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CA²RE+

1 STRATEGIES OF DESIGN-DRIVEN RESEARCH

CA² RE+ Collective Evaluation of Design Driven Doctoral Training

CA²RE+

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COLOPHON

CA²RE+ **1** **STRATEGIES OF DESIGN-DRIVEN RESEARCH**

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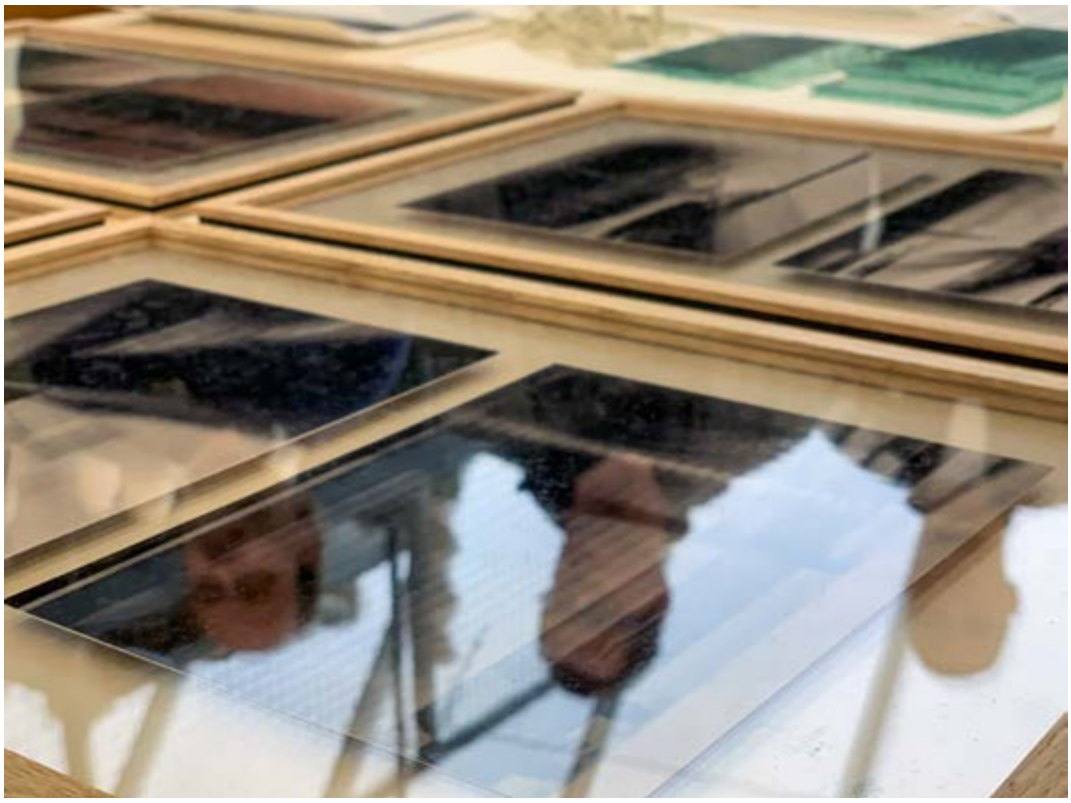


Research evaluation through empathy

Tadeja Zupančič

During researchers' careers, doctoral training takes different roles. Immediately after receiving their diploma, it may help to shape individual career wholeness, or at least, seen from the perspective of rapid career changes nowadays, its initial stage. Ten or twenty years later, it may help to break professional, teaching, or other routines, enabling a career shift when necessary, solving a middle-age crisis, or helping to fine-tune and develop perfection. Before or even after retirement, an individual is perhaps willing to wrap up their career, strengthen their life's wisdom, and share it with the relevant research community. Aged 27, I was the youngest doctoral degree holder at my faculty, and in the role of a doctoral programme manager twenty years later, I was honoured to learn from our oldest candidate, aged 80. At my institution, I understood our research tradition hybrid. I met many 'by theory' and 'by design' and 'by practice' doctoral trainees from outside my institution. During discussions with the doctoral programme developers of different institutions, I found out that all or some of these perspectives can be present within the same research body, and that they can play different roles in various research periods, also in different stages during the researchers' careers. Labelling myself as a researcher, the discipline and the rigour I embody with that seems much more important to me than any 'by theory' or 'by practice' labelling, especially in architectural design, in which thinking, feeling, and doing are intertwined in any research endeavour, no matter how homogeneous or hybrid it is. I've found out that my supervisors finalised their doctoral theses, originated from (led by) their professional practices, without even mentioning that fact during

that period (in the 1980s). Perhaps that's why I don't need to call attention to something that is obvious to me. That which, for example, can be misunderstood and thus makes me vulnerable while sharing my thoughts with those from other research contexts and traditions.

In arts and architecture, professions change rapidly. These changes may contribute to professional adaptability; perhaps, however, the essential sensitivity to spaces and people is neglected. They may contribute to challenging ideas, though they make research professionals vulnerable during their societal actions. Research is often open-ended, and its continuous in-progress mode is sensitive, especially in comparison with the positivistic sciences.

How can we share issues in our research that make us feel vulnerable? Why share them at all? The CA²RE community offers some responses to these questions. It develops a research evaluation environment, where the new research energy flows from the research driver(s) we (the members of the CA²RE community) feel we share, and especially from conditions of respect and trust. These conditions emerge from the very high level of generosity of the people involved. The participants are willing to take the time and effort needed for immersive research and being immersed in the research world of others. Before the wrap-up session in Aarhus (2018), I thought that the key to research shareability was a certain level of abstraction of somebody's research ideas. Close enough and far enough that I'm interested. In Aarhus, somebody explicitly said that he wanted to invite me to his research world. Those

words made me think about how that invitation worked with me and with others. I felt that, but his words triggered my conscious investigation in a new direction.

In the CA²RE community, I'm personally searching for motivation and enhancement of my self-confidence. I need some triggers to refresh and reboot the previous experiences in doctoral and master supervision and evaluation. I also need refreshments as a researcher and research manager. I'm learning that I can build but not rely on my previous experiences while talking to my new doctoral candidates, learning how to enable an atmosphere of transparency and honesty. My awareness of what I can offer and get at these events is increasing each time I come back to the constantly changing community, where there is a core of some faithful friends and where I see that newcomers can find a familiar atmosphere and the majority seem to feel accepted.

The events offer multi-layered triggers: from the engagement of individual presentations (especially those which are artefact-based), the dynamics of panels, the tensions in discussion wrap-ups, and the passion of informal discussions, to the energy of the event as a whole. The feeling of immersion in the candidate's work, where I'm fresh in the process, is clear to me, as well as the feeling of a strong relationship between the candidate and the panel where I contribute. New ideas about the roles which design plays in research, for instance, in theory-driven strategies, emerge.

The CA²RE+ project has brought a new level of

intensity to the CA²RE happening. The discussion about artistic and architectural research leads to the investigation of the multifaceted role of design (or other relevant theory/practice relation) as a driver of research. The project's steps—observation and sharing, comparison and reflection, reformulation and recommendation—grow from the richness of the CA²RE experience and the previous actions of the people from this community. After completing the steps of observation and sharing, it is clear how the CA²RE grounding works. Through transparency, openness, honesty, trust, multifaceted generosity, respect, rigour, visually convincing artefacts, and other immersion-enabling presentations, we are witnessing not only observation and sharing but also empathy, needed to develop sensitivity in research evaluation in arts, architecture, and related fields oriented towards cultural development.

