legislative priorities, a broad range of government, academic, and private agencies, institutions and foundations now exist to support and further architecture's broader societal mission. Across the Nordic nations, government support funds research efforts in materials and construction techniques. In Denmark, the REALDANIA Foundation pursues a research, design and outreach agenda devoted to improvement of the Danish built environment—the only significant foundation so committed in the world, while in Finland, SITRA, the Finnish Innovation Fund, as well as the newly inaugurated Aalto University (an energetically developing re-combinatory approach to university education in art, design, architecture, technology, and business) now seek sustainable, design-intensive solutions to problems of energy, communications, housing, and construction. In Sweden, the Stockholm Resilience Centre, a consortium of academic and government enterprises, addresses strategic questions of land-use, urban design, and ecological systems.

NEW COMMUNITIES, NEW IDENTITIES, NEW PUBLIC ARCHITECTURE

The twentieth-century history of Nordic architecture is, by and large, a history of individual (and commonly male) author-architects: think of Korsmo and Fehn, Asplund and Lewerentz, Aalto and Pietila, Jacobsen and Utzon, to name but a few national representatives popularly identified (almost to the point of simplification and saturation). The twenty-first century will no doubt produce its own individuals, recognized for their singular talent, energy, and stamina. But the practice of architecture, while always collaborative, is increasingly involving diverse, team-based and multidisciplinary design—

and these aspects have their consequences in the conception and construction of the public and community realms. Contemporary Nordic architecture now develops under these changed conditions: there is greater diversity in the student and professional ranks, and there are more and more team-based practices, applying more fully multidisciplinary approaches.

Even with those optimally altered characteristics, is the architectural DNA of the Nordic architect still consistently that of the public, socially responsible designer? Are the historical Nordic public and community values identified earlier—cultural identity, societal optimism, community generosity, and care—still perceptible in architectural terms in contemporary modes of practice, construction, and habitation?

The breadth and quality of architectural productivity presented in this exhibition at the Louisina Museum of Modern Art suggests that much of this fundamental Nordic architectural DNA remains intact—both the strands responsive to the geographical particularities of the Nordic latitudes *and* those that respond to the society in which the architecture is situated. A close examination of a cross-section of public building types (those for education, childcare, healthcare, research, community gathering, cultural performance, and cultural identity) produces an intense understanding of a continuing succession of 'forms that invite', and designs still attuned to 'the human factor', sensitive to the needs and perceptions of both children and the aged, to both the everyday and the extraordinary ambitions of all citizens. Furthermore, these projects, and those across the exhibition, all work with a deliberate economy of means to produce a maximum of meaning—recognizing the possible scarcity, but certain value, of all resources, both natural and human. The architecture suggests that it is our responsibility to design and live with this twin sense of economic and environmental accountability.

These would be generic words and assessments, but for the visibly intense inhabitation and lived experience of these buildings and sites by observers, and the thorough engagement with the public life that distinguishes their quality and character. Witness the daily promenades of citizens and visitors alike across the roofs of Snohetta's Oslo Opera House, or the shoreline terraces of BO 1 in Malmo, or the boardwalks of the Lundgaard and Tranberg's new National Theatre in Copenhagen. Witness the joyful diving, swimming and sunning occurring daily at the public swimming pools by PLOT and White Architects (and soon others!) on the Copenhagen harbour and shore-

lines. Witness the throngs of visitors to JDS's gravity-defying Holmenkollen Ski-Jumping Centre above Oslo—in any season, in any weather, at any time of day—and then feel the accelerated thrill of the packed crowd and the jumper during the BO 1 event itself.

And these would still be generic words and assessments were it not also for the compelling statistical evidence of both near-comprehensive literacy and the overall excellence of secondary education in the Nordic countries; societies that are so devoted to these fundamentals of citizenship engender an equivalent quality of libraries and schools design. Witness Helen and Hard's supple, supportive Vennesla Library, warmly modulated by laminated wood structural elements, or the energetic spatial choreography, detailed building enclosures, and generous interior spaces at 3XN's Orestad High School, Lahdelma & Mahlamaki's Joensuu Primary School, and K2S's Sipoo School. Just as fundamentally, Nordic societies provide an admirable and continuous attention to childcare facilities—from day care to kindergartens—all in close proximity to either home or workplace, all well-scaled and light-filled, and all either surrounded with playgrounds or surrounding courtyards for play and quiet. Witness in this exhibition at the designs of Auer and Sandas for the Tuomarila Daycare Centre, or Tham and Videgard's work at the Tellus Kindergarten, to name but a few.

Furthermore, there is an archipelago of places designed for cultural memory and spiritual reflection, for cultural activity, neighbourhood reinvigoration, regional or ethnic governance—and world survival. There is a thread of new museums and churches is woven through each of the Nordic nations, from Snohetta's Petter Dass Museum, cleaving a granite ridge in the high Norwegian latitudes to Tham and Videgard's Kalmar Museum in the medieval town on the Baltic at Sweden's south-east corner, from Lassila Hirsimaki's shingled Karsimaki and Kuokkala parish churches in central Finland to Jensen and Skodvin's stone-walled Mortensrud Church outside Oslo. In the urban neighbourhoods of Copenhagen, new public designs for cultural activity and community gathering are layered into existing historic and social contexts; witness Cobe's metal-sheathed NV Culture House in the multi-ethnic Nordvest neighbourhood, and Dorthe Mandrup's translucent Prismen Culture and Sports Centre, joining together four housing blocks. And finally, as far north and as far into the landscape as it is possible to venture, this ethos of a Nordic public architecture is still to be found: in Halvorsen and Sundby's Sami Parliament building in Norwegian Lapland, in Arkis's Vatnajökull Glacier

Visitor's Centre, in Jarmund and Vigsnaes's Svalbard Research Centre—and in an ultimate display of generosity and care, there at the northernmost edge of the Nordic region, in Bardlinghaug's Global Seed Vault.

OPEN QUESTIONS, CONTINUING VALUES

In 1990, two years ahead of the declaration of the European Union, but now a generation ago, the writer Hans Magnus Enzensberger published *Europe, Europe*, a series of continental fables, present and future. The book 'contains an interview set in 2006 with Erkki Rintala, a fictitious Finnish ex-president of the European Community. The EC has come to an end, Rintala explains, through a realization that Europe, in the mathematical language of chaos theory, is a fractal object; it is impossible even to make precise measurements of the length of the Finnish coast. When it comes to matters such as income distribution, electoral behaviour, education, measurement is still more difficult; planning, impossible. At the end of their conversation, Rintala shows his interviewer a gleaming 1950s Jaguar he has lovingly restored. He keeps it, in immaculate condition, in its garage. "Beautiful but useless," he says, "a souvenir of Modernism.'"[10]

The American historian John Lukacs, also writing in 1990, observed that contrary to the hopes of the early modernists of this century, the lasting 'ism' of our era is nationalism, the remaining determining force in shaping external political arrangements and internal culture. His critique at that time of the coming European Union political arrangements implied questions still relevant now: Can the increased possession and consumption of material goods and a continuous desire for material growth and development—now, as then, utterly front and centre—can these be the basis of a community, of a purposeful, shared ideal? Lukacs implied that it will not, and intimated that in the face of such economic pressures and ambitions, the key to sustaining cultural integrity is collective self-knowledge, the ability to clearly perceive the reality of one's own cultural image.[11]

This exhibition in Denmark forms one set of positive and powerful responses to Enzensberger and Lukacs's concerns of a generation ago. My premise here—in assessing an ongoing tradition of Nordic public building, and of a Nordic cultural community—my premise is that this new generation of Nordic architecture at its best reflects ambitions beyond the planned quantifications of needs and embodies desires deeper than the demonstrations of consumer culture. The reflection is, at least, a longing for an ideal ethical

dimension, an authentic attitude of how to live, animating both individual and society. Each of the buildings touched on in this essay, and each of those brought forward by this exhibition, posits such an existential, engaged utopian vision of community. The architecture, and thus the community—from the children to the elderly—is bound together by a shared ethos, one proposing meaningful, purposeful, intimate, ethical interaction between citizens. The moment such a utopian vision can no longer be proposed for a society, then the making of an authentic architecture becomes impossible.

How should we assess a society? Perhaps best by a society's care for its children, for its elderly, for the less advantaged, by its equitable provision of a full quality of life to all—and thus, ultimately, by its architecture, by its social art. How should we assess its culture? Perhaps best by a culture's cultivation of literacy, education, and physical and mental well-being—and thus, ultimately, by its architecture, by its social art. Such is the importance of the Nordic architect's sense of social responsibility, such is the continuing value of a Nordic architecture, and such is the evidence of a Nordic sense of culture and community.

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NOTES

[1] Descriptions and interpretations of the fresco cycle can be found at The City of Helsinki / Ateneum National Museum of Art website: https://ateneum.fi/en/our-collection/.

[2] Matti Klinge, 'The North, Nature and Poverty', in *Let Us Be Finns: Essays on History* (Helsinki: Otava Publishing Company, 1990), pp. 7–20.

[3] I am indebted to Professor Robert McCarter of Washington University in St. Louis, Missouri, for this conceptualization of urban thought, derived from the Dutch architect Aldo van Eyck's lifelong proposals. Van Eyck's positioning of the child at the centre of the city took form, for instance, in his *The Child, the City and the Artist: An Essay on Architecture: the In-between Realm*, edited by Vincent Ligtelijn and Francis Strauven (Amsterdam: SUN Publishers, 2008).

[4] See Rana Foroohar, 'The Best Countries in the World', *Newsweek*, August 16, 2010, http://www.newsweek.com/2010/08/16/best-countries-in-the-world.html. *Newsweek*'s profile has been a source of repeated commentary for me; portions of this section were previously published in 'The Educational Moment', in *Global Danish Architecture #5: 30 New Projects*, edited by Marianne Ibler (Copenhagen: ARCHIPRESS Publishing, 2010), pp. 9–11.

[5] Professor Gehl's thought and teaching now influence the urban built environment through the work of Gehl Urban Quality Consultants; for the fundamental concepts of 'the livable city', see, for instance, Jan Gehl, *New City Life* (Copenhagen: The Danish Architectural Press, 2006).

[6] Thomas Paulsson, *Scandinavian Architecture*: *Buildings and Society in Denmark, Finland, Norway, and Sweden, from the Iron Age until Today* (Newton, MA: C. T. Bradford and Co, 1959); Nils-Ole Lund, *Nordic Architecture*, edited by Marianne Amundsen, translated by James Manley (Copenhagen: The Danish Architectural Press, 2008); Marian C. Donnelly, *Architecture in the Scandinavian Countries* (Cambridge, MA: The MIT Press, 1991); Henry Plummer, *Nordic Light: Modern Scandinavian Architecture* (London: Thames & Hudson, 2012).

[7] Christian Norberg-Schulz, *Nightlands: Nordic Building* (Cambridge, MA: The MIT Press, 1996).

[8] As quoted in Colin St. John Wilson's essay 'Gunnar Asplund and the dilemma of Classicism', *Architectural Reflections: Studies in the Philosophy and Practice of Architecture* (Oxford and London: Butterworth Architecture, 1992), p. 141.

[9] See, for instance, Göran Schildt, *Alvar Aalto: The Mature Years* (New York: Rizzoli International Publishers, 1991). The Finnish title of this third volume in Schildt's biography of Aalto is *Inhimillinen Tekijä* (The Human [or Humane] Maker).

[10] Hans Magnus Enzensberger, *Europe, Europe: Forays into a Continent* (New York: Pantheon Books, 1990). As quoted in Hildi Hawkins, 'Souvenir of Modernism', in *Books from Finland 3/90* (Helsinki: The Finnish Literature Society, 1990), pp. 191–92.

[11] John Lukacs, 'The Stirrings of History', *Harper's Magazine*, August, 1990, pp. 41–48.

THE WELFARE STATE, COUNTERCULTURE, AND HERITAGE

Thordis Arrhenius

ABSTRACT

Large-scale planning, urbanization, and an extensive public housing programme constituted the core of an ambitious modernization programme in post-war Sweden. The formation of a novel critique against this approach, and its effect on preservation discourse in the early 1970s, is the topic of this article. The countercultural activist group Alternativ stad is taken as the primary case, namely the actors behind the famous protest to save a cluster of elm trees in a centrally situated park in Stockholm, the so-called *Almbråket*, or 'Elm fight'. The article reflects on the role of the past in the rejection and turning away from the welfare state's promise of progress and modernity. Intriguingly, the protection of a former royal park in the core of Stockholm was identified not with conservatism but with radicalism, environmental activism, and the rejection of the political status quo. In conclusion, the article asserts that the arguments and discussions that emerged out of the counterculture around Almbråket overturned an existing set of paradigms about the past and the present. It destabilized a mature set of attitudes around the role of conservation and preservation, creating space for a particular emergence of postmodernist thought and action in Sweden during the 1980s.

KEYWORDS

Counterculture, environmental activism, urban heritage, preservation

‘Aha . . . those trees of course, yes they’re in the way. And they’re not indigenous, anyone can see that!’

— *Almbladet* 1 (1971)

If so called democratic decisions bring out not only students but pensioners and middle-aged housewives in raging protest, there is something wrong with the decisions.

— *The Guardian* (Manchester), 14 May 1971

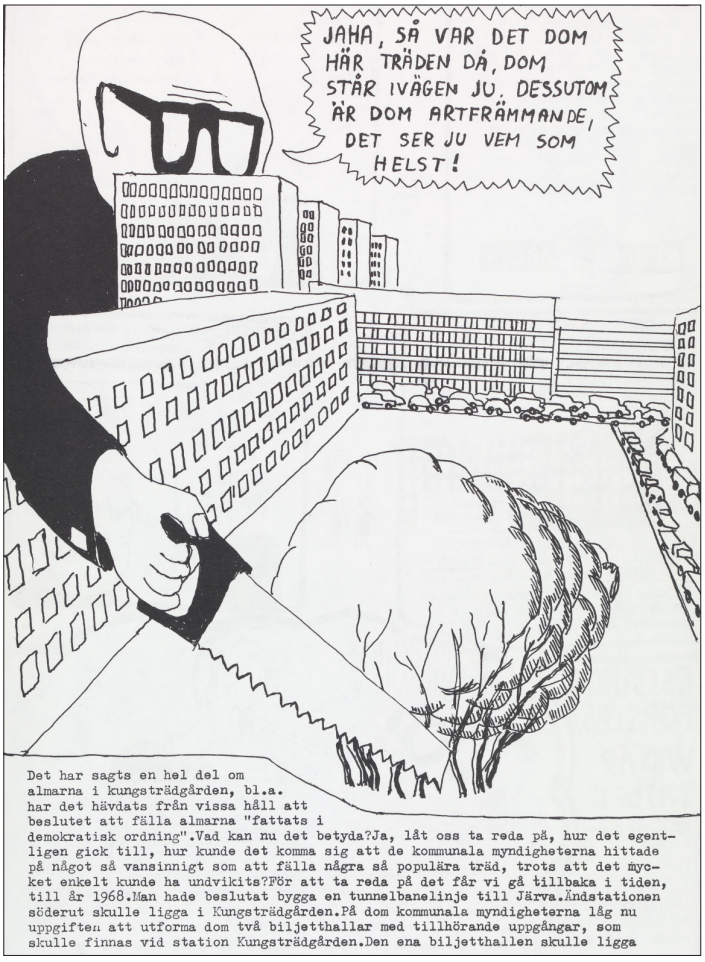

Figure 1. Almbladet 1 (1972). Comic strip. The caption reads ‘Aha . . . those trees of course, yes they’re in the way. And they’re not indigenous, anyone can see that!’ Photographic reproduction of the original magazine by Esbjörn Eriksson, National Library of Sweden. Courtesy: Alternativ Stad.

On the night of 12 May 1971, workmen armed with chainsaws arrived at Kungsträdgården, the formal park at the center of Stockholm. Their mission was to remove a group of elm trees growing on the site of a planned subway entrance and shopping galleria. The timing, at 2 a.m., was chosen to outmaneuver protesters, who for several weeks had camped on the site in a final attempt to stop the trees being felled. Negotiations with official planning authorities had failed, and despite condemnation from a wide group, the city was determined to carry out the unpopular plan. On the night in question, however, thousands of people quickly gathered and the protest turned violent. Mounted police were attacked and protesters forcefully removed. As the chainsaws set to work, protesters broke down the surrounding fences and climbed up into the elms to rousing songs from the crowd, even as the workmen continued to attack the tree trunks at their base. Finally, fearing loss of life, the police stopped the work and the operation had to be abandoned. The following day the site had turned into a festival, gathering thousands more Stockholmers. The victory was celebrated with songs, music, and speeches performed on an improvised stage constructed out of the destroyed fence.

Figure 2. Almbråket, Kungsträdgården, Stockholm, night of 11 May 1972. Police attack the protesters. Photo: Sven-Erik Sjöberg. Courtesy: SCANPIX SWEDEN.

Intensively covered by the media, this—in one sense local—preservation conflict over the salvation of a group of elm trees became a national issue, with political effects for Sweden far beyond the formal park of Kungsträdgården. The violent conflict between the police and protesters was broadcast internationally; it has been claimed that over 200 million people saw the event on television. Shocked by the police violence and perplexed by the ardent resistance shown by protesters, international newspaper commentators began to ask why such demonstrations emerged in a society as equal, open, and apparently democratic as that of Sweden. In the international media, a new and unfamiliar image appeared that contrasted with the contemporary idea of Sweden as a well-organized modern welfare state inhabited by citizens pleased with the comforts of modern life.[1]

Almbråket, the 'Elm fight', as the protest in Stockholm came to be known, revealed a shocking and—to the political establishment of the city planning office—inexplicable discontent with the society delivered by the welfare state. Large-scale planning, urbanization, and an extensive social housing program constituted the core of an ambitious modernization program in post-war Sweden under Social Democratic rule, culminating in *miljonprogrammet*, a social housing initiative that provided one million new homes over ten years. The formation of a critique of this modernization program in the early 1970s, and its effect on preservation discourse, is an issue that has not been sufficiently studied. As will be emphasized in this article, the past, in the form of built heritage and historical context, would play a significant role as an example to set against the modern in this emerging criticism of the welfare state. Intriguingly, the past was identified here not with conservatism but with radicalism, environmental activism, and the rejection of the political status quo. The arguments and discussions that emerged out of the counterculture around Almbråket overturned an existing paradigm about the relation of the past to the present. Almbråket destabilized a mature set of attitudes around the role of conservation and preservation and created space for the emergence of postmodern thoughts and actions in Sweden during the 1980s.

Figure 3. Almbråket, Kungsträdgården, Stockholm, 12 May 1972. Stockholmers of all ages gather in support of the protest. Alternative Stad organizes the protest with the collection of names and an improvised panel to debate the issue. Photo: Mats Lindfors. Courtesy: Stockholms Stadsmuseum.

ACTIVISM

In the historiography of preservation, Almbråket has constituted a particular turning point for heritage action, institutions, and discourse in Sweden. As a relatively early example of the impact of grassroots movements and mass media, it highlights certain themes that were to become significant for preservation through the subsequent forty years. Almbråket and the subsequent activism it engendered led to a re-evaluation of the city and its historical context, but perhaps most importantly it caused a shift toward thinking of preservation as an integrated part of societal development.[2]

Almbråket was initiated and led by the activist group Alternativ Stad (Alternative City), an amalgam of different activist groups engaged in local urban politics.[3] Although linked at the outset to pressure groups with clear conservationist strategies, Rädda Stockholm (Save Stockholm) and Stadsmiljögruppen (The City Environment Group), Alternativ Stad considered themselves radical, a position that they underlined by switching to the 'alternative'

Figure 4. Street view from central Stockholm before modernization. Photo: Lennart af Pedersen. Courtesy: Stockholms Stadsmuseum.

name.[4] Rejecting technological solutions and emphasizing the local and specific versus the utopian and programmatic, the group undermined the foundations of a long-standing division between left- and right-wing politics in Sweden.

With emerging environmental issues on their agenda, Alternativ Stad questioned the dominance of the car and the increasing commercialization of the city center. Above all, the group's protest against removing a group of trees was a critique—or even a test case—against the hermetic power structures in the city planning office in Stockholm at a time when the lack of user participation in urban planning was brought to the forefront.

Although not a target in itself, the preservation of the urban context and of urban life as an alternative to consumer culture and high living standards was to become the issue that resonated most strongly and made the group's activism relevant to the larger political scene. This stood in sharp contrast with the total ignorance shown by the city authorities, which were provocatively disinterested and disconnected from common opinion at the time.[5] The action of saving the trees redirected a key building project in the modernization of the city and precipitated a growing concern with the urban context, in which local engagement and environmental issues became linked to the issue of preservation.

SANITATION OF THE CITY

The specific background to Almbråket was the radical modernization of Stockholm's inner city that was carried out in the post-war years, culminating with the planning proposal published as *City 67*.[6] Articulated in terms of slum clearance (*sanering*), the plan proposed a radical expansion of the already extensive demolitions in the central city articulated in earlier modernization plans dating back to 1946. These plans called for removal of virtually the entire Renaissance city center and a significant part of the eighteenth- and nineteenth-century buildings surrounding it.

The focal point around which a protest movement against the modernization project began to grow was a controversial exhibition. In order to inform the public about *City 67*, a group of architecture and arts students was invited by the city government to collaborate on the public presentation of the plan. When the resulting proposition included critical comments, the city planning office decided to withdraw their economic support for the initiative and

canceled a planned promotional exhibition. Spurred by this censorship, the students arranged a series of protest meetings under the openly inflammatory name Rädda Stockholm to express their critiques and to publicly debate the consequences of *City 67*. The meetings drew large crowds and provided a platform for activism that later led to the formation of Alternativ Stad.[7]

Stockholm's modernization was one of the most ambitious and costly urban projects in post-war Europe. Compared to most capital cities, Stockholm's core had not been affected in any extensive sense by industrialization. During the nineteenth and twentieth centuries the city had continued to grow and expand without any larger reconfigurations of the eighteenth-century urban pattern. The few exceptions—for example, the cutting of the new boulevard Kungsgatan in 1911—are notable for their singularity rather than as a pattern.

Figure 5. Sergelstorg, the new city centre. Photo: Lennart af Pedersen. Courtesy: Stockholms Stadsmuseum.

In the early post-war years, Stockholm's historical city center, untouched by the war, was a rich juxtaposition of buildings of various scales and time periods, and the city maintained its Renaissance street pattern. Even though the population in the inner city steadily declined in the post-war years, the area was still characterized by a mix of housing, commercial property, smaller craft industries, and specialist shops. This would be radically altered with the new urban plans that extensively replaced housing with offices and commercial units of larger scale. When the modernization project was concluded in the late 1970s, Stockholm's center had been emptied nearly entirely of dwellings and small industries. With the exception of a new cultural complex, Kulturhuset (1971–74) by the architect Peter Celsing (1920–1974), the city core was dominated by large-scale commerce.[8]

Figure 6. The modernization of Stockholm: demolition and removal of steep graded streets around Hamngatan, Stockholm. Photo: Lennart af Pedersen. Courtesy: Stockholms Stadsmuseum.

Although *City 67* was never carried out in full, an extensive part of the building stock in the area the plan covered was torn down, and the pattern of plot division was changed to create development sites producing new large-scale city blocks. These new building plots were created by the city through an elaborate system of expropriation and trading with leases, predicated on the belief in a constant increase in land value. Contributing to this total reconfiguration of the city core was also the construction of new infrastructure. An extensive subway system and a new underground motorway for cars and the delivery of goods were created, involving a radical recontouring of the city and the creation of a multilayered commercial and public space above and below ground. The alteration of the topography of the inner city included—in addition to the demolition of the urban context—the removal of the natural ridge running from north to south that had previously dominated the city's landscape. Narrow, steep streets were replaced with wide avenues providing easy access to car-bound traffic.[9]

RUINATION

An unforeseen aspect of the modernization of the city was the slowness and sluggishness of such a large-scale operation, and, crucially, the effect that this would have on the public reception of the project. For more than two decades Stockholm's center was an enormous excavation site. From temporary overpasses pedestrians peered down into the underworld out of which the new center of Stockholm would—one day—arise. The author of this article shares with the rest of the Swedish 1960s baby boom generation the memory of the city center as a big empty pit, of dusty wind blowing over piles of gravel. The complexity involved in the expropriation of buildings in exchange for new sites, along with the necessary excavation for the subway, meant that reconfigured building plots were left unbuilt, even as more buildings were torn down around them in order to facilitate land deals. At the same time, there was a lack of information about what the demolished buildings should be replaced with. The operation was characterized by opacity both in the political process and in the intentions of the various private actors involved. This led to increasingly strong criticism of the operation from the public and opened up the question of the role of participation and transparency in the planning process, two issues that were emphasized in Rädda Stockholm's criticism of *City 67*.[10] But there were also other aspects to this critique: the demolition of historical buildings and structures jarred with an increasing awareness of the limits of environmental resources.[11] Alternativ Stad would

become one of the leading groups in the green movement (Gröna vågen, literally, Green Wave).

As the economic climate in Sweden hardened at the end of the 1960s, and after decades of uninterrupted growth on an unprecedented scale, the need for such an extensive and expensive modernization of the city became harder for the city authorities to justify and, crucially, to finance. The vibrant commercial center promised in the plans did not materialize, and despite sustained efforts from the city government, the demand for big building plots from large corporations diminished; they continued to establish themselves on the outskirts of the city. However, while it became increasingly difficult to fill commercial offices during the 1970s, the demolition of buildings in the center actually intensified in order to fulfill the decisions made in the city plans from the 1960s.[12]

Figure 7. The modernization of Stockholm: demolition and excavation for the new multilayer city centre, Stockholm. Photo: Lennart af Pedersen. Courtesy: Stockholms Stadsmuseum.

The press started to question whether the pits would ever be filled and speculated wildly that the city would become a permanently empty plot, ending economic pressure on and financial interest in the center altogether. The utopian project of a new high-rise commercial center was replaced in the media with dystopian images of destruction; the modernization project began to be associated with ruination, both literally and financially.[13]

This pairing of destruction with a wasteful modernity that exploited resources is evident in the rhetoric of Alternativ Stad. Following Almbråket, the group produced their own magazine, *Almbladet* (*bladet* means leaf, in the sense of elm leaf or flyleaf in a book, and the title is a play on the name of the main Stockholm evening paper, *Aftonbladet*), which mixed humor and comic strips with information and argumentation.[14] Created as an interactive experience for its readers, encouraging them as coauthors to copy and reproduce the magazine and to add comments and contributions in the form of reediting folds and clips, *Almbladet* put forward an antimodern rhetoric that relied on a low-tech anti-aesthetic. Overall, in *Almbladet*, modernity was projected not as a future but as an 'end', where resources were consumed by endlessly expanding cities.[15] Images from the new suburbs of Stockholm underlined the monotony and repetition of the new industrialized architecture; these were juxtaposed in full-page spreads with images of bulldozers tearing down Stockholm's inner city, cementing the relation between destruction and modernization. The negative results of Stockholm's modernization were encapsulated in headlines such as 'demolition', 'slum', 'bad health', 'terror environments', 'isolation', 'social problems', and 'alienation' with images including that of an old house left to decay while awaiting demolition, and, finally, to underline another negative outcome of modernity, a security surveillance camera.[16]

Indeed, altogether, *Almbladet* presented the modern city as disorienting, repetitive, anonymous, and associated with loneliness, destruction, and ruin. Indicative of this pairing of ruin and modernity is the front cover from the final of the four issues, featuring a photograph of a gravel wasteland from behind which the new skyscrapers of the city rise in isolation.[17]

In this rhetoric, the historical city was embraced not for its historical value—indeed, it is not valued at all for its own sake exactly—but as a guarantor for values of variation, individuality, specificity, and difference. Such qualities, Alternativ Stad would argue, were threatened by modernist planning poli-

cy and strategies. The campaigns for saving the city and, subsequently, the countryside from exploitation and modernization were driven by a critique of large-scale planning that broke down communities and prevented alternative ways of life.[18]

In this counterculture, the welfare state's demand for conformity to a norm, worked out by state experts to serve a standard family, became a negative image derided as the trap of a modern life reduced to sleeping, working, and shopping.[19] The historical city in Stockholm, at this time, provided alternatives to the normative forces of the welfare state. The radical but extremely slow process of lease trade and progressive demolition, as well as the prospect of imminent demolition, created a run-down part of the city with accordingly low rents right at its center. Although on one level this could be criticized as a problematic result of the process of modernization, it also carried a certain

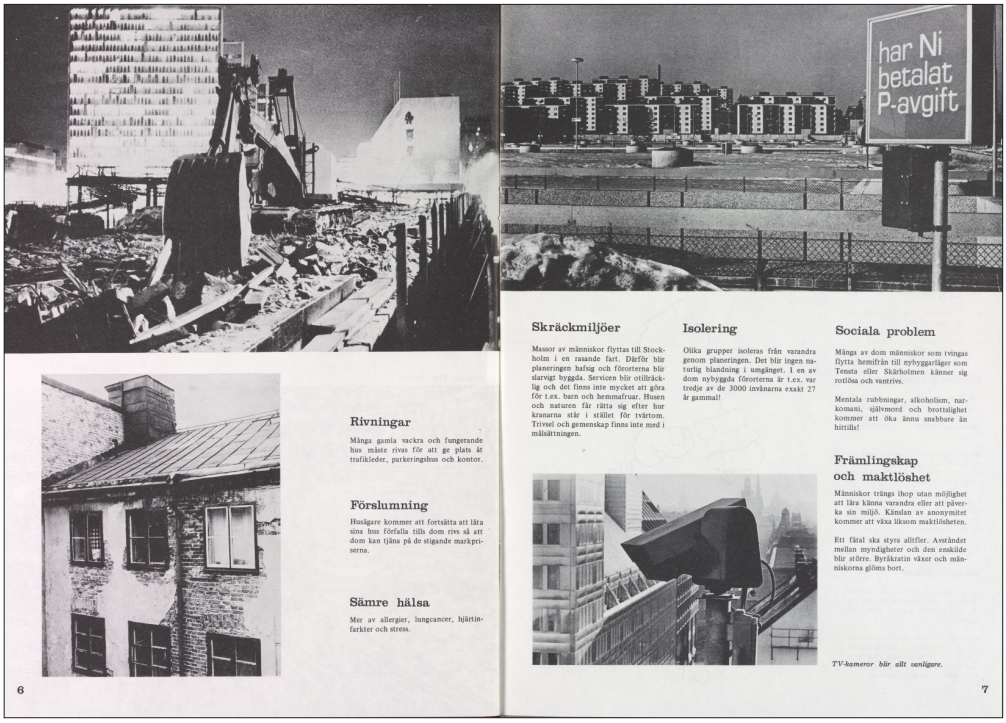

Figure 8. Almbladet 2 (1971–72), pp. 6–7. Double spread showing the negative effects of Stockholm's modernization. Photographic reproduction of the original magazine by Esbjörn Eriksson, National Library of Sweden. Courtesy: Alternativ Stad.

attraction and nostalgia. The outdated and unmodernized was a potential asset, a place that could provide an alternative to the normative housing and economic pressures produced by the consumption-based welfare state. This led to a reevaluation of what the past might mean in Swedish culture and to question how heritage should be thought of in terms of objects, environments, and the everyday.

FROM OBJECT TO ENVIRONMENT

The particular set of circumstances produced by modernization in Stockholm opened a new question about preservation's purpose. With its strong relation to museums and academia, the institutional tradition of preservation in Sweden at this time was essentially antithetical to the maintenance of the historical within the functional everyday.[20] Preservation discourse tended to take as its point of departure the role of preserving and separating the past as past from the present—the new. The preservation authorities' antiquarian position is reflected in assessments of the historical city fabric produced for Stockholm's various development plans from 1946 onward. For example, the *1962 års Cityplan*, the precursor to *City 67*, assessed the history of the city clearly in a long analysis pointing out Stockholm's historical significance and development. But crucially, it also argued for modernization as the natural continuation of a historical evolution in which the old is replaced by the new.[21] The instances in which this rule was to be suspended were relatively few. The *1962 års Cityplan* defined a list of culturally valuable structures that should be preserved and insulated from this tide of everyday evolution: sixty-eight historical structures were identified within a planning zone that covered 685 demesnes. These buildings were, in the main, located on the waterfront and endowed with clear art-historical significance.[22]

The grassroots actions to save the historical context of the city, which emerged out of *Almbråket* and Alternativ Stad, revealed an acute discrepancy between the preservation authorities' strategies of selecting individual historical objects for protection and an emerging engagement from the public with the city's historical context as a whole. One sign of this new awareness was the mockingly titled 'Dagens Rivning' (Today's Demolition) that started to appear in 1971 as a regular column in the liberal broadsheet *Dagens Nyheter*. Under a headline set in antique font, the young architectural historian Fredric Bedoire (b. 1945) described in factual detail the history of buildings scheduled for imminent destruction.

Bedoire was newly appointed to the City Museum, which—under the direction of Bo Lagercrantz (1918–1993) during the 1970s—would fundamentally alter its commitment to the historical city. The City Museum and the city antiquarian in Stockholm had a relatively marginal role during the preparation and consultation phases of the first set of modernization plans. Later, however, the museum became strongly engaged in the issue and was key in spreading information about the city's built heritage. This points to an intriguing shift in the preservation authorities' involvement with the built environment at large. After 1973 the museum independently produced a historical building inventory within the planned area of *City 67*, which would create fundamental grounds for revised city plans in 1975 and 1977. In this inventory, crucially, *all* buildings—independent of age or historical status—were included.[23] Although based on individual buildings, in its inclusiveness the inventory suggested a widening of the scope of heritage from objects to de facto environments.

This extension of the historical object was most progressively debated in the antiquarian Sverker Janson's (1908–2005) *Kulturvård and Samhällsbildning* (Preservation and Society), published in 1974. Janson argued for a fundamental rethinking of the task of preservation beyond the protection and care of singular objects and historical settings. He advocated for economic, social, and cultural environments where preservation was overtly linked to the sustainable use of resources. Preservation, Janson argued, needed to take a more active part in society's development at large and become fully integrated into the strategic planning of modern society.[24] This rethinking of the role of preservation in society was also taken up in several of the state's public inquiries and culture-related reforms, particularly those regarding museums and preservation bodies.[25] As part of a controversial reorganization, museums and heritage organizations were given a wider and more extensive task than that of collecting and preserving historical artifacts. Indeed, one critique of the reorganization specifically identified its focus as exhibits and information production rather than as collections and conservation.[26] The museums were called on to actively educate and inform the public about historical buildings with exhibitions, courses, and new educational programs.[27]

This new and stronger engagement allowed museums to support a wider and more process-based notion of heritage. It also inevitably opened up the question of use in relation to the historical building context, and of reuse as

Figure 9. Almbladet 4 (1973). Front cover. Headlines from the top down: 'Nuclear Power in Stockholm?'; 'What have they done to the city?'; 'Beware of the Green Wave'. Photographic reproduction of the original magazine by Esbjörn Eriksson, National Library of Sweden. Courtesy: Alternativ Stad.

a way to guarantee the futures of historical environments. A new concept emerged and became crucial in the discussion around the historical context in the 1970s: *varsam ombyggnad* (careful rebuilding), of which the main objective was to achieve preservation through use.[28] This intermingling of the new with the old, the reuse of the existing, was one of the radical outcomes of the critique of the demolitions in the 1970s, suggesting a new and altered relationship between the new and the old. The old would, in this new mindset, take a very different position in the contemporary: no longer only a discrete museum object preserved as historical document and removed from everyday life, the old would be put to use and become a resource for everyday contemporary living.

Figure 10. The subway station Kungsträdgården, Stockholm. Artist Ulrik Samulesson. Wikipedia Commons

BREAK WITH THE MODERN

In the history of Swedish planning, Almbråket has come to constitute a symbolic turning point. The action of saving a group of trees came to mark an end to the general support for modernization that had marked Swedish culture during the years of socialist government since 1930, as well as a weakened trust in the welfare state's planning system. The amalgamation of conservative and radical grassroots movements indicated a fundamental shift in Swedish planning culture that would lead to a renegotiation of the role of historical context in the modernization of the city.

This can be seen, then, as the point at which heritage in Sweden was democratized and popularized, resulting in a radical extension of its scope and audience. Local heritage initiatives and movements widened the narrative of Swedish heritage to include previously untold or unprioritized histories dug out of archives and incorporated in an extended canon of heritage. In this democratization of heritage, Almbråket reached iconic status specifically through media presence, which cemented heritage as a genuine issue of mass concern. Alternativ Stad's brand of activism—driven by environmental thinking, the issue of reuse, and the intermingling of the everyday with the historical—created a new set of challenges for historical preservation that is summed up in the concept of careful rebuilding: *varsam ombyggnad*.

This democratized and liberated notion of a past released from museological and antiquarian demands for historical accuracy and representativeness led to a perhaps unforeseen result, at least from the radical activist's perspective. The economic boom that followed the sparse years of the 1970s in Stockholm saw the realization of a series of projects involving the spectacular rebuilding of existing structures in the city's core.[29] In a new culture of planning by negotiation, private developers stood for initiatives that put the past 'to work'. Rentable areas grew due to the consolidation and renovation of historical structures in the inner city that previously, in modernist planning, had been seen as hindrances to commercial expansion. In their 'reuse' of the past, these projects turned the rhetoric of sparseness and specificity—developed through a movement to 'save' the city from the forces of state-led consumption and modernization—into a discourse of uniqueness and exclusivity. On the one hand, this playful, indulgent, and to some extent hedonistic use of history that was advanced during the 1980s contrasted sharply with the 1970s grassroots movement's stringent, almost ascetic vision of a future society in which an awareness of increasingly limited resources left no place for the

past as a site of wonder and pleasure. On the other hand, the strategy of these projects, that 'enterprise' involves the past as a desirable commodity, relied on the redefinition and widening of the concept of heritage that followed the events of Almbråket in the 1970s.