‘Unfolding Tradition’

Oya Atalay Franck

The CA²RE network and its predecessors have played an important role for me, not only since I've been the President of EAAE but also for the last 20 years, and in many ways—as a long-term associate, participant in events, and reviewer for publications. Over the years, the CA²RE events have become fixed points in my agenda.

Also for EAAE, this network of dedicated researchers is of crucial importance. It supports EAAE, the European Association for Architectural Education, in its mission to advance the quality of architectural education and research—and thus architecture in general. The EAAE promotes the interests of over 135 member schools and lobbies for their common goals. It is thus, in turn, a powerful organisation to disseminate the results and insights CA²RE elaborates. EAAE has a long tradition of tackling research issues in architecture and education, and addresses them in many ways: through the EAAE annual conferences and the respective proceedings, in the form of (Erasmus+) projects, and of course with the EAAE Charter on Architectural Research, a reference document which specifies the character and objectives of architectural research, confirms the variety of valid methodologies, and supports the development of a vibrant, internationally recognised and well-funded research community. These are goals that are key for CA²RE, too, and were introduced as a reference when CA²RE was founded in 2017 by EAAE, ELIA, and ARENA.

EAAE has always acted as a supporter and collaborator for the network's activities. However, what seems equally—if not more—important to the institutional framework EAAE offers are the

persons involved. Their dedication and belief in the promotion of architectural research and their engagement in the recognition of artistic and design research have always been the cement of the network. The core group has existed for many years, acting as door openers, community builders, and enablers. One of them was Johan Verbeke (1962—2017), whose energy was key to bring EAAE, ELIA, and ARENA together.

Architectural and artistic research have a long tradition, and an equally long struggle for recognition by other academic fields to be a relevant field of research and to have a well-accepted place on the research landscape. Furthermore, architectural and artistic research have always been confronted with discussions regarding their 'compatibility' with academic standards—and, at the same time, also regarding their relevance for professional practice. This relevance and the rigour of research activities should not be in the eyes of the researchers only, but must be comprehensible for others, too. Here lies a challenge that needs to be tackled in the future. To overcome being seen as self-referential, architects and artists, educators and researchers need to outline more convincingly the societal and cultural relevance of their professional fields. Architectural and artistic production have such a huge impact on everyday life, economies, and the built environment. In every scale, they need to deal with wicked problems and with the pressure of bringing impeccable solutions to enable graceful living environments—creative and critical thinking is not just nice to have, but a must in dealing with these challenges.

So the CA²RE network has a grand responsibility.

However, it also has a long history and a strong tradition of exploring,[1] thinking outside the box, and experimenting with new formats (Graduate Research Conference, Practice Research Symposia, Architecture Research Moments, CA²RE, CA²RE+), and therefore a stable foundation. Furthermore, CA²RE has a unique reputation for its culture of open-mindedness, of curiosity, of empowering each other, and of inclusiveness. I am convinced that, with these prerequisites, CA²RE will continue encouraging, connecting, inspiring, and supporting researchers of different experience levels. It will continue being an enabler, not only for its community but also for society, by advocating and displaying the potentials and importance of architectural and artistic research.

1 Just to name a few milestones of conferences, seminars, projects, and publications (without claiming to be exhaustive):

Research by Design, TU Delft, Faculty of Architecture, 2000

Unthinkable Doctorate, Sint-Lucas School of Architecture, NETHCA (Network for Theory, History and Criticism), 2005

Emerging Research+Design, EAAE-ARCC Joint Research Conference, 2007

Communicating (by) Design, Sint-Lucas School of Architecture and Chalmers University of Technology, 2009

Theory by Design: Architectural research made explicit in the design studio, Faculty of Design Sciences, Artesis University College, Antwerp University Association, 2012

Knowing by Designing, Sint-Lucas School of Architecture/KU Leuven, 2013

When Architects and Designers Write Draw Build, eds. Claus Peder Pedersen et al., 2013

Design Research in Architecture, ed. Murray Fraser, 2013

Research by Design, EAAE, 2015

Research Training Sessions, Sint-Lucas School of Architecture/KU Leuven, several sessions until 2016

ADAPt-r Project: Architecture, Design and Art Practice Training-research. Funded as part of the European Union's 7th Framework Programme, concluded 2016

Perspectives on Research Assessment in Architecture, Music and the Arts: Discussing Doctorateness, eds. Fredrik Nilsson, Halina Dunin-Woyseth, Nel Janssens, 2017

Fostering Design Driven Research: Next generation researchers take centre stage

Roberto Cavallo
Urs Hirschberg

ARENA is an open and inclusive network that offers a shared platform aiming at promoting, supporting, developing, and disseminating high-quality research in all fields of architecture in the broadest sense, including its links with building technology, environmental design, interior design, landscape architecture, urban design, and urbanism, and operating in areas ranging from science and technology to the arts and humanities. ARENA encourages the exploration of emerging transdisciplinary and interdisciplinary research fields and supports the European architectural research culture by creating cross-connections between established academics and professionals in the field. It further develops European architectural research by providing regular forums for the exchange of ideas, rigorous peer review processes, and clear definitions of research terms and methods, and by establishing strong links between partner universities and architectural firms in Europe and beyond. One of the main objectives of the ARENA network is to provide information resources to help the development of doctoral students and early-career researchers.

ARENA has been a fervent supporter of CA²RE since the very beginning. Many members of the ARENA network have been involved with the establishment of CA²RE. First and foremost, our dear colleague Johan Verbeke, who passed away much too soon, but whose legacy plays an important role for both ARENA and the CA²RE network. Through the Architecture Research Moment (ARM) conferences, the predecessor of CA²RE, Johan brought together research in the fields of architecture and arts. The number ‘2’ in CA²RE

stands for the two A's of 'architectural' and 'artistic' research. We are very glad that the CA²RE community has been growing, gaining more substance and impact, and that people affiliated with ARENA are part of the core group. With the start of the CA²RE+ project, Design Driven Doctoral research claimed a central position on the agenda of many of our colleagues. It is a development that ARENA welcomes very much, as design is one of the main drivers of our discipline and the focus on doctoral research is at the top of the ARENA network agenda.

There are many ways in which the CA²RE and CA²RE+ initiatives are exemplary. In 2020, when so many of our activities were stalled or slowed down, this became particularly clear. The thoughtful, sustained, in-person discussion and support of research and researchers is at the heart of CA²RE's mission. Held at participating universities all over Europe, the CA²RE conferences have established a format for this that puts the individual researchers at centre stage. The format gives participants time to reflect and fosters community by letting them mingle outside the sessions. When the pandemic made it impossible to continue in this format, though, the CA²RE+ organisers were remarkably quick in finding alternative solutions. The CA²RE+ conferences in Trondheim and Milan were successful even as online events, because it was obvious how much the people behind the CA²RE+ project indeed cared about the participants, about taking time for meaningful debate and feedback.

The times when research in architecture was not taken very seriously are over. Not least of all

because—the pandemic notwithstanding—we find ourselves in a global ecological crisis in which architecture and construction and the way we manage our cities are of critical importance. There is now an urgent need for substantial and reliable knowledge about how we can make buildings and cities more resource-efficient, how we can restore ecological balance, and how we can create more sustainable and socially just communities. And because all of these questions are inextricably linked with design, there is an equally urgent need for research into design. Reaching out and finding common ground with artistic research is essential for this quest.

For all these reasons and many more, CA²RE and CA²RE+ are important and ARENA is proud to support them. We invite the CA²RE and CA²RE+ communities to also participate in our other activities, which we announce on the ARENA webpage at www.arena-architecture.eu, and to publish in AJAR, the peer-reviewed ARENA Journal of Architectural Research (ajar.arena-architecture.eu). There is much more we need to do, and we can do much more when we do it together.

Strengthening Research, Artistic Research, and the Third Cycle, together with CA²RE+

Maria Hansen
Jørn Mortensen
Andrea B. Braidt

ELIA is privileged to be part of the CA²RE+ project and to contribute to the important work of this consortium. ELIA—the European League of Institutes of the Arts—is a globally connected European network that provides a dynamic platform for exchange and development in higher arts education. It represents over 250 members in 47 countries, comprising some 300,000 students across all art disciplines. ELIA advocates for higher arts education by empowering and creating new opportunities for its members and facilitating the exchange of good practice. ELIA realises its aims by organising events of various scope (ELIA Biennial Conference, ELIA Academy, ELIA Leadership Symposium, regional seminars, and platform events), forming cross-membership working groups to advance knowledge, participating in research projects, and producing policy papers addressing topical issues. In all of these endeavours, ELIA collaborates with partner networks around the world, bringing together the knowledge and networking capacity of many discipline-specific organisations.

Strengthening Research, Artistic Research, and the Third Cycle has been a strategic priority for ELIA for many years, and will continue to be in the coming years. Along with artistic practice, research in the arts and through the arts is increasingly being developed in art schools. Realising the innovative potential of artistic research, higher arts education institutions face challenges in sustaining research infrastructures and environments, promoting staff development, and establishing firm and sound frameworks for the third cycle (i.e., doctoral education).

Since a few years, ELIA has had a very active and multi-disciplinary working group and platform working on artistic research. The working group has identified priorities which aim to continue the work undertaken during one of ELIA's past projects, SHARE, and to strengthen its network. A direct link was laid here, with several disciplinary networks represented in the working group, including the EAAE. On behalf of ELIA, the working group developed The Florence Principles, a position paper on artistic doctorates, presented at the ELIA Biennial Conference 2016 in Florence. This position paper was successfully used to give recognition to artistic doctorates at a European and national level.

ELIA also worked on increasing the visibility of Artistic Research on the European level, by contributing to the Vienna Declaration on Artistic Research (published in collaboration with EAAE and other networks in June 2020) and jointly endorsing Paulo de Assis as nominee to the Group of Chief Scientific Advisors to the European Commission.

While creating a policy framework is of great importance, advancing the research practice regarding the artistic doctorate is crucial. It is for this reason that ELIA is now partner in several Erasmus+ projects that aim to develop the conditions for supervision and evaluation from within the sector. ELIA is involved in the strategic partnership Erasmus+ project Advancing Supervision for Artistic Research Doctorates, developed in a transnational cooperative setting and coordinated by the Academy of Fine Arts Vienna. ELIA is also partner in the CA2RE+ project on design-driven

research evaluation, which includes a series of biannual international and intercultural intensive study programmes for doctoral candidates, guided by experienced evaluators from participating universities and invited experts.

Having been a great supporter of the CA²RE network for many years, being a partner in this consortium takes ELIA's engagement with CA²RE to another level. Together we explore the overlap between artistic and design-driven research practice and advancement in general, and specifically with regard to the doctorate. ELIA contributes to this the expertise of panellists from higher arts education, many of whom partook in the CA²RE+ conference sessions in Trondheim and Ghent. For these colleagues, but also for the network as a whole, it has been enlightening to be part of the effective rigour of the CA²RE format and jointly move the practice of doctoral research evaluation forward, along the steps of Observation and Sharing. ELIA members will benefit from joining in learning together about aspects of Comparison, Reflection, Reformulation, and Recommendation in the upcoming CA²RE+ conferences.

CA²RE+

Tadeja Zupančič, Claus Peder Pedersen, Jo Van Den Berghe, Thierry Lagrange, Gennaro Postiglione, Alessandro Rocca, Jacopo Leveratto, Jürgen Weidinger, Ignacio Borrego, Ralf Pasel, Edite Rosa, Manuel Bogalheiro, Matthias Ballestrem, Markus Schwai, Eli Støa, Roberto Cavallo, Oya Atalay Franck, Débora Domingo Calabuig, Maria Hansen, Jørn Mortensen & Andrea B. Braidt

The Erasmus+ Strategic Partnership CA²RE+ research academy develops a collective learning environment through Evaluation of Design Driven Doctoral Training. Design Driven Doctoral research (DDDr) is taken as a multidisciplinary example of an experiential learning-through-evaluation model, appropriate for identifying and promoting the relevance of research singularity, as well as its transparency and recognition, to award excellence in doctoral training for creative and culturally rooted solutions within contemporary design-driven developments.

The CA²RE+ explicates the transformative and innovative power of highly individual strategies in artistic research, the diversity of research traditions, and the integrative nature of architectural design research, and is able to face contemporary knowledge fragmentation in the humanities, social sciences, and technology. It explicates the interdisciplinary relevance of convergent thinking, mastering 'wicked problems', open-ended processes, resilience, and risk, as well as orientation towards the future, all present in DDDr. It explicates the didactic relevance of DDDr for training creative professionals in how to use the integrative power of design thinking to master open-ended processes while solving contemporary spatial dilemmas (sociological, political, related to climate change, etc.).

In the arts, architecture, and design, the understanding of reality aimed at future creations, however convincing, remains based on a personal and creative aspect, where the relevance of the singularity of particular cases plays a key role in research strategies and evaluation. The evaluation

of this type of relevance requires the explication of tacit knowledge and evidence of research impact, including non-written production. These needs have been identified by the CA²RE community through its biannual Conferences on Artistic and Architectural Research, as a follow-up to the ADAPT-r project (Architecture, Design and Art Practice Training-research / EU ITN).

CA²RE+ PARTNERS

The CA²RE+ project can only be carried out transnationally: it is based on cultural diversity, the diversity of academic environments and research traditions, and the diversity of creative practices in core areas dealing with creativity and culture. The CA²RE+ Strategic Partnership joins eleven organisations and associations from eight EU countries: University of Ljubljana, Aarhus School of Architecture, KU Leuven, Politecnico di Milano, TU Berlin, COFAC — Lusofona University, HafenCity University Hamburg, Norwegian University of Science and Technology (NTNU), TU Delft, the European Association for Architectural Education (EAAE), and the European League of Institutes of the Arts (ELIA). ARENA (Architectural Research European Network Association) and the Glasgow School of Art (GSA) are associated partners of the network.

All partners have long traditions for providing doctoral education. They also all share experience with EU projects, such as Erasmus+ Strategic Partnerships. University of Ljubljana, KU Leuven, Politecnico di Milano, TU Berlin, NTNU, and TU Delft are part of comprehensive institutions. The Aarhus School of Architecture and COFAC — Lusofona University bring the flexibility of

design-focused doctoral programmes at smaller institutions. HafenCity University Hamburg represents the freshness of a newly established, specialised university. EAAE and ELIA contribute strong university networks.