Finally, in 1986, the subway station at Kungsträdgården—the project that had been diverted by Almbråket and the failure to remove the elms—opened on a smaller scale without the originally planned shopping galleria. Entered discreetly through an existing building that borders the formal park, the station, however, reveals an outstandingly ambitious installation by the artist Ulrik Samuelsson in collaboration with the subway authorities. Through a suggestive composition of recreated fragments from lost buildings around Kungsträdgården, the subway station creates a remarkable postmodern allegory commemorating, among other things, Almbråket. Directly under the park where the historical elms still stand, this underworld features a petrified elm tree trunk, marked a by a chainsaw, chopped off a few feet above the ground.

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NOTES

[1] On 12 May 1971, a film showing the violent clashes between police and demonstrators was broadcast in fourteen countries. The Swedish Foreign Office analyzed and outlined the changed image of Sweden in the foreign press between 1970 and 1972, noting that the previously positive image of the welfare state was increasingly challenged. *Sverige i utländsk press* (Stockholm: Utrikes Departmentet, 1972), pp. 25–27.

[2] Margaretha Björnstad, 'Från almstriden till förhandlingsplanering', *Kulturmiljövård* 5 (1989), pp. 1–2.

[3] The different groups included Rädda Stockholm, Brunkebergs Byalag, Aktion Samtal, and Arkiv Samtal. See also Alternativ Stad's own history narrated on their homepage: http://www.alternativstad.se. For a history of the group, see also Göran Folin, 'Kampen om staden, Stockholm City – ett exempel', *Stadsförnyelsekampanjens skriftserie* 2 (Helsingborg: Schmitds Boktryckeri, 1981); and Ulf Stahre's *Den Alternativa Staden* (Stockholm: Stockholmia Förlag, 1999), which maps the different 'byalag', or neighbourhood movements, that were often initiated to save buildings from demolition. Many thanks to Rebecca Tarschys for her first-hand insights into the evolution of the groups around Alternativ Stad and the press at the time.

[4] Folin, 'Kampen om staden, Stockholm City – ett exempel', p. 10.

[5] Almbråket and its relation to the political establishment is covered well in Daniel Helldén's PhD thesis: 'Demokratin Utmanas: Almstriden och det politiska etablissemanget' (PhD thesis, Stockholm University, 2005). Earlier studies include Kjell Sundström, *Processen mot Almarna* Del 1–3 (Stockholm: Kungliga Tekniska Högskola, 1981); and Roger Bernow et al., 'Almarna: En Studie i opionsbildning'. *Socioresearch* 3 (1973).

[6] The modernization of Stockholm can be followed in a series of city plans from the period of 1946–77, the first of which, from 1946, included the initial and crucial decision to reshape the inner core. The aim was to maintain the center as a vital commercial area, responding to the threat that it would otherwise be abandoned because of the lack of significantly sized sites for development and the absence of the efficient traffic infrastructure demanded by large department stores, corporations, and banks. Providing car access and parking were seen as central issues. In 1951, the demolition of buildings and the erection of the first high-rise structures started, but all within quite a modest and restricted area. In the *1962 års Cityplan* and in *City 67*, however, further proposals were presented that extended the scope and the speed of demolition. See *1962 års Cityplan* (Stockholm: Stadsbyggnadskontoret, 1962) and *City 67* (Stockholm: Stadsbyggnadskontoret, 1967).

[7] Folin, 'Kampen om staden, Stockholm City – ett exempel', p. 10.

[8] In the city core in the parishes of Klara and Jacob, the population was 11,600 in 1940, and by 1970 that figure was just below one thousand. One can note that this radical modernization of Stockholm was followed, admired internationally, and seen as a full- scale test of the program of Congrès international d'architecture modern (CIAM) for a modern city. In 1961, for example, the Union internationale des architects (UIA) gave their Abercrombie Prize for Service d'Urbanisme to Stockholm. The international interest was also related to the initial 1932–33 international competition for Stockholm's center, with participants from thirty countries and 450 proposals, among them one from Le Corbusier. See also Göran Sidenblad's *Norrmalm Förnyat 1951–1981* (Stockholm: Arkitektur Förlag, 1985), p. 72.

[9] See *1962 års Cityplan* and *City 67*. For the history of the modernization of Stockholm, see foremost Anders Gullberg, *City Drömmen om ett nytt hjärta,* vols. 1–2 (Stockholm: Stockholmia Förlag, 2001); Sidenblad, *Norrmalm Förnyat 1951–1981*; and Thomas Hall, *Stockholm: The Making of a Metropolis* (New York: Routledge, 2009).

[10] Anders Gullberg has documented the different actors and power struggles in the transformation of Stockholm's inner core. For the press reaction to the new plan *City 67*, see Gullberg, *City: Drömmen om ett nytt hjärta*, vol. 2, pp. 81–88.

[11] One of the most influential books for the growing environmental awareness in Sweden during the 1970s, Rachel Carson's *Silent Spring* (Boston: Houghton Miffin, 1962), was translated as *Tyst vår* (Stockholm: Tidens förlag, 1963). Sweden has a long- and early- established environmental movement that goes back to the early twentieth century. However, from the beginning, Alternativ Stad had a specific interest in the social aspects of the preservation of environments in relation to city culture. Parallel to readings by radical thinkers including the young Karl Marx, André Gorz, and Peter Kropotkin, the group was also influenced by the conservative and liberal 'urban' thinkers such as Jane Jacob (*The Death and Life of Great American Cities*, 1961). See also Ulf Stahre, *Den Alternativa Staden* (Stockholm: Stockholmia Förlag, 1999) and Folin, 'Kampen om staden, Stockholm City – ett exempel'.

[12] Gullberg, *City: Drömmen om ett nytt hjärta*, vol. 2, pp. 186–89.

[13] For example, Mert Kubu's article 'Bannbulla over Klara Citygropparna Permanentas', *Dagens Nyheter*, 23 October 1970.

[14] *Ambladet* was published between 1971 and 1973 and was later replaced by *Klara Paper*, published between 1975 and 1982, which continued a similar mixture of humour and anti-aesthetic in a forceful combination.

[15] *Almbladet* 1–4 (1971–73).

[16] *Almbladet* 2 (1971–72), pp. 6–7. From the start, these clip-fold magazines mapped and narrated the history of the protest. This awareness of the critical action of making one's own 'history' and the role of this action in qualifying the protest as significant in the evolution of local politics points to the strength of media awareness in the group's activism.

[17] *Almbladet* 4 (1971–72), front cover with headlines 'Atomkraftverk i Stockholm?' (Nuclear power in Stockholm?), 'Vad har dom gjort med CITY?' (What have they done to the city?), 'Bevare oss för Gröna Vågen!' (Beware of the Green Wave!).

[18] 'Alternativs Stads miljötidning Specialnumer om storstad och glesbygd', *Almbladet* [3] (1971–72). Special issue on the metropolis and countryside.

[19] For the role of the 'norm' in the Swedish welfare state, see Helena Mattsson, 'Designing the Reasonable Consumer: Standardisation and Personalisation in Swedish Functionalism', in *Swedish Modernism: Architecture Consumption and the Welfare State*, ed. Helena Mattsson and Sven-Olov Wallenstein (London: Black Dog Publishing, 2010), pp. 74–99.

[20] The National Heritage Board, established in 1937 by Sweden's Social Democratic government with Sigurd Curman as a front figure, relied on strong links to museums and academia. The centralized board delegated the responsibility for heritage issues related to historical city sites to antiquarians attached to local museums. Defined by art-historical traditions and museum-based strategies of curating, these institutions demanded a clear distinction and framing of the historical object as one 'of a particular past'. The urban context of Stockholm, mixed up and altered over time, constituted a set of challenges to the art-historical systems of classification on which antiquarian judgement relied. This challenge was made even more clear by the fact that this context was specifically to be modernized: the maintenance of the historical as functional and everyday was essentially antithetical to the antiquarian position represented by the National Heritage Board and its associated museums. For the early history of preservation institutions in Sweden, see Richard Pettersson, *Fäderneslandoch framtidsland, Sigurd Curman och kulturminnesvården etablering* (Umeå: Umeå University, 2001). See also Ola Wetterberg, *Monument och Miljö* (Göteborg: Chalmers Tekniska Högskola, 1992) and Victor Edman, *En svensk restaureringstradition* (Stockholm: Byggförlaget, 1999).

[21] See also *1962 års Cityplan*, pp. 40–45. An intriguing counterexample to this argument is the preservation of Gamla Stan, the Old Town in Stockholm, carried out in the 1930s. The preservation was justified on the grounds of Gamla Stan's history as an urban milieu developed before industrialization, almost entirely unaffected by the addition of newer buildings. The Old

Town was saved in is entirety as a historic site and classified in 1980 as 'riksintresse' (national interest). See also *Översiktsplan Stockholm 1999* (Stockholm: Stadsbyggnadskontoret, 2000). For the history of saving the Old Town, see Gösta Selling, *Hur Gamla Stan överlevde från ombyggnad till omvårdnad 1840–1940* (Stockholm: Stockholms Stadsmuseum, 1973).

[22] See also *1962 års Cityplan*, pp. 40–45, and Göran Sidenblad's *Norrmalm Förnyat 1951–1981* (Stockholm: Arkitekturförlaget, 1985), pp. 67–69. Sidenblad claims that the city planning office, which had the overall responsibility for the definition of the *1962 års Cityplan*, reacted to the limitations of the list provided by the city antiquarian by identifying a further twenty- seven additions, including more recent buildings as well as the older churches and public buildings previously identified.

[23] *City, Del 1 Byggnadsinventering 1974–75* (Stockholm: Stockholms Stadsmuseum, 1975).

[24] Sverker Janson, *Kulturvård och Samhällsbildning*, vol. 83 of *Nordiska Museets handlingar* (Stockholm: Nordiska Museet, 1974), pp. 126–74. One could note here that the preservation of whole historic environments or milieus has a long tradition in Scandinavia; for example, the open-air museum's scenic recreation of vernacular cultures inaugurated with the opening of Skansen in 1901. This scenic use of the old also characterized Swedish urban planning at the beginning of the twentieth century and was influenced by Camillo Sitte's theories. Sitte's *Der Städtebau nach seinen Künstlerischen Grundsätzen* (Vienna: Graeser, 1889) was widely read in Sweden, introduced by the young architect Per Olof Hallman, who would become one of the country's most influential city planners during the first decades of the twentieth century. With the rise of functionalism, the aesthetic use of historic structures to provide variation and pleasing settings in new urban developments started to be questioned. As preservation became professionalized, the saving of historic urban areas began to be justified increasingly by art-historical rather than aesthetic arguments, a change that is evident in Ragnar Josephson's polemic against Sitte in his book on the art of urban planning, *Stadsbyggnadskonst i Stockholm intill år 1800* (Uppsala: Almqwist &Wicksell, 1918). Josephson argues for a scientific understanding of urban historical development based on periods and historical evolution. Although interest in Sitte reemerged in postmodern urban discourse in Sweden (*Der Städtebau* was translated into Swedish in 1982 by Göran Sidenblad), for Sverker Janson and his contemporaries in 1970s planning culture, the question of 'environment' had a different meaning than in the early decades of the twentieth century. The extensive migration from country to town and the infrastructural and economic reorganization of Sweden during the post-war years generated a new urgency around the question of environmental preservation, framed by ecological and social understandings of whole milieus or habitats rather than by aesthetic valuations. Although this extended preservation under the name of cultural environmental heritage (*kulturmiljövård*) would of course generate its own aesthetic, the sensibilities discussed appear to originate in a discourse owing little to Sitte. For a thorough discussion of the relation between monument and environment in early preservation discourse, see Wetterberg, *Monument och Miljö*, pp. 239–66.

[25] In the early 1970s, a series of government reports on heritage, museums, and exhibitions were presented, which are known collectively as *Kulturminnesvård: betänkande 1965 års musei- och utställningssakkunniga (MUS 65), Statens Offentliga Utredningar* (Stockholm: Liber förlag, 1972); *Utställningar: betänkande 1965 års musei- och utställningssakkunniga (MUS 65), Statens offentliga utredningar* (Stockholm: Allmänna förlag, 1974), and *Museerna: betänkande avgivet av 1965 års musei- och utställningssakkunniga (MUS 65), Statens Offentliga Utredningar* (Stockholm: Svensk Reproduction AB, 1973).

[26] Richard Pettersson, *Den Svenska kulturmiljöns värdegrunder* (Umeå: Umeå University, 2003), pp. 29–35.

[27] This, in many senses, reinstated the objectives of the early local heritage movements of which the National Heritage Board had remained suspicious. For the relation between the National Heritage Board and the local preservation movement in Sweden, see Wetterberg, *Monument och Miljö*, pp. 361–65.

[28] Ingela Blomberg and Eva Eisenhauer, *Varsam ombyggnad* (Stockholm: Statens råd för byggnadsforskning, 1976–78).

[29] Examples of this kind of 'free interpretation' in reuse projects are: the total reconstruction and redevelopment of the nineteenth-century bathhouse and shopping arcade at Sturebadet, with a new shopping galleria and health club (Hans Murman Arkitektkontor, Alf Öberg Arkitektkontor, Lennart Skoogh Arkitektkontor), and Berns Salonger, a legendary vaudeville theatre and restaurant restored and structurally altered to house new offices and a hotel (Agora Arkitekter).

DESIGNING WITH NATURE: AN INTERPRETATION OF THE LEGACY OF ELIEL SAARINEN, ALVAR AALTO, AND REIMA PIETILÄ

Minna Chudoba

ABSTRACT

Architecture constructed in the Nordic countries has often been regarded as having a special affinity with nature. This has been linked to the use of natural materials and to the way built structures are connected with their environment. This connection has also been described in language that emphasizes the mysterious qualities of Northern nature. However, such descriptions may often be too simple to provide an adequate interpretation of the constructed environment. At the same time, they could be used to say something about the process of architectural creation. If so, are the descriptions related to the way architects themselves explain their design process?

Indeed, architects may have emphasized mysterious or intuitive qualities in the process of creating their designs. Design processes are both individual and collectively similar, with the contexts being both unique and landscape-specific at the same time. Universality is thus intertwined with the place-specificity of architecture, for example in the work of Finnish twentieth-century architects from Eliel Saarinen to Alvar Aalto and Reima Pietilä. This article examines interpretative texts emphasizing nature in the work of these well-known architects. They are juxtaposed with the architects' own texts describing their design process. The comparison sheds light on the constructed narrative of one specific aspect of Nordic architecture, while raising questions of individuality and universality in the architectural design process.

KEYWORDS

Nature, architecture, context, design process

INTRODUCTION

The special relationship to indigenous nature that has been linked to Nordic architecture—and in this article, to architecture in Finland in particular—is not a recent occurrence. At the turn of the previous century, so-called national romanticist architecture made use of images of local flora and fauna in facade details; later architects affiliated with modernism continued earlier traditions of interweaving the built environment with the landscape. Architecture was seen in relation to its context, and the use of materials reflected this relationship. When wood and stone, for example, were used in buildings, they were seen as a reinforcement of a history of architecture with strong ties to its environment. Awareness of nature has, however, naturally denoted not only taking into account each particular design context, but also dealing with the premises behind a design process on a more universal level.

In his book *Concept of Dwelling*, Christian Norberg-Schulz outlines both a local forest experience and the universal understanding of it. He starts his book by paraphrasing a story by the Norwegian writer Tarjei Vesaas. In the story, the main character experiences the forest near his home. The importance of the forest in revealing the protagonist's particular place is summed up as: 'the forest will always be with him'. Nordic readers will recognize the forest based simply on its verbal description, but Norberg-Schulz also notes the universality of the experience: it could be written about similar experiences in different types of nature, whether desert or steppe, coast or mountains. Norberg-Schulz goes on, quoting Vesaas, to reflect on how the land and vegetation are brought together in the traditional architecture of each culture, and how elements that already exist are augmented by dwellings constructed with local materials. The idea of dwelling consists of both the built structure and its environment, which seem to be in a symbiotic relationship. Traditional architecture is thus not *in* nature, it is *of* nature.[1]

Similar connections to nature can also be observed in buildings designed by architects. Even interpretations of northern architecture sometimes draw inspiration from the rich narrative histories of the various Nordic countries, not just the visible built environment. Descriptions at times emphasize the exotic and the strangemysterious quality of northern forests, and thus perhaps flavouring architecture with a touch of fantasy. Characters from folklore have at times also been linked to the design process—by both admirers and critics alike. Altogether, this has tended to underscore the mysterious element of the

observed nature-awareness of the architecture or to give rise to assumptions regarding the uniqueness of each individual design process. At the same time, such interpretations may even contrast with the architecture or the architect's intentions. This has been shown by research,[2] which has expressed the contrasting views through opposing pairs: on one side there is universal technology and a contemporary attitude, on the other, tradition and the local, with strong connection to natural materiality. The two dichotomous views—which do not necessarily cancel each other out—are derived from an earlier discourse, in which enlightenment and romanticism promoted their separate ideas of nature. On the one hand, there was the optimistic belief that the advances of technology would be able to solve problems related to nature and natural resources. On the other hand, there was the more ecologically minded, protective attitude that was the heir of romanticism.[3] The latter can be linked to the idea of nature as prerequisite for creative contemplation, and thus a necessary component of a design process. The linking of architectonic constructions to nature, and even spicing up interpretations with fantasy, seems to be a particular expression of an inherent duality seen in the architecture of the North.

Nature awareness can be seen in assessments of Finnish architects throughout the twentieth century. This article therefore discusses the question: How are interpretive descriptions of architecture (by others) related to the way the architects themselves viewed the premises of their design, especially from the perspective of the design process? For instance, architects may have emphasized intuitive qualities in the process of creating their designs, while consciously linking the architecture to its landscape. Thus, the universality of a design process can be intertwined with the locality and place-specificity of architecture. This article focuses on the work of three prominent Finnish architects who were all known internationally. Many architectural historians, international and national alike, have thus interpreted their architecture. The presumed objective distance of the international interpretations is of special interest in this case.

The article recounts the continuing story of Finnish twentieth-century architecture through three of its most well-known characters, with a focus on the idea of nature. It is suggested here that the oft-repeated mythical dimension of nature, which may be a somewhat superficial attribution when linked to architecture, is useful when the actual design processes are examined.

NATURE AND ARCHITECTURE IN THE WORK OF THREE PROMINENT FINNISH ARCHITECTS

The internationally renowned Finnish architects selected for this study—Eliel Saarinen (1873–1950), Alvar Aalto (1898–1976), and Reima Pietilä (1923–1993)—are linked to each other by their public recognition, even to the extent that one is seen as having receiving 'the mantle' from another.[4] The age difference between these architects has been summed up by Malcolm Quantrill: in 1923, Reima Pietilä was born, Alvar Aalto opened his first practice in Jyväskylä, and the fifty-year-old Eliel Saarinen moved to the United States to begin the second half of his career.[5] Pietilä, the youngest of these architects, drafted a list of things that both link the three of them and also set them apart from one another: 'There are four basic varieties or possible sources of architecture: 1. The fisherman's cottage; 2. Some kind of national romanticism; 3. Alvar Aalto's modernism; and 4. My approach.'[6] All three architects were naturally aware of the traditional architecture in Finland, and for the two younger architects, the national romanticist movement—in which Saarinen took part—belonged to their knowledge of Finland's architectural history. Nature is not mentioned in this list, but a particular approach to nature links all three architects as well. This has been noted especially in the case of Aalto and Pietilä.[7]

At the same time, architects have looked to nature as a source of ideas for architectural form throughout history. A theory of evolution and the correlation of parts was already presented in the early 1800s, even prior to the publication of Charles Darwin's *On the Origin of Species*. According to this theory, each organ is functionally connected to all the other organs in the body, and all of them are connected to the environment. These ideas influenced urban models at the time and the word 'organic' became popular in texts. Nineteenth-century writers like John Ruskin (1819–1900) and William Morris (1834–1896) obtained starting points for architecture from nature; nature was a source of natural laws that could be applied to architecture.[8] In Finland, the idea of looking to nature was at its strongest during the national romanticist period. Inspiration was sought directly from nature and natural science catalogues such as Ernst Haeckel's *Kunstformen der Natur* (Art Forms in Nature, 1899–1904).[9] Nature was linked to the national romanticist movement not only because of the decorative details derived from nature, but also because the concept of the total work of art called for a comprehensive approach to design tasks, from how buildings are situated in their environ-

ment to the most minute interior details. Inside and outside were joined. Nature was brought in to enhance interior spaces; sometimes literally, but often also as an acknowledged inspiration in the design process.

The three architects who are the focus here all wrote about their design processes, even though their approaches towards writing about architecture were quite different. Saarinen wrote books with a pedagogical premise; Aalto was more known as a speaker, even though he also wrote articles; and Pietilä used writing as an actual design tool. All three of them utilized their unique takes on the subjective process of designing architecture in their architectural pedagogy: the focus was on an individual search. Eliel Saarinen encouraged his students to seek their own utopias. Alvar Aalto wanted students to play while designing, and was reluctant to label architecture good or bad. Pietilä posed questions rather than giving ready-made solutions, and thus encouraged an inquisitive attitude and freedom of thought.[10] These pedagogical ideas were echoed in the architects' texts about the design process. Saarinen regarded the search for form as a journey towards an elusive goal, and an element of secrecy shrouded his design process. Aalto trusted instinct and did not waste any paper explaining more than he thought necessary. Pietilä strove to explain, doubtful of the old idea that design itself was somehow part of the irrational or metaphysical. The design processes were thus individual and unique despite the shared premises.[11]

In this article, the nature rhetoric that is often apparent in assessments of architecture is juxtaposed with the presence of nature in the architects' own texts, especially when addressing the design process itself, not just the finished result of that process. The former is part of the well-known story of the constructed narrative of Finnish architecture. The latter is a story with more branchings-out and individuality. The design process is, after all, subjective—even when it contains a thread of universality.

ELIEL SAARINEN: THE NATIONAL ROMANTICIST MOVEMENT AND THE SEARCH FOR FORM

Eliel Saarinen was one of the architects associated with the national romanticist movement in Finland at the turn of the previous century. The movement was characterized by a break from the past and a sense for modern expression. Despite the use of the term 'national', the movement had international influences. The materials used, however, were local: stone, wood,

and plastercovered the finely detailed facades. The nationally well-known architectural firm of Gesellius, Lindgren, Saarinen made skilful use of these timely design elements.

At the time, art and architecture were also being utilized to define a national identity for a country seeking its independence. A spirit of reform permeated the architectural expression, while the importance of national built heritage was also acknowledged. International design themes of modernity were combined with a local cultural background. Researchers have noted this dual nature of the architecture used to strengthen Finnish national identity:[12] even if local flora and fauna were used in details to give the architecture a familiar appearance, international influences nonetheless played a significant part. This duality has even been labelled as contradictory, since rationalism, abstraction, and soon even modernism existed alongside the romantic tendencies.[13] Later, when Saarinen had already moved to the United States and designed buildings for the Cranbrook Academy of Art, his buildings would be noted for the way they were fitted into the natural surroundings. This important element of national romanticist architecture was an aspect of that the movement that later generations of architects would also espouse.[14]

The search for contemporary form that characterized the Finnish architecture of the late 1800s and early 1900s was recalled by Eliel Saarinen decades later in his books. At the time they were published he had already been living in the United States for two decades, and the architecture designed in his office had moved on from his national romanticist beginnings. It was modern, so as to respond to the changing definitions of the word. The skyscraper design—for the Chicago Tribune Tower competition of 1922—that brought him across the Atlantic was never built, but he designed the Cranbrook campus, housing areas, and public buildings, and was also involved as a consultant in many urban planning projects. In addition, he had academic duties as a teacher. His books were linked to this role, and were written for students and the general public. With his books, Saarinen joined the ranks of writing architects—*The Search for Form in Art and Architecture* of 1948 was his architectural credo.[15]

Nature was one source of design inspiration, and the basis for Saarinen's forms. In his texts, linguistic images of nature are interwoven with an awareness of architectural history, both national and international, knowledge that was standard for an architect who studied in Finland at the end of the nineteenth century. Saarinen's teacher at the Polytechnic Institute had already

emphasized nature as a starting point of design. According to him, the order seen in nature was the founding law of everything. By adhering to this law, an artist could achieve a harmonious balance in his work.[16] Another inspiring influence for Saarinen's nature texts was the American architect Louis Sullivan, for whom all forms of life reflected their function, and each function shaped its form. He used nature images to explain appearance as describing an inner purpose. This assertion was illustrated with plants, animals, clouds, and weather phenomena.[17] Saarinen also made use of similar nature references. Landscapes, trees, animals, the smell of flowers, and the taste of berries enliven his texts, conveying the shadows of northern forests and the nuances of the delicate undergrowth, but also the drama of a capercaillie's mating dance or the flaming colours of the Northern Lights in the winter sky. The detailed descriptions also expand to larger scales and ultimately to the entire universe. According to Saarinen, the correlated scale levels show basic natural laws also applicable to building and urban planning.[18]

The importance of nature imagery in Saarinen's personal design process is obvious in his texts: It was in nature that he found the roots for understanding art and life itself. Nature was the source that kindled the creative instinct, and in nature one found the truest principles of human art. Saarinen explained his design process by focusing on form. Form was defined and then paired with words like space, time, truth, and function to describe the various paths a designer could take when searching for an architecture for the modern era. The design process was thus condensed in the ongoing search for form. The search included a creation but also a diagnosis of it: It was a reflective, non-linear process. The design task required a scalar understanding organized according to a natural organic order, consisting of correlated parts forming a whole. In the case of an urban environment, the whole was a complex organism. Indeed, nature analogies were especially useful in urban design and planning. According to Saarinen, an understanding of form coordination was important for all designers regardless of the scale of the task.[19]

The structure of the design process received inner content from intuition, instinct, and imagination. These elements of the search for form defied simple explanations. They were indefinable, as Saarinen claimed in the concluding remarks of his book: the process was inevitably something that was to be understood intuitively, but not defined. The indefinable was part of the 'mysteriously sacred realm'. Form turned out to be elusive, since its source, nature, was both secret and sacred. Imagination dealt with mystery

and wonder, and in this context, Saarinen wrote about mythologies of bygone eras. The mythical epics and tales depicted the struggles of life, thus grounding artistic imagination in a constant fluctuating drama. In the end, there was something in the architect's work process that belonged to the realm of 'unknown'. Saarinen's text on the search for form was universal in its basic premises. He did not emphasize his Finnishness in his references to nature. He summed up the issue of the local and the international by declaring the new form of the age to be international in essence, but adapted to local conditions. Knowledge of Finnish nature was simply the starting point from which Saarinen began building his own interpretation of the order of nature behind architectural design. His relationship to this background might be compared to the relationship he believed people should have with architecture: it should be a source of subconscious satisfaction, but not require constant conscious reaction.[20]

Historical research has shown that Eliel Saarinen's design thinking was also shaped by several international influences.[21] This is likewise true of the nature references Saarinen used, since his texts contain several such references that are not directly northern in origin. Finnish-interpreted nature, landscape, flora, and fauna are mentioned in Saarinen's book *Search for Form* only four times, while there are more than thirty general references to nature. The same applies to the illustrations: only one of the sixteen images can be linked directly to northern nature. Despite the influences extending beyond the national boundaries, much of Saarinen's work—not only of the national romanticist period—has been evaluated from the perspective of Finnish nature rhetoric. Nature has often been presented as an important background factor, especially abroad, and descriptions have often focused on pine forests and granite.[22] The skyscraper that Saarinen proposed for the Chicago Tribune Tower competition was already stamped with natural primitiveness.[23] Commentators were surprised to see a skyscraper designed by a Finnish architect who had never looked at an actual skyscraper. Finland was regarded as a mysterious country on the northern periphery of Europe. Critics would write, even if tongue in cheek, that the skyscraper proposal must have been drawn in a glacial cave, assisted by elves. Strangely, fantastical elements were thus linked to a modern building type that depended on steel construction and elevator technology. More reasonable were the comments that made use of nature analogies transposed to the urban environment: for example, Saarinen's skyscraper proposal was described as a 'seed planted

deep in the earth', or, in the words of Louis Sullivan, it expressed 'the logic of living things'.[24]

In general, mysterious qualities were not emphasized by Finnish architects themselves, and after the national romanticist period, even nature references were not accentuated. For example, a colleague gave a restrained assessment of the importance of Finnish nature in a text for Saarinen's memorial exhibition that linked nature references to international influences. Nature was regarded more as a context for architecture than as a prioritized, conscious or subconscious inspiration for the architect's design work.[25] Another colleague, when asked about the Finnishness of Saarinen's architecture, replied that it was 'neutral world architecture'.[26] Both interpretations were possible. National interpretations noted the familiar basis, but concentrated on universal influences, while the other, opposing view, found exotic qualities in the Finnishness. However, when the focus is put on the design process rather than the finished design, similarities may be observed between the links to fantasy and the sense of mystery in Saarinen's own texts on searching for form. It may not be so fantastical after all that a 1920s skyscraper design should be said to have come about with the assistance of fairy-tale creatures. In this case, the mysterious qualities associated with the design process were linked to the myths of northern forests and the geological history of the land. The same description could also be seen as an indication of a more universally interpreted indefinability of the design process. The sources of imagination are not easy to name—inventive design adheres to no strict boundaries.

Alvar Aalto: Nature, Technology, and the Abuse of Paper

The national romanticist movement was the basis on which subsequent generations of Finnish architects would build. It was included in their design premises, as were knowledge of classical architecture and local building traditions, as well as the natural and topographical contexts of the architecture. In Aalto's case, a direct link to national romanticist influences was recorded by the architect himself: Aalto remembers being impressed by a specific picture of Gesellius, Lindgren, Saarinen architecture that he saw in a journal when he was a young boy.[27] Writers of his biographies have noted further national romanticist influences. Aalto was regarded as continuing the earlier tradition, especially admiring how buildings were connected to the landscape and adapted to nature. National romanticism with its locally derived authentic materials and respect for the craftsmanship of details played an introductory role in the evolving process of his creative growth.[28]

Similarly to Saarinen, Alvar Aalto's view of human beings and their relationship with the earth was influenced by the nineteenth-century belief in development progress, complemented by ideas inspired by Goethe: harmony with nature in a balanced relationship. Aalto's experience of Finnish forests

Figure 1. Eliel Saarinen, entrance to the Milles House, Cranbrook (1928). The transparent glass of the door allows for a connection between the inside and outside spaces. Photo by the author, 2008.

was influenced by his enthusiasm for hunting, and likely also by the professions of his surveyor father and forester grandfather. A strong connection to the land has thus been noted in Aalto's architecture.[29] This connection can also be found in the few texts that he wrote about architecture and the design process.

Although Aalto did not write a lengthy architectural credo, he was known for his speeches and wrote articles on a variety of design topics. In one of them, he famously wrote that architects should only use paper for drawing. Aalto has also been quoted as saying: 'I answer by building' and 'what an architect says does not mean a damned thing, what counts is what he does'.[30]

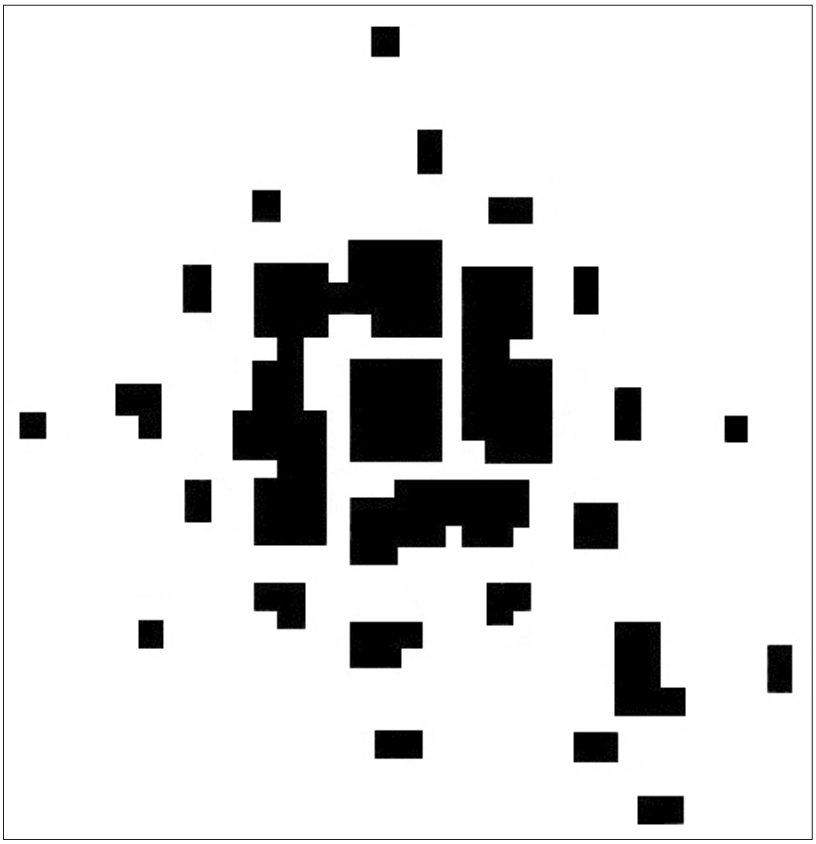

Figure 2. Eliel Saarinen, detail of 'Diagram of Organic Urban Design'. The orthogonal design motif for a door (Figure 1) was repeated on a much larger scale. Source: Eliel Saarinen, The City, fig. 50.

Nevertheless, he does give a glimpse into his design process in his articles. In 'Taimen ja tunturipuro' (The Trout and the Stream, 1947) he explained how he first familiarized himself with the design problem and its various requirements, and then forgot them and concentrated on intuitive drawing. He did not consider the results architectural drawings, but instead compositions that could even be described as childish. He declared that architectural design somehow belonged to the realm of biology: ideas may be compared to the life cycle of trout, which are born far away from their actual living environment. He elaborated this comparison in detail with images of melting ice and clear streams amid the northern fells. Like the life of trout, the creative process required time and even spatial distance.[31] In the same text, the image of nature was also supplemented with references from classical culture. The text brought forth possible influences on design thinking: it began with nature, but included an understanding of history and the built heritage. Aalto summed up his creative process with the statement: 'I just draw by instinct.'[32] This instinct, of course, would be backed by intuition and fed by imagination. Saarinen might have expressed it thus: 'As life begins with imagination, so does it continue.'[33]

For Aalto, the design process was about resolving hundreds of contradictions. Imagination and intuition were needed, but they were merely the sources of images. For architecture to be created, ideas needed to be explored with lines on paper. At the beginning of his career he called these lines 'curving, living, unpredictable, which run in dimensions unknown to mathematicians'. When contemplating the architectural program, Aalto noted that it was ultimately, 'biodynamic', based on human life. He also commented on the importance of artistic endeavours in the design process: sketching and painting were experiments with various media, and were linked to materiality, which was essential in designing architecture. He seems to have combined theory and methodology to provide a basis for his intuitive, visionary design method. This method allowed artistic sidestepping into realms of fantasy, as Aalto himself explained about one design process: 'I drew all kinds of fantastic mountain landscapes, with slopes lit by many suns in different positions.'[34]

Aalto's texts imply a collage of influences combining both the local and the international. According to Aalto, everyone's starting point was a specific spatial entity. From this beginning the view was broadened to include national and even international areas. The development always 'fanned outward', but the starting point and the outward journey existed side by side.[35] This

view could also be used to interpret the architect's attitude to nature. The 'memories of the Finnish landscape' in Aalto architecture have been noted, in exactly the way Aalto himself saw them: they were a beginning from which to expand visions.[36] Aalto, always a 'forest man', may have carried experiences from the forests of his youth along with him,[37] but these nature experiences were later supplemented by impressions from international travel, with Italy a special favourite.[38] The cultural Italian landscape would even be brought into architectural sketches in the Finnish context. At times, his drawings depicted a symbiotic relationship of buildings and the landscape.[39] Some assessments have even turned poetic when describing the nature link: during an opening speech for an exhibition in Florence in 1965, Aalto was compared to Francis of Assisi, who got 'along with the forces of nature as well as wild animals'.[40]

Assessments of Aalto's architecture have, however, often been interpreted based largely on his Finnish background. Sigfried Giedion, who included a section on Alvar Aalto in his seminal book *Space, Time & Architecture*, concentrated on his Finnishness. It has been noted that Giedion specifically chose Aalto as a representative of mystical values in modern architecture; as 'a man of the North', he was suitable for portraying the presumed qualities of the Nordic people: 'mysticism, irrationality, and intuition'.[41] Giedion claimed that 'Finland is with Aalto wherever he goes'. For Giedion, this Finland was archaic—he started the story of Finnish architecture with the ice age, telling of how the land was revealed by the retreating ice. Such an ancient starting point gives importance to the topography. The connection to the earth is strong; Finland is the land. Giedion's description continued on to the historical: in Finland he still saw 'many remnants of primeval and medieval times'. He even implied an element of the mythical when he called Aalto a 'wizard of the north'.[42]

Nevertheless, Aalto himself preferred a harmonious cultural landscape to wilderness romanticism. This became clear when Aalto did not want a 'Karelian forest pond' when planning Töölö Bay in Helsinki.[43] It seems that Aalto preferred tamed nature. This was an urban view, and understandable for an architect wanting to see buildings fitted into the existing context. Aalto's approach to design—especially in larger urban contexts—was piecemeal, processual, and rule- rather than model-based: 'building cell by cell, the generating principle of biology and culture is a sounder method than striving for a pre-planned totality.' The connection to the surroundings was especially important in residential architecture, where nature was brought inside

and the garden was considered to be an essential part of each dwelling. This 'outside brought inside' is seen a continuing theme in Aalto's architecture. It is apt that nature has been called a logical collaborator in Aalto's design process.[44] This nature had a solid premise in the Finnish landscape, even though more universal influences were equally meaningful. A somewhat critical note regarding the Finnish emphasis on nature may be observed, for example, when Aalto mentioned 'forest dreaming' as a particularly northern trait.[45]

Aalto's architecture has been thoroughly studied, and since he did not describe much of his design process in texts, others have tried to do so for him. Although some earlier assessments may have overemphasized the mysterious qualities of the nature background, more current research has resulted in interpretations that seem to capture the many facets of Aalto's design process. This multifaceted view has been compared to collage. For example, Juhani Pallasmaa has offered intriguing and internationally tinted possibilities in his evaluations, claiming that Aalto's Villa Mairea may be regarded within the Finnish cultural tradition, but it is also part of the tradition of European modern art. He has speculated that the pool in the yard might not have been merely a metaphor for a Finnish forest pond, as has often been claimed; its form might instead be a playful reference to Cubist paintings of string instruments. This is in keeping with Aalto's own views: the roots of architecture were abstract, but based on knowledge and research stored in the designer's subconscious. This included knowledge of the geography and flora of one's homeland. It was a design basis to which contemporary information about technological inventions, cultural history, and even favourite travel destinations was added. The biologically based aspects of place were combined with geometrical traditions of culture, as Lauri Louekari has noted.[46] Thus, it is not surprising to find a collage of influences—links to Finnish nature with an international twist. In Aalto's case, the at times superficial nature rhetoric has been supplemented with evaluations that focus on the design process, rather than simply on the visible architecture and its relationship to nature.

Kirmo Mikkola and Malcolm Quantrill have both pointed out how important variability was for Aalto. A design synthesis depended on intuition and spontaneity in order to achieve the necessary combinations. Like Saarinen, Aalto saw natural organisms and biology as the origins for understanding design processes in architecture. These origins were further augmented by

a cultural understanding that transcended national boundaries. The aim was to create relationships between human beings and their environment, which was achieved through a design process that combined science and poetics with feeling. Göran Schildt has stated that Aalto was not only logical, but was also reconnecting with the earth, the collective, and forces of the subconscious. Logic was coupled with something indefinable; intuition was based on theory and method. Methodology was the prerequisite of art, not its opposite. Aalto was seeking a biological synthesis.[47] It has also been noted that Aalto knew how to play with variability of scale, using the same motifs for tasks as diverse as an urban development plan and a piece of furniture.[48] Such diversity of scale is not that surprising for architects (see Figures 1 and 2)—the design method of intuitive drawing goes beyond the restrictions of scale.

Reima Pietilä: Writing Architecture and Mirroring Nature

Alvar Aalto influenced Reima Pietilä, just as he did all the younger generations of twentieth-century Finnish architects—the Finnish design environment has even been called an 'Aalto climate'.[49] Naturally, younger architects eventually broke away from the most charismatic influence, and dissimilarities became pronounced in the 1950s. Both a dialogue and a tension have been observed between the work of Aalto and Pietilä.[50] Although nature is repeatedly referred to in interpretations of their work, differences have been noted in their approaches. Both Lauri Louekari and Christian Norberg-Schulz have claimed that, for Pietilä, the contact to nature was direct, that he saw nature as the source of vast morphological knowledge, as a basic element of architecture to be experienced. Aalto's work, on the other hand, was connected to nature in a more indirect way. Nature was present in a general sense, even if his forms could be linked to the Finnish landscape.[51]

The position of Raili and Reima Pietilä in the story of Finnish architecture is unique due to its fluctuation. Roger Connah has noted that the Pietiläs were not considered Finnish enough in the 1950s and 1960s, but that the situation had changed by the 1980s.[52] This may have to do with the fact that the universal and the local could exist simultaneously in Pietilä's work—when the focus was local, the Finnishness in the architecture was discovered. Reima Pietilä himself once said that architecture was an international way of thinking, but there was also a need for an architecture that referred to its locality.[53] Nature could represent something Finnish but also something universal, and the

nature references in Reima Pietilä's texts were not always obviously Finnish. Fittingly, Pietilä claimed that the relationship to nature should be both cosmic and earthbound.[54]

Reima Pietilä was an architect who not only wrote to explain his thoughts on architecture; he used also writing as a medium in designing. His texts were often mysterious, or even cryptic.[55] He wrote profusely while designing, attempting to explain the intuitive design process and understand its roots. When asked about this, Pietilä referred to Aalto, and admitted to a 'wandering way of approaching problems'.[56] His starting point, however, was research: he was interested in the archaeological history of a place. His design process did not include a specific goal, but instead a flock of 'goal vectors', or 'approaching sequences'. Sometimes the thoughts were illustrated with diagrams that were both graphically informative and visually intriguing, like abstract art.[57] When writing about the design process, Pietilä used words that emphasize the explorative, searching qualities. In the design process, he was 'groping towards a clear vision of the whole', 'trusting in instincts', and venturing 'into

Figure 3. Alvar Aalto, Säynätsalo Town Hall (1949–52). The famous grass-covered stairway leading to the hilltop atrium yard with its fountain is one of the most photographed parts of the building. Nature is brought into the centre of the architecture that cradles it. Photo by the author, 2016.

the unknown'—or even returning to 'precognitive knowledge'. Pietilä seemed to possess an equal degree of familiarity with the local, the regional, and the universal, and with a constant oscillation between the three possibilities. He saw architecture as linked to culture, and nature as part of the cultural environment. In Pietilä's texts, metaphors for natural forms are especially prominent. Finnish nature was the starting point and source of inspiration.[58]

Moreover, the Finnishness in Pietilä's architecture was strengthened by his use of language in the design process. He claimed to 'draw in Finnish', since it was the native language of his thinking that guided the movements of the pencil. Pietilä thought of words as a good medium for sketching; what was heard existed alongside what was seen, and Pietilä did not appreciate the sole dominance of the eye.[59] He expected much of words, and even thought that verbal instructions might sometimes be sufficient on a construction site. In reality, this was not the case, as the Pietiläs themselves noted when the Dipoli student union building was being constructed. Complicated drawings were necessary, since it was only possible to construct what was expressed visually.[60]

Reima Pietilä also referred to the process of designing Dipoli as an exercise in morphology, or, to use a direct translation of the Finnish concept, *muoto-oppi*: an exercise in form-learning. Morphology was familiar ground for Pietilä and form was a recurring concept in his texts.[61] 'Pietilä's form' can also be broken down into morphological categories: 1. abstract form—neutral and closed; 2. phenomenological form—animated and open, experience of 'being inside'; 3. communicating form—language analogies and metaphors; and 4. process phenomena—like forms created in nature by physical forces, cloud shapes, and typologies of arctic ice and snow. Phenomenological form includes both Alvar Aalto's Finlandia Hall and Pietilä's own Kaleva Church. Communicating form applies to Eliel Saarinen's Helsinki Railway Station and Pietilä's Metso Library in Tampere.[62] The images conjured up by these form categories are diverse, from weather phenomena to experiences of embracing space. But images were not sufficient; communication through language was needed.

When explaining the premises behind the design for Dipoli, Pietilä was quoted as saying that it was a 'composition where the nature is the creative artist and the sylvan *genius loci* its theme'.[63] The designer's description of the building was a poetic string of words, perhaps echoing the verbose design

process. The building seemed to be still in the process of becoming. This implied an unfinished quality, which closely integrated the building into its surroundings. Like the forest next to it, the building underwent change. Calling the building 'a materialized sketch' implied that the design process was not a linear event with a clear end. It was instead a series of intertwined

happenings, both verbal and visual, in which the designers simply took part, enabling the growth of a building, almost as a living thing. It is no surprise that the designers compared the building to a prehistoric animal.[64] The spatial experience was likened to being inside an enormous creature. The building was a cave, in the earth, with space flowing around it like the water of a brook around stones. The long geological history of the site was also referred to; Pietilä mentioned the ice age and the geomorphic powers this epoch represented. References to nature were many, geomorphic and zoomorphic alike.[65]

As a rule, descriptions of Pietilä's architecture make reference to nature. It was considered an inspiration, or the formal language was thought to be derived from it—buildings mirroring nature. For example, the unrealized Malmi Church project has been recalled as including 'granite stranded by the glacial drifts', thus expressing Pietilä's ecologically explorative nature.[66] Such descriptions also reflect Pietilä's own explorations of a design site's long

Figures 4 (left page) & 5. Raili & Reima Pietilä, Metso Library, Tampere (1986). The main entrance steps lead visitors to a domed entrance hall. Its light-blue ceiling echoes the sky beyond; at times the contrast of light and dark may make the oculus seem like the moon in the twilight sky. Photos by the author, 2008 and 2011.

geological history. Nature was the material basis; the buildings grow out of the landscape. Pietilä was regarded as being in direct contact with the *genius loci*. This required a sensitivity to morphology, an attitude reflected in the language he used to describe his designs.[67]

As in the case of Saarinen and Aalto, an unexacting nature label has also sometimes been applied to Pietilä's architecture. The abundant references to nature have even been referred to as a 'nature cult'. Sigfried Giedion was a particularly influential disseminator of such ideas, and reinforced the notion of a Nordic closeness to nature, which was linked to irrationality or even mysticism.[68] The connection to nature was easily assumed, since the architects and architecture critics readily made references to forests and materials like wood and stone. The words, of course, form different images in the minds of readers, depending on the cultural context. This was something Pietilä himself was aware of when describing the forest imagery behind his design thinking. The taken-for-granted attitude towards a concept like 'closeness to nature' when describing Finnish architecture often resulted in a disregard for other equally important elements, as Roger Connah has pointed out in the case of Pietilä.[69] This was equally true for Eliel Saarinen and Alvar Aalto. The Finnishness in their architecture defies simplistic interpretations. While the buildings may be rooted in the surrounding nature, which required an understanding of local conditions, however, simply concluding that the background of a design is locally derived overlooks the many influences on each design process.

In addition to the obvious nature references and noted connection to the earth, Pietilä's architecture, especially the Dipoli building, has been regarded as displaying similarities to an earlier style of architecture: national romanticism and its solidness.[70] Such links have also been mentioned in evaluations of the president's residence in Mäntyniemi, since its organic architecture emphasizes natural materials and forms. In describing it, Connah uses language rooted in the land and its history: 'glacial rock and ruptured spring ice'.[71] Some critics have even gone beyond references to distant, bygone geological eras and added fantastical elements to their comments, claiming that Mäntyniemi was designed for elves or calling the Dipoli building a home for goblins.[72] The fantastical elements were partially intended as criticisms of the 'nature architecture'[73] that Pietilä espoused, but also succeeded in strengthening the unique connection to Finnish culture and its myths. The mythical element, of course, is visible at times in assessments of Saarinen

and Aalto's architecture as well. With Pietilä, this seems almost fitting, given the unique way his texts immerse themselves in the enigmatic dimensions of the Finnish forest landscape. Like Saarinen and Aalto before him, Pietilä obtained his principles of architecture from nature and the laws of universal order. This is close to Saarinen's claim that the universal principle of organic order is 'the fundamental principle of architecture in all of creation'. Such general statements also harken back to similar claims by architect-writers in history. In Pietilä's case, the claim is juxtaposed with counterclaims, which do not contradict the message, but show the multifaceted approaches to architectural interpretations. For him, there were many architectures.[74]

CONCLUSION: NATURE CULT AND THE DESIGN PROCESS

The 'nature cult' attribution is apparent in the assessments of the work of all of the three Finnish architects studied. When the reception of their architecture includes the nature theme associated with Finnishness, the northern nature stereotype with its attributes of mystery is often referred to as well. Eliel Saarinen, Alvar Aalto, and Reima Pietilä, in turn, all had to deal with the fantasy attribution, which links their buildings to forest myths and the magical power of original nature. The interpretations frequently present the connection to nature as one main explanation for the architectural outcome. Nature is connected to Finnishness, and thus to the architecture. The interpretations, however, tend to simplify and offer easy explanations that capture the imagination. Rational explanations or philosophy are overshadowed by the mysterious.

The three architects studied were naturally aware of the previous generation's architectural accomplishments, which the writers of their biographies have duly noted. All three architects were familiar with architectural history and shared knowledge of Finnish nature. All of them made references to nature in their texts. Yet, they did not emphasize it in quite the way that some interpreters of their architecture have tended to do. The architects themselves acknowledged the importance of nature as a premise in their individual design processes, but also utilized other, more international or universal influences. They could be slightly amused or even irritated by simplistic interpretations.

As Petra Čeferin has noted, the overemphasized nature rhetoric in connection with twentieth-century Finnish architecture was criticized from the 1960s onwards, when nature and archaic primitiveness were no longer seen

as the main sources of Finnish architecture. They were replaced by functionality, technology, and artistic power. Sensitivity to nature was simply one factor among many. Roger Connah has stated that even before the 1960s, architects in Finland avoided identification with nature, although foreign interpreters almost always associated Finnish architecture with nature. According to Connah, Finns preferred to talk about landscape rather than nature, because the former term did not have the same baggage as the latter. Likewise, Čeferin has pointed out that the international media was most interested in expressing Finnishness, while the Finns themselves emphasized international influences in their country's architecture. This was not seen as a confrontation, but rather as a successful combination of opposites. She has also referred to Giedion's suggestion that Finland is a country with a dualistic character, due to its location between East and West. Duality resulted in an ability to merge reasoning and imagination.[75] With this assessment, the strangely contradictory evaluations of Saarinen's skyscraper competition proposal become understandable. Indeed, they merged reasoning and imagination by combining technological inventions with folklore and fantasy.

The design approaches of the three architects were as unique as their architecture was specifically recognizable as their own. There were no master-apprentice relationships between them, even if they are all well-known characters in the ongoing story of Finnish architecture. While the land and its nature gave them one specific design premise, it does not directly explain their design choices. Nevertheless, the artistic power of their work seems to be linked to nature, and the inspiration it provided was noted by the writers of the architects' biographies; nature analogies abound in descriptions of their architecture. The architects themselves referred to nature as a source of inspiration, but here the nature was often universal in character, not only Finnish. All three architects had international careers as well, and thus needed to have a sensitivity to the specific context in each design task. The Finnish forest may have been the childhood landscape that these writers carried with them, but the nature they referred to was both place-specific and universal.

There thus seems to be a duality in this attitude to nature. Natural order was universal, and the biological premises for design could be approached analytically with conscious intent. The forest experiences in the Finnish landscape in childhood were more subconscious. As design premises they could be taken for granted, did not require explanation. Their significance was subtle and entwined with the unknowable in the design process. This

quality was easily associated with the mystery of Finnish nature, or even capricious playfulness; characters and aspects of fairy tales supplemented the creative process. When the fantasy element is not directly connected to the architecture but instead used to describe the unknown qualities of the architectural design process, it becomes a useful, descriptive metaphor for the process of artistic creativity. The fantasy comparisons in evaluations of their architecture, which might seem far-fetched and exaggerated, are better utilized when linked with the intuitive qualities of architectural design. One does not need to make the design process unnecessarily mysterious, but a sense of whimsical imagination and the creative power of intuition are nonetheless hinted at in the fantasy references—even ones expressed in criticism. The unique individuality of the design process is thus intricately linked to both universal premises like natural order and the inspired means of artistic creation.

NOTES

[1] Christian Norberg-Schulz, *The Concept of Dwelling* (New York: Electa / Rizzoli, 1985), pp. 9 and 12.

[2] Petra *Čeferin, Constructing a Legend: The International Exhibitions of Finnish Architecture 1957–1967* (Helsinki: The Finnish Literature Society SKS, 2003), p. 127.

[3] Heikki Mikkeli, 'Takaisin luontoon – Valistuksen ja romantiikan ajan luontosuhteen paradokseja ja kehityslinjoja', in *Kaupunkikuvia ajassa*, edited by Timo Joutsivuo, and Markku Kekäläinen (Helsinki: The Finnish Literature Society SKS, 2005), p. 254.

[4] Kaisa Broner, *Visions of Architecture—Arkkitehtuurin visiot* (Helsinki: Oku Publishing Oy, 2019), pp. 32–33, 38–41, and 123; Malcolm Quantrill, *Alvar Aalto: A Critical Study* (Helsinki: Otava, 1983), pp. 74, 93, 143, 170, and 229; Göran Schildt, *Valkoinen pöytä: Alvar Aallon nuoruus ja taiteelliset perusideat* (Helsinki: Otava, 1982), pp. 160–62. It must be noted that the three architects had wives who were educated in art and/or architecture and collaborated in their design work. This article, however, concentrates on written texts, which are generally credited to one individual author.

[5] Malcolm Quantrill, *Reima Pietilä* (Helsinki: Otava, 1984), p. 21.

[6] Pietilä, cited in Malcolm Quantrill, ed., *One Man's Odyssey in Search of Finnish Architecture: An Anthology in Honour of Reima Pietilä* (Helsinki: Building Information Institute, Building Book Ltd., 1988), p. 8.

[7] Quantrill, *Reima Pietilä*, p. 6.

[8] Aristotle already mentioned the idea of a connection between nature and architecture. Vitruvius and Leone Battista Alberti also made use of nature in their architecture theory. See Hanno-Walter Kruft, *A History of Architectural Theory from Vitruvius to the Present*, trans. Ronald Taylor, Elsie Callander, and Antony Wood (New York: Princeton Architectural Press, 1994; German original *Geschichte der Architekturtheorie: Von der Antike bis zur Gegenwart*, 1985), pp. 25–26, 47, 333–36, and 399–400; also see, for example, John Ruskin, *The Seven Lamps of Architecture* (1849) and William Morris, *News from Nowhere* (1890).

[9] Anna-Lisa Amberg, '"Kotini on linnani" – kartano ylemmän porvariston omanakuvana', *The Finnish Antiquarian Society Journal* 111 (2003), p. 147.

[10] On Saarinen as a pedagogue, see Carl Feiss, 'Out of School', *Progressive Architecture* (January 1953), pp. 124–34. On Aalto's teaching experience, see Alvar Aalto, 'Artikkelin asemesta' in *Arkkitehti – Arkitekten* 1–2 (1958), p. 27; and Göran Schildt, ed., *Näin puhui Alvar Aalto*, (Helsinki: Otava, 1997), p. 185. On Pietilä on teaching, see Quantrill, *Reima Pietilä*, p. 162; and Marianne Lehtimäki, 'Conversational training in environmental knowledge', in *Hikes into Pietilä Terrain*, edited by Aino Niskanen, Sirkkaliisa Jetsonen, and Tommi Lindh (Helsinki: Taiteentutkija 4. Taidehistorian seura, and Rakennustaiteen seura, 2007), pp. 81–95.

[11] For condensed takes on design processes, see Eliel Saarinen, *The Search for Form in Art and Architecture* (New York: Dover Publications, 1985, first edition 1948), p. 316; Alvar Aalto, 'Taimen ja tunturipuro', in *Kosketuksia Alvar Aaltoon* (Jyväskylä: Alvar Aalto Museum, 1998, first published in 1947 in the Italian journal *Domus*), pp. 14–16, esp. p. 14; Reima Pietilä, 'Näkemisen maisema', *Arkkitehti – Arkitekten* 3 (1959), pp. 37–39; Pietilä, cited in Malcolm Quantrill, 'Reima Pietilä: An Alien Presence in his Native Land', in *Hikes into Pietilä Terrain*, pp. 127–37, esp. p. 127.

[12] For instance, Ritva Wäre, 'Rakennettu suomalaisuus: Nationalismi viime vuosisadan vaihteen arkkitehtuurissa ja sitä koskevissa kirjoituksissa', *The Finnish Antiquarian Society Journal* 95 (1991), pp. 90, 126, and 189; and Amberg, 'Kotini on linnani', p. 142.

[13] Pekka Korvenmaa, 'Forest and Metropolis: Some aspects of the development of Finnish

architecture from halfway through the 1890s up to the First World War', in *Finland Creators* (Punkaharju: Art Centre Retretti, 1992), pp. 122–49, esp. p. 126.

[14] Albert Christ-Janer, *Eliel Saarinen* (Chicago and London: The University of Chicago Press, 1979, first edition 1948), p. 75; Schildt, *Valkoinen pöytä*, pp. 160–62; Quantrill, *Alvar Aalto*, pp. 3–4, 7, 10–12, and 32.

[15] On Eliel Saarinen's architecture and career, see Albert Christ-Janer, *Eliel Saarinen*. On the years in Finland in particular, see Marika Hausen, Kirmo Mikkola, Anna-Lisa Amberg, and Tytti Valto, eds., *Eliel Saarinen, Suomen aika* (Helsinki: Otava, 1990). On Eliel Saarinen as a planner and urban designer in the United States, see Minna Chudoba, *Kaupunkia etsimässä – Eliel Saarinen Amerikassa 1923–1950* (Tampere: Tampere University of Technology, 2011).

[16] Gustav Nyström, cited in Ville Lukkarinen, 'Classicism and History: Anachronistic Architectural Thinking in Finland at the Turn of the Century. Jac. Ahrenberg and Gustaf Nyström', *The Finnish Antiquarian Society Journal* 93 (1989), pp. 31–44. Lukkarinen makes reference to Gustaf Nyström's unpublished manuscript (Museum of Finnish Architecture).

[17] Louis H. Sullivan, 'The Kindergarten Chats', in *Kindergarten Chats and Other Writings* (New York: Dover Publications, 1979, published in *The Interstate Architect and Builder* 1901–1902), pp. 17–174, esp. p. 43; Kruft, *A History of Architectural Theory from Vitruvius to the Present*, pp. 356–59. A link to Sullivan has been noted by Christ-Janer, *Eliel Saarinen*, pp. 10–11; Marika Hausen, 'Saarinen Suomessa', in Marika Hausen et al., *Eliel Saarinen, Suomen aika*, pp. 7–82, esp. pp. 60 and 77.

[18] Saarinen, *The Search for Form in Art and Architecture*, pp. 21, 29, 44–48, and 227.

[19] Ibid., pp. v, xii, 18, 26, 46–48, 109–12, and 121–33.

[20] Ibid., pp. 24–26, 65, 181–82, and 316.

[21] Marika Hausen, 'Gesellius–Lindgren–Saarinen at the turn of the century', *Arkkitehti – Arkitekten* 9 (1967), pp. 2–4 and 6–12, and 'Saarinen Suomessa', pp. 7–82.

[22] For example, Roy Slade, 'Introduction', in *Saarinen House and Garden: A Total Work of Art*, edited by Gregory Wittkopp (New York: Harry N. Abrams, 1995), pp. 9–16, esp. p. 14; Nancy Rivard Shaw, *Eliel Saarinen in America* (master's thesis, Wayne State University, Detroit, 1973), pp. 64–65, Cranbrook Archives; Lillian Swann Saarinen, 'A text addressed to Nancy Rivard', 1 June 1973, Correspondence between Christ-Janer and Albert, 2:1, Cranbrook Archives; Christ-Janer, *Eliel Saarinen*, pp. 48–51.

[23] Also see Louis H. Sullivan, 'The Chicago Tribune Competition' in *The Testament of Stone: Themes of Idealism and Indignation from the Writings of Louis Sullivan*, edited by Maurice English (North Western University Press, 1963, first published in *The Architectural Record* [February 1923]), pp. 63–70; Thomas Tallmadge, *The Story of Architecture in America* (New York: W.W. Norton & Company, 1927), pp. 291–93; Thomas A. P. van Leeuwen, *The Skyward Trend of Thought: The Metaphysics of the American Skyscraper* (Cambridge, MA: The MIT Press, 1990, first edition 1988), p. 29.

[24] Tallmadge, *The Story of Architecture in America*, pp. 291–93; Sullivan, 'The Chicago Tribune Competition', pp. 63–70.

[25] J. S. Sirén, 'Eliel Saarinen', a text for the publication accompanying Eliel Saarinen's retrospective exhibition, Taidehalli, 1 to 11 June 1955, pp. 9–13. Museum of Finnish Architecture.

[26] Gustaf Strengell interview titled 'Byplan och moderne Arkitektur', Danish article by A. W., in an unnamed and undated journal, Museum of Finnish Architecture. The influences mentioned include, for example, William Morris, M. H. Baillie Scott, Camillo Sitte, and Otto Wagner.

[27] Alvar Aalto, 'Esipuhe', in Christ-Janer, *Eliel Saarinen*, pp. 9–11.

[28] Schildt, *Valkoinen pöytä*, pp. 160–62; Quantrill, *Alvar Aalto*, pp. 3, 15, and 19.

[29] J. Kaipia, cited in Peter MacKeith, 'Profeetta omassa maassaan', *Helsingin Sanomat Kuukausiliite* 2 (1998), pp. 44–47, esp. p. 46; Schildt, *Valkoinen pöytä*, pp. 197–200; Göran Schildt, *Inhimillinen tekijä: Alvar Aalto 1939–1976* (Helsinki: Otava, 1990), p. 321; Göran Schildt, *Nykyaika: Alvar Aallon tutustuminen funktionalismiin* (Helsinki: Otava, 1985), p. 230; Quantrill, *Alvar Aalto*, p. 6.

[30] Aalto, 'Artikkelin asemesta', p. 27; Aalto, cited in Kirmo Mikkola, 'Aalto the Thinker', *Arkkitehti – Arkitekten* 7–8 (1976), pp. 22–23; Aalto, cited in Schildt, *Näin puhui Alvar Aalto*, p. 185.

[31] Aalto, 'Taimen ja tunturipuro', pp. 14–16, esp. p. 15.

[32] Quantrill, *Alvar Aalto*, p. 5.

[33] Saarinen, *The Search for Form in Art and Architecture*, p. 299.

[34] Aalto, cited in Schildt, *Näin puhui Alvar Aalto*, pp. 108 and 266–67; Aalto, cited in *The Use and the Abuse of Paper: Essays on Alvar Aalto*, edited by Kari Jormakka, Jacqueline Gargus, and Douglas Graf (Tampere: Tampere University of Technology, DATUTOP 20, 1999), pp. 89 and 92.

[35] Alvar Aalto, 'Kansallinen – kansainvälinen', *Arkkitehti – Arkitekten* 7–8 (1967), p. 7.

[36] Christian Norberg-Schulz, 'The Way of Reima Pietilä', in Quantrill, *One Man's Odyssey in Search of Finnish Architecture*, pp. 12–17, esp. p. 12.

[37] Schildt, *Inhimillinen tekijä*, p. 220.

[38] Aalto, 'Taimen ja tunturipuro', pp. 14–16, esp. p. 14. On Italian influences, also see Quantrill, *Alvar Aalto*, pp. 38–39, 40, 134, and 167; Schildt, *Valkoinen pöytä*, p. 168.

[39] For example, Säynätsalo Town Hall, see Schildt, *Inhimillinen tekijä*, pp. 158 and 208, or the Muurame Church in an exaggerated hilly landscape, see Schildt, *Valkoinen pöytä*, p. 144.

[40] Leonardo Mosso, 'Alvar Aalto', in *The Thames and Hudson Dictionary of 20th Century Architecture* (London, and New York: Thames and Hudson, 1996, originally published in 1963 as *Encyclopaedia of Modern Architecture*), p. 10; Quantrill, *Alvar Aalto*, pp. 3 and 73. On the Francis of Assisi comparison, see Carlo Raghianti according to Schildt, *Inhimillinen tekijä*, p. 219.

[41] Čeferin, *Constructing a Legend*, p. 127.

[42] Sigfried Giedion, *Space, Time and Architecture: The Growth of a New Tradition* (Cambridge, MA: Harvard University Press, 1967, 5th edition, revised and expanded, first edition 1940), pp. 620–21. 'Wizard of the north'—Giedion's expression, cited in Marianna Heikinheimo, *Architecture and Technology: Alvar Aalto's Paimio Sanatorium* (PhD thesis, Aalto University, 2016), p. 134, with reference to Giedion's letter to Aalto of 6 December 1933.

[43] Aalto 1925, cited in Schildt, *Valkoinen pöytä*, p. 207; Aalto, cited in Schildt, *Inhimillinen tekijä*, p. 294.

[44] Aalto, 'Taimen ja tunturipuro', p. 15; Aalto, cited in Mikkola, 'Aalto the Thinker', p. 23; Alvar Aalto, 'Porraskiveltä arkihuoneeseen', in *Kosketuksia Alvar Aaltoon* (Jyväskylä: Alvar Aalto Museum, 1998, first published in Finnish in *Aitta* 1 [1926]), pp. 8–12; Schildt, *Valkoinen pöytä*, p. 227; Schildt, *Inhimillinen tekijä*, p. 161; Mosso, 'Alvar Aalto', p. 10.

[45] Aalto, cited in Jormakka et al., *The Use and the Abuse of Paper*, p. 38.

[46] Juhani Pallasmaa, 'Tektonisuudesta maalaukselliseen arkkitehtuuriin', in *Kosketuksia Alvar Aaltoon* (Jyväskylä: Alvar Aalto Museum, 1998), pp. 36–47 and 51; Aalto, 'Taimen ja tunturipuro', p. 15; also see Lauri Louekari, 'Architecture of the Forest: Observations on the relationship between spatial structures in architecture and natural spaces', *Nordic Journal of Architectural Research* 3 (2008), pp. 98–113, esp. p. 103.

[47] Mikkola, 'Aalto the Thinker', pp. 22–23; Quantrill, *Alvar Aalto*, pp. 23 and 100; Schildt, *Valkoinen pöytä*, p. 183; Schildt, *Inhimillinen tekijä*, pp. 273–74; Schildt, *Nykyaika*, pp. 221–22.

[48] Jormakka et al., *The Use and the Abuse of Paper*, p. 88.

[49] In Finnish, 'Aallon ilmasto', in Quantrill, *Reima Pietilä*, p. 21.

[50] Roger Connah, *Writing Architecture* (Helsinki: Rakennuskirja Oy, 1989), pp. 42–44, 47, and 55.

[51] Louekari, 'Architecture of the Forest', p. 104; also see Norberg-Schulz, 'The Way of Reima Pietilä', pp. 12–13.

[52] Connah, *Writing Architecture*, pp. 23 and 37. Connah is a Pietilä interpreter who is well suited to the task. *Writing architecture* is an extensive collection of notes, philosophical quotes, and fragments of art and literature that captures the twentieth-century culture that Pietilä was influenced by—and which he influenced himself.

[53] Connah, *Writing Architecture*, pp. 35 and 112; Aino Niskanen, 'Foreword', in *Hikes into Pietilä Terrain*, pp. 6–7, esp. p. 6; also see Reima Pietilä, 'Local—non-local', *Arkkitehti – Arkitekten* 7–8 (1967), pp. 23–24, esp. p. 24; Reima Pietilä, 'Arkkitehtuuri, estetiikka, yhteiskunta, ideologia', *Arkkitehti – Arkitekten* 1 (1973), pp. 56–59, esp. p. 59; Pietilä, cited in Timo Koho, *Reima Pietilä – 'Kaipasin muunlaista ajan tunnetta'* (Helsinki: Painatuskeskus, 1995), pp. 70–71 and 85.

[54] Niskanen, 'Foreword', pp. 6–7; Pietilä, cited in Connah, *Writing Architecture*, p. 78; Pietilä, in *Pietilä – Modernin arkkitehtuurin välimaastossa – Intermediate Zones in Modern Architecture*, ed. Marja-Riitta Norri, Roger Connah, Kari Kuosma, and Aaro Artto (Helsinki and Jyväskylä: Museum of Finnish Architecture and Alvar Aalto Museum, 1985), pp. 7–8.

[55] Connah, *Writing Architecture*, pp. 29–30; Koho, *Reima Pietilä*, pp. 7 and 115; Pekka Passinmäki, 'Studio talk', in *Hikes into Pietilä Terrain*, pp. 54–56.

[56] Pietilä according to Quantrill, 'Reima Pietilä: An Alien Presence in his Native Land', pp. 127–37, esp. p. 127.

[57] Pietilä, cited in Broner, *Visions of Architecture*, pp. 32–33 and 38–41. For illustration examples, see Reima Pietilä, 'Maisema ja rakentumismuodot', *Arkkitehti – Arkitekten* 4 (1968), pp. 30–31.

[58] Reima Pietilä, 'Pure Architecture', in *Hikes into Pietilä Terrain* (notes recompiled and proofread by J. Mänty and G. Griffiths), pp. 116–17; Pietilä, 'Local—non-local', pp. 23–24; Pietilä, cited in Norberg-Schulz, 'The Way of Reima Pietilä', p. 12. See also Connah, *Writing Architecture*, p. 85; Broner, *Visions of Architecture*, p. 183; Niskanen, 'Foreword', pp. 6–7.

[59] Pietilä, 'Vastaavuuspeli', *Arkkitehti – Arkitekten* 5 (1967), p. 37; Pietilä, 'Harrastekoirat', *Arkkitehti – Arkitekten* 6 (1967), pp. 22–24; Pietilä, cited in T. H. Mäkelä, 'Reima Pietilä and Designing Immanence', in *Hikes into Pietilä Terrain*, p. 46. On the idea of 'drawing in Finnish', see Gareth Griffiths, '"Drawing in Finnish"? Notes on Cultural Relativism', *Gender of Space*, edited by in Jorma Mänty (Tampere: Tampere University of Technology, DATUTOP 21, 2001), pp. 17–35.

[60] Reima Pietilä, and Raili Paatelainen, 'Dipoli', *Arkkitehti – Arkitekten* 9 (1967), pp. 4–5 and 14–19, esp. p. 19.

[61] Ibid., p. 14; Pietilä, 'Arkkitehtuuri, estetiikka, yhteiskunta, ideologia', pp. 56–59, esp. p. 56.

[62] Pietilä, cited in M-R. Norri et al., eds., *Pietilä – Modernin arkkitehtuurin välimaastossa – Intermediate Zones in Modern Architecture*, p. 127. Originally from the SAFA seminar 'Design Sense of the 80s', 1984.

[63] Pietilä, cited in Louekari, 'Architecture of the Forest', p. 103; see also Norberg-Schulz, 'The Way of Reima Pietilä', p. 12.

[64] Pietilä and Paatelainen, 'Dipoli', pp. 4–5 and 14–19, esp. p. 4; Pietilä, cited in Quantrill, *Reima Pietilä*, p. 50.

[65] Pietilä, cited in Quantrill, *Reima Pietilä*, pp. 55–56.

[66] Connah, cited in Quantrill, 'Reima Pietilä: An Alien Presence in His Native Land', pp. 127–37, esp. p. 133; on the Malmi Church example, see p. 135. Also see Broner, *Visions of Architecture*, pp. 187 and 191.

[67] Riitta Kuoppamäki, *Arkkitehtonisen tilan aineellisuus: Johdatus kaupungin uudelleen ajatteluun* (Kaupunki arkkitehdin ajatuksissa 5, Espoo: TKK, Yhdyskuntasuunnittelu, 1993), p. 147; Norberg-Schulz, 'The Way of Reima Pietilä', pp. 12–14; Olli-Paavo Koponen, 'Finnishness in Reima Pietilä's Architecture', in *Hikes into Pietilä Terrain*, p. 139; Quantrill, *Reima Pietilä*, pp. 49 and 82; Connah, *Writing Architecture*, pp. 78 and 98.

[68] Čeferin, 'In Pursuit of Finnishness: The Foreign Press on Finnish Architecture, 1957–67', *Arkkitehti* 1 (2004), pp. 12–23, esp. p. 21; with reference to Jiří Siegel for coining the term 'nature cult', also see Giedion, *Space, Time and Architecture*, pp. 620–21.

[69] Pietilä, according to Connah, *Writing Architecture*, p. 114; Connah, *Writing Architecture*, pp. 98 and 103. Also see Olli-Paavo Koponen, 'Finnishness in Reima Pietilä's Architecture', pp. 139–42, esp. p. 139. Koponen has pointed out that Pietilä had connections to international regionalist thinking, something that was not often noted in Finland.

[70] Quantrill, *Reima Pietilä*, p. 56.

[71] Connah, *Writing Architecture* (pp. 99–100) connects the Paris pavilion (1900, by Gesellius, Lindgren, Saarinen) with Pietilä's 1983 competition entry for the president's residence in Mäntyniemi. He saw the visual expression of Finnish identity in both projects. The leap from national romanticist architecture directly to Pietilä was made with no mention of Aalto, since earlier tradition was common knowledge for Finnish architects. Nevertheless, Aalto's influence is regarded as considerable.

[72] Kai Wartiainen, cited in Anu Uimonen, 'Arkkitehti Kai Vartiainen arvostelee presidentin uutta virka-asuntoa – "Maahisen maja, jonne muuttaa matkailukeiju"', in *Helsingin Sanomat* (2 September 1992); Ritva Kaje, Reima Pietilä, Asko Salokorpi, and Hannu Taanila, 'Parnasson kyselytunti: Reima Pietilä', *Parnasso* 4 (1967), pp. 189–95; also see Koho, *Reima Pietilä*, pp. 8 and 60.