The key persons from the CA²RE+ academic partners are experts in architecture (from all partners), landscape architecture (TU Berlin), urban design (University of Ljubljana, Politecnico di Milano, TU Delft), interior design (Politecnico di Milano), (visual) arts and design (University of Ljubljana), and environmental psychology and urban sociology (University of Ljubljana). The key persons from EAAE represent architecture as a cross-disciplinary research area, while those from ELIA represent the supra-disciplinary field of the arts (from visual to performing arts).

The CA²RE+ Strategic Partnership builds on the experience of the CA²RE community and its biannual Conferences on Artistic and Architectural Research, held since autumn 2016 and organised in association with ARENA, EAAE, and ELIA. CA²RE is a follow-up to the ADAPT-r project (Architecture, Design and Art Practice Training-research / EU ITN), where creative practice research was the main focus.

OBJECTIVES

The CA²RE+ advances doctoral training from a supportive action to an experimental collective evaluation training environment for DDDr. It critically transfers the traditional design studio learning model from the master's to the doctoral level; learners at different stages of their process

learn collectively with evaluators in an iterative way. Achieved iteratively through the main project steps, from observation and sharing, comparison and reflection, to reformulation and recommendation, the project objectives are:

1. to develop a collective learning environment through the evaluation of DDDr training

2. to create evidence of the DDDr learning environment and evaluation materials

3. to identify the DDDr strategies, to explicate the DDDr evaluation process, and to prepare the DDDr framework

4. to disseminate the CA²RE+ learning-through-evaluation model and its framework

STRUCTURE AND RESULTS

CA²RE+ is structured into six project steps, which are reflected in the consecutive order of events and intellectual outputs. The first year—covered by this book—focuses on 'Observation' and 'Sharing'. It builds on profound and open observation and the sharing of diverse local and regional research cultures in a transnational perspective. This includes the different conditions for doctoral students, with the aim of identifying both the diverse and common approaches and methods that can point toward DDDr 'Strategies'. The second year focuses on 'Comparison' and 'Reflection'. The network will compare, discuss, and evaluate observations from the first year, with the aim of identifying and specifying national differences and European com-

monalities as well as weaknesses and strengths. The third and final year will explore the themes 'Reformulation' and 'Recommendation'. The network will reformulate the research traditions that have been identified and developed during the project and move towards common recommendations for a DDDr 'Framework', which considers local peculiarities but above all forms a common foundation for the future of DDDr in Europe.

Within this structure, the following results will be realised:

1. **DDDr Evaluation Course: a doctoral training course that develops a collective learning environment through the evaluation of DDDr training**

The backbone of the CA²RE+ Strategic Partnership is a series of biannual international and intercultural Intensive Study Programmes (ISPs) for doctoral candidates, guided by experienced evaluators from participating universities and invited experts. The doctoral work-in-progress is evaluated through presentations, performances, exhibitions, and critical discussions, following the iterative CA²RE+ project steps: Observation, Sharing, Comparison, Reflection, Reformulation, and Recommendation. To introduce new experts with low evaluation experience into the process, a Joint Staff Training (JST) is developed at each venue.

The CA²RE+ course is a tangible result in itself—a collective approach to doctoral evaluation processes. The development and iterative implementation of such a collective learning-through- evaluation model raises awareness

of the research quality and relevance of research singularity by the doctoral candidates and their evaluators. New knowledge is created through evaluation experiences with discussions, presentations, performances, and exhibitions. The doctoral candidates get an opportunity to invite their evaluators into their personal research strategies, and the evaluators get the chance to immerse themselves in specific, culturally rooted situations, the modes of candidates' convergent thinking, mastering wicked problems, open-ended processes, resilience, and risk. The self-assessment and evaluation skills of all the participants are improved and their achievements are explicated and made shareable, and thus visible. The international and intercultural setting enables shared solutions and evaluation expertise; the result is improved cultural awareness of research training communities.

2. **Database on DDDr EXPERIENCES: a multimedia database that collects evidence of the DDDr learning environment and evaluation materials**

The public database on DDDr EXPERIENCES offers the CA²RE+ multimedia courseware for learning from raw evaluation data. It evidences the case studies/strategies of tacit knowledge explication on DDDr examples and its evaluation experiences, as well as DDDr research impact evidence examples, including non-written production, to further develop research strategies.

3. **Three open-access books: the first book identifies DDDr Strategies, the second explicates the DDDr Evaluation process, and the third develops the DDDr Framework**

The open-access book series on DDDr Strategies, DDDr Evaluation, and DDDr Framework offers a set of interpretations, recommendations, and guidelines for the implementation and evaluation of DDDr-related doctoral programmes, the development of starting points for DDDr, and the relevance of findings for the humanities and social sciences.

4. CA²RE+ events and materials

The dissemination activities and materials bring the CA²RE+ learning-through-evaluation model and its findings to audiences from the humanities and social sciences, especially to the multidisciplinary course and evaluation framework and education policy developers.

RESULTS

The public database on DDDr EXPERIENCES offers the CA²RE+ multimedia courseware for learning from raw evaluation data. It evidences the case studies/strategies of tacit knowledge explication on DDDr examples and its evaluation experiences to further develop research strategies. The open-access book series offers a set of interpretations, recommendations, and guidelines for the implementation of evaluation of DDDr-related doctoral programmes, the development of starting points for DDDr, and the relevance of findings for the humanities and social sciences.

IMPACT & BENEFITS

Long-term benefits are expected for doctoral researchers, creative practitioners, evaluators,

multidisciplinary course/programme developers, and education policymakers, aimed at a creative refreshment of qualitative research. Sharing and comparing doctoral training across research traditions and cultures within the core areas, as well as dealing with creativity and culture, leads to transparency and recognition of tacit skills and qualifications. The development of collective evaluation courses contributes to promoting and rewarding excellence in teaching and skills development. The explication of tacit knowledge from evaluation experience through a multimedia database contributes to consolidation and improving evidence-building on higher education.

ABOUT THIS BOOK

This is the first of the three CA²RE+ books. It discusses and identifies the long-term development goals and potentials of Design Driven Doctoral Research. It situates DDDr in an academic context of research by addressing research done within the proliferating field of research-by-design.
The book will, however, also discuss DDDr in the broader context of explorative and constructive research within the humanities, social sciences, and relevant areas of technical research.
The Strategies book examines the potential of DDDr to build bridges between academic research and professional creative practices. How can DDDr contribute to the understanding of creative processes that deal with wicked problems and undefined outcomes? How can design-driven research contribute to better design processes and better design solutions?

As DDDr is a recently established research field,

the book examines the current status of how research questions are articulated or discovered, how research methodologies are created, how supervision takes place, and how evaluation is carried out. The book identifies good practices as well as methodological gaps to be further explored and developed through the second and third CA²RE+ books. The book also examines DDDr in the context of national academic research frameworks. It identifies examples, practices, and conditions in local research traditions to explore qualities and potentials. It discuss how the community and shared supervision model of CA²RE+ can build and expand on these traditions with the aim of strengthened collaborations which build on respect for local identities.

The Strategies book introduces DDDr on different levels: from international perspectives and national contexts, to individual research. The plural 'Strategies' in the title of the book is understood on several levels. It seeks elements of innovation in DDDr in a broad academic and professional context and looks for ways to learn from local research traditions, to determine how the CA²RE+ network can support and impact back on these traditions. It also looks for specific strategies that doctoral fellows and supervisors engage in developing design-driven research in fruitful ways.

The book builds on presentations and discussions from the first two CA²RE+ intensive study programmes, under the topics 'Observation' and 'Sharing'. It contains contributions from doctoral fellows and supervisors from the CA²RE+ partners and includes contributions by external reporters

and guests, who provide overall views of research, external perspectives, and general reflections on the relevance of what they experience as invitees to the presentation. Moreover, it contains examples of PhD work, aimed at giving specific examples of research findings, methodologies, and contributions.

The book's target group includes academics, organisers of doctoral programmes, administrators, creative professional practitioners interested in design-driven research, organisational bodies within design and the arts, and current or potential postgraduate fellows.

PEER REVIEWING

Peer reviewing plays a vital role in the CA²RE+ project's ambition of strengthening quality assurance and research rigour of design-driven research. The peer-reviewing is carried out at several stages and the doctoral presentations included in this publication have gone through three reviews.

The scientific committee did the first stage of peer-review on the submitted abstracts. Each abstract was checked blindly by three independent committee members. The reviewers scored and commented on the abstracts, and we admitted the highest-scoring abstracts for the limited presentation slots at the CA²RE event. The authors of accepted abstracts were requested to present a full paper, an in-progress project or an exhibition/ artefact at the conference.

Contrary to most conferences, the second stage

review takes place at the event. We provide sixty minutes for presentation and feedback and encourage the presenters to update their presentations after the conference in response to the panel's comments. We have chosen this peer-reviewing process to support CA²RE+'s ambition of creating an inclusive and supportive peer-review process that can address developing and emerging research and research that has reached a stage where the researcher can present argued findings. The ample time given to each presentation allows for the critical engagement of peers. The face-to-face meeting supports the ability to engage in hybrid modes of discussions that include interaction with artefacts and visual representations and performances. We consider the process rigorous, although it deviates from traditional standards of anonymized academic reviewing. This immersive verbal feedback has proven to be particularly relevant for promoting and securing the quality and rigour of design-driven research.

For this publication, we have carried out a third stage peer review to select the best presentations. CA²RE panel members identified the projects with the highest quality and most original application of design-driven research. The editors invited the presentations proposed by most panel members for publication. Presentations are, in some cases, further developed from material previously published in conference proceedings. The presenters revised texts, added images, and submitted new texts in a few instances. We have let the contributors decide how to present their material to represent the diversity of design-driven research.

The publication has been peer-reviewed in its totality by the advisory board of CA²RE+ as a fourth stage. We asked the board to comment on the structure, coherency and the general quality and validity of contributions. The board has offered valuable critic and feedback that has sharpened the publication.

We plan to perform a fifth post-publication peer review of the CA²RE+ book series when the subsequent two publications are published. External reviewers will carry out this review to contribute to the ongoing development of the field. Finally, it is worth mentioning that the testimonials and the concluding text contribute to the peer-reviewing by sharing and analyzing the participant's feedback and criticism of the CA²RE+/CA²RE framework and methods.

Ghent

Turning the Conventional Peer Review Process into a Review Process of the Second Order: An Asset for Design Driven Research

Thierry Lagrange
Jo Van Den Berghe

This reflection aims to evaluate the agency of observations of ongoing research in the activities of the CA²RE+ event in Ghent and derive a set of recommendations applicable in the upcoming stages of this Erasmus+ project and beyond. We will do this evaluation along with an overview of the most important activities.

KEYNOTE SPEAKERS

This double presentation by Perry Kulper (US) and Mark West (CA), two architectural draughtsmen with a provocative and singular research attitude, was followed by a debate moderated by Riet Eeckhout (BE). It was a convincing example of how observation combines with and works through conversations that appeared to be effective in various ways. We witnessed a first intense conversation between Kulper and West, subsequently enlarged by the active intervention of Eeckhout as the third interlocutor in the debate. Finally, in a more extensive discussion, the audience was then involved in a larger discussion. The whole session was recorded and archived. The conversation gradually expanded. As such, it preconfigured the concept of circles of observation, which was discussed and applied intensively in the next days of the event. Hence, this keynote session significantly positioned the conference theme and outlined a meaningful example of it.

WORKSHOPS

During the CA²RE+ event in Ghent, we organised two complimentary workshops. The ambition was to both cover a theoretical approach and a practical application of the conference theme of

‘observations’ in order to sharpen observing in all its aspects. This sharpening entails providing all the stakeholders with a structure and circles of observation. Knowledge and insights coming from previous research (i.e., Van Den Berghe [2012] and the ADAPT-r project [Marie Curie ITN –Architecture, Design and Art Practice Training-research, Seventh Framework Programme FP7/2007–2013]) informed the workshops. Furthermore, Theory U by C. O. Scharmer (2007) provided the theoretical foundations for the conference theme.

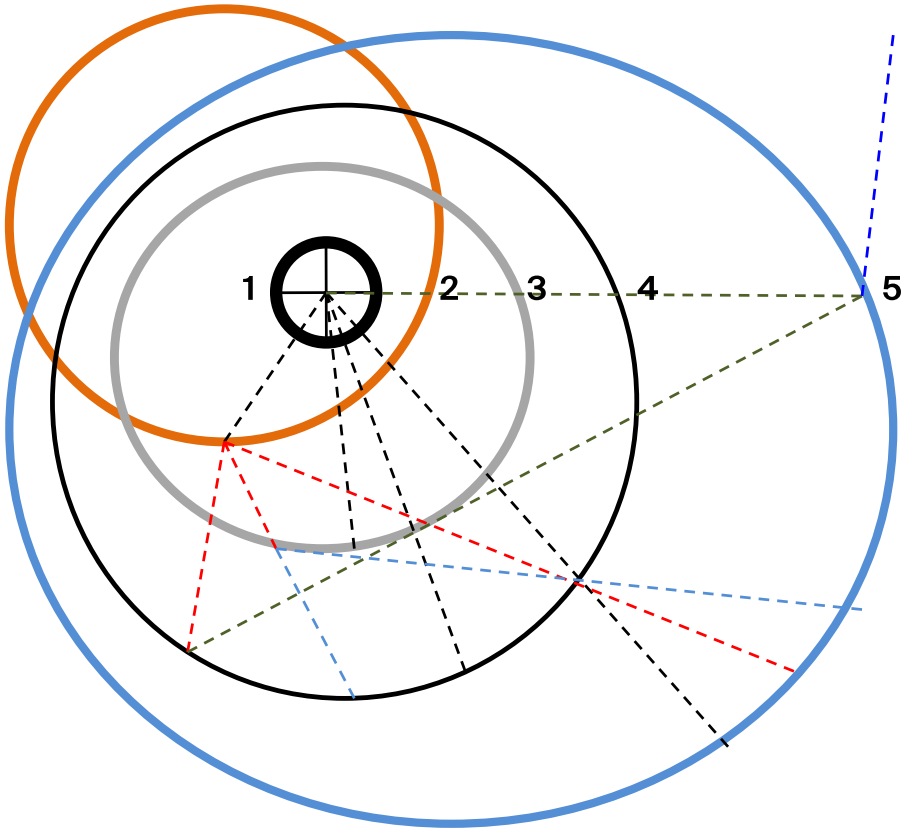
The aim of clarifying these insights on observations through two workshops was to achieve a more precise identification of the positions of candidates, supervisors, panel members, etc., in the complex constellations of design driven research. The two workshops aimed to raise the awareness of these positions for the stakeholders and consequently to show them how they can instrumentalise these insights in their research.