[73] In Finnish 'luontoarkkitehtuuri', a term used by Pietilä starting in the 1980s. See Broner, *Visions of Architecture*, p. 123; Norri et al., *Pietilä – Modernin arkkitehtuurin välimaastossa*, pp. 24–25.

[74] Pietilä, 'Pure Architecture', pp. 103–24, esp. pp. 104–05; Pietilä, 'Vastaavuuspeli', p. 37; Pietilä according to Connah, *Writing Architecture*, p. 49. Also see Saarinen, *The Search for Form in Art and Architecture*, p. 27.

[75] Čeferin, 'In Pursuit of Finnishness: The Foreign Press on Finnish Architecture, 1957–67', pp. 21–23; Čeferin, *Constructing a Legend*, pp. 13–17 and 124–27; Connah, *Writing Architecture*, p. 53; Giedion, *Space, Time and Architecture*, pp. 549 and 618–21. The ability to successfully

combine opposites is mentioned most often in assessments of Alvar Aalto's architecture. For mentions of local—non-local or national—international, see the articles in *Arkkitehti* 7–8 (1967): Pietilä, 'Local – non-local', pp. 23–24; Aalto, 'Kansallinen – kansainvälinen', p. 7.

MEDITERRANEAN ECHOES: UNDERSTANDING NORTHERNNESS THROUGH THE SOUTH

Carlotta Torricelli

ABSTRACT

This article examines the possibility of designing the features of regional identities using archetypes and figures extracted from a distant universe within a dynamic process of dialectic oppositions. Nordic culture, which is divided between knowledge of superior design and the presence of wild nature, has regularly turned to the Mediterranean as a point of reference: the essence of absolute beauty. Its peripheral position permits a particular perspective, while the classical myth, when shifted to the North, undergoes deformations due to the tension with the place. This 'archaeological gaze' is rooted in Nordic culture and surfaces in different moments of cultural re-foundation.

The aim is to underline the continuity of this attitude in Nordic architectural culture by focusing in particular on the Swedish context. In fact, when one takes a closer look at the Gustavian era, specific artists and architects tend to stand out, such as Carl August Ehrensvärd and Louis Jean Desprez, whose works demonstrate a compositional approach that would be taken up again in the era of modern classicism of the twentieth century. In particular, this study identifies as exemplary the approach expressed in the work of Sigurd Lewerentz.

Recognition of this continuity inspires reflections on the idea of architectural composition as an assembly of heterogeneous echoes. It demonstrates the possibility to design works of architecture whose roots are married to absolute values, in an intricate fusion of local and international influences.

KEYWORDS

Nordic Classicism, Gustavian era, Carl August Ehrensvärd, Sigurd Lewerentz

INTRODUCTION: ANALOGY, QUOTATION, AND ASSEMBLAGE AS DESIGN TECHNIQUES

> Certainly, every place is unique to the extent that it possesses limitless affinities or analogies with other places; even the concept of identity, and hence that of difference, is relative.[1]

In architecture, as is generally the case in any artistic field, the question of *invention* leads to an examination of compositional processes as moments of dynamic syntheses, in which the productive faculty of the design is capable of breaking any historical and geographical chains, and periodically ends up constructing a pattern of relationships that the new work establishes with the physical and cultural memory of a particular place. In the inherent tension between time and space, the architectural project redefines the identity of the place it is intervening in through time lapses, which can simultaneously reveal distinct signs held together by the design's structure. Given that it is an act of transformation, a new work generates a fracture in the sensitive structure of space, which reveals different meanings and defines a new memory by exploring a fresh movement.

Hence the understanding of an architectural project as a possibility to redefine a place's identity projects into space not only relationships of a physical order, but also those of an analogical order, and lets the voices of different and distant times and places resound through a new composition. The theme of analogy is inescapably linked to that of assemblage as a design tool capable of bringing new meaning to things through the chain of associations it triggers. In other words, the project produces a short-circuit in time that reveals the multiform face of the possibilities thanks to a process of invention that feeds on an 'inverted memory' capable of reconnecting the inevitable changes to metamorphoses, and defining itself as an 'assembly of heterogeneous times' that allows for anachronisms.[2]

Thinking about architecture in terms of this *poetics of assemblage* leads to the possibility to formulate a 'new multi-scalar relationship between territory, city, and architecture'[3] that can prove useful as an interpretative tool with respect to the problems of contemporaneity, since it links architecture both to the tradition of the discipline and to the specific nature of the place and culture in which it is intervening.

If it is thus possible to think of composition in terms of *assemblage* and *materials/quotations*, it seems especially important to examine the singular way in which Nordic architects have adopted the classical language of architecture in the Nordic countries. In particular, this study identifies the experiences of particular architects and artists who worked in Sweden at the end of the eighteenth century as exemplary of this approach, and proposes understanding their work as a cultural basis on which certain works of modern classicism were based in the first two decades of the twentieth century, works that have been recognized as some of the most identity-forming instances of Swedish architecture. In this sense, it is evident that at a time of a fundamental re-founding of local identity (also on a political level and not only in artistic and cultural fields), recourse was made in Sweden—though the reasoning could also be extended to include other Nordic countries—to the Mediterranean matrix as an ancestral element based on which to redefine its Nordic specificity. While the distinctive features of local architecture are thus simultaneously recognizable and established, they also refer to a distant elsewhere. In fact, what links these two artistic eras is not so much the recovery of a classical language *per se*, but the peculiar perspective through which certain classical syntagma were translated to the north in a dialectical opposition to the context.

THE JOURNEY OF THE CLASSICAL NORTHWARDS: TRANSLATION AS METAPHOR

The examination of the theme of *Northernness* based on a contrast with the Mediterranean world is part of a more general reflection on the topics of travel—migration understood as *transposition*—and *translation*. In fact, *transposition* and *translation* are two fundamental concepts in the process of artistic invention, and their application has historically brought to life some of the most revolutionary works, works that have opened up new horizons for experimentation.

Journey here is not intended to denote simply applying the academic tradition of the *Grand Tour*[4] and an obligatory stage of artistic apprenticeship, but was instead a pivotal period in which Nordic architects of different eras discovered the ancient world as construction material for their own designs, examined the deeper reasons behind its evolution, and transposed and transfigured these 'external characteristics'[5] to and for Nordic countries.

It is important to underscore the interpretation given in this present study of the topic of translation, by borrowing the words of Iosif Brodsky: 'Civilization is the sum total of different cultures animated by a common spiritual numerator, and its main vehicle—speaking both metaphorically and literally—is translation. The wandering of a Greek portico into the latitude of the tundra is a translation . . . Translation is a search for an equivalent, not for a substitute.'[6]

And as we shall see further on, when the relationship with the past takes the form of a quotation—understood as a 'reference to a logical universe of architecture'[7]—it also takes on a symbolic value that is open to various interpretations, thereby revealing the inherent contradiction as well.[8] Meanwhile, the use of quotation brings us back to the topic of composition as an assemblage, which serves as a theoretical basis for this present study: in any case, 'quotation' becomes the means by which that 'sense of the game', which is in fact the intellectual structure of every human work, manifests itself more openly.[9]

Looking at the present, the question is thus: To what extent has this migration of archetypes and figures from distant geographies given rise to compositions that can give rise to profound reflection on the characteristics of local architecture, and when this dynamic and fruitful process has instead been cancelled out by the stultifying effect of globalization, which has made works of architecture the same everywhere, while not being particularly suited to any place?

These considerations lead to the possibility of designing a brand-new, mindful regionalism, which searches for the deep link between architecture, the city, and settlements as an expression of specific cultures, local traditions, and complex combinations in a synthesis of localism and internationalism.

This article constitutes an opportunity to spotlight, within a precise architectural setting, the line of continuity of a specific tradition founded on recourse to an external reference in the formation of a tangible image of a country, a region, and its culture.

THE CLASSICAL AS A BASIC CONTRADICTION: THE DREAM OF GUSTAV III

Starting from the assumption that every work of architecture has the objective of combining its own roots with absolute values, Nordic architects' encounter

with the Mediterranean world—in its supreme examples—brought to life something that I have called 'frontier classicism' in other research.[10]

In the essays collected in the volume *Nightlands: Nordic Building*,[11] Christian Norberg-Schulz took a close look at the concept of the 'Nordic' and its characteristic features. In the chapter 'The Foreign', the scholar identifies the ability to incorporate contributions from different cultures as a feature of Scandinavian culture's artistic approach to compositional issues. In particular, as regards neoclassicism, which is considered to be a component of the Enlightenment, he notes that a familiarization with the classical language of architecture took place thanks to the conviction that, although born in a distant territory, it remains an expression of humanistic and hence universal foundations.

The ability to confer order or to highlight what underlies the nature of things, along with the search for architectural elements with a recognizable character, are two instances that Nordic architecture assimilated from the outside and combined with its own solid regional construction tradition. This same approach would also be central to defining modern European architecture after the Second World War. The North outlined its identity by contrasting itself with the South; that very 'northernness' results from an encounter between what is familiar and domestic and what is foreign and imported.

Regarding 'abstract classicism', Norberg-Schulz cited as examples the work of Christian Frederik Hansen (1756–1845) in Denmark, Christian Heinrich Grosch (1801–1865) in Oslo, and the German architect Carl Ludwig Engel (1778–1849) in Helsinki. These architects were also benchmark figures for the modern classicism that developed in the early decades of the twentieth century in Scandinavia and Finland. There was apparently no similar figure in Sweden, despite the fact that, under the reign of Gustav III (1746–92), a fertile period of cultural rebirth arrived, during which, based on studies of the ancient world, the foundations were laid for an Enlightenment interpretation of classical principles that continued to flourish in a successive modern rereading.

If we wish to extend our gaze to the Baltic as a whole, we must emphasize the role as an icon that the 'big window on Europe',[12] namely, Saint Petersburg, assumed. Built at the cost of a huge sacrifice of labour and human lives by Tsar Peter the Great, it represented the Russian dream of a European capital

on the banks of the Neva. As a result, it was also possible to gradually witness the affirmation of the classical language of architecture on the other coasts of the Gulf of Finland.

The time came to found new cities, or to give capital cities a face-lift in order to express an idea of power based on a clear and absolute order, and in this case, this meant translating the classical language to the snowy landscapes of these regions.

And it was also to confront this Russian Baltic view—which was founded in 1703 on land previously conquered by Sweden—that Gustav III, in 1771, with the inauguration of his government, gave the Swedish navy a key role. The most important naval bases were in Stockholm and further south in Karlskrona, and were established in strategic locations in those years.

At the same time, Gustav III's planned reforms to the Swedish state were not only military but also artistic and cultural. In fact, the dream cherished by Gustav III was to foster an elegant, urbane cultural environment. He was an art collector, archaeology aficionado, and lover of Italy as well as of the theatre and literature—and would also go on to found the much-celebrated Swedish Academy in 1786.

Before becoming king, he himself went on a journey around Europe under a false name, in the company of his brother, in order to make contacts with the French court and the world of intellectuals, philosophers, and scholars that gravitated around it. Following extensive preparations by various Swedish artists living in Rome, he began his journey to Italy in 1783–84. This would be the occasion on which he would acquire from Francesco Piranesi—the son of Giovanni Battista, to whom he entrusted a series of diplomatic tasks with the aim of developing commercial and artistic relations between Sweden and the Papal States[13]—the collection of marbles based on which he would create the Museum of Antiquities,[14] which opened in 1794.

During his reign, an entire generation of Swedish architects and artists travelled southwards to see the ruins of antiquity, but many of them were troubled by conflicting sentiments. For these intellectuals, the classical constituted an alternative: ideal and abstract aspiration, and yet, at the same time, concrete material, examined and measured. In Rome, they gathered around the Swiss artist Henry Füssli;[15] among them was the sculptor Johan

Tobias Sergel (1740–1815), for whom the encounter with antiquity gave rise to a state of turmoil and depression that would stay with him for the rest of his life. The gloomy estrangement he expressed in his production of satirical vignettes offered a counterpoint to the crystalline rigour of his work as a sculptor. In addition, Sergel was the mouthpiece of a widespread rebuttal of the French taste promoted by the king in favour of a direct study of classical antiquity, which was seen as the perfect ideal of reference for achieving a high artistic level even in a country of poor origins. In this vision, classical simplicity and balanced proportions could help Sweden impose its own national style. In opposition to the spectre of endemic barbarisms: 'It is the elementary archetypical geometries of the forgotten temples of Paestum, their spare, austere beauty that promotes a search for essential form, a drastic reduction in expressive means, an accentuation of the conceptual side of the image.'[16]

In his reflections on the distinctive characteristics of Nordic architecture, Christian Norberg-Schulz returned to this topic on several occasions: 'In general, we may say that anticlassical Nordic forms presuppose the classic. Classicism is, essentially, the basic language against which all local and temporal forms must be measured . . . Nordic artists have, therefore, always travelled to the South to learn composition—that is, to acquire the tools that ease the capture and presentation of the northern world's unfathomable web. But we should not forget that the goal is to manifest this world, not to transplant the classic . . . In Nordic architecture, columns and pilasters extend beyond all human proportion; frontispiece break and detail are combined in bizarre and meaningless ways. Nonetheless, they resound with classicism, as that which is contradicted.'[17]

CARL AUGUST EHRENSVÄRD: THE JOURNEY OF THE 'WALKING EYE'

Carl August Ehrensvärd (1745–1800) is a key figure in understanding the restless 1780s in Sweden.[18] A naval officer and a gifted amateur in the literary field, as well as a draughtsman and architect, at the beginning of 1780, after reading Winckelmann's *Reflections on the Painting and Sculpture of the Greeks*, he left for Italy, for the ancient world awaiting him in Rome, and then in Sicily and finally Malta. In his case, too, his experiences on this trip triggered an inner dilemma: the classical was taken as a basic contradiction, in a polarization typical of Nordic culture: on one hand, the southern climate, which favoured the creation of the rational principles of ancient architecture; on the other the barren northern landscape, which was apparently unable to

grant art and architecture their due place—a dynamic juxtaposition between the instability of the Nordic world and the absoluteness of the classical model.

The journey of the 'walking eye'—as he defined himself in a caricature[19]—is impartial and partisan in its search for a meta-historical Italy. His return journey was filled with impatience to apply the principles of architecture that he had studied and measured on the one hand, and, on the other, with a gradually increasing nostalgia for the beauty receding into the distance.[20] This tension was translated into the occasion for a project: an extensive series of drawings, and a meagre number of realizations; scientific realism and fantastic surrealism did not contradict one another, but instead generated personal poetics.

In 1786, he published *Resa til Italien*,[21] his travel diary illustrated with thirty-eight plates produced from his sketches of landscapes and people, along with a few examples of vernacular architecture. In it, Italy is regarded as the cradle

Figure 1. Carl August Ehrensvärd, Temple; pencil and watercolour on paper. © Nationalmuseum, Stockholm

of civilization, while the intellectual following his path is driven by a tireless search for elemental structures.

That same year, he also published his aesthetic program *De Fria Konsters Philoshi* or *The Philosophy of the Free Arts*, in which he compiled his considerations by means of concise aphorisms in the form of a dialogue, thus showing his accord with European Enlightenment culture. From his point of view, architecture played a fundamental role among the liberal arts, and he hence highlighted its ability to be generated based on the laws of nature and the principle of necessity. For him, the greatest expression of this synthesis was the Greek temple, and the particular challenge for Nordic architecture was to find Greek simplicity, despite it being applied in freezing climes.[22]

The examination of the primary value of the Doric, understood as the original manifestation of the trilithic system, led Ehrensvärd to produce a series of architectural designs and studies—only a few isolated examples of which would actually be realized—in which he hyper-characterized the elements of the Greek structure in favour of a tectonic expression, in search of a building ontology that, according to some scholars, would also characterize 'Scandinavian Doricism'.[23] In his drawings, the fragments of antiquity are set in the natural landscape of Sweden based almost on a technique of alienation, mixed with an attitude of bitter irony, which reveals the constant tension towards the stateless form in opposition to the wild face of Nordic nature. The set pieces taken from the classical world but presented in their autonomy as quotations confer a principle of order capable of measuring, of 'giving scale' to the changing and indefinite landscape of the Nordic sites.

Thanks to a collaboration with his friend Fredrik Henrik Chapman (1721–1808)—an admiral in the Swedish navy and head of the Karlskrona shipyard—Ehrensvärd had the opportunity to give a concrete form to his Mediterranean dream. Indeed, Chapman—who became famous in Europe thanks to his treatise on naval architecture, *Architectura Navalis Mercatoria*, published in 1768—was commissioned in 1780 to build a new fleet of warships within seven years. A period of great fervour thus began for the naval base, which was entirely reorganized and rendered more efficient through the construction of new buildings.

As a first assignment, Ehrensvärd defined the design for a large warehouse, the Inventory Chamber—nicknamed the *silver building*, because of the high

construction costs—in which to stow the equipment for thirty-six new ships, and which, as a result, had to respond internally to a range of stringent functional constraints. Externally, however, the long waterfront directly recalled the buildings he had seen during his recent trip to Italy. In particular, the absolute rigour with which the rhythm of the windows of the long front was designed calls to mind the Bourbon Hospice for the Poor, which Ferdinando Fuga began building in Naples shortly after the mid-eighteenth century.

Figure 2. Carl August Ehrensvärd, wooden model of a Doric portico for the Inventory Chamber, Karlskrona Navy Yard, ca. 1783. Stockholm Nationalmuseum's Collection, Photo by Oscar Reutersvärd.

As part of his experiments in connection with this project, Ehrensvärd realized a series of sketches and wooden models of portals to be placed at the entrances, in which he showed his profound reflection on Doric architecture. Based on the sequence of models, the emphasis given to the tectonic expression of the trilithic system produced not so much a variation on the Doric style but a reduction of the Doric to its constructional archetype.

In 1783, Ehrensvärd and Chapman undertook the design of another large building whose ground floor contained the Navy Conscription Hall, and whose upper floor a room of models of ships models made at the shipyard. The building is a simple brick structure that extends for 80 metres longitudinally, into which a two-storey portico that exceeds it in height is positioned transversely: six large wooden Doric columns on a base of large stones support the tympanum. The volume of the Models Room upstairs extends inside this portico, introducing a façade floor with five windows overlooking the port in the intercolumniation.

At the end of his career, Admiral Chapman decided to build his country residence in Skärva, near Karlskrona (1785–90). At Skärva the two friends combined Nordic and classical features in a fantasy that included the archaic and the primitive.[24] Skärva may be viewed as a conceptual illustration of the origins of the architecture as interpreted by William Chambers in his *Treatise*, which was well known by Ehrensvärd. For the construction of the main building, he combined a fragment of antiquity with a Swedish vernacular house: the main entrance is emphasized by the presence of four imposing Doric columns dominated by a tympanum, which together function as a porch. The Doric columns were originally positioned at the conclusion of a group of oak trees. The relationship between the columns and the trunks is an evident expression of these ideals. The house is situated in an English-style garden developed on a slope descending towards the bay, from which the archipelago of the harbour of Karlskrona can be seen.[25] The garden features various small buildings, including a Gothic tower and a temple in the Pompeian style, which Ehrensvärd realized in secret as a surprise for his friend's birthday. The whole project represents the result of a shared search for a new Swedish architecture freed from the whims of the Rococo era, which united the vernacular and the classical, in the name of a simplicity regarded as the original value of the construction style.

THE WANDERING OF A GREEK PORTICO INTO THE LATITUDE OF THE TUNDRA[26]

In a park at Mälby, south of Stockholm, on the estate of another friend, Johan Gustav von Carlsson, Secretary of State and President of the Court of Appeals, Ehrensvärd finally had the opportunity to build a wooden copy on a 1:1 scale of the Temple of Hephaestus in Athens[27]—one of the most important references in Doric architecture, known since the Renaissance thanks to its optimal state of conservation, and published in *Les Ruines des plus beaux Monumental de la Grèce* by Julien-David Le Roy. The Mälby estate was well known to the literary circles of the Gustavian era, and the owner's guests included, among others, Carl Michael Bellman, the poet Johan Gabriel Oxenstierna, and Tobias Sergel. The estate is surrounded by an English-style garden, dotted with sculptures and small classical buildings, which attracted the admiration of his peers. The landscape is more inhospitable than that at Skärva, and is made up to a large extent of a fir trees growing on top of a steep cliff. It was in this setting that Ehrensvärd decided to build the temple, following a series of other proposals, among which the project for a broken column on a gigantic scale should be noted. This design directly recalls the project for the *Colonne Détruite*, the summer accommodation that François Racine de Monville had built in his Anglo-Chinese garden called Le Désert de Retz (Chambourcy, France), which was realized between 1774 and 1785. Many of the artists and intellectuals of the time, including Gustav III, would meet in this place, and we can find in Sweden several coeval projects and creations that make direct reference to that dense system of symbolic evocations—based on the idea of an initiatic path of a Masonic pattern—to which the architectural follies of this park refer.

The Mälby temple, built entirely of wood, was completely destroyed in a fire, but it was not the only Swedish attempt to reproduce the model of the Temple of Hephaestus in Athens. At Söderfors—an old ironworks in the Uppland region in operation from the seventeenth century and still today the site of iron and steel activities—a contemporary traveller can unexpectedly catch sight of a hexastyle Doric temple sitting atop a granite stylobate amidst the lush vegetation of the surrounding park. The one realized at Söderfors is a hexastyle peripteros temple, like its model, even though its long sides consist of only eight columns instead of thirteen. The original structure, realized in wood and completed in 1797, was subsequently revised in 1803 under the direction of the architect Gustaf af Sillén (1762–1825), who had stayed in Italy from 1788 to 1793: the wooden columns were replaced with new ones

in plaster-clad brickwork; a variation on the original model was made, so that the final construction consists of a double peristalsis that is completely open on all four sides and has no continuous walls for the cell; the interior is covered by a barrel vault of wooden panels decorated with geometric floral motifs, which simulate, in an elementary way, the rhythm of a coffered ceiling.[28]

Unquestionably, the inspiration for this building project has British origins: in fact, in 1784, the then owner of the ironworks, Adolf Ulric Grill, decided to begin constructing a park following various trips to Britain. In its architectural conception, however, this Doric temple is not merely the expression of a Mediterranean model filtered by neoclassical British culture; it is not simply the result of a slavish application of the fashion of the time; its itinerary had its origins in more distant sources, the places where classical culture began.

LOUIS JEAN DESPREZ: THE CITY AS AN OPEN-AIR STAGE SET

While the name of the architect who first outlined the temple project at Söderfors is unknown, the builder was very likely familiar with the designs of the Frenchman Louis Jean Desprez (1743–1804), another key figure in the connection between the lively cultural life of Rome and the Royal Swedish court. It was, in fact, at the French Academy in Rome that the young French artist—in Italy since 1770, the year he was awarded the Prix de Rome, and subsequently identified archaeological sites on behalf of the Abbot of Saint-Non—was intercepted by Gustav III, and employed to work as an architect and head set designer for the new Royal Theatre at the Stockholm Court, to which he moved in 1784, becoming one of the main artificers of the sovereign's ambitious cultural policy.

Until the assassination of the enlightened sovereign, Louis Jean Desprez had the opportunity to develop many projects in Sweden, in which he transposed the ancient to the Nordic lands in various ways. The best example of his Doric interpretation in civil architecture is unquestionably the Botanicum building in Uppsala, realized in 1788, ten years after the death of Carl Linnaeus. Here Desprez transposed the tectonic power of the ruins of Greek architecture into a Doric colonnade that defines the main front as a monumental mass of great expressive power. Inside, however, the building features a complex ground plan and is characterized as a 'city part': from the declared eloquence of the façade, defined to the side by the dense rhythm of massive pillars concealing courtyards and interiors of greater domesticity.

Here, Mediterranean references are declined with a rigorous attitude on the search for a stringent abstract character. Elements taken from archaic language are arranged in abstract elementary forms corresponding to a figurative synthesis that sought to approach the substantially contemporary reflections of the more-well known French 'revolutionary architects'. In fact, their experience was fully part of the classical tradition, given that their work concentrated on respecting the laws of nature while searching for an appropriate character for the theme the work represented.

The face of the city of Stockholm was to undergo significant changes thanks to the work of the enlightened sovereign Gustav III; among the many, one of the most important was the creation of the Haga Park, on an extensive piece of terrain to the north of the city. The design was entrusted to the leading landscape architect of the time, Fredrik Magnus Piper (1749–1824),[29] who developed an extremely refined project following the principles of the

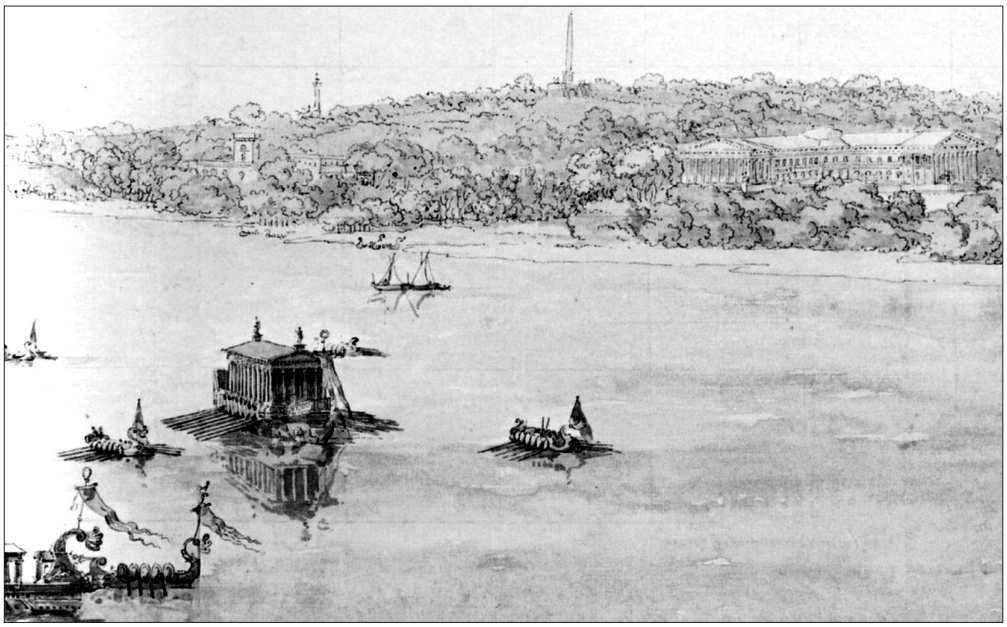

Figure 3. Louis Jean Desprez, illustration of the 'Temple of Fortune' boat (designed for Gustav III and not realized), along with other boats on Brunnsviken Lake, Hagaparken, Stockholm. In the background, on the right, the project for the large palace for Gustav III, not realized, 1790. Stockholm Nationalmuseum's Collection.

English-style garden. An open-air stage set, where the skilful modelling of the ground around an existing lake sets the rhythm of the masses and vales of vegetation and defines the system of perceptive relationships, views, and alignments between the pavilions erected in different styles by various architects.

Among the many architects who took part in the works was, in fact, none other than Louis Jean Desprez, who, between 1787 and 1790, found a way to embody an evocation of a universe hanging in the balance between the exotic and the ironic, with an operation that resulted in architecture with a taste for the fantastic in his theatrical settings. At the top of one of the park's vales, Desprez transformed the front of the military Royal Guard building, composed in traditional forms with a half-timbered structure, by means of a series of large 'tents' made from blue-painted copper, to give the illusion of an ancient encampment at the edge of a forest. Here the exotic and the classical are merged in an interpretation of the motif of the Tartar tent, which calls to mind the ephemeral architecture of the camps of antiquity. We can find this same theme in other contemporary works; to be mentioned here in particular is the Le Désert de Retz, where, on the Ile de Bonheur we find a Tartar Tent in a garden of exotic essences imported from all over the world in a sort of collage of architecture and landscape. In this context, it is also necessary to mention the interpretation that Karl Friedrich Schinkel provided of this motif. In 1827, inside the Charlottenhof Palace in Potsdam, he created a Tent Room decorated entirely with a textile pattern of blue and white stripes. Finally, it should be remembered that the migration of this motif concluded with a replica of the example of Le Désert de Retz, which Charles de Bestegui created in 1960 in the park of his Château de Groussay (Montfort-l'Amaury, France), along with many other architectural follies.

Starting from the suggestion of textile architecture—and from what might on the face of it seem like a simple variation of a decorative detail—we move towards the experiences of modern Swedish Classicism, which, on more than one occasion, gave rise to variations on this theme.

Erik Gunnar Asplund proposed this theme again in the entrance canopy of the Villa Snellman (1917–18), where the slender beams supporting the drapery can be seen, just as Ivar Tengbom used it on the façade of the side entrance of the Konserthus building (1923–26) in Stockholm. In general, the motif is fairly prevalent as an entrance porch for residential and office

buildings. Sigurd Lewerentz gave an even more oriental interpretation of it in the construction of a garden pavilion in Lovön (Drottningholm), designed in the 1910s. The roof is made of copper, which slopes down, concluding with a wavy edge, and has Chinese decorations at the top.

In his project for the Skandia Cinema (1922–24), Asplund adopted the textile motif as the theme of the auditorium and proposed it again as a ceiling for the balconies. Stuart Knight[30] underscores the fact that, in reality, we can regard the interior of the cinema as the staging of a refined representation of the Gustavian era, more than as a place for night-time get-togethers under an Italian sky. Both the Konserthus and the cinema were new types of buildings for the city of Stockholm. It is therefore significant that the architects chose to introduce the motif of the 'tent' and, hence, of an open-air representation, which was both a traditional and a classical theme. By means of the textile motif, the architects also alluded to the theme of the ephemeral or the provisional, which contrasted with other quotations from the classical world, which instead evoked solidity and a sense of permanence.

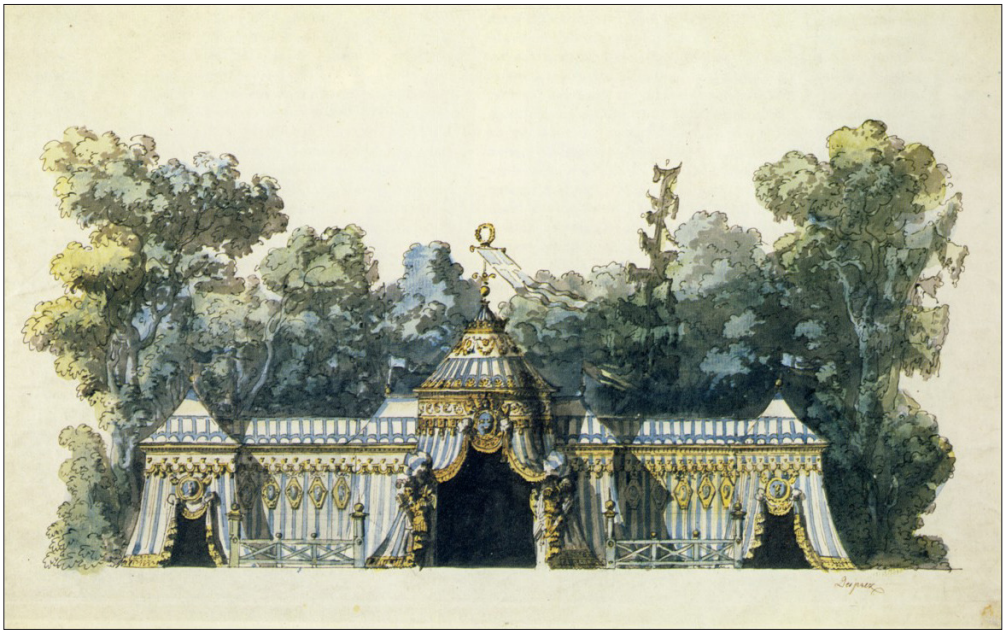

Figure 4. Louis Jean Desprez, the Royal Guard building with the Copper Tents, Hagaparken, Stockholm, 1787.
© Svensk arkitektur, ritningar 1640-1970 (Byggförlaget, Stockholm 1986).

THE ETERNAL CLASSICAL OF MATURITY

During the complex transition from National Romanticism to Modernism, the experience of so called Nordic Classicism demonstrates how this intimate relationship with the ancient world does not represent merely the continuation of an academic tradition, but also the intention to recognize an original matrix that leads to a new language: this descent to the origins thus leads to modernity.

It is precisely this ideal beauty that Edoardo Persico referred to in his fundamental article, in which he traced—with lucid intuition that anticipated important developments—the line of continuity of the return to the classical expressed by Swedish architecture in the first decades of the twentieth century: 'The neoclassicism of Swedish architects, or the neo-Renaissance, were not two cold formulas, but a lively rethinking of a world in itself poetic and fantastic; their way of thinking of a terrestrial paradise, an Olympus, not an archaeological cemetery. Neoclassicism, in the same way, is not an academy, it is an art . . . in this Olympian climate, rationalism, *funkis* as they say in Sweden, is not a point of controversy or a new dogma, but the constant aspiration of an entire people towards an ideal, almost intellectual beauty.'[31]

What thus arrived in Sweden was a sort of *direct transition* from classicism to *new objectivity*, thus skipping over the phenomenon of Expressionism, which goes to show how the brilliant fusion of modern situations with classical elements was made possible by the stubborn search for a balance between figurative coherence and a rooting in traditional local building styles.

Twentieth-century architects thus took up not only the bright, rational side of the classical world, but also its double register—one severe and rigorous, the other dreamlike and theatrical—the capacity, in other words, to steer tension towards a primordial form within the changeable mood of the landscape. This is the peculiarity of that 'archaeological gaze that introduced the Romantic vein into Nordic Classicism, which distinguishes it'.[32]

Modern Swedish Classicism reaffirmed the 'eternal classical of maturity',[33] which, by absorbing external cultural inputs, alluded to a universal order, but with a Nordic twist. In this sense, the classical tendency should not be seen as a flight from reality as much as an affirmation of the contemporary spirit. In the most eloquent compositions of the era of Nordic Classicism, the building forms of antiquity take on a value that is above all symbolic. The

aspiration is never that of realizing copies of architectural models from the past, but rather of evoking the original model through the reuse of one or more elements and putting them in resonance with the elements of a specific context, including philological attention and invention in buildings with a major civil and urban value.

The idea of the classical is associated with a high degree of recognisability. For this reason, Swedish architects of the 1920s, confronted with the need to formulate an aesthetic representative of a modern democratic society, chose to cite the classical language in buildings in connection with the new demands of the fledgling metropolis. The modern classicist lexicon appeared on the urban scene as soon as a range of institutions realized the need to find the right balance between monumental character and a notion of modernity,.

On other occasions I was able to analyse in detail the relationship that the compositions of Swedish Nordic Classicism—with particular reference to the work of Sigurd Lewerentz—established with ancient architecture, some elements of which have been cited, thus bringing to life works that marked the road towards modernity. Into the bargain, there is an extensive biblio-

Figure 5. Carl August Ehrensvärd, the Skärva country estate, 1784; Doric Temple in Söderfors, ca. 1784; Sigurd Lewerentz; Resurrection Chapel, Skøgskyrkogården, Stockholm, 1921–25. Photos by the author.

graphy on the *maestros* of this fertile architectural era and their works, among which it is impossible not to cite at least three of the milestones realized in Stockholm between 1920 and 1928: Erik Gunnar Asplund's Public Library, Ivar Tengbom's Konserthus, and Sigurd Lewerentz's Resurrection Chapel.

Regarding the latter, we can say that like the artists around Gustavus III in the last troubled decades of the eighteenth century, Lewerentz, with deep sense of intimacy with history, brings into his architecture an aspect of transcendence, in which the narrative is dictated not so much by linear succession as by a chain of associations. It is known that Ehrensvärd's writings were accessible in Sweden at the beginning of the twentieth century. Regarding Lewerentz's familiarity with Ehrensvärd's work, it is important to note that Bengt O. H. Johansson has written that in a revision of his text on the Woodland Cemetery,[34] done many years before the text's publication, the elderly Lewerentz jotted Ehrensvärd's name in particular next to a quotation on the Malmö East Cemetery.

It may be of interest to conclude our reflections here by linking the modern experience with the Enlightenment one. Among the qualities common to these two periods was the capacity to take on board contributions from various distant cultures, held together by the severe rigour that characterized the local building tradition, by reinterpreting history. This was thus not an evolutive process, but the defining of an attitude that flourished along with moments when the cultural re-founding coincided with the desire to express ideals of scission and modernity in connection with the current situation.

It was when emphasizing these distant connections that Luca Ortelli wrote: 'Thus the ideal myth of the Mediterranean sinks its roots into the cold lands of the north, clearly marking later experiences too. In fact, if the Swedish architecture of the late 19th century does not feature particularly significant characteristics, that of the beginning of our century was to produce results of great originality, mostly fuelled by a fresh interest in and a new conception of the Classical and Mediterranean heritage.'[35]

Hakon Ahlberg, in his introductory essay to the first collection of Swedish architecture published in English in the twentieth century,[36] attempted to define the identity of Swedish architecture and its characteristics of continuity. Among these specific qualities, he identified both the quality of incorporating contributions from other cultures within the local building tradition,

and the ability to fuse the expressive force of abstraction with the iconic value of decoration.

CONCLUSIONS: HYPERBOREAN CLASSICISM

We have therefore analysed how, in the contrast between the North and South, it is possible to trace the cultural matrix of a civilization that had adopted 'otherness' as one of its own permanent identifying characteristics. Diversity and distance made it possible to elaborate a critical viewpoint with a broader horizon, which brought with it an alternative idea capable of causing a crisis in the fundamental nuclei of a consolidated way of thinking.

So what does it mean to reflect on the possibility to design the features of new national identities through the use of distant, or even unconnected motifs? First and foremost, it means working within the tension between the sense of continuity and permanence implicit in the concept of tradition, as well as the movement of breakdown and rejection inherent to the dynamism of invention. In other words, it implies completing an itinerary that is, on the one hand, geographical—following the path that leads to recovering the characteristics that mark an identity elsewhere—and, moreover, temporally—in line with that advancement typical of design research, which has led to the discovery of the elements that define a new line in different eras. From time to time, this thus involves contaminations as the key to artistic invention upon which a tradition is founded; findings that, in combination with the constants of each culture, define unexpected connections and independent results. While they may have been rejected up to a particular moment in Western culture, intersection and exchange constituted opportunities to develop traditions that were new but at the same time rooted in the culture of a place, and were later transformed into the vehicle of an opposing process of levelling. This is the central theme of the contemporary debate and opens up multiple considerations.

It is important in this regard to once again recall the thinking of Aldo Rossi with respect to the topic of memory, and, in particular, to mention the metaphor that he drew from the world of immunology: 'Ivan Roitt's definition in Essential Immunology deeply impressed me: "Memory, specificity, and the recognition of the *non-self*—these lie at the heart of immunology." Memory and specificity as characteristics enabling the recognition of the self and of what is foreign to it seem to me the dearest conditions and explanations of reality. Specificity cannot exist without memory, nor can memory that does

not emanate from a specific moment: only the union of the two permits the awareness of one's own individuality and its opposite (of self and non-self). . . . Memory is constructed out of its own specificity, and whether this construction is defensible or not, it can recognize alien structures.'[37]

We have seen that in the 'Nightlands' the transposition of classical pieces takes the form of a hand-to-hand combat between challenge and consonance, towards a difficult nature, but is, at the same time, a primary element in which the common elements of human vicissitudes can be recognized.[38] Meanwhile, what survives in parallel is a strong sentiment of solidarity with the earth, with the foundational myths of the local culture, which coexist and interact with or overlap contributions from the outside: the myth of the Hyperboreans, as a paradigm of simplicity and virtue lost in the centre.[39]

Precisely by following the traces of this ancient Greek myth—according to which the Hyperboreans were to be found in the northern lands extending beyond the Boreas, an uncontaminated population, guardians of a pure civilization, or divine beings who had even given birth to the god Apollo—we can direct a renewed interest to the architectural events in these regions, so as to tie back together the threads of questions that arrived at different answers in the Mediterranean cradle of the classical world.

The classical, thus the 'rhythmic form'[40] of European cultural history, reappears in distant geographies and in distant moments in time, but always brings forth a rational search for order, for a balance between nature and art, combined in an original solidarity. Research of this kind, when carried out in the field of architectural composition, can lead us to believe that the definition of works of architecture with recognizable identifying characteristics—not by virtue of the author's signature, but by virtue of the fact that a community recognizes them—is the result of projects that operate precisely within that tension between local identity and references to other cultures, in a sort of polysemic multi-scalar assemblage.

ENDNOTES

[1] Aldo Rossi, *A Scientific Autobiography* (Cambridge, MA, and London: The MIT Press, 1981), pp. 40–41.

[2] Certain art historians, especially Georges Didi-Huberman, have defined this inversion of time, 'this proceeding backwards in chronological order', as an 'anachronism'. See Georges Didi-Huberman, *Storia dell'arte e anacronismo delle immagini* (Turin: Bollati Boringhieri, 2007), p. 33.

[3] Gundula Rakowitz, T*radizione Traduzione Tradimento in Johann Bernhard Fischer von Erlach* (Florence: Firenze University Press, 2016) p. 41, translated by the author.

[4] See Fabio Mangone, *Viaggi a sud: Gli architetti nordici e l'Italia* (Naples: Electa, 2002).

[5] See Francesco Collotti, 'Il progetto come viaggio e trasposizione: Karl Friedrich Shinkel, architetture e paesaggi', *Firenze Architettura* 19 (2004), pp. 64–71.

[6] Iosif Brodsky, 'The Child of Civilization' (1977), in *Less Than One: Selected Essays* (Harmondsworth, Middlesex: Viking Penguin Books Ltd., 1986), pp. 139–40.

[7] I am referring here to the development of the theme of Giorgio Grassi's quotation in the book *La costruzione logica dell'architettura* (Padua: Marsilio, 1967), pp. 146–50.

[8] I had the opportunity to go into more detail on the subject of the use of the quotation in my study on the Resurrection Chapel by Sigurd Lewerentz, to which reference should be made: C. Torricelli, *Classicismo di frontiera: Sigurd Lewerentz e la Cappella della Resurrezione* (Padua: Il Poligrafo, 2014). This publication includes part of the contents of a PhD thesis in architectural composition from the IUAV University of Venice, PhD School, 2011.

[9] Giorgio Grassi, *La costruzione logica dell'architettura*, p. 149.

[10] Carlotta Torricelli, *Classicismo di frontiera: Sigurd Lewerentz e la Cappella della Resurrezione* (PhD thesis in architectural composition from the IUAV University of Venice, PhD School, 23rd cycle, supervisors E. Mantese and L. Ortelli; tutor M. Landsberger, 2011).

[11] Christian Norberg-Schulz, *Nightlands: Nordic Building* (Cambridge, MA, and London: The MIT Press, 1996); this work originally appeared in Norwegian in 1993 under the title *Nattlandene: Om byggekunst i Norden*.

[12] Iosif Brodsky, 'A Guide to a Renamed City', in *Less Than One: Selected Essays* (Harmondsworth, Middlesex: Viking Penguin Books Ltd., 1986).

[13] For further information, see Rossana Caira Lumetti, *La cultura dei lumi tra Italia e Svezia: Il ruolo di Francesco Piranesi* (Rome: Bonacci, 1990).

[14] Gustav III's Museum of Antiquities is situated inside the Royal Palace designed by Nicodemus Tessin the Younger (1654–1728), on the island of Gamla Stan in Stockholm.

[15] For more information on this, see Giuliano Briganti, *I pittori dell'immaginario: Arte e rivoluzione psicologica* (Milan: Electa, 1977).

[16] Anna Ottani Cavina, *I paesaggi della ragione* (Turin: Einaudi, 1994), p. XVIII.

[17] Norberg-Schulz, *Nightlands: Nordic Building*, p. 19.

[18] See in this regard, Marjatta Nielsen, 'Gustavus III of Sweden and Classical Antiquity: The Stage-setting of a Golden Age', in *The Classical Heritage in Nordic Art, and Architecture*, edited by Mariatta Nielsen (Copenhagen: Museum Tusculanum Press, 1990), pp. 65–84.

[19] See Sten Åke Nilsson, 'Carl August Ehrensvärd as Architect and Theorist', in *L'art et les revolutions*, *Section I*, *L'art au temps de la révolution française* (Strasbourg: Société alsacienne pour le développement de l'histoire de l'art, 1992), pp. 307–18.

[20] See Marco Cerruti, 'Il Viaggio in Italia di Ehrensvärd', in Marco Cerruti, *La ragione felice e altri miti del Settecento* (Florence: Olschki, 1973).

[21] Carl August Ehrensvärd, *Resa Till Italien: Viaggio in Italia* (Stockholm and Rome: Casa Editrice Italica, 1969). It is important to mention that the English translation of the book by Alan Crozier, with an introduction by Sten Åke Nilsson, was published in 2017: *Carl August Ehrensvärd, Journey to Italy 1780, 1781, 1782* (Stockholm: The Royal Academy of Fine Arts, 2017).

[22] See Johan Mårtelius, 'Carl August Ehrensvärd: On Beauty and Utility', *Norden 1* (2011), pp. 102–5.

[23] See in this regard, Demetri Porphyrios, 'Classico, cristiano, socialdemocratico: L'architettura funebre di Asplund e Lewerentz', *Lotus International* 38 (1983), pp. 71–77.

[24] See Kerstin Barup and Mats Edström, *Skärv: Creating a Place in the Country* (Stockholm: Byggförlaget, 1991).

[25] We can imagine that Erik Gunnar Asplund had the opportunity to get to know Ehrensvärd's work in Skärva while he was building the Lister County Courthouse at Sölvesborg (1917–21), due to the closeness of the two places, but even more so because of the increased interest in the work of Ehrensvärd in Sweden during the 1920s.

[26] Brodsky, 'The Child of Civilization' (1977), p. 140.

[27] See Hedvig Mårdh, 'Templet i Mälby', *Sjuttonhundratal, Nordic Yearbook for Eighteenth-Century Studies* (2012), pp. 110–29.

[28] See Magnus Olausson, 'Den engelska parken förr, nu och i framtiden', B*yggnadsvårdsföreningen*, 20 August 2008, http://www.byggnadsvard.se/ (accessed in June 2022).

[29] For more information on Piper's work, see Magnus Olausson, *Den engelska parken i Sverige under gustaviansk tid* (Stockholm: Piper Press, 1993).

[30] Stuart Knight, 'Modern Swedish Classicism in Context', *International Architect* 8 (1982), special monographic issue: *Swedish Grace: Modern Classicism in Stockholm*.

[31] E. Persico, 'La cooperativa Foerbundet', Casabella 92 (August 1935), subsequently in *E. Persico, Tutte le opere* (1923–1935), Vol. II, edited by Giulia Veronesi (Milan: Edizioni di Comunità, 1964), p. 209, translated by the author.

[32] Luca Ortelli, 'Sigurd Lewerentz: Architetture inquiete', *Phalaris* 8, no. 9 (1990), p. 24, translated by the author.

[33] In reviewing one painting by Carlo Carrà, Wilhelm Worringer defined the 'eternal classical of maturity' not as a flight from reality, but rather as an 'affirmation of the contemporary spirit'. We might refer to this principle to describe the classical tendency expressed by the Nordic architects of the twentieth century. See Wilhelm Worringer, 'Carlo Carrà's Pinie am Meer', *Wissen und Leben* 18 (1925), translated by the author.

[34] Bengt O. H. Johansson, Tallum: *Gunnar Asplund's & Sigurd Lewerentz's Woodland Cemetery in Stockholm* (Stockholm: Byggforlaget, 1996).

[35] Luca Ortelli, 'Erik Gunnar Asplund e il Mediterraneo', in *Pietre Mediterranee*, edited by Serena Maffioletti (Milan: Edizioni Lybra Immagine, 1999), pp. 17–18, translated by the author.

[36] Hakon Ahlberg, *Swedish Architecture of the Twentieth Century* (London: Ernst Benn Ltd., 1925), with a preface by Francis Rowland Yerbury, a photographer at the Architectural Association in London.

[37] Rossi, *A Scientific Autobiography*, p. 62.

[38] For a more extensive treatise on the relationship between the travels of Nordic architects in the Mediterranean region and the results of their projects, see the following essay and the bibliographical references on the subject listed below Ursula Koren and Carlotta Torricelli, 'Following the Grace: A Baltic Dialogue', in *Aalto Beyond Finland: Architecture and Design*, edited by Silvia Micheli and Esa Laaksonen (Helsinki: Alvar Aalto Foundation, 2015), pp. 289–300.

[39] On this, see Martino Menghi, *L'utopia degli Iperborei* (Milan: Iperborea, 1998).

[40] See Salvatore Settis, *Futuro del 'classico'* (Turin: Einaudi, 2004), p. 102.

ARCHITECTURAL DURABILITY: INVESTIGATED THROUGH STUDIES OF DANISH HERITAGE DWELLINGS

Birgitte T. Eybye

ABSTRACT

With the growing focus on social transformation towards sustainable development in the Nordic countries, the lifespan of buildings has become highly relevant. Construction generates enormous amounts of waste, and, in some cases, buildings may even be demolished after lifespans of just a few decades. Building materials are, however, predicted to be scarce and expensive in the future. Many researchers have therefore asserted that sustainability in buildings and built structures are strongly connected to long lifespans, as was the case in the preindustrial time.

Parallel to this, the Nordic countries have an extensive architectural heritage dating from the Middle Ages onwards. With the need for buildings to last for centuries, it would seem logical to study the factors that promote the long lifespan of Nordic architectural heritage. Consequently, the objective of this research is to examine the notion of architectural durability based on literature and case study research in order to discuss its relevance to future construction in the Nordic countries, and Denmark in particular.

First, the article presents a literature study examining the notion of architectural durability, with a view to establishing the analytical framework for the research. Second, the article takes a look at three case studies selected from among heritage residential buildings in Denmark. Finally, the analysis of these three case studies and its findings form the basis for a discussion, followed by recommendations and a conclusion.

KEYWORDS

Architectural durability, architectural heritage, sustainability, Denmark

INTRODUCTION

In the Nordic countries, there is a strong focus on social transformation towards sustainable development. This includes the examination of various approaches to sustainable architecture, such as passive-energy building (for instance, the passive house settlement in Espoo by the Finnish Kimmo Lylykangas Architects, and the 'Power to the People' solar energy housing project by the Swedish Street Monkey Architects), construction based on a circular economy (for instance, the Danish firm Lendager Group), building with renewable materials (for instance, the 'Modern Seaweed House' by the Danish firm Vandkunsten), and healthy architecture (for instance, the Norwegian Gaia Architects).

Unfortunately, sustainable approaches only influence commonplace construction practices to a limited extent. In Denmark, for example, there is little architectural focus on ordinary housing, and most single-family houses are built by standard house builders, with no regard for the particular site, craft, or any aspects of sustainability other than energy consumption in the operational phase.[1] Moreover, it has recently been pointed out that around 70 per cent of the climate impact of contemporary Danish buildings is related to the construction phase due to the extraction, production, and transportation of materials.[2] Construction has become part of the throwaway culture, and in some cases, buildings may even be demolished after lifespans of just a few decades. As a result, construction generates enormous amounts of waste. All this thus contrasts with a social transformation towards sustainable development and the prediction that building materials will be scarce and expensive in the future.[3]

Several researchers, such as Thomas Sieverts, therefore argue that it is irresponsible to destroy a building after a lifetime of only one generation and that sustainability in buildings and built structures is strongly connected to long lifespans, as was the case in the preindustrial time.[4] Similarly, Michael H. Nielsen, the director of *Dansk Byggeri* (Danish Building), states that the approach to building must be changed, since new buildings ought to last for centuries. He also suggests that calculations of environmental impacts should include all of the emissions throughout the lifespan of a building with the aim of making construction more sustainable.[5] In this context, it is interesting to note that life cycle assessments (LCA) are progressing rapidly, and that these calculations are often based on an anticipated lifetime of fifty years,[6] which

contrasts with the notion of buildings meant to 'last for centuries'. According to the Statbank of Statistics Denmark, the total number of buildings in Denmark is 4,587,277, of which 536,948 (12 per cent) are at least 100 years old.[7] Similarly, the building stock of Finland comprises 1,538,172 buildings, of which 80,511 (5 per cent) are at least 100 years old.[8] Statistics Sweden reports that it is not possible to break down the entire building stock on the basis of age, but instead only residential buildings. The number of such buildings is 2,979,180, of which 395,697 (13 per cent) are at least 100 years old.[9] Finally, Statistics Norway explains that the municipalities are not required to register the year a building was constructed.[10] One part of this story is that the Nordic countries were all establishing welfare states, including housing policies, after 1945. Despite the large amount of social housing and the fact that the abovementioned numbers are not directly comparable, they do underscore the need for reforms in connection with the lifespan of buildings in the Nordic countries.

At the same time, the Nordic countries have a multifarious architectural heritage. Cathedrals, churches, and castles dating from the Middle Ages onwards, as well as more modest buildings of vernacular architecture are found in Denmark, Finland, Norway, and Sweden. For instance, according to an analysis of the growth rings of the timber, the wooden *Tiondeboden* in Ingatorp, Sweden, is almost 800 years old.[11] Norway has a large number of preserved medieval wooden buildings,[12] and cities such as Bergen are renowned for their wooden building heritage. The towns of Rauma and Poorvo in Finland are examples of famous wooden heritage towns. Most Danish heritage buildings are constructed of bricks or are half-timbered. Although the Danish vernacular heritage building materials of timber, earth, and straw are not particularly durable in the northern temperate climate, many efforts to extend the lifespan of buildings have been made. By way of example, the so-called *klitgårde* ('farms in the dunes') near the western coast of Denmark have proven their ability to endure despite being located in a harsh climate.[13] To summarize, many Nordic heritage buildings are characterized by a long lifespan.

As part of the transformation towards sustainable development and keeping in mind the predictions that resources will be scarce in the future, it seems logical to study the factors that promote the long lifespans of Nordic architectural heritage in order to explore their relevance to future construction.

In doing so, this article inscribes itself in the Nordic tradition of researching connections between architectural heritage (existing buildings) and sustainability.[14]

OBJECTIVE AND METHODOLOGY

The objective of this research is to investigate the notion of architectural durability, which is regarded as being embedded in many Nordic heritage buildings and thus contributes to the long lifespan of such buildings. A further objective is to explore the potential of possible architecturally durable design features for future construction in order to increase the lifespan of buildings and thereby support sustainable construction. Given the above challenges, one primary and one secondary research question are posed:

1) What characterizes architectural durability?

2) How can aspects of architectural durability contribute to improving the lifespan of future building?

In order to examine the notion of architectural durability, this article first presents a literature study, with the aim of establishing the theoretical foundation for the study, defining what architectural durability comprises, and providing the analytical framework for the research. A look at multiple case studies is then undertaken so as to investigate architectural durability based on primary sources. This section includes case selection criteria, the choice of cases (three Danish heritage dwellings), introductions and analyses of the cases, and findings resulting from them (cross-case analysis). Subsequently, the analysis and its findings serve as the basis for the discussion. Finally, the article outlines recommendations for architectural durability in future construction and, last but not least a conclusion.

The starting point for delimiting the empirical approach is Sieverts and Nielsen's assertion that a building ought to last for centuries. For this reason, it seems expedient to examine architectural durability in buildings that are at least 300 years old and have thus proven durable. Most buildings of such great age are characterized as architectural heritage. Due to the contemporary relevance of the study, the empirical approach focuses on residential buildings and thereby forms a parallel to the popular Nordic single-family house.[15] More specifically, in connection with the selection of the specific cases, a number of criteria influenced this choice so as to secure a thematic dispersion of the

empiricism, with the aim of increasing the number of different elements of architectural durability being surveyed. The cases selected are Hornsgårdvej 7 in Gram (a West Schleswig vernacular farmhouse); Sankt Annæ Gade 14 in Copenhagen (a small urban dwelling); and Grønnegade 12 in Ribe (a large townhouse). For reasons of practicality, such as site visits, the cases studied are all situated in Denmark.

The main literary sources utilized are texts on durability in architecture and construction. This includes literature that addresses topics related to durability, such as adaptability, change, and design durability. Literature on architectural theory and architectural heritage is also drawn on. In connection with the case studies, these are based on relevant sources, such as literature and drawings,[16] along with the author's own empirical studies. With a view to making this research possible within the timeframe given, cases with relevant material, such as drawings and historical building accounts, were given preference.

EXAMINATION OF THE NOTION OF ARCHITECTURAL DURABILITY

The notion of architectural durability consists of two words. The first, 'architectural', is defined by the Oxford Learner's Dictionary as referring to architecture and buildings. In addition, 'architecture' also has other meanings such as 'the art and study of designing buildings' and 'the design or style of a building or buildings'.[17] Furthermore, the term may refer to the designed building stock.[18] Like the word architecture, the term building also has several meanings. Used as a noun, it is a structure with walls and a roof, and usually has a particular function, such as a dwelling or a church. Employed as a verb, it describes the process of building.[19] Stewart Brand has also pointed out this interesting ambiguity of building: that it is 'both the action and the result'.[20]

The distinction between architecture and buildings is complex and has been much discussed. For instance, Mari Hvattum employs a broad understanding of architecture that ranges from landscape, cathedrals and bike sheds (!) to door handles. The question of good or bad architecture then arises, with the former being more than merely a solution to individual needs, and should also involve thoughtfulness and surprises.[21] Similarly, Erik Nygaard suggests the comprehension of 'architecture as a concrete and practical art form whose focus intervenes with and designs our physical surroundings, in which building is its core'[22]— in keeping with Vitruvius's understanding of architecture. Nygaard's definition goes on to relate to the understanding

of architecture as 'the art of building', in Danish *bygningskunst* (Norwegian *byggekunst*, Swedish *byggnadskonst*). Similar to architecture and building, *kunst* (art) has various meanings, and Nygaard considers this to be understood as highly developed competences related to practice and tradition and only to a lesser degree as art in the sense of a particular expression of ideas and sensitivity.[23] Finally, Brand expresses the difference between architecture and building as follows: '"architecture" may strive to be permanent ... [whereas] ... a "building" is always building and rebuilding'.[24] The fact is, however, that many architectural heritage monuments exist today specifically because they have been undergone change and rebuilding. One grand example of this is the Diocletian's Palace in Split, Croatia.

According to the Oxford Learner's Dictionary, durability means the 'the quality of being able to last for a long time without breaking or getting weaker'.[25] Similarly, Merriam-Webster states that durability denotes being 'able to exist for a long time without significant deterioration in quality or value'.[26] One of the many definitions of sustainability describes it as 'the ability to continue or be continued for a long time',[27] a definition that resembles that of durability. And for this reason, sustainability is often associated with durability. In what follows here, durability in connection with architecture is examined.

The first (known) source to introduce durability in connection with architecture was Vitruvius in '*The Ten Books on Architecture*. The first book describes architectural subject areas, with chapter III providing an elaboration of the departments of architecture. Vitruvius states that all architecture 'must be built with due reference to durability, convenience and beauty', and, furthermore, that 'durability will be assured when foundations are carried down to the solid ground and materials wisely and liberally selected'.[28] According to Vitruvius's definition, durability is thus related to the structural properties of a building.

In connection with his position as Flemish Building Advisor, Bob Van Reeth proposed 'the intelligent ruin' as a means to achieve 'cultural sustainability' or 'architectural durability'. Since building has a major impact on the environment, it should be sustainable. According to Van Reeth, sustainability includes technical, technological, energetic, and ecologic components, as well as cultural and social aspects. Regarding 'architectural durability', Van Reeth states that: 'It is a conceptual theme that constantly has to be redesigned and re-thought. The most important condition for architecture is its context

in place and time.' Furthermore, durability is about detecting new design strategies. The point of departure is the intelligent ruin, which is an architecture whose 'structural frame and [the] possible skin doesn't have to be demolished in the first 400 years'.[29] Furthermore:

> The intelligent ruin is described as a construction of which the quality of sustainability is measured by several layers: the level of ecology, the technical use of materials and natural acclimatisation but also cultural and social integration. The right use of those levels give the building a long life span.[30]

Flexibility should be given particular importance, since it concerns a building's ability to accommodate new and other functions as well as to be reused. In conclusion, Van Reeth says that: 'You have to design a building in that manner so that the current program is an alibi for permanent change; change that will take place anyway.'[31]

Relatedly, Peter-Paul Verbeek and Petran Kochelkoren address 'The Things That Matter' or durable products, since the short lifetime of products is a fundamental problem, one that cannot be resolved through eco-friendly design and production. Consequently, products should not only 'strive for sustainability, but also for durability'.[32] Their point of departure is Karl Jaspers's call for meaning in products, Don Ihde's 'technological intentionality', Martin Heidegger's examinations of relationships between people and tools, and, finally, Albert Borgmann's concept of 'engagement'. On the basis of this, Verbeek and Kockelkoren elaborate a phenomenon called 'the engaging capacity of objects'. They argue that this engaging capacity, understood as 'the involvement of people in this functioning',[33] will secure the object a long lifetime and not just its being sustainable.[34]

In 1994, Stewart Brand wrote an influential book called *How Buildings Learn*, which deals with the ongoing change and adaption of buildings. The starting point is Francis Duffy's theory on change in buildings. According to Duffy, a 'building properly conceived is several layers of longevity of built components', with the four layers being the shell (structure), services (cabling, plumbing, et cetera), scenery (layout), and set (furniture). Brand then elaborates these into the concept of 'shearing layers', comprising site, structure, skin, services, space plan, and stuff. These six layers all have different lifespans; 'site is eternal', whereas stuff (furniture) is often changed.[35] In their book of the same

name, the architects Ruurd Roorda and Bas Kegge subsequently examine 'vital architecture', since 'Vitality leads to durability, to buildings that age without losing their usability'. Their analysis is developed from Brand's 'shearing layers', and includes site, structure, skin, and interior.[36] The four layers are then applied in the analysis of the vitality factors of forty-seven buildings from around the world, ranging from the Grote Kerk in Veere, The Netherlands, to the Ca D'Oro in Venice, Italy, to the Zollverein School in Essen, Germany. Furthermore, Roorda and Kegge identify three major characteristics—change, solidification, and economy—that 'explain architectural and cultural vitality'.[37] These characteristics are elaborated into fifteen factors 'that play a significant role in the life of the 47 studied buildings'.[38] Among these fifteen factors, 'robustness' should be emphasized in particular. The notion resembles Vitruvius's 'firmitas' and refers to 'strength, stability and resistance to weathering' and to 'a free and sensible choice of materials'.[39]

In their examinations, Roorda and Kegge noticed that certain buildings do not change or only change very little. Yet, these buildings have been preserved nonetheless, a fact that they ascribe to the 'character' of the buildings and as being related to culture.[40] Likewise, Van Reeth emphasizes that the lifetime of a building also depends on its social and cultural admittance.[41] Consequently, it seems logical to take a look at architectural conservation, since the objective of this activity is to extend the lifespan of heritage buildings by means of carefully considered interventions. The question is then what makes a building 'heritage' and therefore worthy of conservation. Article 1 of the International Charter for the Conservation and Restoration of Monuments and Sites (the Venice Charter) delimits heritage (historical monuments) in the following way: Such built heritage bears:

> . . . evidence of a particular civilization, a significant development or a historic event. This applies not only to great works of art but also to more modest works of the past which have acquired cultural significance with the passing of time.[42]

The Charter for the Conservation of Unprotected Architectural Heritage and Sites in India goes on to state that: 'The objective of conservation is to maintain the significance of the architectural heritage or site. Significance is constituted in both the tangible and intangible forms.'[43] Similarly, the Burra Charter declares that: 'Conservation means all the processes of looking after a place so as to retain its cultural significance.' In the context of architectural durability,

the crux of the matter thus seems to be 'cultural significance'. According to the Burra Charter: 'Cultural significance means aesthetic, historic, scientific, social or spiritual value for past, present or future generations', and 'cultural significance is embodied in the place itself, its fabric, setting, use, associations, meanings, records, related places and related objects.'[44]

Analytical Framework for the Study

Starting from Vitruvius's understanding of durability in architecture, the above look at the relevant literature points to the development of the notion of architectural durability into something that is multifaceted and complex. It now seems to include both tangible and intangible aspects. In what follows, the examinations are elaborated to come up with the analytical framework for the study. This article first draws on the ideas of Hvattum and Nygaard, and thus applies a broad understanding of architecture, which includes both canonical works and common architecture, in connection with architectural durability.

According to Van Reeth and others, flexibility is an important aspect of architectural durability. Consequently, the section on 'flexibility and adaptation' surveys the characteristics of buildings with respect to alterations and adaptations and the refitting buildings for new functions and/or technologies.

The northern climate can be harsh on buildings: rain, snow, wind, and UV radiation from the sun all weather buildings. Roorda and Kegge's considerations regarding robustness are therefore important in the Nordic countries. The section on 'robustness' thus examines structure and building materials, as well as climate-responsive design solutions that aim to extend the lifespan of buildings.

Despite all the efforts with respect to robustness, totally maintenance-free architecture is difficult to find, and according to Verbeek and Kockelkoren, is not something that ought to be striven for. Even though their theory was developed in connection with design, this article argues that it can be applied to architecture as well; such an approach is in keeping with Hvattum's understanding of architecture including even door handles. In this connection, 'maintenance and repair' are regarded as engagements with architecture, as such interventions in how a building functions are likely to extend the durability of the building in question by means of ongoing care and protection.

Finally, 'significance' may contribute to architectural durability. Significance comprises material and immaterial aspects that are not included in the three aspects of architectural durability already mentioned. This significance might be a distinct architectural expression, or be related to aesthetics, culture, history, or a particular quality.

CASE STUDIES

As already mentioned, the aim of this article is to examine the notion of architectural durability. Architectural durability is regarded as being very likely to be embedded in buildings with a long lifespan, or in other words, in architectural heritage. Such buildings are thus considered to be the primary sources for this research. With the aim of examining architectural durability meticulously and based on studies of primary sources, the methodology chosen is case study research. This choice is informed by the notion that case study research is particularly qualified to provide in-depth information on a phenomenon (architectural durability) based on a small number of dense case studies (heritage buildings).[45]

The study includes three cases, which were selected with a view to exploring 'architectural durability' in a distinct way. The choice of cases is thus informed by a number of criteria. First, each case must have proven itself as being architecturally durable by having a long lifespan. This is concretized into the criterion that the building be at least 300 years old; see Sievert's and Nielsen's remarks in the introduction. Second, each case must be a dwelling and still function as such. The cases selected thus form a parallel to contemporary single-family housing and ensure the current relevance of the study. Finally, the three cases should represent different types of dwellings. These differences include a variety with respect to size, context, and choice of building materials and techniques so as to increase the number of different examples of architectural durability being surveyed. Consequently, the cases comprise a small urban dwelling, a large townhouse, and a vernacular farmhouse. The construction techniques used in these buildings include half-timbering and brick building.

The cases selected are the *Agerskovhuset* (Agerskov House), Hornsgårdvej 7, 6510 Gram; Sankt Annæ Gade 14, 1416 København K; and Grønnegade 12, 6760 Ribe. Each case is then analysed with respect to the four aspects of architectural durability: flexibility and adaptability, robustness, maintenance and repair, and architectural qualities.

Agerskov House, Hornsgårdvej 7, 6510 Gram

According to dendrochronological dating, the Agerskov House was constructed around 1682. It is a fine example of the vernacular architecture of West Schleswig, since it is a so-called *gårdstuehus* (a one-winged farm building, in which one end constitutes the dwelling and the other the stable). The Agerskov House has an east-west orientation, is approximately 24 metres long and 7 meters wide, and has whitewashed walls and a thatched roof. In keeping with the tradition of the region, the main entrance is marked by an *arkengaf*, a segmental dormer with a hatch into the hayloft (see fig. 2). The entrance room was used as a threshing floor and, moreover, divides the building into stables (west) and dwelling (east). Until 1992, the Agerskov House was a property belonging to the Gram Gods. The building became listed 1997 and conservation work was carried out at the same time.[46] The Agerskov House still functions as a dwelling; it is, however, currently uninhabited.

Figure 1. The Agerskov House seen from the south. Photo by the author.

Figure 2. The so-called arkengaf of the north facade. This segmental dormer above the main entrance is a traditional feature of West Schleswig vernacular architecture. Photo by the author.

Flexibility and Adaptation

The Agerskov House was originally built as a so-called *bulhus*, which can be translated as post-and-plank construction.[48] Inside the building, traces of the brackets between the tie beams and now missing wall posts tell the story of this particular wooden construction. In 1783, according to dendrochronological dating, the post-and-plank walls were replaced with brick construction.[49] Based on archaeological investigations of the building, it is quite probable that the original division of the building into dwelling and stable has been preserved and that only a few changes have been made to the layout of the dwelling (see fig. 3). In the course of conservation work, the outer walls were padded with ¼ moclay brick as insulation and then covered with panelling.[50] Such panelling is in keeping with West Schleswig vernacular architecture.

Robustness

The few changes made to the building indicate that it has a robust structure. Furthermore, the materials used in the Agerskov House are traditional, vernacular materials such as timber, including oak in large dimensions, brick, reed, and boulders. The materials were used prudently so as to minimize problems, for instance, boulders to prevent damp ascending from the soil. The climate-responsive design is reflected in the east-west orientation of the building,[51] since the wind comes predominantly from the west. The wide eaves of the thatched roof protect the base of the roof, and the half- hipped gables are resistant to wind pressure. Thatched roofs are not particularly durable and have an average lifespan of around twenty to fifty years, depending on the orientation.[52]

Maintenance and Repair

The building requires regular maintenance. This includes surface treatments such as whitewash and linseed paint (windows, doors, et cetera). Essential building components are thus preserved, even though the paint and whitewash deteriorate over time. Furthermore, the building materials and elements can be repaired as needed.

Significance

The significance pertains to the architectural and cultural-historical aspects of the Agerskov House, such as the exterior, which reflects the vernacular architecture of West Schleswig.[53] In the interior, preserved building elements contribute to the identity of the house, such as the fireplace in the *fremgulv* (the first room in a dwelling, usually connected to the kitchen). Additionally,

the materials and components used in conservation efforts are chosen carefully in order to support the identity of the building. This includes, for example, the reuse of old doors from contemporary, now demolished buildings, the

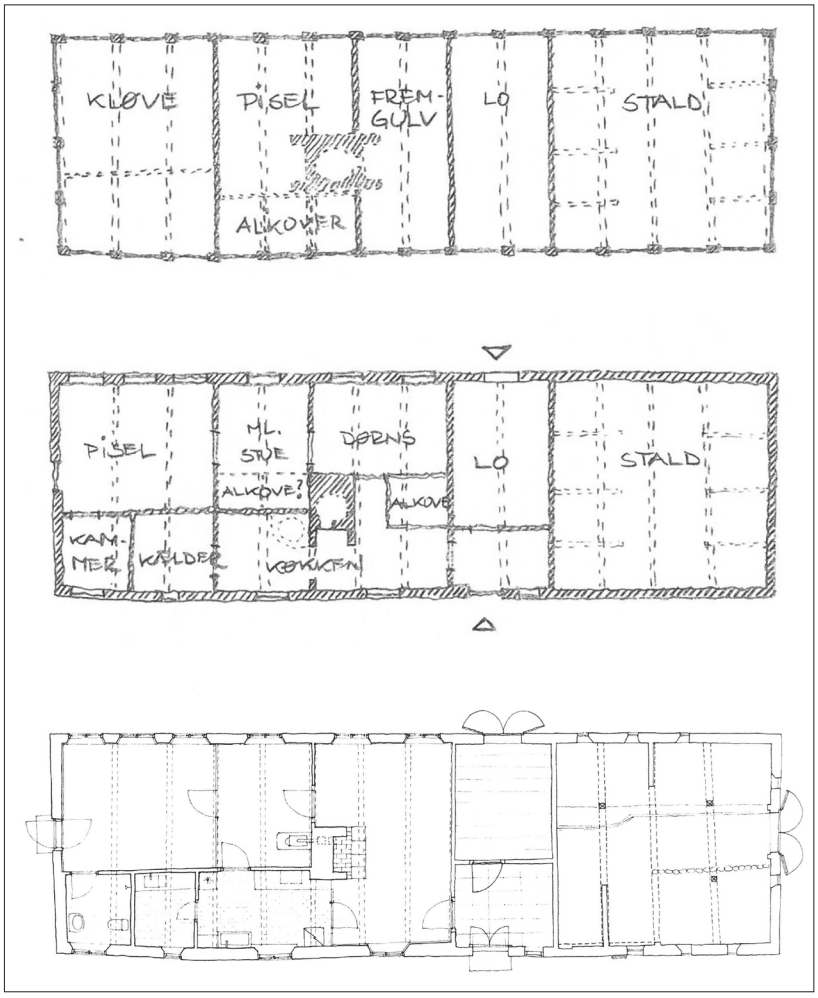

Figure 3. Layouts of the Agerskov House.
Top: A reconstruction of the original layout of 1682.
Middle: A reconstruction of the layout after the rebuilding in 1783, in which the post-and-plank construction was substituted with baked bricks.
Bottom: The layout after the conservation of the late 1990s. Note that north is downwards. Drawings by Jørgen Overby.

reuse of Oland floor tiles from the old pharmacy in Gram in the entrance room and, finally, the paving of the kitchen and scullery with reused quarry tiles.[54]

Sankt Annæ Gade 14, 1416 København K

Sankt Annæ Gade 14 is four bays long, half-timbered, and was very likely erected between the years 1622 and 1635, thus originating from the first settlement at Christianshavn. It is a so-called *bod* (also called *rentebod* or *lejebod*), which means a small dwelling, usually for rent to people of humble means. Traditionally, a *bod* is a single-family dwelling comprising an entrance, a living room, a kitchen, and a small chamber. The typical *bod* is three or four bays long, but there are also examples of *boder* (plural form) with only two bays. *Boder* were very common in Danish towns from the Middle Ages to the late nineteenth and early twentieth century, when many were demolished in the course of urban renewal. Sankt Annæ Gade 14 became listed in

Figure 4. Sankt Annæ Gade 14, Christianshavn. This small dwelling is part of the first settlement at Christianshavn. Photo by Trine Bendixen.

1950, despite the run-down condition of this building and the neighbouring buildings on Sankt Annæ Gade. In 1959, all the B-listed buildings[55] on the street were supposed to be condemned. A ten-year struggle to preserve the buildings of Sankt Annæ Gade 12 to 16 then began and around 1970, the conservation began. This work was completed five years later.[56]

Flexibility and Adaptation

Sankt Annæ Gade 14 was very likely built as a one-storey building with a steep roof. According to the fire insurance valuation of 1767, the building then had two storeys facing the street, since a flat roof dormer in full length of the facade had been added. This was probably done with the aim of converting the attic into a *sal* (parlour). Repair and various changes took place between 1806 and 1817. The rear facade was walled up, probably due to the poor condition of the half- timbering, and a similar flat roof dormer was constructed on this side (see fig. 5). At one time, probably just after the year 1900, the front facade was adapted to accommodate the shop then situated on the ground floor.