WORKSHOP 1
THEORETICAL APPROACH

The workshop participants were candidates, supervisors, panel members, and other visitors to the event. This group of approximately 25 people all together took part in the workshop in the setting of a theoretical classroom with the use of a blackboard. In the first part of this workshop, Jo Van Den Berghe explained the theoretical framework as mentioned above and clarified this framework through personal testimony and examples of other cases of doctoral research. The second part of this workshop was a conversation and Q&A session.

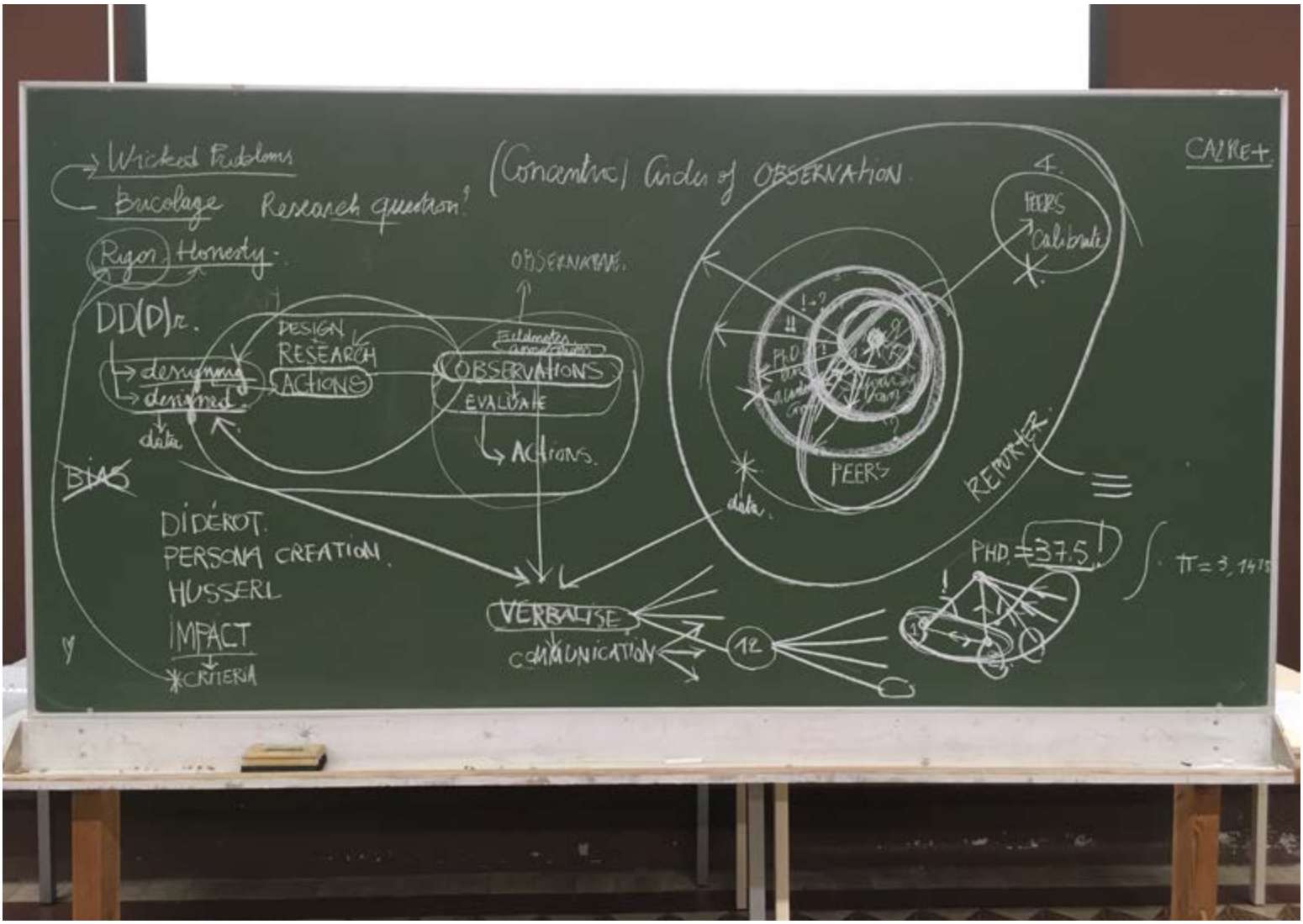
Based on the research as referred to above, the following circles of observation were identified, explained, and connected with concrete research situations and stages of a design driven PhD, as visualised in the following scheme:

1. Candidate
2. Supervisory team
3. Panel member
4. Peers
5. Wider academic community



WORKSHOP 2
SPATIAL IMPLEMENTATION

The second workshop included approximately 25 people and once again took place in a theoretical classroom. Thierry Lagrange started from the theoretical insights of the first workshop and added an overview of Theory U by C .O. Scharmer (ibid.). Then, the participants reorganised the classroom by setting up the chairs as a spatial translation of the circles of observation. The organisers invited all participants to play a role during two sessions (candidate, supervisors, panel members, etc.). This play led to a series of vivid discussions illustrating a myriad of cross-connections shown in the scheme by Van Den Berghe. The participants played the



CA²RE+

game twice, so that everybody could switch roles and create new perspectives. The threshold was very low, so that everybody could participate. An atmosphere of empathy and openness was created, referring to Theory U. The whole set-up led to a so-called installation of a mental public space, which is an analogous space, as explained in *Look Space! A Story of Analogous Spaces* (Lagrange, 2016, pp. 35–50).

PANEL PRESENTATIONS

A CA²RE+ conference is organised according to PhD presentations that evolve in parallel presentation streams. Each presentation is twofold. Firstly, the candidate presents their PhD or postdoc research through a 30-minute presentation (paper or artefact presentation) in front of a panel of peers and academics. Secondly, a 30-minute conversation between the presenter(s) and the panel members takes place.

The panel members are assigned to the panel according to their expertise with the presented topic. Each panel blends members who are experienced in listening and commenting (seniors) and members who are learning (juniors) within this format of presenting. It is a refined set-up that permits focused observation and which offers the candidate different viewpoints in an intense learning moment. Additionally, panel members fulfil their task very professionally and also learn from each other's interventions. Finally, the audience participates in two ways by listening attentively and commenting actively in the concluding moments of each session.

We organised the plenary session as an observation on the CA²RE+ event as a whole and invited reflections and impressions from all participants. It was an inspiring 90-minute session with a lot of energy. In this low-threshold plenary session, we created the opportunity for every participant to share their thoughts as an evaluation of this CA²RE+ conference and an instrumental feedback for future CA²RE+ events.

PEER REVIEW PROCESS

Additional to the conventional peer review process (abstract, paper, or artefact), we added a second peer review according to the circles of observation as mentioned above. These constitute a second round of peer reviews that is direct and intense, due to its conversational nature and the immediate proximity of the work which happens in real time. By doing so, this second part of the procedure turns into an improved review process of the second order, in the way Ranulph Glanville describes second-order observations (Glanville, 2002). According to our experiences in the panel discussions this was demonstrated to be an asset for better observing design driven research processes.

In particular, in the artefact sessions, the artefacts all have been brought together in an exhibition, in which essential layers of non-verbal communication work as additional streams of knowledge exchange. Additionally, the presence of artefacts in the conference exhibition permits a more permanent engagement between the work, the presenters, and

all the participants. The frictions that occur between artefact presentations lead to more formal and informal conversations about the research.