Building archaeological investigations have revealed varying layouts, but the original layout of the ground floor still remains recognizable. It included an entrance room extending through the building, a living room facing the street, and, lastly, a small chamber and a kitchen with an open fireplace at the back of the building (see fig. 5.)[57] It is highly likely that the *bod* originally comprised a single dwelling and that the expansions, including an additional storey, made additional tenancies possible. According to the Danish newspaper *Politiken*, the building at Sankt Annæ Gade 14 comprised three tenancies in 1961: a bike shop on the ground floor, an older woman living on the first floor, and a young family living in the attic.[58] Following the conservation in the early 1970s, Sankt Annæ Gade 14 now comprises one dwelling with a three- storey layout.

Robustness

The building has a robust structure that has been subjected to many changes. Originally, the building was half-timbered with brick panels (*nogging*) and a tiled roof. It is also very likely that the dwelling had leaded windows. Over time, the ground level of Sankt Annæ Gade has risen. For this reason, the dwelling now has a few steps down from the front door to the floor level. This continuing rise of the terrain has been a challenge, in particular in connection with the half- timbering. Today, many of the materials in the building have been renewed, either over time, such as the front door, which dates from

between 1806 and 1817, or as part of the conservation in the early 1970s, such as the windows and the staircase.[59] The climate-responsive design is seen in the wide eaves that protect the upper part of the facade. The roof tiles and brick-built walls are also durable.

Maintenance and Repair

Sankt Annæ Gade 14 requires regular maintenance, which includes whitewash on the *nogging* and timber and paint. Building materials in poor condition can be repaired or replaced, for instance, one or several broken tiles.

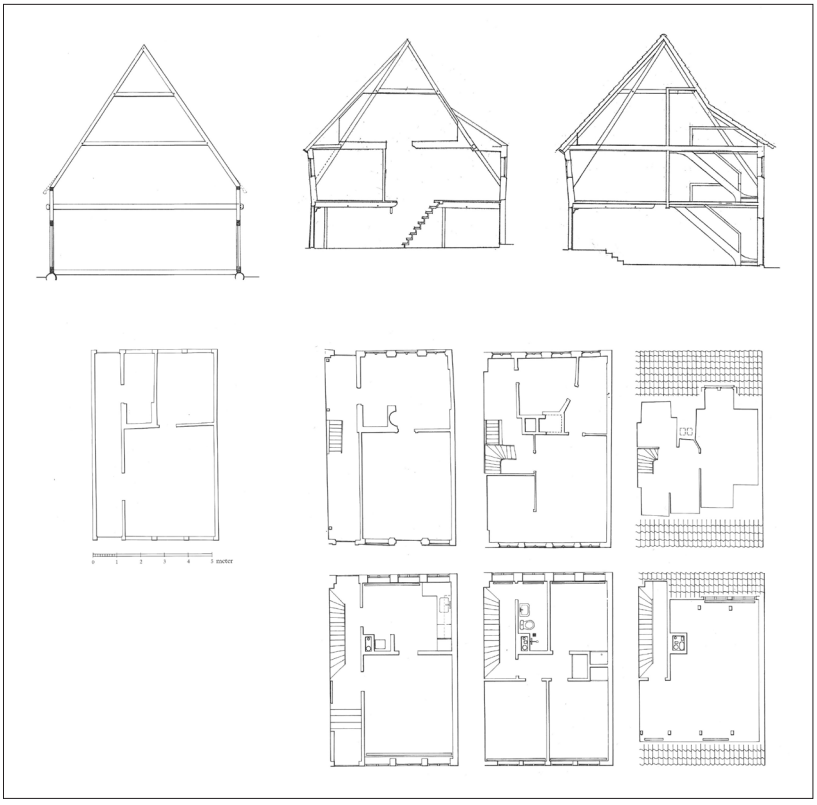

Figure 5. Sections and layouts of Sankt Annæ Gade 14, scale circa 1:200.
Top: Reconstructed section of the original building (left), section before 1970 (middle), and section after the conservation of 1975 (right). Take notice of the rising terrain.
Middle: Reconstructed layout of the original building, comprising an entrance room, living room, and a small chamber (left) and layouts of the ground floor, first floor, and attics before 1970 (right).
Bottom: Layouts of the ground floor, first floor, and attics after the conservation of 1975.
Drawings by Jens Fredslund.

Significance

The historical value of Sankt Annæ Gade 14, particularly its origin in the first settlement of Christianshavn, is regarded as the main reason for the continued existence of this *bod*. Another asset of the building is its location at Christianshavn, a quiet neighbourhood close to the city centre of Copenhagen. The layout of the ground floor is based on the original layout, with only a few changes, and elements such as the fireplace have been preserved. Additionally, the conservation emphasized the use of traditional materials in keeping with the identity of the *bod*, such as wood, quarry tiles, and reused roof tiles.[60]

Grønnegade 12, 6740 Ribe

Grønnegade 12 is an eleven-bay-long, two-storeyed half-timbered building that was erected between 1525 and 1540. The so-called *gavlhus* (a building whose gable faces the street) is situated in the medieval town centre of Ribe, with its main gable facing Grønnegade and its north facade along Smalleslippe alley. A particular characteristic of Grønnegade 12 is the *højstolpekonstruktion* (a medieval type of half-timbering where the posts extend over two storeys from sill to wall plate), with long posts in the facades. The layout of the building is divided into two: six bays on two storeys towards the street, and, to the rear, five bays with a basement and an upstairs *storstue* (parlour). The building was listed in 1918 and restored in the years 1976 to 1983.[61]

Flexibility and Adaptation

Building archaeological investigations point to substantial changes to the building (see fig. 7). First, the kitchen might already have become a separate room in the seventeenth century. It is also likely that the interior was rebuilt in the second part of the eighteenth century, when the original *fremgulv* was divided into multiple rooms, such as an entrance room and a living room. Traces of this rebuilding include a *korspostvinduer* (a window divided into four casements by a mullion and a transom), and rococo doors to the sleeping recess. In 1848, bricks replaced the half-timbering of the main gable, since it was walled up and the gable hipped. Changes to the layout were subsequently made with the aim of facilitating more tenancies.[62]

Robustness

The building has generally retained its original structure, except for the main gable. The materials used are traditional. Certain parts of the half-timbering have been replaced with bricks. Other parts have been subjected to

repair and reconstruction. Moreover, the half-timbering facilitates a flexible structure with respect to the addition or removal of windows and doors in accordance with altered layouts. The interior of the building has been rebuilt several times. The present layout from 1983 takes its point of departure in the preservation-worthy layout of the eighteenth century.[63]

Maintenance and Repair

The building requires regular maintenance. This includes the application of paint, whitewashing, and wood tar. The building materials and elements can be repaired, such as, for instance, the half-timbering.

Figure 6. Grønnegade 12, Ribe. The neoclassical gable towards Grønnegade and the late medieval half-timbering towards the alley of Smalleslippe. Photo by the author.

Significance

Grønnegade 12 is among the oldest secular buildings in Ribe and features prominently on the street Grønnegade. It thus contributes to the particular atmosphere of the historic town centre. In addition, it is a *højstolpekonstruktion*, of which only a very small number have been preserved in Denmark.

Figure 7. Layouts of Grønnegade 12, scale circa 1:250. Top left: Reconstructed layout of the original building, comprising a parlour and fremgulv (the first room in the dwelling, usually connected to the kitchen). Top right: Reconstructed layouts of the eighteenth-century rebuilding. The upper layout comprises storage and chambers, whereas the ground floor towards Grønnegade has been divided into more rooms such as kitchen and living room. Bottom left: Before the conservation of 1976–83. The building has been divided into more tenancies. Dotted lines indicate traces of former layouts. Bottom right: Conservation project. The layout takes its point of departure in the layout of the eighteenth-century building. Drawings by Steffen M. Søndergaard.

Various architectural styles are represented in the facade, including medieval half-timbering, baroque windows, and the neoclassical gable. Furthermore, the conservation emphasized the reuse of older building components in order to preserve the identity of the building.[64]

Findings: Cross-Case Analysis

The cross-case analysis compares the case studies within the analytical framework: flexibility and adaption, robustness, maintenance and repair, and significance. With respect to flexibility and adaption, the changes can be divided into three groups: a step-by-step enlargement of the building (Sankt Annæ Gade 14), the replacement of older building techniques with new ones (in all three cases), and changes to the layout (in all three cases). Robustness surveys the structure, the use of traditional materials, knowledge of strong and weak materials, and climate-responsive design. All the cases studied have a robust structure and make use of traditional materials, but the knowledge of materials and a climate-responsive design seem to be more conspicuous in the Agerskov House. There is no great difference between the cases in terms of maintenance and repair, since they all receive regular maintenance and the building materials can be repaired. Finally, significance points to aspects related to cultural history, architecture, and conservation that may promote architectural durability. For instance, it is noteworthy that it was the cultural-historical value of Sankt Annæ Gade 14 that saved the building from demolition.

DISCUSSION

The aim of the case studies was to investigate how architectural durability is embedded in buildings with a long lifespan. It is important to note that the buildings studied were not necessarily erected with an emphasis on architectural durability. Moreover, it can be argued that the cases selected represent a minority of the building stock in Denmark, since only 12 per cent of it is 100 years old or more (see the introduction). Consequently, only very few buildings are 300 years old or more, as are the buildings discussed in the case studies. In this context, however, age is regarded as the most important criterion—compared, for instance, with representativeness—that informs architectural durability.

The findings of the case studies are discussed below. Criteria for interpreting the findings are related to their relevance to and influence on architectural durability, with a view to establishing what characterizes this notion.

The first aspect examined in the analysis is flexibility and adaption. All the cases have been subjected to various types of adaption and change, which have, without doubt, extended the lifespans of the buildings. For instance, it is very probable that Sankt Annæ Gade 14 would have been demolished a long time ago, if the building had not been enlarged to include an additional storey. It is also probable that the Agerskov House would have fallen into decay and then been demolished, if bricks had not been substituted for the post-and-plank construction.[65] Similar alterations are reflected in the case of the half-timbering, since the sill and the bottom of the posts are particularly vulnerable. Consequently, a building's ability to change and adopt new building techniques in the event that repairs are impossible is very important with respect to ensuring a long lifespan. An example of this with a contemporary relevance is the Agerskov House, whose outer walls have been insulated in a way that is in keeping with traditional building practice and also improves its future energy performance.

As far as robustness is concerned, all three cases are characterized by a robust structure, which seems to be a precondition for the ability of a building to accommodate alterations. Moreover, the use of traditional building materials applies in all cases, as well as knowledge of strong and weak materials. It is probable that a strong structure is to be preferred over strong materials with respect to architectural durability, since weak materials can be maintained, repaired, or replaced. It is, however, interesting to note that the strong materials used in the three cases, such as bricks, have a durability of several hundred years, which seems to call the anticipated lifetime of fifty years proposed by the LCA into question. A climate- responsive design is particularly evident in the Agerskov House: for instance, its orientation and hipped roof enable it to resist the wind pressure. Moreover, the climate-responsive design, including the wide eaves that protect the base of the roof and reduce the amount of rainwater on the facade, may also contribute to reducing maintenance and repair. It is probable that a rural location makes it easier to incorporate climate-responsive design solutions, compared to a building plot with a fixed facade line, with the building connected with the neighbouring buildings, in urban areas. Though two of the cases selected do not feature distinct examples of a climate-responsive design, many modern single-family houses in suburban areas are likely to share similarities with the Agerskov House, for instance, the detached situation, and thus take advantage of such solutions.

All three cases require regular maintenance and repair in order to avoid severe decay. Painting and whitewashing are not complicated tasks and can be carried out by the owners. By contrast, other types of repair and maintenance, such as repairs to the half-timbering or the thatched roof have become jobs for highly specialized craftsmen who have experience with architectural heritage. In the past, maintenance and repair was regarded as a natural part of inhabiting a dwelling, whereas many contemporary building owners desire maintenance-free solutions such as plastic windows. In this connection, it should be noted that all the cases are listed buildings, which is why the repair guidelines of The Agency for Culture and Palaces must be adhered to. It is likely that the ability to be maintained and repaired contributes to architectural durability, also with respect to the major conservations that all three cases have been subjected to in modern times.

In addition, all the case studies show aspects of significance. The examples surveyed are wide-ranging, including cultural- historical aspects, architectural expression and styles, and preserved building elements. For reasons of practicality, certain aspects of significance are also referred to as values (for instance, cultural-historical and architectural values), since this is how they are handled in architectural conservation (see the definition of significance in the so-called Burra Charter in section 3).[66] First of all, it seems that cultural-historical values are quite important in connection with architectural durability. Sankt Annæ Gade 14 is a striking example of this. Despite being listed, the building came very close to being demolished. Its origin as part of the first settlement at Christianshavn, its cultural-historical value, was what saved the building. Similarly, the Agerskov House and Grønnegade 12 have cultural-historical values, an aspect that most likely contributes to the architectural durability of these buildings. One sign of this is that they have been listed and are therefore supposed to be preserved for eternity.

Furthermore, it is probable that high-quality alterations related to the architectural style may contribute to architectural durability. For instance, the rebuilding of the Agerskov House transformed the building into a completely different architecture—from post-and-plank construction to the vernacular brick-building of West Schleswig—but the new architectural expression is also appreciated. Another example is the compiled architecture of Grønnegade 12, with medieval half-timbering and a neoclassical gable,

which, owing to the whitewashing, becomes an architectural whole that narrates the age of the building. Similarly, the choice of traditional materials and components in keeping with the identity and authenticity of a building is very similar to architectural durability, since such choices are less likely to be replaced in the short run. One example of this is the carefully chosen materials and reused doors of the Agerskov House. In contrast, alterations not in keeping with the identity and authenticity of the building have been removed, such as the twentieth-century shop facade of Sankt Annæ Gade 14. Lastly, it is noteworthy that the original and historical layouts of the three cases were a source of inspiration for the contemporary layouts. There seems to be a connection between the (increasing) significance and appreciation of the original or historical layout of the building and historical elements.

Findings

The principal objective of this study was to examine architectural durability with a view to establishing what characterizes this notion. The main results of the discussion suggest that robustness, flexibility and adaption, and significance are the most important factors that contribute to achieving architectural durability. First, robustness in the form of a robust structure seems to be a prerequisite for architectural durability, since it thus accommodates the possibility of flexibility and adaption. This ability seems very important to younger buildings, since it is likely to ensure that the building will have a long lifespan. Maintenance and repair and the other aspects of robustness then contribute to a building's becoming old. When it has become old, its significance has presumably increased and possibly overshadows the other factors, since a building's age is what may eventually save it from demolition.

Consequently, architectural durability is considered to be characterized by a robust structure, flexibility and adaptability, and, finally, the gaining of significance over time, whereas the ability to be maintained and repaired and having a climate- responsive design seem to be secondary features, at least at the moment.

RECOMMENDATIONS

In accordance with the secondary objective of the study, this section outlines recommendations for improving the lifespan of future buildings. As already mentioned, this paper addresses architectural durability particularly in connection with single-family housing, since such dwellings are very popular in the Nordic countries. For many years, there was a strong focus

on reducing energy consumption during the operational phase of buildings. Today, however, the climate impact now mostly pertains to the construction phase, as mentioned in the introduction. It is therefore important to build in an architecturally durable way so as to make building more sustainable. The following recommendations are based on the preceding sections of this article. Furthermore, it is difficult to predict future significance. As the cases are all located in Denmark, these recommendations target Denmark in particular. It is nonetheless likely that they may also be of relevance to other Nordic countries.

1. Buildings should be given a robust structure as a precondition for changes, for instance to the facades.
2. Buildings should be designed to be flexible on various levels, thus allowing them to be enlarged or reduced in size, for new building techniques to be adopted, and for changes to be made to the layout.
3. Alterations should be made with a focus on architectural quality, such as materials in keeping with the identity and authenticity of the building. Qualitative changes are more likely to become an appreciated part of the building in the long term.[67]
4. It is important to choose building materials that can be maintained and repaired, or, for instance, to be able to replace run-down parts of building components. This approach also takes into account the scarcity and expense of building materials that is predicted in the future.
5. A climate-responsive design should be incorporated in the design process, since such features may contribute to robustness and reduce the need for maintenance and repair's.
6. Architecture, including architectural expression, may add value to a building and thereby contribute to architectural durability.

CONCLUSION

Research on sustainable architecture is multifarious, yet it is often also connected with new construction, despite the large existing building stock. Furthermore, it only influences ordinary building to a limited extent. In the Nordic countries, a tradition of researching links between (existing) heritage buildings and sustainability has developed. The objective of this article was to examine the notion of architectural durability with a view to increasing the lifespan of future buildings and thus support sustainable building, and to inscribe such durability in the Nordic research on heritage and sustainability.

The article includes a study of literature that explores the notion of architectural durability. This study surveyed the development of the notion of architectural durability from Vitruvius's understanding of structural matters into a complex notion of tangible as well as intangible aspects. The analytical framework was then derived from the study of the existing literature. This framework comprises four aspects of architectural durability. A case study of three cases was then carried out, with the case studies followed by findings, a discussion, and recommendations for future building.

Critical reflections on the particular methodology used concern the survey of the literature and the empirical approach. First, there are several approaches to reviews of literature, and in this case, a traditional literature study was chosen for reasons of time. It is possible that a more comprehensive approach involving more texts might have developed the analytical framework further. Second, the empirical approach was initially limited to residential buildings with an age of at least 300 years. This choice led to the selection of cases involving listed heritage buildings for several reasons, such as the need for sufficient knowledge, including archaeological examinations of the building for each case. It is, however, possible that studying a larger number of non-listed cases, as well as cases of younger buildings with an age 100 and 200 years, would have identified additional factors related to architectural durability. Furthermore, including cases from other Nordic countries would have been desirable, since it would also have made the concluding recommendations more relevant to other Nordic countries.

The main results of the study are the characterization of architectural durability as outlined in section 5.1 and the recommendations in section 6 with a view to increasing the lifespan of future buildings.

This article represents the author's initial research on this topic. It also suggests that further research on architectural durability would lead to a more comprehensive understanding of this important topic, with a view to increasing sustainable building in the Nordic region.

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and research on architectural heritage; energy optimization and climate emissions by SINTEF and NIKU (Selamawit Mamo Fufa, Cecilie Flyen, and Christoffer Venås), *Grønt er ikke bare en farge: Bærekraftige bygninger eksisterer allerede* (Oslo: SINTEF akademisk forlag, 2020); and Cecilie Flyen, Anne-Cathrine Flyen, and Selamawit Mamo Fufa, *Miljøvurdering ved oppgradering av verneverdig bebyggelse* (Oslo: SINTEF akademisk forlag, 2019)). Furthermore, the Nordic Association of Architectural Research held the symposium 'Built Environment and Architecture as a Resource in 2018', Anne Elisabeth Toft and Magnus Rönn, 'Foreword', in *Built Environment and Architecture as a Resource: Proceeding Series 2020–21*, edited by Minna Chudoba, Ari Hynynen, Magnus Rönn, and Anne Elisabeth Toft (sine loco: Nordic Academic Press of Architectural Research, 2020), pp. 5–6.

[15] For instance, in 2020 Denmark had a total of 1,170,869 single-family homes, according to the Statbank of Statistics Denmark, and new ones are continuously being built. In 2019, 4,724 new single-family houses were erected (Danmarks Statistik, 2020).

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[42] ICOMOS, *International Charter for the Conservation and Restoration of Monuments and Sites (the Venice Charter 1964)*, 1964, https://www.icomos.org/charters/venice_e.pdf.

[43] INTACH, Indian National Trust for Art and Cultural Heritage, *Charter for the Conservation of Unprotected Architectural Heritage and Sites in India*, 2016, http://www.intach.org/about-charter- principles.php.

[44] Australia ICOMOS, *The Australia ICOMOS Charter for Places of Cultural Significance, The Burra Charter, 2013* (Burra Charter), 2013, https://australia.icomos.org/wp-content/uploads/The-Burra- Charter-2013-Adopted-31.10.2013.pdf.

[45] Bent Flyvbjerg, 'Five Misunderstandings about Case-Study Research', *Qualitative Inquiry* 12, no. 2 (2006), pp. 219–42; Robert K. Yin, *Case Study Research* (Los Angeles: Sage, 2014).

[46] Jørgen Overby, '1700-tallet: Fra træhus til stenhus', *Sønderjysk Månedsskrift* 3 (1997), p. 64; Jørgen Overby, 'Agerskovhuset', a leaflet made for Det særlige Bygningssyn (the advisory board of the Secretary of Cultural Affairs, and thereby, also the Agency for Culture and Palaces), Jørgen Overbys Tegnestue A/S, n.d.

[47] Skovdalsvej 11, 8260 Viby, is a fine example of sensitive alterations to a so-called *Statslånshus* (a house erected on the basis of a government loan), whereas Goldschmidtsvænget 21, 5230 Odense, exemplifies a talented retrofitting of a Friis & Moltke house of 1959. The retrofitting in 2013 was designed by BAKS Architects. See Renoverprisen, 'Nyt liv i Friis & Moltke villa', https://renover.dk/projekt/nyt-liv-i-friis-moltke-villa/. Finally, Obstrupvej 25, 8320 Mårslet, is a fine example of an ordinary building turned into special architecture. Bo Frost Architects transformed the former stable into a single-family house by in 2014. The structure of the former stable has been preserved and is now utilized as a modern dwelling, with a convincing focus on materials and details. See Renoverprisen, 'Fra stald til bolig', 2015, https://renover.dk/projekt/fra- stald-til-bolig/.

[48] Post-and-plank construction is characterized by horizontal wall planks fitted into grooves in the posts. Such construction requires large amounts of oak timber, which is why it was banned in Denmark in 1554 and 1577, with the exception of South Jutland. In this region, repairs to existing post-and-plank construction was allowed. The erection of post-and-plank buildings, however, did not come to an end until the eighteenth century. This is probably related to the propagation of brick building from the late seventeen century onwards, which was aided by the influence of Frisian building. See Curt von Jessen, ed., *Landhuset: byggeskik og egnspræg, gode*

raad om vedligeholdelse og istandsættelse (Copenhagen: Gyldendal, 1975), p. 47; Peter Brogaard, 'Gårde og huse', in *Landbrugets huse*, edited by Peter Brogaard, Hakon Lund, and Hans Edvard Nørregaard-Nielsen (Copenhagen: Gyldendal, 1985), p. 29. The origin of the Agerskov House as a post-and-plank dwelling is rare and also indicates the wide distribution of such buildings in earlier times. See Overby, '1700-tallet: Fra træhus til stenhus', p. 64.

[49] The bricks were probably manufactured by the resident at the time, Jens Jørrensen Thielbrenner (last name: Brick-baker). See Overby, '1700-tallet: Fra træhus til stenhus', p. 64.

[50] Slots- og Kulturstyrelsen, 'Hornsgårdvej 7, Gram_redigeret', 2020 (right of access to documents related to the listed Agerskovhuset, Hornsgårdvej 7, Gram); pdf retrieved from Slots- og Kulturstyrelsen, p. 81.

[51] The orientation is the layout of the building with south-facing living rooms thus enables it to benefit from sunlight during the day.

[52] Kulturstyrelsen, *Information om bygningsbevaring: stråtage* (2011), p. 1, https://slks.dk/fileadmin/user_upload/SLKS/Omraader/Kulturarv/Bygningsfredning/Gode_raad_o m_vedligeholdelse/4.5_Straatage.pdf.

[53] The vernacular architecture of West Schleswig (brick-building with a thatched roof) is appreciated in Denmark. In the late nineteenth and early twentieth century, the *Foreningen af 3. december 1892* (The Association of 3 December 1892), whose members were architects and architecture students, toured Denmark to survey historic monuments and vernacular architecture. Their trips to South Jutland influenced the emergence of the so-called *Bedre Byggeskik*-style of circa 1915–30.

[54] Slots- og Kulturstyrelsen, 'Hornsgårdvej 7, Gram_redigeret', p. 81.

[55] Until 1980, the Danish Agency for Listed Buildings worked with two categories of listed buildings: A-listings and B-listings. B-listings are primarily related to the facades of the buildings in question.

[56] Harald Langberg, *Tre huse på Christianshavn* (Copenhagen: Foreningen til gamle bygningers bevaring, 1976); Slots- og Kulturstyrelsen, *Fredningsværdier: Sankt Annæ Gade 14, Christianshavns Kvarter, Københavns Kommune*, 2016 (right of access to documents regarding the listed Sankt Annæ Gade 14, Christianshavn); pdf retrieved from Slots- og Kulturstyrelsen; Birgitte T. Eybye, 'Jylland', n.d. (unpublished manuscript for an entry in the *Encyclopedia of Vernacular Architecture*, edited by Marcel Vellinga. Publication of the encyclopaedia is planned for 2022).

[57] This layout is in keeping with similar *boder* in Copenhagen as well as other parts of Denmark. See Jørn Ørum-Nielsen, *Længeboligen: om langhuse, længehuse, huse på række og rækkehuse* (Copenhagen: Kunstakademiets Forlag, 1988).

[58] Langberg, *Tre huse på Christianshavn*, p. 10.

[59] Ibid.; Slots- og Kulturstyrelsen, *Fredningsværdier: Sankt Annæ Gade 14*.

[60] Langberg, *Tre huse på Christianshavn*; Slots- og Kulturstyrelsen, *Fredningsværdier: Sankt Annæ Gade 14*.

[61] Steffen M. Søndergaard, Per Kristian Madsen, Hans Henrik Engqvist, and Ole Degn, *Grønnegade 12 i Ribe: et gavlhus fra 1500-årene og dets historie* (Ribe: Den antikvariske samling, 1986), pp. 9–25; Slots- og Kulturstyrelsen, *Fredningsværdier: Grønnegade 12, Esbjerg Kommune*, 2015 (right of access to documents regarding the listed Grønnegade 12, Ribe); pdf retrieved from Slots- og Kulturstyrelsen.

[62] Søndergaard *et al.*, *Grønnegade 12 i Ribe*, pp. 9–25.

[63] Ibid., p. 24.

[64] Ibid., pp. 9–25.

[65] The Danish climate is hard on wooden buildings, and around the year 1700, Denmark was struck by an ecological crisis, which involved a severe scarcity of wood and timber. See Thorkild Kjærgaard, *Den danske revolution 1500–1800: en økohistorisk tolkning* (Copenhagen: Gyldendal, 1996). In this respect, Denmark differs from the other Nordic countries.

[66] This paper applies the values of *SAVE* (Kulturarvsstyrelsen, *SAVE: Kortlægning og registrering af bymiljøers og bygningers bevaringsværdi*, 2011, https://slks.dk/fileadmin/user_upload/kulturarv/fysisk_planlaegning/dokumenter/SAVE_vejlednin g.pdf; and *Vejledning til vurdering af fredningsværdier* (Kulturstyrelsen, 'Vejledning: vurdering af fredningsværdier', n.d. (unpublished material), since tools for assessing these values are prevalent in the Danish context.

[67] Skovdalsvej 11, 8260 Viby, is a fine example of sensitive alterations to a so-called *Statslånshus* (a house erected on the basis of a government loan), whereas Goldschmidtsvænget 21, 5230 Odense, exemplifies a talented retrofitting of a Friis & Moltke house of 1959. The retrofitting in 2013 was designed by BAKS Architects. See Renoverprisen, 'Nyt liv i Friis & Moltke villa', https://renover.dk/projekt/nyt-liv-i-friis-moltke-villa/. Finally, Obstrupvej 25, 8320 Mårslet, is a fine example of an ordinary building turned into special architecture. Bo Frost Architects transformed the former stable into a single-family house by in 2014. The structure of the former stable has been preserved and is now utilized as a modern dwelling, with a convincing focus on materials and details. See Renoverprisen, 'Fra stald til bolig', 2015, https://renover.dk/projekt/fra-stald-til-bolig/.

ARCHITECTURAL SUSTAINABILITY AS A CULTURAL PRACTICE

Stine Dalager Nielsen

ABSTRACT

How was one of our earliest vernacular building types, the longhouse, conceived and developed—and how was this change dealt with? What were our reference points—not as architects, but as people needing shelter in an environment of scarcity? Drawing on Hagan's notion of environmental architecture, this article examines how the practice of building longhouses in North Europe dealt with change in the past. The article proposes taking a step back from figuring out how we can realize sustainable architecture in order to question why we as architects do what we do and whether potentials for sustainability might already be found as intrinsic aspects in our historic building practices and reincorporated into contemporary architectural practice. In a four-week workshop, second- and third-year bachelor students from the Aarhus School of Architecture examined the longhouse as a reference point for sustainable architecture as an inherent aspect of human building practice. As part of this, they also analysed the vernacular typology of the longhouse from the perspective of culture, context, and building details, as well as how these aspects have affected the buildings. By using methods from classical architectural analysis, anthropology, and post-processual archaeology, the workshop explored how the longhouse typology developed in North Europe. The outcome of the workshop suggests that an analysis of longhouse building practices from the perspective of culture, context, and building details may provide deeper insights into how underlying sustainable potentials might be reincorporated into contemporary architectural practice. This denotes a practice of examining why we build (sustainably), before proposing how we do so.

KEYWORDS

Sustainable architecture, Northern Europe, Neolithic longhouses, culture, context

'The concept of vernacular architecture can and should be responsive to emerging issues. It is part of its nature. However, its unjustified flexibility should be carefully avoided and openly discussed.'[1]

This article deals with reflections on the following research questions:

1. How was one of our earliest vernacular building types, the longhouse, conceived and developed—and how was this change dealt with?
2. What were our reference points—not as architects, but as people needing shelter in an environment of scarcity?

These questions are used as a framework for thinking about sustainable architecture and offering (re)new(ed) insights on sustainability in contemporary architectural practice.

A student workshop was used to test the framework in practice by examining how the Neolithic longhouse developed in the Northern European countries of Denmark, Sweden, Norway, Finland, the Faroe Islands, and Iceland. In what follows here, the outcomes of the workshop are used to discuss whether we can already instigate reflections on sustainable architecture at the initial stages of the architectural design process. Such reflections should be based not on the existing dichotomies of benchmarking and certification such as DGNB, BREEAM and LEED, but instead initiated from the perspective of building practice itself, the context, residents, and building details.

I will begin by describing the background for how the topic of this workshop came about: describing architectural practice in the context of a climate emergency and obtaining perspectives from the Neolithic practice of building longhouses. The article then elaborates the theoretical framework and methodology used in the workshop, followed by a discussion of the outcome of the workshop and a conclusion.

BACKGROUND

The built environment is responsible for 39 per cent of the CO_2 emissions released into the atmosphere. Of them, 28 per cent is attributed to building services such as heating and cooling, while 11 per cent arises from the physical building materials and construction. As a result of the population increase that is anticipated in the coming years, emissions are projected to double in size, thus making upfront carbon (emissions prior to a building being in use) a large entry in the global carbon budget.[2] The figures include the nature of

our construction materials, their extraction, production and transportation, their longevity, or lack thereof, and the waste production connected with the end of the materials' lifecycle (demolition).[3]

Thus, in the context of the current climate emergency, the built environment faces the huge task of reconfiguring contemporary construction practice so as to reduce CO_2 emissions. At the same time, many of the current attempts to reconfigure architectural practice represent a systemic approach, which, despite good intentions, appears as a dichotomous entity detached from both real architectural practice and an in-depth understanding of built sustainability.[4] Consequentially, recent studies have revealed increasing amounts of documentation and data handling in building projects, which is expected to radically change how architects work when building sustainably.[5] While generally agreeing on the need for a common reference basis for sustainable architecture, the article takes a step back in order to examine the possibility of making sustainable architecture integral to architectural practice—instead of adapting architectural practice to a new system. This article thus examines the potentials for sustainability in the built environment—not as an external benchmarking or certification system to be introduced, but as an interaction between human beings and their environment that is already present in the practice of vernacular building.

The longhouse building practice constitutes an archetype of what Christian Norberg-Schulz defines as 'Romantic Architecture'[6]—vernacular architecture, thus buildings that have evolved as part of a continuum of inherent meanings that have been absorbed and conveyed as changing needs and conditions have arisen. Victor Buchli later described such buildings as 'the unstable forms of ethnographic examples of architecture'.[7] The features of buildings may appear both logical and irrational to a similar extent due to the structures' word-of-mouth construction, hence based not on blueprints, but on narratives retold over centuries and continuously modified to suit the particular construct of human culture and context. This unstable and crafted building form presents quite a contrast to the graphic precision of contemporary, system-based architectural design. It also prompts the question of whether these two worlds have anything to offer one another.

Vernacular tectonics represents a functional and aesthetical union of materials and building elements and components, the best examples of which transcend their unique character and facilitate the emergence of a global system.[8]

Hence, vernacular tectonics, when at its strongest, becomes the architectural manifestation of a cultural whole: tradition (locality), use (construction), and aesthetics. It can also be regarded as an integrated building process that brings together various sustainable building principles such as local sourcing, material scarcity, adaptability, and healthy buildings, which is why vernacular architecture is frequently linked with architectural sustainability.[9] This close relationship has inspired numerous case studies on passive, vernacular building solutions transferred directly to the current design and construction industry. Nonetheless, few studies venture beyond the physical building fabric to examine the sustainable aspects of vernacular tectonics as cultural responses to specific contexts.[10] This article explores the Neolithic longhouse type as a practice informed by a strong interdependency between cultural, contextual, and material (building) requirements.

Vernacular architecture in North Europe shares a common cultural root in overseas exchanges that occurred between the ninth and the thirteenth century, the early Middle Ages and the Viking age, as a result of trade activities, geographical explorations and conquests, and Christian missionaries. These activities gave rise to intensive cross-cultural exchange and multi-cultural influences on local settlements and dwelling types.[11] Despite the geographical range of the Nordic countries, from a temperate climate in Denmark, Southern Sweden, and Iceland to a harsh sub-polar environment on the Faroe Islands, the Neolithic longhouse type appears as a prevalent dwelling type over a period of 2500 years. Hence, the longhouse constitutes the longest inhabited housing type in Northern Europe.[12] Furthermore, it represents a physical example of early value-based decision making on human settlement through times of change—some aspects were passed on, and others were left behind.

Yet, the Neolithic longhouse should in no way be understood as a static built form. It instead constitutes a housing type defined by a number of building characteristics, which, in time, were appropriated for local contexts and customs.

The student workshop facilitated a general analysis of Neolithic longhouse types in Northern Europe and an exploration of how the types evolved since Neolithic times. The workshop outcome and discussion serve as a scaffold for entering into a more in-depth discussion of sustainability in contemporary

architectural practice so as to identify aspects of our vernacular building practices which might prove useful when designing sustainable architecture today. Such practices do not denote solutions, but instead serve as cultural mediators[13] that originate from the specific building practice as inherent knowledge about sustainability and part of what we are already doing.

Naturally, the academic environment represents a simplified mirroring of professional design and construction practice, which is based on complex layers of the economy, building regulations, legal guidelines, and financial considerations. At the same time, professional practice still provides a conceptual stage for drafting and sketching, which is inherent in both architectural education and practice. Hence, the research question in the workshop alludes to the early conceptual stage of the architectural design process, in order to then address sustainable aspects to be further developed in subsequent project stages.

THEORETICAL FRAMEWORK

From the perspective of Hagan's notion of environmental architecture, whereby she indicates the plurality of sustainability as being inherent to architecture,[14] the workshop sets out in the opposite direction, toward contemporary architectural practice, by addressing the practice of building. Defining sustainable architecture from the perspective of its vernacular roots, the Neolithic longhouse, it questions how building practices have developed and dealt with climatic and cultural changes in Northern Europe over the centuries.

The theoretical framework frames an overall thesis of sustainable architecture as an interaction between human beings, nature, and materials based on a new materialist platform that uses relational thinking to analyse the practice of building from these three perspectives.

Relational thinking is increasingly being used to theorize sustainability beyond its most dominant field of science, such as in the arts and humanities, and to frame interdisciplinary research in order to cross-reference unconventional disciplines, subjects, and objects that may at first seem mutually exclusive.[15]

Within architecture, relational approaches offer a range of new perspectives for revealing the interrelationship between sustainability and the built

environment, such as Gaia (Bruno Latour[16]), assemblage (Jane Bennett[17]), knowing (Tim Ingold[18]), and the ecology of architectural projects (Albena Yaneva[19]).

Relational thinking was used in the workshop to analyse the Neolithic longhouse in Northern Europe from three perspectives:

- Culture: the human influence of traditions, values and beliefs;[20]
- Context: the physical influence of climate, topography and fauna;
- Building details: the architectural, tectonic, influence on a building as an independent actor or form.

The Neolithic longhouse typology was thus analysed as a process, and as an assemblage consisting of inhabitants, builders, cultural practices, environments, landscapes, materials, and technologies that forms a building rather than it being merely a cultural or material object.

WORKSHOP

The one-month workshop took place in June 2020 with second- and third-year students of Aarhus School of Architecture in Denmark. Due to COVID-19 restrictions, the workshop was changed from an in-person to an online format, which meant that the students had limited access to archival and library searches during this period of time. An online basis of general material literature was made available by the organizers and supplemented by the students when possible.