Due to either the often ephemeral nature of research topics or the thematic or methodological idiosyncratic approaches, these research processes need constant calibration that can be provided through an integrated implementation of the circles of observation. By doing so, this permanent process of observation and calibration is a constructive asset to the robustness of the research processes in design driven research.

RECOMMENDATIONS

At this stage of the Erasmus+ project, we formulate the following three recommendations to be implemented in the organisation of future Erasmus+ events.

EMPATHY

According to our observations of the ongoing processes of Design Driven Doctoral research at the event, the notion of empathy is clearly at work. There, Theory U offers a set of grips needed to include empathy, not only at the event but in all the circles of observation in a more structured way. The actions that take place in the first half of the Theory U method are of value for our observations. Each stage in the U-curve expresses a way of connecting, going from downloading (an instrumental way), to a way of seeing (with fresh eyes), to sensing (an empathic way of connecting), and as far as a stage of concentrated observation of yourself in a context with an open will to change.

Hence, it is recommended to investigate further the agency of Theory U in design driven research.

VALIDATION

Design driven research, like any research, needs proper levels of validation. By explicitly exploiting the circles of observation within a rigorous review process, the research can establish a corresponding set of levels of validation. To develop these connections, we suggest that the following levels of validation are taken into consideration (McNiff et al., 1996):

- Self-validation: can the responsible researcher vouch for the improvements and present a systematic enquiry to accomplish this?

- Peer validation: can the researcher convince their peers to have gained genuine knowledge and that the claimed improvements work effectively?

- Up liner validation: can the researcher convince managers and those in authority that their claimed improvements work effectively?

- Client validation: will the people the researcher is supporting agree that improvements are in their interest?

- Academic validation: does the academic community agree that the researcher's work has contributed to a recognised body of knowledge?

- General public validation: does the wider community of readers, in organisational or general

contexts, agree that the researcher's work has contributed to a recognised body of knowledge?

The target should be twofold. Firstly, a more systematic application of the circles of observation is needed. Secondly, and coming from the application of these circles of observation, more precise formats of evaluation and the development of robust levels of validation must be accomplished.

Meeting these targets through the six main project themes, from observation and sharing (which this book highlights), to comparison and reflection (book 2), and reformulation and recommendations (book 3), contributes to meeting the four main objectives of this project, which are:

- To develop a collective learning environment through the evaluation of design driven research training;

- To create evidence of a design driven research learning environment and evaluation materials;

- To identify the design driven research strategies, to explicate the design driven research evaluation process, and to prepare the design driven research framework;

- To disseminate the CA2RE learning-through-evaluation model and its framework.

REPORTER

For the Ghent event, it was the intention to appoint a reporter for each presentation. However, clear

instructions were missing due to a lack of insight into the role of the reporter. Hence, this reporting did not happen sufficiently. We therefore lacked a structural observer for each presentation and depended on informal comments and observations from panel members and the audience. Since things happen in every presentation, a reporter would be most beneficial for keeping an overview and looking at things from the specific thematic lenses of the conference, in this case, 'observations'. Above all, the installation of a reporter is both a plea and an opportunity for more refined feedback loops from the observations into the research projects (we refer to numerous testimonies of participants, gathered in the impact questionnaires). The recommendation would be to refine further the role of the reporter. This implies that the reporter not only acts as an observer but also becomes an active mediator and facilitator in the panel discussions whenever necessary. Such an interaction will help to implement the conference theme more explicitly in the conference activities and to supervise the two other recommendations (i.e., empathy and validation) as formulated above.

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Selected fellow presentations

Viktorija Bogdanova
& Ilina Cvetkova
Chiara Pradel
Mathilde Kirkegaard
Maja Zander
Gitte Juul
John McLaughlin
Louise De Brabander
Eva Beke

A DIALOGIC APPROACH TO URBAN DRIFTING COLLABORATIVE POEM-DRAWING AS AN URBAN INTERPRETATION

Viktorija Bogdanova and Ilina Cvetkova

Collaborative poem-drawing is a verbal and meta-graphical expression of spatial thoughts and feelings. The works represent an unfinished dialogue of memories (and design dreams) that are related to a shared (and imagined) urban experience. They are fragile platforms of carefully layered traces of discussions between the two authors, from day to day. They are 'remnants' of dialogues about places that are experienced (through derive sessions) or imagined (in design drawing sessions) not as entities outside ourselves, but between ourselves. As dialogic devices, these collaborative poem-drawings are bringing together two different ways of looking at the spatial reality, while avoiding closure of the finite meaning of the processed material.

The concept diagram below (Cvetkova, Figure 1) represents graphically the conceptual background

of our desire: clouds of spatial amorphous envelopes (dreams and memories) are hovering above a semi-permeable membrane (our senses and our sensitivity to the given reality) laying upon vertical columns that rise from the 'orthogonal' ground. These clouds are fragments of urban interpretations related to a specific place. Their inscription into a format of collective poem-drawings represents the process of juxtaposition of the interpreted maps in scale (plans, photographs, sections) and their resonance in the present moment of re-creation of memory. They are a palimpsest of different degrees of reality: the tension between the Clouds of memory and the 'Reality' in scale is what generates an abundance of meaning, each time a spatial memory is re-evoked into presence.

These collective poem-drawings are tools that aim to cultivate liberation from the Known in the present moment of inscription. They were part of the artefact exhibition at the CA²RE+ conference in Ghent in October 2019. The exhibition consisted of: 1) a discussion upon the artefacts (reflection on the process of making and reading the maps); 2) a collaborative drawing performance; 3) a (graphical and verbal) contextualization of the collective poem-drawing in the wider context of the PhD thesis.

The work is a fragment of the body of independent research of the two authors. After experimenting for a longer period of six months, specific aspects became crucial thinking-through-doing aspect of this PhD in progress — 'Emotive Immersion Through Poem-Drawing in Spatial Design' (Bogdanova) and the Master thesis in progress — 'Reclaiming the City's Historical Identity Through Urban Writings' (Cvetkova).

FORGETTING THROUGH CO-POEM-DRAWING: FREEING ATTENTION

If you imagine your usual mode of perceiving things (stereotypes, unawareness) as a wall, or a shell, that is separating you from understanding the world through personal interpretation and experience, than poem-drawing is a stream of attention permeating that shell, bringing the self into a more intimate/immediate tie with the environment. It feels like you are being stripped off, with parts of you standing naked in front of the newly created openings. And while all this is happening, you have almost no control over the process; everything unfolds like an erotic dialogue with the empty paper. The growth of lines and words becomes an unpredictable mirror of the inner flow through and beyond memories (thoughts and feelings) — into an intensified presence in the world.

Such carving of the Wall leads to freedom from the known: seeing not only as 'for the first time', but also forgetting — or at least transfiguring of — the knowledge built upon yesterday in the name of the present moment of observing. It is digging into layers of the present appearance of a place, re-ordering them into a story that is meaningful for that specific moment of observation. It is flowing through the 'pathless land' of Truth [sic], embracing uncertainty, change and ephemerality (Krishnamurti 1929).

What happens when the carving of the Wall is enhanced by the carving of another Wall? What happens when the self-extension is encouraged by a creative responsiveness of another person's outflow? What happens when a confluence of their movement occurs?