During the workshop the students were supposed to explore how the Neolithic longhouse typology adapted to its 'new' cultural and physical contexts as vernacular architecture that integrated local resources and lifestyles as a response to particular social needs and contextual conditions. They thus approached settlements and dwellings contextually, which was followed by an elaboration of sustainable principles for construction.

Six longhouse types in Northern Europe were distributed amongst six student groups: the Danish wing house,[21] the Swedish Sydgötiska huset,[22] the Norwegian loft,[23] the Finnish smoke hut,[24] the Icelandic turf hut,[25] and the Faroese séthús.[26] The six types did not necessarily represent existing buildings but were instead assembled by the students by combining existing building information from the available literature.

The abstracted longhouse types served as principal building outlines in order to facilitate a speculative analysis of the buildings as assembled responses to particular contexts and cultures rather than as classical building analyses restricted to just one physical building. The analysis was meant to identify the interrelationship between 'sensible' built responses guided by contextual and cultural conditions and how these responses might be related to aspects of sustainable architecture such as passive heating, solar gain, and material recycling.[27]

The workshop was organized in three sections: a descriptive section (What can be seen?), an analytical section (What may be deduced?), and a section on applying the knowledge obtained (What can be learned?):

Section 01—'What can be seen?'—comprised factual descriptions of the built form and its local context based on existing background studies. The task included producing a set of basic drawings of a site plan, a building plan, a sectional plan, elevations, and a detail of choice.

In section 02—'What can be deduced?'—the students conducted a building appraisal consisting of a reflection sheet divided into a contextual and a cultural section, each of which included a line of sub-questions.

Section 03—'What can be learned?'—involved determining the sustainable aspects of the specific vernacular building. These aspects were then cross-referenced with contemporary architectural projects inspired by them in one form or another.

METHODOLOGY

With its origins in the early social sciences of archaeology, ethnology, and anthropology, the field of vernacular studies has a long tradition of qualitative methods facilitating a multifaceted perspective on architecture beyond the structures themselves.[28] As pieces of vernacular architecture, longhouse types were thus analysed using a combination of methods from classical architecture, anthropology, and archaeology as heuristic devises so as to speculate on the reasons behind the built longhouse form.

Traditionally, the social sciences have perceived architecture as built objects,[29] artefactual results of reciprocal processes between cultural practices and

context.[30] In contrast, architectural analysis generally pertains to the physical elements of a building.[31] By combining the two perceptions, the workshop analysis facilitated a broad perspective on architecture that includes both a physical- and culturally based approach to explore the three aspects of culture, context, and building details.

To address the cultural (human) influence on the types of longhouses, the building analysis applied methods from post-processual archaeology, thus enabling an open-ended interpretation of material forms as dialectical links to social relations and structures.[32] One example can be found in Marianne Hem Eriksen's examination of the domestic space in Norwegian Viking halls. By analysing the domestic layout of ninety-nine excavated longhouse sites, she highlights the significance of cultural choices made in connection with the practice of building longhouses, cultural preferences that in many instances appear to have a greater longevity than material and tectonic aspects as a result of the addition of a symbolic meaning to the building elements. Thus, in the domestic space, cultural preferences relating to layout would be just as significant as, for example, the geographic location and availability of materials.[33]

A similar approach was used during the workshop, in which a page for reflections was provided for analysing domestic layouts in terms of use, flow, orientation, decoration, heating/cooling, et cetera, aspects that were subsequently related to sustainable building principles.

The tectonic aspects of the buildings were analysed as a classical architectural study of essential physical elements and overall systems. Traditionally, classical architectural studies were educational tools for architectural students, who were encouraged to carefully observe and study master builders of the past—so as to learn the basic rules—as a basis for their architectural practice.[34] In the workshop, the architectural analysis was both applied to the structural system (for instance, columns and entablature) and used as a representational tool for deciphering design principles from the macro- to the micro-scale.[35]

During the workshop, the polysemic building analysis supported the three perspectives of the theoretical framework for interpreting the different longhouse types and related these aspects to sustainable architecture:

- Culture: the human influence of traditions, values, and beliefs;[36]
- Context: the physical influence of climate, topography, and fauna;
- Building details: the architectural, tectonic, influence of the building as an independent actor or form.

WORKSHOP OUTCOME

The building information that the students collected and collated helped define six longhouse types, which were subsequently analysed from the three perspectives of culture, context, and building details. The outcome showed a great variation in the influence of each perspective: some longhouse types were shaped by strong contextual constraints, while others showed strong cultural preferences for particular building details, and yet other types developed as combinations of all three perspectives. Rapoport describes this variation in influences as 'modifying factors or constants' and 'changeable aspects', which define the development of a building type as an on-going mediation between changing physical conditions and periods with particular cultural needs and preferences.[37]

In what follows, four examples of this mediation between culture, context, and building details that were identified by the students during the workshop are presented. To show the broad range of the analysis, four of the six building types are presented, since they represent the most diverse outcomes and focuses: The first longhouse type, the Finnish sauna, has a strong internal culture. The second, the Icelandic turf hut, shows a strong external culture. The third type, the Danish wing house, exemplifies a strong contextual aspect. And finally the Swedish Södgotiska huset represents a hybrid of all three concepts. It must, however, be admitted that all of the examples can be interpreted as hybrids of several perspectives, since, as J.T. Smith has asserted, 'pure types are not to be found'.[38] Nonetheless, to emphasize the significance of the three perspectives as a means to analyse the longhouse type, I have retained the narrow framing of a particular perspective from the student analysis. Most aspects were derived from the online database, which was then related in a sustainable context, while others developed as speculation encouraged by the building analysis.

The study of the Finnish sauna, or smoke hut, represents one of the most significant examples of a strong cultural entity still present in contemporary Finnish architecture. Dating back to 7000 BC, the sauna constituted the first

structure of a farming settlement. Initially erected as a small dwelling hut, the building would be converted into a sauna once the primary dwelling space, the smoke hut, was erected. The sanitized confines of the sauna framed a Finn's life from birth until death as an everyday recreational and social space and as a healing and soothing environment during illness and old age. While bathhouses generally vanished throughout Europe in the sixteenth century owing to church persecutions, the Finnish sauna developed a spiritual and mythical significance as a sacred space for the community.[39] Today, the sauna continues to constitute a central space in many Finnish homes. Even within large commercial buildings, such as in the old Nokia headquarters in Copenhagen, a private sauna is still found in the old boardroom. Its use may not be of spiritual significance, but the sauna nonetheless seems to have retained its relevance as an aesthetic reference and a social and cultural backbone of contemporary Finnish life.[40]

The Finnish sauna presents a strong example of *genius loci*—a spirit of a place—and shows how the cultural foundations of a structure can instil an incredible robustness to external change. Norberg-Schulz describes them as 'symbols representing life situations': meaningful structures that serve as common references, which are therefore maintained and retained.[41] Sociocultural sustainability, despite being a diffuse and contested concept,[42] plays

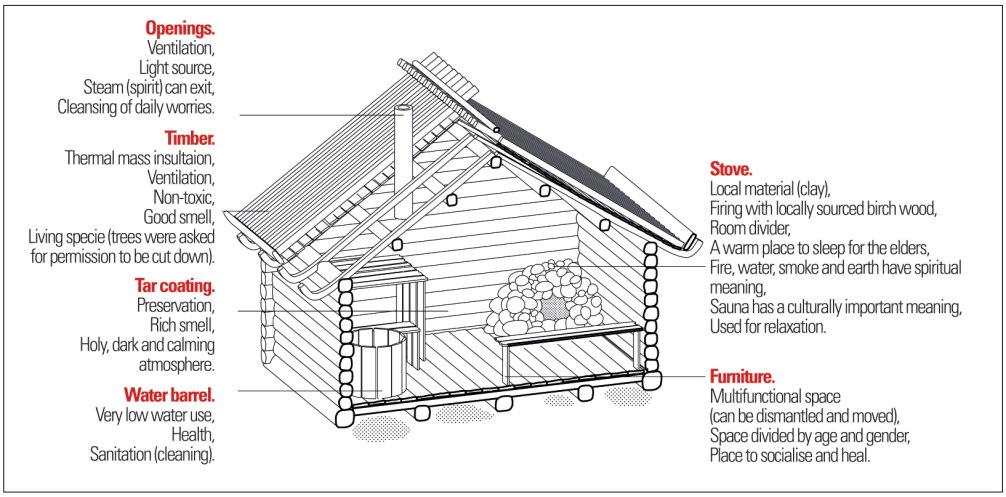


Figure 1. The Finnish sauna. Illustration: Katariina Mustasaar.

a significant role in the integration of sustainability. By making development integral, and similar, to what already exists, the structure retains its relevance in the specific geographical or cultural context.[43]

In Iceland, the introduction of the Neolithic longhouse type caused a significant change in the local building practice and represents a strong external cultural influence. The timber-intensive construction of longhouses that was introduced by early Norse and British settlements gave rise to intense deforestation, which eventually made the practice of building longhouses impossible.[44] The turf hut building practice thus developed as a necessity in the barren context with its scarcity of materials.

Apart from driftwood, turf remained the only locally available material, which for centuries produced a distinct vernacular tradition and built form. During the nineteenth century, the turf huts were gradually given small

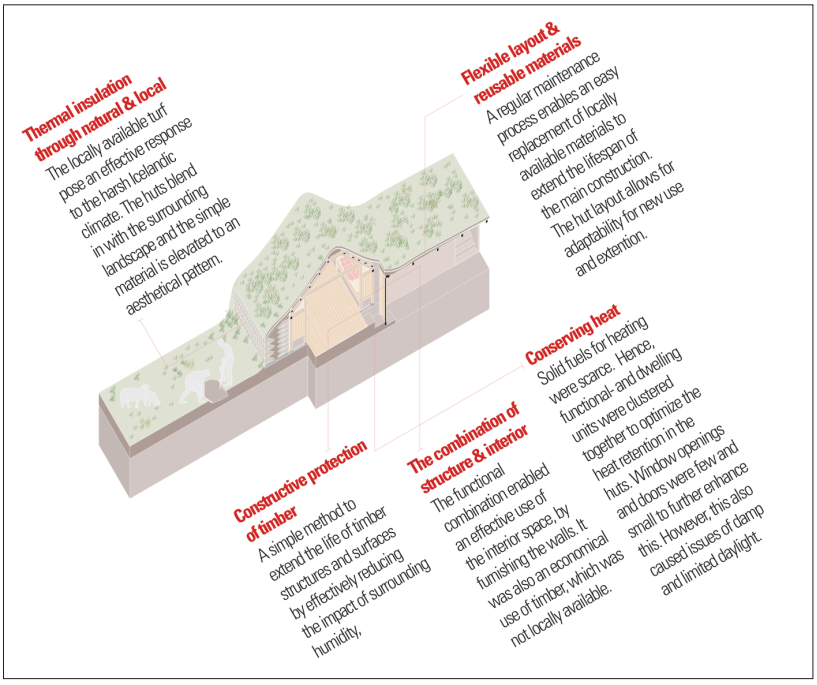


Figure 2. The Icelandic turf hut. Illustration: Alexander Throm.

timber gables similar to those in urban Danish gabled houses. Since they were constructed with imported timber, the gables were expensive, but also weakened the otherwise dense thermal mass of the turf construction.

This extravagant addition to the huts may be seen as an initial shift towards a new Icelandic identity distinct from the rural tradition of the turf hut. The shift away from the turf hut ended with Icelandic independence in 1918, which resulted in rapid urbanization with concrete buildings to express the modernity of an independent nation.[45] By 1940, only 23 per cent of the Icelandic population lived in turf huts, which today only exist as open-air museums.

Iceland is an interesting example of the distorting and sometimes devastating effects of a foreign culture intervening in a local context. The initially unsustainable behaviour of the early settlers completely altered the material basis of the local Icelandic building practice. The subsequent Danish colonization then seems to have further distorted the cultural identity of Iceland, since it was perceived as an underdeveloped civilization.[46] This repression possibly also contributed to the eventual abandonment of the practice of constructing turf huts—not only for reasons of comfort, but also as a process of reconstructing a national identity. Contrary to the Finnish sauna, the Icelandic turf hut represents a cultural influence that as a result of its deficiencies in integrating the local context distorted the balance between culture and context, thus leading to what might be regarded as an unsustainable outcome.[47]

The Danish half-timbered wing house was examined from a contextual perspective. The typology developed during medieval times as an alternative to the block-and-stave construction of longhouses. Due to the heavy deforestation that resulted from timber-intensive construction and boat building, more economical uses of timber were sought and Danish building practice returned to Neolithic half-timbered construction with wattle-and-daub infill.[48]

Due to the strong westerly winds that sweep the flat Danish landscape, the rectangular wing house was often laid out a on small mound for the purpose of draining surface water. Usually, the gables of the living quarters were oriented east-west in order to minimize wind load and heat loss and to maximize solar gain on the wider south-facing façade by utilizing the thermal conductivity of the clay and later brick infill. The inner courtyard also provided protection

against the strong westerly and, in the winter, cold easterly winds. To further protect the exterior façades, the immediate surrounds of the wing house were landscaped with small mounds or dense greenery.

The Danish wing house provides an interesting example of how sustainability (in this instance connected with heat loss and energy use) does not only arise from the building materials. It is also related to external factors of the house, such as its simple landscaping and geographical orientation, which provide passive climate control.[49] The poor thermal properties of the half-timbered construction are thus improved and strengthened through basic knowledge of the local context, climate, and topography.

The Swedish Södgotiska huset is the typology whose development is probably connected the least with its Neolithic ancestor. Sweden is a densely forested

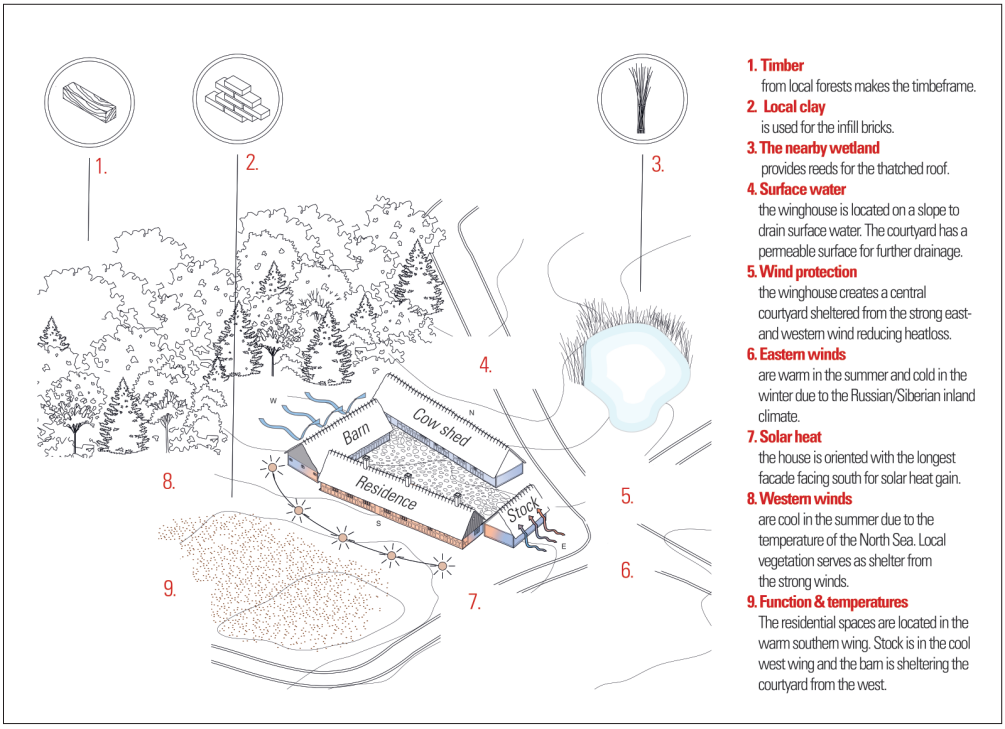
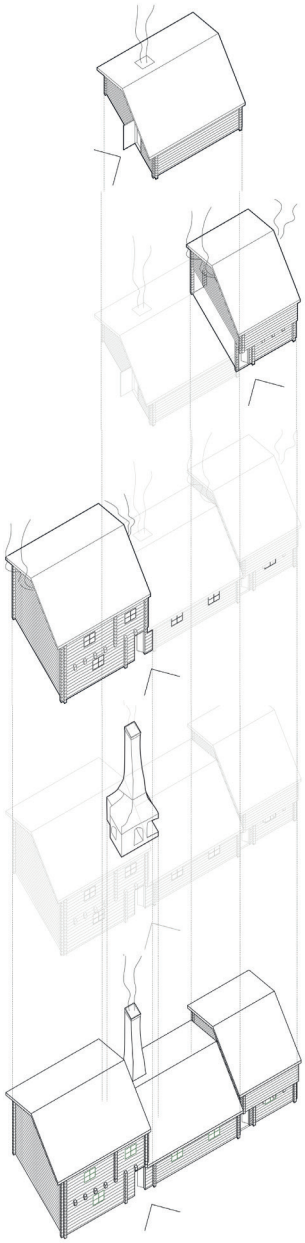


Figure 3. The Danish wing house. Illustration: Cecilie Elmholdt Smidt.



1 Initial construction.
Simple smoke hut with centralised fireplace. Smoke is vented through a smoke hole in the roof - this is also the only window.

2 Raised loft.
A raised loft is added to the first structure. This enables storage of granary and stock keeping it safe from pests and the damp ground. The smoke from the stove adds to the preservation of goods. The entrance is moved to the front of the loft.

3 Additional raised loft.
In times of prosperity an additional granary may have been added. The additional loft was often built at a much later stage using new building methods.

4 Chimney.
In the 16th and 17th century new building technologies led to many högloftstugas having a chimney added into the structure.

5 Continuous development.
The högloftstuga was a building type under constant development and rebuilding making each type only a snapshot in time.

Figure 4. The Swedish Sydgötiska huset. Illustration: Selma Lindhardt Blomberg.

region, which also today provides plenty of material for a rich, on-going tradition of timber construction.

Hence, Sweden has never faced the timber scarcity of Denmark and Iceland, and developments in the Swedish Södgotiska huset took place in connection with the tectonic manifestation of the building: The overall layout retained the tripartite sectioning, comprising a central living quarter with a hearth, flanked by two unheated building sections used to store grain and house livestock. However, the three sections were divided up into three buildings erected in various building stages during on-going occupancy. The primary dwelling came first—with a low ceiling to optimize heat retention and a fire-retardant peat roof to secure the smoke hole or chimney. Next came the tall granary, a structure that had already been anticipated by extra foundations and connective joints on the dwelling during the initial construction stage. The third, and final, building stage would often take place years later depending on the economic position of the household.

The Swedish Södgotiska huset embodies a flexible building type that might be related to economic sustainability: The construction in stages, beginning with the bare minimum of a dwelling, improved the general access to a home, while also stimulating societal equality.[50] Furthermore, the additive building system facilitated a simple integration of extensions in the event of increased economic prosperity or change of use.

The above summarizes key points of the outcome of the analysis and discussion that occurred during the workshop. At the same time, many other common themes emerged across the different typologies: Flexibility in use was evident in all of the buildings; sleeping quarters would change between the summer and winter months. By utilizing the heated living quarters in the cold months and the cool rooms for stock in the warm summer months, a subtle interaction arose between the buildings and their inhabitants in recurring lifecycles. Moreover, flexible construction types facilitated disassembly: in Sweden, for the reuse of materials; in Norway, for cultural reasons relating to nomadic lifestyles; and in Finland, for mobility as part of bridal trousseaus. Heat retention resulting from the use of thermal mass was noted in both Iceland and the Faroe Islands. In Sweden and Iceland, small, secluded living spaces detached from the external entry to the buildings were also used to preserve heat.

DISCUSSION

Collectively, the examples analysed display intricate patterns of how the longhouse building practice evolved as a negotiation between a given physical context and a (local) human culture. The outcome begs the conclusion, that viable and robust responses to change cannot only be considered in connection with materials, but also need to include a broader spectrum of aspects so as to accommodate both change and the existing context to an equal extent.
While laying out and drawing the appearance of the six longhouse types is part of the classical architectural discipline and formed a starting point for the students, the less familiar, speculative nature of analysing a building from the perspective of culture and context and relating this to sustainable architecture posed a more significant challenge: not in terms of identifying culturally or contextually motivated building forms, which could be found in the literature provided for the workshop, but rather with respect to how the students had to build independently on this information and justify it as being of an architectural and sustainable remit relevant to contemporary building practices. Workshop discussions were heavily influenced by a tentativeness towards making assumptions based on the evident interaction between the context, the residents (culture), and the building (details). The anthropologist Gregory Bateson[51] refers to this interaction as 'deteuro learning': letting ourselves be taught by the world and everything in it rather than relying solely on institutional education alone. Tim Ingold subsequently expands on the notion as the separation between the architectural blueprint, the architecture's physical fabric, and its residents,[52] what Marianne Hem Eriksen refers to as 'the lived space'.[53] However, when building types such as the longhouse, which are not based on blueprints, are concerned, these implicit aspects are key to understanding the building type and the inherent balance between the three perspectives of context, culture, and building details as cooperatively forming an intrinsic sustainability.

The disjunction between the blueprint and the actual life of the building can be traced back to the historic distinction between architecture's beaux-arts' tradition and the unstable nature of vernacular building types such as the longhouse.[54] It seems that architects, even as students, still hold reservations towards the intuitive and intangible character of bottom-up developments—buildings constructed based on tradition, not blueprints. Nonetheless, several studies have shown the potential of introducing intangible aspects such as culture as a mediator of complex forms of building such as sustainable architecture.[55] Pierre Frey directly relates this to vernacular architecture, which

potentially presents a complementary framework for managing complex issues of construction, since it facilitates a vision of the building in its entirety rather than as a fragmented entity of benchmarks and certifications.[56]

Despite presenting a very simplified example of this potential, the workshop setting revealed several instances of how, when combined, the three perspectives of context, culture, and building details contributed as an explanatory framework to examining and discussing the reasoning behind the Neolithic longhouse form. This eventually generated a concept amongst the students of a more familiar notion of sustainable architecture relating not only to calculations, but also to aspects to be presupposed in the initial building design.

CONCLUSION

How were some of our earliest vernacular buildings conceived and developed—and how did they cope with change? What were our reference points—not as architects—but as people needing shelter in an environment of scarcity?

The analysis of the Neolithic longhouse in North Europe reveals an abundance of sustainable principles related to the building's being rooted in a particular context. The most apparent principles, such as the use and reuse of local materials and orienting the building based on winds, water, and sun are related to the contextual perspective. Nonetheless, upon closer examination, the cultural perspectives relating to residents and builders also show flexible constructions to support the nomadic lifestyle or seasonal livelihood of the Swedish farmer or an interior use adapted to the changing seasons to reduce the need for firewood in the Danish wing house. However, many of these principles cannot be attributed to only one of the two perspectives, but are instead the result of a negotiation or exchange between the two. More importantly, the principles were not developed to promote sustainability, but rather as responses to a cultural need or physical condition.

Emerging from an environment of scarcity—not only physically, but also in terms of human resources—the principles all present responses that attempt to mediate contextual conditions based on the values and beliefs of a particular lifestyle.[57] Some principles responded to these needs to some extent, thus enabling them to prevail for centuries, despite changes to the remaining building, as seen, for instance, in the case of the Finnish sauna.[58]

A vague possibility arises that the current environmental emergency, which also defines a time of scarcity, might benefit from this contextual and cultural analysis as an offset for sustainable architecture. This makes it possible for a sustainable outline in early design stages to thus be qualified further during the construction process.

This integrated process would not only consider the directly measurable building data, but also ensure a building's coherence and relevance to its cultural context.

At the same time, we would first need to figure out what constitutes our existing reference base: behind the longhouse building practice lies a continuum, which is defined by what the local community draws from—its beliefs and values—which are fundamental to how decisions have been made and essential to the practice of designing and building.

These beliefs and values, which Rapoport also describes as 'myths',[59] may not have changed that much over time, but perhaps current architectural practices have deviated from them by focusing on certain things and neglecting others in the search for a sustainable architecture. Hence, the current position on the continuum may need to be reassessed or altered in order to decide what we have lost and what we may need to regain. This would be a virtual resetting of course with respect to what current architectural practice contributes to existing building knowledge.

Hence, rather than exemplifying a line of physical solutions for natural ventilation, local materials, material reuse, and contextual building practice, the analysis of the longhouse building practice might provide an invitation. In just as naïve a manner as students questioned the simple layout of North European longhouses, it invites us to examine the coherence between culture, context, and building details in contemporary building practice. Not based on building regulations, construction standards, and economic considerations, but rather on its primary purpose and the questions that our buildings strive to answer. Where do they stem from? What is the purpose of each building component, and what needs and conditions do they respond to?

Perhaps the answers are not as straightforward as we might expect them to be, or perhaps they make no sense at all in connection with the questions posed by the cultural and physical context. But perhaps that is where our architectural sustainability discourse needs to begin . . .
. . . by asking *Why*? before offering a *How*.

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ON DWELLING IN THE COLD AND DARK NORDIC COUNTRIES: TWO CONTEMPORARY ISSUES IN HOUSING

Turid Borgestrand Øien

ABSTRACT

The cold and dark winters of the Nordic region place high demands on our built environment, and with forecasts of aging populations, climate change, and the increasing complexity of building technologies and construction, the problems will accelerate further in the near future.

In the field of critical regionalism, the notion of the Nordic has been seen as a way to re-establish the human connection to the lifeworld of places, something that has been lost in modern architecture. Universal, theoretical, or technical approaches seldom take into account the complexity of contemporary life; while, on the other hand, social studies rarely include the technical. By examining complex contemporary life as concurrently technical and social, this article expands on and discusses the notion of the Nordic as being relational in scale. In order to explore the complexity of how context-specific challenges are understood and handled, the analysis is supplemented with the flat ontology of the actor-network theory.

The two case studies—1. mould issues in housing; and 2. domestic lighting for rehabilitating low vision—show that both the problems and the approaches to addressing them take place across a continuum of scales. Various practices translate between levels of abstraction, from the individual to the social to the scientific, an interaction of levels that is further discussed in relation to Norberg-Schulz's notions of accommodation and assimilation. The two cases illustrate different approaches to the mode of translation, and show that it is fellow actors who cause and also resolve any problems. The crucial task of professional practices, including architecture, is thus managing, navigating, and coordinating between them.

KEYWORDS

Living entanglements, mould issues, domestic lighting, actor-network theory

INTRODUCTION

Throughout the history of inhabited northern Europe, the climatic conditions have put great demands on our buildings and their performance in order to generate and maintain an acceptable visual and thermal indoor climate as well as an overall level of comfort. According to the World Health Organization, Europeans spend 90 per cent of their time indoors, and two thirds of it at home.[1] People in the Nordic region typically spend more time indoors during the cold and dark winter months, compared to the summers, when they generally spend more time outdoors. As our population ages and the climate changes, these demands will increase in the near future. Areas north of the Arctic Circle now hold an unfortunate world record when it comes to the speed of climate change, which is manifested in an increased frequency of flooding, heavier rainfalls, and higher water levels.[2]

Even though our built environment has a huge impact on our lives, issues concerning the human-environment interface that are situated in the micro-scales of the indoor environments have been neglected in human geography[3] and in architecture.[4] The architectural theorist Christian Norberg-Schulz argued that the modern buildings of the final part of the twentieth century had lost important qualities, including their relationship to the landscape and the urban structure. This loss of place also applies to the indoors, since people '. . . live their abstract life in a kind of mathematical-technological space . . . [in which] . . . windows have been reduced to a standardized device which lets in a measurable quantity of air and light'.[5] Furthermore, in most housing, the indoors have been regarded as a field for the engineers and their technologies or for the interior designer dealing with the individual client. Both areas have continued to develop in the past century, which has resulted in more specialized and controlled indoor climates. In comparison, the basic layout and spatial distribution of housing in this period have remained more stable. The technical innovations have been pushed forward particularly by health science, in which the indoor environment has been one of the focuses of occupational health since the 1960s, thus leading to an investigation of the negative health effects of the built environment, from pathogenic building materials and particle pollution to other more inexplicable conditions, classified under the term sick building syndrome (SBS). Construction and household technologies driven by science and engineering have been widely implemented in the built environment in order to control or modify the indoor climate. In discussing critical regionalism and architecture of resistance, Kenneth Frampton has argued that 'modern building is now so

universally conditioned by optimized technology that the possibility of creating significant urban form has become extremely limited'.[6] In contrast to the universality of modern, abstract, avant-garde architecture, he describes the 'place-conscious poetic' that can be found in local lighting and ventilation as a 'form of filtration compounded out of an interaction between culture and nature . . .'—a direct and dialectical relationship with nature that is approached through human perception and tactile sensitivity.

Recent research on Nordic light in architecture has rediscovered aspects of the situated and the local in our indoor environments that relate the indoor to the outdoor environment and climate, including studies of differences in natural light due to time and place[7] and studies of design strategies for balancing and differentiating daylight and sunlight in architecture.[8] However, such studies have focused on meteorological factors or the physical design, without addressing the complexity of the social in these environments.

The fact that homes are highly associated with privacy and intimacy[9] can of course be a causal parameter for the lack of architectural research interest. But this private and intimate sphere is simultaneously very central to architectural quality. By considering this missing link between situated, individual, social, and technical indoor environments, this article explores the everyday life of dwellings in the Nordic countries, guided by the question: In a situated, complex, and changing everyday life, how are local issues in indoor environments understood, enacted, and solved by professionals and non-professionals?

THEORY

Ethnographic examinations of everyday settings draw on various theoretical positions related in some way to environmental psychology, and more specifically to James J. Gibson's work on the relationship and interaction between people and their environment.[10] Norberg-Schulz embraced the lifeworld present in places, the phenomenon of things 'interrelated in complex and perhaps contradictory ways'.[11] Norberg-Schulz presented a phenomenological approach in which lifeworlds include taken-for-granted, everyday experiences or the manner in which we live our day-to-day lives, the 'intentional relationship between the phenomena and us'.[12] Tim Ingold[13] shares his attention to atmospheres, and, as an anthropologist, his work on lifeworlds and living entanglements focuses on understanding the environment as what envelops and reconstructs people at the same time as people reconstruct it in

an ongoing process, as a fluidity that is 'intrinsic to each place [and] which can be interacted with, modified, recreated, but not delimited'.[14] The notion of living entanglements is seen in works on the Anthropocene as material entanglements in multiple temporalities[15] or in the work of taking note of entanglements of bodies in multispecies ethnography.[16]

For Ingold, the difference between the local and the global does not have a hierarchical scale, but is instead of kind. The local is not more limited, but based on 'practical, perceptual engagement with components of an inhabited or dwelt-in world, rather than being a detached, disinterested world that is merely occupied'.[17] Positioned between the local and the global, the Nordic represents a region, a physical-theoretical scale often used in geography. 'Countries, regions, landscapes, settlements, buildings (and their sub-places) form a series with a gradually diminishing scale.'[18] As a result of their confusion of scales, Norberg-Schulz argued that modern cities have lost their sense of place: 'a pattern which might be valid on one level is blindly transferred to another'.[19] He described the interaction of levels as a double description: a) from the top down as a concretization from a higher to a lower level, from the general to the local, as accommodation; and b) the bottom-up projection to the environment as assimilation.[20] In the social sciences, Bruno Latour, a scholar of actor-network theory (ANT), has described how the world is made up of networks including human and nonhuman actors across these theoretical, constructed scales.[21] In studies of laboratory work and the social construction of scientific knowledge, the actor-network includes a broad register of actors, from microbes to laboratories, as well as the instruments, protocols, and researchers, and the health regime of hygiene.[22] This network can also become an actor itself, become a 'black box', for instance a vaccination program used around the globe. When a network is stabilized and in a state in which complex conditions are simplified into input and output, it is called a 'black box', and is typically used for generalizing and producing a scientific outcome across a number of samples.[23] These engagements bypass the dualisms of local and global or micro and macro, and ANT studies take their departure in linkages between these categories, in combinations that 'allow us to pass with continuity from the local to the global, from the human to the nonhuman. It is the thread of networks of practices and instruments, of documents and translations.'[24]

In order to discuss the empirical local reality of the case studies in relation to the concept of the Nordic and to recognize the different modes of knowledge

that are active in this reality, the concepts of inscriptions and immutable mobiles are included in this analysis. Translations in the form of a representation or association constitute an inscription—one's interest translated[25]—and mediate between different actors in a given network. An inscription can be a practice, arrangement, or documents and other representations, and can play a significant role in negotiating and mobilizing a given network.[26] Inscriptions that retain their meaning when applied in different contexts and that are 'presentable, readable and combinable with one another' are regarded as so-called 'immutable mobiles',[27] since they are mobile, but their inherent characteristics do not change. Scientific or explicit knowledge such as mathematical formulas, diagnoses, physical laws, units, or conditions that can be measured as temperature, pressure, or lux levels represent immutable mobiles: black boxes that have been mobilized and negotiated within one or several networks. Making immutable mobiles includes the acts of simplifying and generalizing, since the real world is complex and empirical science more mutable than the theoretical sciences.

These translations across scales resemble Norberg-Schulz's feedback model, which differentiates between three levels of generalization. While concepts of the private and/or individual have a low degree of articulation and imprecise boundaries, and are characterized by the social interference of overlapping or competing concepts and/or values, public and/or social structures are more stable and objective, and scientific and/or objective objects are 'precisely defined and lawfully interrelated'.[28] The feedback model attempts to relate the physical, architectural space, and its psychological counterpart, existential space. Existential space is one of five different levels of space (of increasing abstraction): pragmatic, perceptual, existential, cognitive, and logical, and the main entry point of Norberg-Schulz's work concerns thus the interaction between human beings and their environment. Abstractly, existential space is described as a general topological or geometrical schemata of relations (centre / periphery, inside / outside of a given territory) and continuity (directions and paths).[29] Moreover, it is described as a complex, dynamic field of overlapping interpenetrating and interacting systems, ranging from the geographical, topological, and urban, to the more precise forms of buildings and things.[30]

METHOD

The two ethnographic studies were originally conducted separately, but they have been brought together in this article to illustrate and discuss two

contemporary issues in the field of the indoor environment and how professionals approach resolving and/or addressing them: a) mould issues in public housing,[31] and b) low vision rehabilitation and the role of domestic lighting.[32] The two studies share the objective of examining the living entanglements of everyday life in connection with an issue related to human-environment interaction. Moreover, by adhering to professional and non-professional practices, actions that involve several entanglements 'in strings of interrelated events',[33] this article examines the specific issues across situated everyday practices, individual and sensory experiences, social understanding, and professional approaches to solving the problems.

The mould issue was examined in the fall and winter of 2015–16 in eleven public housing complexes undergoing renovation. The empirical material included interviews, observations, and visual recordings of different housing complexes, and analyses of the various documents associated with the renovation projects or the initial mould issue. In all, forty-one interviews were conducted with tenants, building superintendents, and representatives of the housing association, followed by walkthroughs and observations in different housing units, since the cases were situated in different stages of the renovation process, the initial building assessment, or the destruction or construction phase, or were undergoing modifications after the tenants had moved back into their renovated homes.

The study of low vision rehabilitation, including domestic lighting interventions, was conducted in the winter months of 2018–19. The lighting assessments and interventions were conducted by two low vision consultants with a background as occupational therapists, and included sixty visually impaired citizens. A relative or friend accompanied the participants and the overall procedure involved three sequences: 1. a home visit and an assessment of the domestic lighting in relation to up to three activities, which were identified by the participant in a narrative interview; 2. a lighting intervention in the lighting lab at the communication centre; 3. a follow up in the home or conducted by phone. The ethnographic observation included participatory observations in fifteen of these consultations, and the empirical material included field notes (written logs, illustrations, photos, and transcriptions), the low vision consultants' project material, and transcriptions of semi-structured qualitative interviews with the low vision consultants and experts in rehabilitation. Finally, the researchers conducted a follow-up visit without the consultants in 2020 in seventeen of the homes that had implemented new

lighting solutions or otherwise changed their arrangements as a result of the intervention.

Both cases deal with issues that are situated in the interaction between human beings and their environment, and respond to the seasonal differences that characterize the Nordic climate. In addition to elaborating the human-environment relationship and interactions in contemporary Nordic life, the studies also reveal different ways of working across ontological and epistemological scales.

THE NORDIC GEOGRAPHY, WEATHER, AND PEOPLE

The Nordic geographic region includes the countries of Denmark, Iceland, Norway, Sweden, Finland, the Faroe Islands (DK), Greenland (DK), and the Åland Islands (FI)—a group of countries and associated territories with 'affinities with one another and a distinctness from the rest of continental Europe'.[34] The size and population of these territories differ quite a bit across the region, and their internal units show huge variations, with municipalities ranging in size from 10 km^2 to 531,900 km^2.[35]

Furthermore, Nordic geography is quite heterogeneous, from mountains and fjords to flatlands, lakes, and archipelagos. The area extends over twenty-six latitudes, from Svalbard at 81˚N latitude and Southern Denmark at 55˚N, with an overall climate characterized by changing seasons. Temperature recordings from 1961 to 1990 in Fennoscandia (not including Iceland and Greenland) show a range of nearly 90°C between the coldest (-52.6°C), and the warmest (36.8°C) temperatures measured.[36] Due to the Gulf Stream and the North Atlantic, the climate on the coasts of Norway, Iceland and other islands currently have higher average temperatures than other areas of similar latitude, which causes huge differences in the locale climate between inland and the coasts. This milder weather also brings a lot of rain.

Generally, the landscape, from steep mountains and narrow valleys to flatlands meeting the ocean, affects the amount of sunlight in a given position. Combined with daily and seasonal changes, this results in a great diversity of light conditions across the region. The winter solstice, when the North Pole is tilted the farthest away from the sun, is the darkest period of the year. In the northernmost part of the Nordic region the sun is absent from the sky from mid-October to mid-February, compared with the southernmost part, where the shortest day, 21 December, still has seven hours and fifteen

minutes of daylight. At the same time, the weather conditions at a specific time make a huge difference in the amount of light during the day: for instance, a snow-covered landscape can compensate for the limited daylight hours, at least when compared with surroundings of dark and rain-soaked asphalt. In summary, there are local differenced in the weather, which sometimes changes several times during a day, depending on the climate and the surrounding landscape. These shifting seasonal conditions have a great impact on people's day-to-day life, and constitute opportunities and obstacles for activities outdoors, but also set the scene for indoor life.

Another common denominator in the Nordic region is the Nordic welfare model, which strives for social security, social cohesion, and along with the high level of trust, is regarded as different forms well-being supported by social capital.[37] Since its introduction in the 1930s, the Nordic model has comprised political democracy, respect for human rights, a high standard of living, and social equality. Since then, the Nordic countries have had social democratic governments and large public sectors with tax-financed welfare benefits and services. Since the golden age from the 1950s to the 1980s, the Nordic model is today facing an era of new challenges, whereby a range of global crises (environmental, economic, and public-health-related) are challenging both the democracies and the small, open economies.[38]

These democracies represent twenty-seven million people, a figure that is currently changing due to ageing populations and net migration,[39] and combined with falling fertility rates, the demography of the Nordic population is thus also changing. Whereas previous migration was predominantly from other Nordic countries (due to shared ethnicity and religion), migration today is much more diverse, and includes groups from the European Union, the former Soviet Union, and countries in which there are major conflicts or civil unrest.[40] Furthermore, differences between urban and rural areas are increasing due to the internal migration to larger cities.

The Nordic in Architecture

The notion of the Nordic was largely manifested in the period of national romanticism as of the mid-nineteenth century, and has influenced language, literature, music, the visual arts, and architecture. During the early and mid-twentieth century, the Nordic in architecture was understood as comprising craftsmanship and comprehension and understanding of materials and human wellbeing,[41] as seen in the work of Aalto, Jakobsen, and Asplund.

Today the Nordic is largely associated with branding and marketing strategies, based on activist dogmas expressed in manifestos of food, film, and living.[42] In this approach, Nordic branding represents the 'modern values of equality, freedom and community . . . combined with Nordic culture', and constitutes 'a special form of desire for mutual trust'. At the same time, there is an awareness of the tension between a) wanting to create a good business, and b) being honest and sober, and not proclaiming ones values or superiority.

This holds parallels to Erik M. Champion's comments regarding Norberg-Schulz's exclusively discussing wonderfully enriched and rewarding architectural (and landscape-related) places, thereby excluding the less rewarding, and perhaps dangerous or hazardous situations. 'What of places of horror and terror, places that actually exclude rather than help center people?'[43]

Challenges of Living in the North

Even if his architectural case studies were limited more to grand architecture, Norberg-Schulz nevertheless addressed the need for places that take into account the complexities and contradictions of contemporary life, including the relationship between the people and their environment, as something existentially rooted in our everyday lifeworld.[44] Challenges identified in this day-to-day lifeworld of the Nordic, would include a range of different issues. The global crises affecting welfare societies, the paradoxes that characterize academic discussions of the field of architecture, and the everyday issues that result in challenges in the domestic lives of ordinary people represent different perspectives, but can all be linked to living in the north. The question is how the issues in our contemporary built environment are understood and handled. Do the day-to-day issues (of everyday people in the lifeworld) address other truths of living in the north than the fundamental theoretical, political, or branded truth(s)? What knowledge is included in the interpretation of a problem and how it is solved? Moreover, can we incorporate these understandings in our community of architectural research and practice?

MOULD ISSUES IN PUBLIC HOUSING

Mould issues have received political and scientific attention in Denmark in the past forty years, as communicated by guidelines and regulations broadly aimed at design, construction, user behaviour, diagnostics, and remediation intended to address and prevent potential health risks.[45] Difficulties in determining the cause of such problems and, hence, how they should be handled

have contributed in many respects to the myth in rental housing that mould growth is caused by tenants' inappropriate use of the dwelling.

The instrumental case study included eleven public housing complexes where mould issues had, at the time of the fieldwork, led to the initiation of ongoing renovation. The analysis of interviews, observations, and documents revealed a multiplicity of interpretations and understandings, and associated solutions to the problem over the forty- to seventy-year period since the housing complexes were originally constructed. The materialities, everyday practices, and conventions (seen in Figure 1) had, however, been negotiated and altered with respect to how they interact with one another over time.

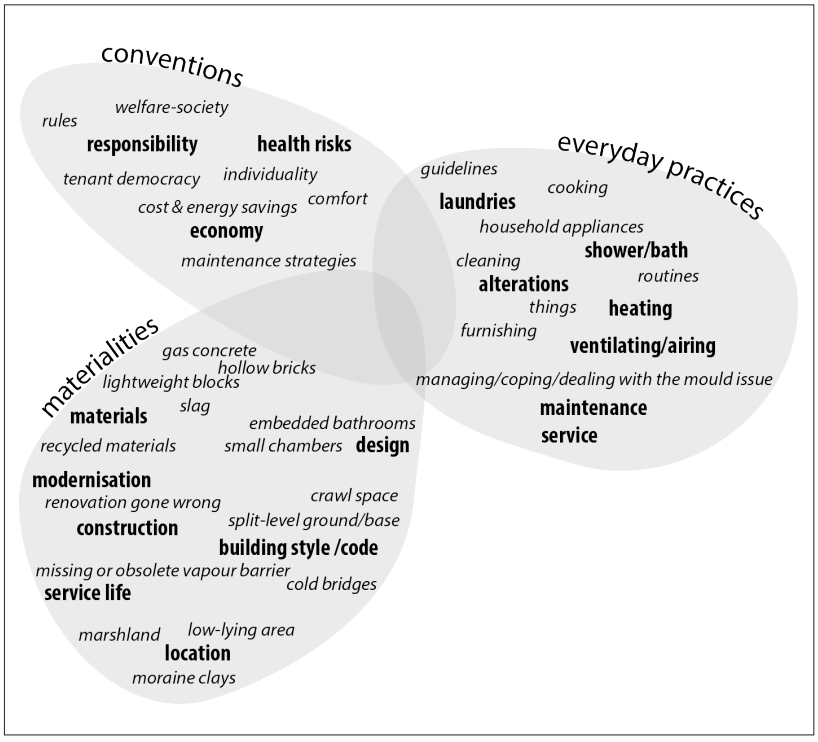

Figure 1. Materialities, everyday practices, and conventions connected with the mould issue: causes, workarounds, and remedies, mixed-up and changing their roles. Figure based on Øien 2017, p. 25.

The cases included clear, technical, easy-to-identify, and easy-to-handle issues,[46] as well as other issues that had turned into bitter conflicts with respect to blame and responsibility, whereby the causes and solutions to the problems were a more complex matter.[47] In all the cases, the initial building surveys had identified technical reasons for the problem, thus providing a new explanation for problems that, in several cases, had hitherto been addressed as a question of behaviour. In contrast to its scientific definition, when experienced as part of people's everyday lives, the mould phenomenon is quite often abstract and inaccessible.[48] The tenants described sensory experiences—visual signs of changes in material surfaces, an odour, or merely a feeling, or tacit knowledge '. . . embedded in materials and embodied in individual, personal experiences . . .'[49] This vague and personal knowledge, sometimes experienced solely by a single member of the household, could not be easily measured and translated into a conventionally agreed measure of diagnosing mould growth. However, a similar sensitivity towards the indoor environment was observed in some of the neatly tailored routines that one of the participants had particularly evolved in her workarounds to fight the problems of dampness. Closely adjusting to the current weather outside, she opened and closed windows and doors, wiped condensation off the windows, hung cloths and towels to dry outside, cleaned and even disinfected her shoes, which was stored in a shoe-rack on top of a table. She further observed any changes in order to keep the mould growth at a minimum. However, her effort to reduce the problem from escalating, also maintained the mystery of her enchanted house. A range of people, professional and non-professional had tried to understand and solve the problem during the last sixteen years. As they did not succeed in identifying any physical cause of the mould growth and the measures was not to alarming, she represented the 'usual suspect', until the roof structures were opened as part of the renovation[50] Since a robust building might tolerate greater moisture loads, in this case, the persistent tenant was the key to the remedy, and a variable that added to the complexity of the phenomena.

The multiplicity of scientific definitions of the phenomena represented yet another level of complexity. Examining the various professional practices involved in the assessment and problem-solving revealed three different approaches:

- Building professionals understand mould as an aesthetic disfiguration of surfaces caused by humidity, which could potentially develop into rot or decay.

- Medical or health professionals understand mould and its particles as a potential health risk, allergen, or carcinogen that causes symptoms on skin or lungs.
- Microbiologists recognize mould as living or dead species to be identified in a laboratory.

Based on these definitions, the phenomenon was understood by assessing the building, the occupant, or the microbe. Translations of each of these assessments formed inscriptions, based on scientific knowledge and models that were well known in the specific professional network, but were nonsense to ordinary people in an everyday network. Inscription devices—temperature gauges, moisture meters, and infrared cameras for thermography—translated the environmental conditions into quantitative measures of, for instance, humidity or temperature. These measures worked as immutable mobiles, and their explicit character meant that they could be combined and compared to averages or standards and retained their content when moved to another context. The diagnosis objectified a condition '. . . on the basis of a number of known signs or symptoms, and this new object, this inscription . . . [was] disseminated further in the network without losing its shape'.[51] The cultivated and identified mould species collected in the dust or air samples or blood samples were similarly translated into a figure representing a given quantity, which supported the specific diagnosis. Preceding their final verdict, each of the professional practices undertook a process of negotiation and adjustments between the given sample, its context, and the prevailing knowledge paradigm in the specific professional network. This meant that, in practice, even the diagnoses were situated.[52] However, in the report given to the tenant or housing association, any workarounds were black boxed, and the actors in the everyday network thus did not have a shared understanding of the quantitative measures to be taken. Information and knowledge characterized as immutable mobiles and black boxes in the context of a given professional network were renegotiated in the everyday network.

Various inscriptions—from different and sometimes competing professional networks—were used as arguments in negotiating conditions, responsibilities, and problem-solving strategies. Several of the conflicts observed were associated with different scientific definitions of the phenomena. In some cases, an otherwise immutable and strong argument was dismissed, or a rather weak scientific argument was highlighted due to local political considerations or as a precautionary principle. Furthermore, the most effec-

tive approach to handling the mould issue seemed to be situated: a building superintendent or attentive housing association that was able to assess the given situation as more or less technical and social, and that was able to adjust and navigate towards a solution in this respect. Some of the eleven renovation projects were successfully related to the specific local conditions of the physical context. Yet the cases that also succeeded in activating and incorporating the social context, thus coordinating the different types of knowledge and the efforts of the different networks, seemed to have come up with a more resilient approach.[53]

The mould issues faced were understood as relatively technical—caused by inappropriate or insufficient materials, technique, or maintenance; relatively social—caused by insufficient use, conflicts, or unresolved responsibilities and considerations; and relatively local—limited to affected individuals, buildings, or localities, and solutions drawn from more or less extended networks.

DOMESTIC LIGHT AND LOW VISION

Whereas the main objective of the first study was to investigate the mould issues as they were perceived, understood, and acted upon as part of people's everyday life, the objective of the second study was to describe and participate in the development of a low vision rehabilitation practice in Denmark. The project was a close collaboration between the Centre for Special Education in Slagelse (DK) and its vision department. Their intervention based on a 'holistic lighting assessment'[54] is the major case analysed in the study.

Low vision services have largely been informed by diagnostics of the visual impairment, hence lighting assessments in clinical settings include assessments of the visual acuity in different lighting conditions, with the participant positioned at a certain distance from an eye testing chart. In the recovery-based approach, one of the major characteristics of the intervention was basing the rehabilitation on the clients' knowledge of their specific everyday life, and adapting the lighting assessment to the specific physical and social context.[55] Consequently, consultations had to take place within the context of a place initially identified as problematic, such as the home or work environment. Shifting the assessment to the context of the visual impairment can be seen as a first move towards situating the knowledge. The next move was to situate the understanding of the impairment—from the diagnostics to the activities—within the participant's everyday practices. Guided by the consultant

in a narrative interview, the client then identified the three most current activities of issue, which provided the basis for the further assessment.

Activities ranged from socializing, reading, dining, housework, and self-care,[56] whereby the majority of activities involved lighting for the specific task. Dining or preparing food at the kitchen counter was often a challenge. Older kitchens lacked electrical outlets and were often dark, lit solely by a single ceiling lamp, or by a wall-mounted lamp with a traditional, opal-white glass shade. Other homes had wall cabinets equipped with fluorescent lamps, which, although they had lasted for decades, their quality had deteriorated, because, for instance, of the early versions of energy-saving bulbs that had frequently been installed in the homes.

The intervention was conducted from approximately the winter to the summer equinox, since, by virtue of their practice-based knowledge, the consultants knew that most of the problems reported were related to this dark period. Earlier studies from Norway show that the elderly often live in darkness.[57] Moreover, the notion of cosiness (DK: *hygge*; NO: *kos*; SE: *mys*; FI: *kodikas* or *tunnelmallinen*; IS: *notalegt*) has a great impact on the use of lighting in the Nordic countries, and that also turned out to be a prevailing paradox in the situation of several participants. Due to their family and other relatives, and for the sake of cosiness, participants preferred poorer lighting—in relation to their needs when performing an activity—in order to maintain social relations and offer hospitality. For most residents today, lighting is an additional purchase, and rental housing come with a minimum of lamps, unless it is fully furnished. The cases showed a huge variety in lighting, from design lamps to fully equipped special lighting. As design items, lamps also embed cultural values, and the Danish design classic, the PH 5 pendant lamp, for instance, was seen in several dining rooms. This lamp is known for its complex of curved metal shades, which provide pleasant indirect lighting; however, the luminance achieved on the table and the plate is far from sufficient for many visually impaired individuals. Furthermore, other relevant contextual aspects in the indoor environment included adaptation to light or dark spaces, colours, the patterns of surfaces, the location of lighting, and the interrelationship between light, activity, and the position of the body.

Even though the focus of the intervention was originally on the hours of darkness and domestic lighting, the discussions often touched upon possibilities and problems related to sun- and daylight. Many of the participants

described the daylight as an important aspect of their functioning in everyday life. Errands outside the home were often scheduled in the daylight hours. Some preferred partly cloudy weather, while others tried as much as possible to avoid hours when the sun was aligned with a specific street. Since many modern cities are planned with straight streets, the low angle of the sun can causes a great inconvenience for people in general, and constitutes a great barrier for visually impaired individuals in particular—with both sharp shadows and glare leading to difficulties. Many of the participants had thus developed workarounds with respect to the timing and location of their activities.

In order to shift the contextualized knowledge from the particular case to the lighting lab, the consultants performed a range of translations, including measures relating to lighting conditions and the visual performance of the participants. While these measures had previously been the primary outcome of assessments, they were now supported contextualized knowledge. Besides documenting the intervention, the measures were used in funding applications and, in some cases, served a pedagogical purpose when explaining the physics of light to a participant or their relative.

The decontextualized knowledge was recontextualized in the lighting lab. Starting from the lighting conditions measured and using lamps similar to those in the home environment, the participant was positioned next to the kitchen counter, at the dining table, or in an armchair, and the consultant tested various alternative solutions, bulbs, lights, and arrangements in a 15m^2 room furnished for different scenarios. During the assessment and testing, the consultants provided information about lighting in general and in relation to the specific visual diagnostics, in order to acknowledge and support the considerations of the visually impaired, but also to elucidate the situation to the accompanying relative. Lastly, the results and recommendations were summarized in a specification of lighting for each activity, which was visualized on printed photocopies of the home environment by sketching the position and orientation of the lamps suggested.

In the final phase of the intervention, it was up to the participants to get the recommendations implemented. The consultants then conducted a follow-up enquiry as a home visit or by phone a couple of months after the assessment in the lighting lab.

Figure 2 visualizes the three locations where assessments took place: the home environment, the light lab, and the follow-up, including their positions on the continuum between the specific and generic. The consultation involved the consultants addressing a range of different types of knowledge: the embodied sensory knowledge of the participants, embedded knowledge in their interactions with their environment, knowledge of cultural value embedded in environments, objects, and things, medical knowledge regarding diagnostics and visual acuity, and explicit knowledge concerning the physics of light. All the more or less context-specific knowledge was identified and coordinated based on their practice-based knowledge. The dotted line in the upper part of the diagram illustrates the process of BLBL, whereby the level of abstraction situated in the participants' everyday life was levelled by the knowledge added in the lighting lab and the follow-up.

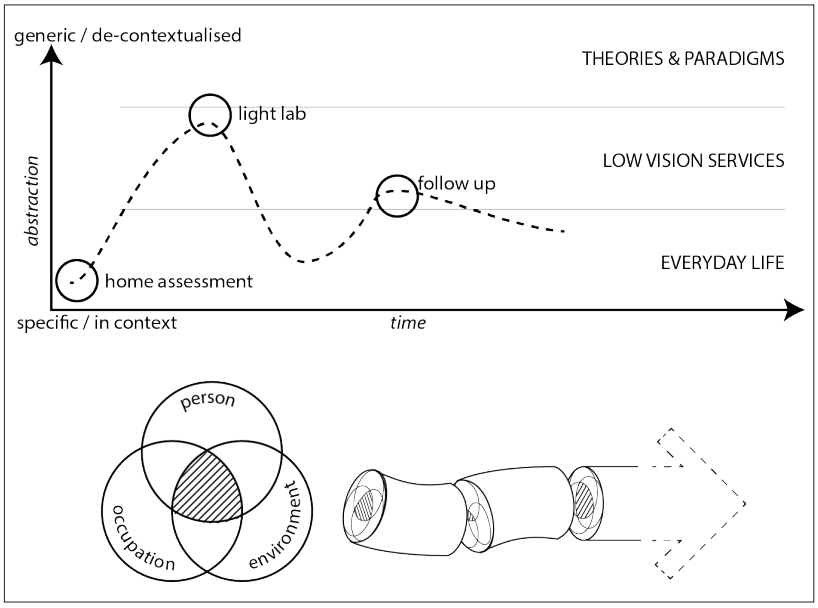

Figure 2. The intervention included more or less context-dependent knowledge, and the assessment and testing helped coordinate the knowledge of the specific social and physical context. The dotted lines illustrate the levelling of the participants' explicit and implicit knowledge during the rehabilitation process. Collage of diagrams from Øien 2021.

COMMON DENOMINATORS AND THE NOTION OF THE NORDIC IN THE TWO CASES

In order to embrace the complexities of the living entanglements, both studies make use of a framework that understands lifeworlds as interactions between materialities, practices, and conventions. In both cases, the indoor environment or the atmosphere is the product of the specific individual in the specific social and physical context.

Perception: The Mind/Body Context of the Individual

The otherwise invisible aspects of mould or light were explored by acknowledging the multisensory perception of the individual. There are aspects of this perception that cannot be directly translated or measured, such as the experience of living with mould growth or the perception and role of light for the visually impaired.

Moreover, relational and temporal aspects were of huge relevance for perception. As one of the participants pointed out during the lighting assessment, her eyes got tired, but they might already have been exhausted by the drive home from work earlier that day. This relational aspect added to the complexity of the everyday and was also experienced by an occupant suffering from multiple allergies, making it difficult to determine whether or not the mould growth might be the cause of his pains and frustrations. Both allergies and visual impairments develop, and allergies worsen and vision deteriorates in many cases. These extremes show the complex entanglements between indoors, outdoors, day-to-day life, and changes in it. But what about our buildings?

The Role of Physical Context

Both lighting and damp conditions consist of a range of other aspects. These include the specific climate and the changing weather, but also the microclimate, such as shadows caused by a tree or a neighbouring building or damp rising from underground currents, affected the conditions of the indoor environment.

Local conditions, such as location and orientation also influenced the problem and how it was handled. There might be problems in one particular dwelling, whether due to the building, the occupants, or both. There might be a lack of maintenance, leaky drainpipes, tight gutters, or condensation on cold surfaces. Similarly, some spaces are darker, depending on the orien-

tation, distribution, shape, and location of windows and the characteristics of the surroundings. The indoor conditions are dependent on the dwelling's context, its situatedness. Additionally, the rhythmical change of the days and seasons, the features of the interior spatial organization, colours, patterns, textures, and materials all play an important role. The fluxes and changes are also affected by time and material decay, such as the deterioration of materials caused by the growth of mould and the fact that lamps and the lighting they provide degenerate over time.

At the same time, our buildings are becoming more and more specialized, controlled, and conditioned indoor environments, where scientific and universal average norms govern the indoor climate. We are familiar with such heating, ventilation, and lighting systems from office spaces, but these technologies are now entering our domestic spaces to a great extent. In several of the architectural works that we regard as Nordic masterpieces from the mid-twentieth century, ventilation and lighting served as design parameters incorporated and synthesized with form, space, and programming, as part of an 'architechnique'.[58] Since then, various technologies have replaced the original ones, with new systems and requirements exceeding the previous ones in the ongoing rapid development. Overall, our buildings have thus become more specialized so as to meet requirements for optimizing energy or material resources in construction, or to control and manage them during operation. These requirements have been addressed with increased thermal insulation, virtually hermetic building envelopes, and larger glass facades. In order to ensure the required change of air, prevent or manage overheating, and avoid condensation in the construction, even more technology has been added. Vapour barriers, mechanical ventilation, and/or AC systems, solar shading, and automatic lighting systems have become part of our contemporary architecture. However, due to the rapid innovations in these technologies, they are more or less outdated before they hit the market. With the new technology, the connection to and responsibility for the environment disappears. The technology represents a scientific understanding of the fluxes of temperatures, humidity, and light conditions in a way that resembles the climate rather than the weather.

Ventilation systems were part of all the eleven renovation projects examined in the mould study, and gave rise to a new feeling of uncertainty concerning the practice of airing established prior to the renovation. In some cases, the tenants were told not to interfere with the system and that it had been cali-

brated to their individual requirements and/or the recommended standard air exchange. Some continued to open their windows despite the recommendations. Since this is detached from the context, Frampton accuses the ubiquitous air conditioner to be the main antagonist of rooted culture, since it is:

> . . . applied in all times and in all places, irrespective of the local climatic conditions which have a capacity to express the specific place and the seasonal variations of its climate . . . the fixed window and the remote-controlled air-conditioning system are mutually indicative of domination by universal technique.[59]

In order to deal with the 'issues' of darkness and cold, modern architecture has created a uniform, average environment of 'comfort'. When unwanted side effects such as the discomfort and distress resulting from uniform and average lighting are addressed by adding another layer of technology, such as a lighting system, to offer variation, where is the honesty? Might our passivity with respect to light, the fact that we often live in darkness, be connected to our relation to the weather, be based on an urge to be surrounded by its changes?

In this sense, the Nordic is perhaps not so much a uniform character, but rather the very sensitivity of being situated as part of a Nordic living entanglement, an embodied feeling of being in the Nordic landscape.

The Social and Societal Context

The context of the welfare society serves as a structural site for both of the issues studied. It is present in the various opportunities for support, either established by building acts intended to ensure safety and health in construction,[60] or laws relating to social services,[61] and implemented in the rehabilitative services for citizens with impaired functioning. In addition to political democracy, the welfare systems also reflect the Nordic model's objectives of high standards of living and social equality. Danish studies show that the problem of damp and mould is found in every sixth to eighth home,[62] and 1 per cent of the Danish population is visually impaired.[63] However, the security of the welfare state also contributes to the problems perceived, both in discussions of individual responsibility vis-à-vis the democratically negotiated common good, and in questions of whether tenants should jointly finance the upcoming renovation of the apartments when they already had invested money in individual renovations,[64] or whether the visually impaired

would invest in ordinary lighting appliances or restrict themselves to 'special lighting' and assistive technology subsidized by municipalities. These are thus democratic or public decisions, which are correspondingly socially negotiated.

RECONTEXTUALIZING KNOWLEDGE: THE ROLE OF ASSOCIATIONS

In keeping with the socially flat, Latour argues that abstract ideas needs to be linked to the real and material local world,[65] and suggests three steps towards an alternative topography:[66]

1. Relocate the global from interaction to context.
2. Redistribute the local in order to understand interaction as abstraction.
3. Connect the sites by highlighting vehicles and/or associations.

In the analysis of the two studies, the global has been relocated to specific contexts and issues, and analysed as abstractions in the different types of knowledge. In the following section, we will look at what the sites do by highlighting the vehicles and/or associations.

In the case of the mould issue, the expert translations were limited to a narrow (yet multifaceted) part of the physical context: the building, the body, or the microbe. The contexts of the different positions are made visible when viewed from a historical perspective and in relation to each other.[67] The fixed notion of the immutable mobile makes it impermeable to time, interaction, and change. As shown in the mould study, this hardness is also a challenge when different arguments conflict. The process of translation also reminds us that an immutable mobile can nevertheless be made relevant to a given context. At the same time, in the process of translating knowledge to a given context, professional knowledge needs to be responsive to the specific individual, physical, and social situation. The Person-Environment-Occupation (PEO) model used by the low vision consultants trained as occupational therapists has an elasticity that:

> . . . enables interventions that assess the congruence between the parameters in different contexts over time, where the notion of the mutable mobile seems useful. The context- and time-specific scope . . . , in which the outcome of the service depends on the active participant, also calls for a more collaborative approach. After

> all, citizens are the experts regarding their own lives, bodies, and everyday settings.[68]

While the quantitative measures played a part in the lighting assessment, they always did so in relation to the specific social and physical context. The work of the low vision consultants represents a translation process closely related to the social and physical context of the visually impaired individuals. However, this process of translating between contexts and between different modes of knowledge was not consciously articulated. When this process was described and analysed in the research project—redistributed as abstract interaction—the consultants recognized new aspects of their practice. Later, in discussions with other practitioners, many of them replied: 'But this is what we do!,' followed by reflections on what their approach actually does. In contrast to scientific practice, which aims for immutable mobiles, the problem-solving strategies required open-ended approaches in order to adjust to the given local and social context, and to invite different forms of participation so as to arrive at the right solution. Due to their property of being mutable and less mobile, these encompassed forms of knowledge are also more difficult to recognize.

Examples of an open-ended approach were found in connection with the mould issues as well, but not by the detached professionals and based on scientific knowledge, but instead by neighbours, building superintendents, and project managers trying to understand and find solutions adapted to the specific situation.

In summary, associations or vehicles, play important roles in the interactions in question in the issues studied. However, the way they are handled in the different professional approaches tends to be even more crucial.

DISCUSSION: CONNECTING THE SITES—THE NORDIC COUNTRIES AND ARCHITECTURE

In order to relate this coordination of an alternative topography to the practicing community of architects, Norberg-Schulz is now brought back into the discussion. He problematized the way that the architectural theory and practice of the twentieth century have remained in place on the cognitive or logical level: 'free us from abstractions and alienation, and bring us back to things'.[69] Modern cities have lost their sense of place and patterns are blindly transferred between different levels in a confusion of scales. As act of accom-

modation, he called for a more conscious move from the general to the local, and for assimilation the other way around.[70] The acts of concretization and projection resemble the processes of translation, which have a basis in many ANT studies. The immutable mobiles of science largely represent empirical knowledge that has been generalized and taken out of its original lifeworld context. However, scientific as well as other professional practices are situated in time and place. When decontextualized knowledge is implemented in a new context, it is recontextualized.[71] As shown in Figure 3, the process can be seen as moving from the individual to the social to the scientific, or the other way around.

Norberg-Schulz argued that cognitive space needs an abstract construct for describing it in order to systematize the possible properties from architectural space.[72] However, what does this abstraction lead to? Description is a form of translation, and in Norberg-Schulz's example, a translation from architectural space could be described as a translation from the material and physical reality to be communicated to others. The target of the translation influences the content and the message, and in order for this description to invite several perspectives, mutable mobiles as in the case of the low vision consultants would be called for. Contrary to the consultants' focus on the needs of the

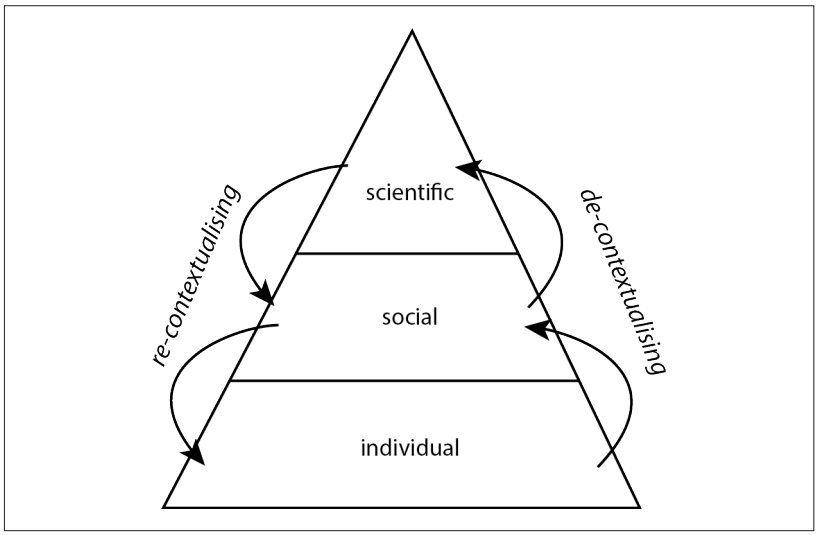

Figure 3. The process of structuration as translations to or from a given context. Drawing by the author.

visually impaired individuals, architects make decisions on behalf of many future users over several future generations. The choices made by the architect will affect each of them. But this is a difficult twofold translation: from the individual to the collective, in other words, finding a common solution, and from the collective to the individual, that is, how the solution works. The aspect of time makes it impossible to actually obtain user involvement in a solution that is not yet real.

Fortunately, architects are not entirely on their own in the task of making good architecture, and what they need are methods and properties that facilitate translation from existing knowledge, in which the notion of the Nordic might serve as an intermediate for calibrating when connecting tacit individual knowledge, to universal, explicit and scientific knowledge. The two studies examined in this article emphasize the tacit and local aspect of the challenges of architecture by examining specific buildings and individuals. At the same time, they also show that the specific is linked to the general in our complex and changing lifeworld. The 'complexities and contradictions of contemporary life'[73] identified in the studies go beyond the physical and material context through being supplemented by aspects of practice and conventions. Figure 4 visualizes the unfolding continuums of abstraction

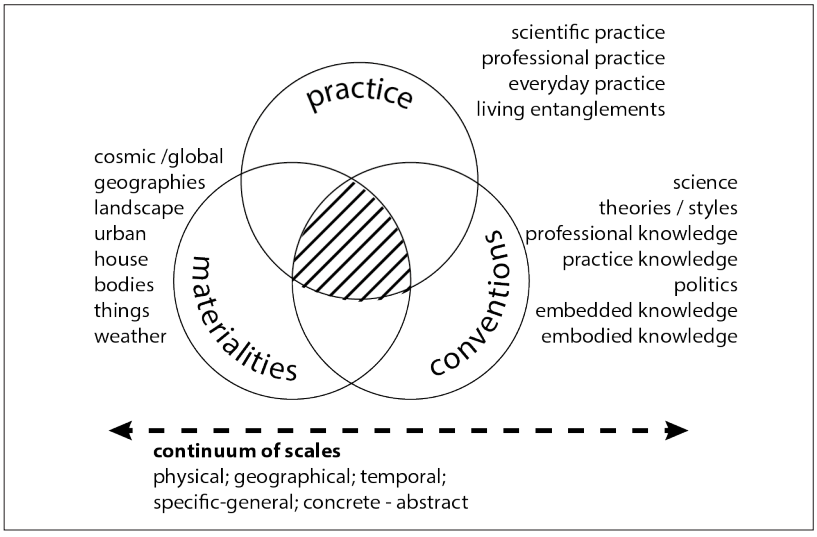

Figure 4. The interrelation of materialities, practices, and conventions unfolds as continuums, continually interconnected across sites. Drawing by the author.

that are represented in materialities, practices, and conventions. In these continuums, the middle field represents a field of opportunities in which a translation either specifies or generalizes. They are thus continuums in which Norberg-Schulz's 'vehicles', his notions of 'relations and continuity', can help us to connect the sites. The processes of de- and recontextualizing enable us to work with complexities and contradictions, including those between different practices, whether professional or everyday.

Seeing scales as positions in a continuum is thus suggested as a way for architects and other practitioners to navigate across levels of abstractions and contexts. In between what we consider the local and the global, the Nordic can provide an appropriate scale for calibrating and navigating the course forwards.

Nordic Living Entanglements

Norberg-Schulz's attention to the Nordic climate, to the changing character of a place due to 'the seasons, the course of the day and the weather', and the cold, and to how the 'Nordic man has to be friend with fog, ice and cold wind'[74] also has relevance beyond the professional network of architects as the everyday character of both the built environment and its habitants. 'Local and specific' testimonies of our built environment, as shown in the studies presented in this article, have largely been disconnected from architectural practice. At the same time, they can help us understand some of our current societal challenges, including housing issues, universal design, sustainability, and climate change.

The built environment causes and potentially mitigates problems in people's lives, which are of great concern for the people affected as well as a matter for their fellow citizens and society as a whole. The fact that anybody's vision might change during his or her lifetime and that the quality of light makes a huge difference for most of us makes it a subject for everyone. It affects the overall configuration, just as when any other aspect of our living entanglements, our body, or our environment is modified,.

There are multiple understandings and workings of the Nordic, and its definition and values are constantly being renegotiated. Different interpretations are found in the different countries and within different fields and industries.[75] Just as the specificity of any place or practice is rendered visible through comparisons, lifeworlds and weather are also understood based on

differences. An everyday thing like the weather forecast illustrates the diversity of approaches to the weather across the Nordic countries. On Danish radio, it is covered by a single forecast of just a few seconds, for instance: 'Cloudy with rain or showers, temperatures between 14 and 17 degrees, and a light to fresh wind from the north and northwest.' This local and specific is put into perspective by my memory of the seven-minute-long radio forecast covering the Norwegian fishing banks as well as twelve different geographical areas.

Low vision and mould growth are not unique to the Nordic context. They are, however, two issues in the indoor environment in which the situatedness related to the position of the northern latitudes results in different conditions for each season. Even though these changes are relatively predictable, they touch upon a dynamics in which local differences challenge the more 'global' approach of science. Due to current demographic and climatic development, such issues will increase in the near future, and this is why the way we handle them, individually, socially, and professionally, could make an important difference to general health and well-being.

If the Nordic attentiveness to the weather and the seasons were to be translated to other types of situated and contextualized knowledge, understanding challenges, breakdowns, and workarounds could support reflected practitioners. In learning from other communities of practice and different scales, the Nordic can be a good point of reference and a space for opportunities between the local and the global. Even though the two studies are situated in the Danish context, the conditional challenges resulting from harsh winters apply to all the Nordic countries, perhaps even more distinctly the further north one lives. Or do the extremes make people better at handling challenges? Further studies would be required in order to find answers to this question.

CONCLUSION

This article has examined the complexities and contradictions of contemporary life in relation to two challenges of living in the Nordic region. More specifically, it has shown how these problems are part of people's everyday lives and how various professionals attempt to solve them.

The studies show that higher levels of abstraction are embedded in local and situated living entanglements, since the Nordic is present in the change of

the seasons, as well as in individually, culturally, and socially perceived and enacted indoor environments. However, for this knowledge to be utilized, different professional and non-professional practices must coordinate their efforts.

The study of the mould issue shows that the problems, beyond being technical, are also social, and that conflicting scientific, professional, and non-professional understandings of the same phenomena can complicate the problem. The studies on low vision rehabilitation and domestic lighting show a different approach to knowledge by acknowledging and supporting a range of different types of knowledge of relevance to the specific individual and the specific social and physical context in question: by supporting citizens in sharing embedded knowledge on how light and vision interact, translating the problem embedded in the intersection between human and built environment into practical tasks to be tested, and coordinating and navigating the joint process of problem-solving.

While architects are usually preoccupied with planning and design, both studies examined in this article highlight the use of and adjustments to existing home environments. Whether the planning, construction, use, decay, renovation, or modification of buildings is concerned, it is only by connecting these phases, levels, and actors that we can embrace the entire lifecycle of a building. The position of architects, who engage with individual, social, and technical lifeworlds in their practice, is important in this synthesis. However, more knowledge is needed on how to more systematically incorporate comfort and usability, the situated and embedded knowledge of materialities, and the role of time and changes in human-environment interaction in architectural practice.

The complexity that develops calls for a transdisciplinary approach in order to connect, translate, and coordinate scientific with situated professional and non-professional knowledge. The question is whether the spirit of the Nordic can foster a new approach: by turning the tables and not seeing honesty and good business as opposites, but instead by combining honesty when assessing the complex problems with good business and investing in valued collaboration. Only time will tell.

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