A collaborative poem-drawing. A dialogue in which transfiguration of the known is happening. Distorting, dissolving, weakening a spatial cognition or experience through the eyes/hand/voice of another person. Moreover, it is a completely new co-experience and co-cognition. It is not necessarily a notation on the same piece of paper. The artifacts are variations of creational correspondence between the two authors: an individual inscription and a day-later response, a drawing and a day-later writing over the drawn, a silent completion of another's lines and words on different fields of the format, or a 'brush by brush' excavation of shared memory.

Poem-drawing can be collaborative also in long-distance dialogues. In this research paper/exhibition we introduce variations of formats and manners of co-creation that lead to an enhanced attention towards an observed spatial phenomenon. The springing and confluence of the streams of attention are not always pleasant: at times, they bring painful scar opening, or a violent collision, or a friction when the flows freeze into hardened surfaces. In that sense, we may name the following sequence of poem-drawing varieties a cultivation of co-creative attention, or a ritual of reciprocal instantaneous freeing and self-abandonment by forgetting what we know in the name of what we attend to.

FIGURE 1. Concept diagram. Watercolors and ink, 21x14cm, 27th May (Cvetkova)

CONCEPT DIAGRAM

watercolors and ink, 21x14cm, 27th May (Cvetkova)

Clouds of memory are flowing above a semi-permeable membrane: bellow them are fragments of 'reality', symbols of repeatability, orthogonality and order (elevation and axonometry). The clouds breathe through the *movement* of *shared* spatial feelings related to an experienced place. The feelings evaporate from "reality" but they diffuse into amoebic fragments of recorded experience: entwinement of verses and drawings dissolve into the world of Memory.

The drawing (Cvetkova) is a diagram representing the concept of a co-creative research between two

authors. In the upper part — verses and drawings become a meta-language of mutual understanding and dialogue in the process of *interpreting* places, that is — extending the limits of a known space beyond the measurable. In the lower part — *orientational drawings in scale* work as a source of imaginative recognition of spatial values — they are there just to be critically observed and re-created through the clouds of memory. A continuous process of osmosis is going on vividly in both directions, depending on the nature of the poem-drawing dialogue.

The following examples of poem-drawings manifest few variations of verbal and graphic dialogue. They are different in the degree of abstraction, the place of observation, the mode of dialogic expression (verbal or silent, parallel drawing or 'brush by brush' drawing) and the time-space of creation (an hour, a day, a week, a month — poem-drawing together od separately). Each of them is an unfinished spatial contemplation aiming to excavate/question/expose the palimpsest of *shared* memories: dreams, emotions, thoughts, fears and desires.

WHAT REMAINS?
watercolors, 21x29,7 & 21x14cm, 28th May (Cvetkova & Bogdanova)

After an abundance of experienced beauty in an urban environment, people are usually burdened by the intensity of unfiltered impressions. Our soul is being stripped off, naked and vulnerable by the shock of sensations. A similar inner displacement occurs when we go through the 'witnesses' (material records) of an urban walk: site-draw-

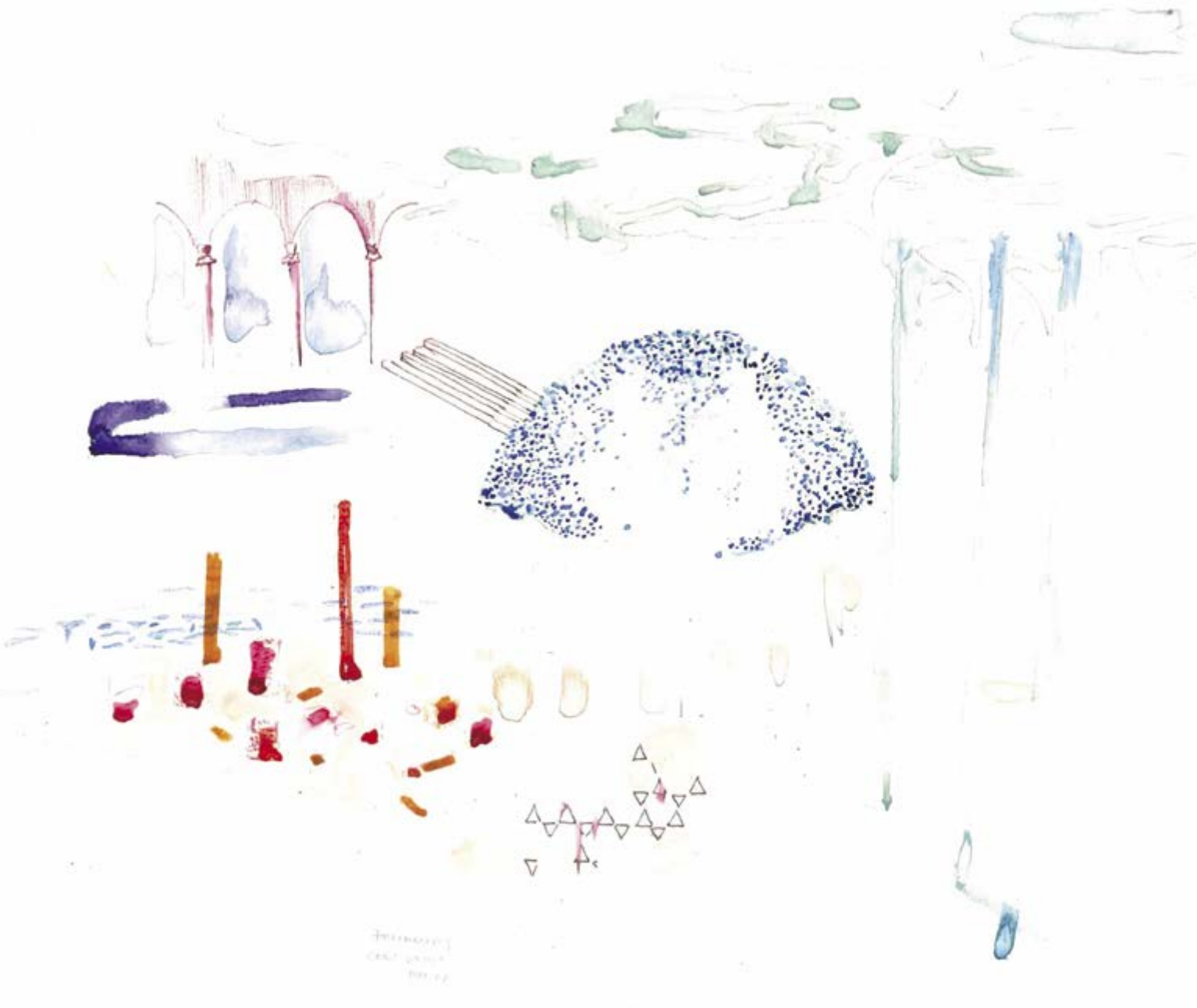


FIGURE 2. What remains? Watercolors, 21x29,7 &
21x14cm, 28th May (Cvetkova & Bogdanova)

ings, site-writings, photographs, collected stones, museum tickets, bus tickets, napkins from a dear restaurant, stones collected from the port — all this small constellation of objects that extends from the touch with our bodies to the space-time of the concrete spatial event from where it comes.

But what if we put them all aside for a second? What if we try to forget all of our 'visible' traces of a place-time that inhabit our working table, all the accessories that encourage the "precise" vision of spatial memory? What if we close our eyes and if we try to rely on (and cultivate!) our personal mode of ordering and representing experienced spatial sensation? What if we try to ask ourselves 'what is the thing that remains?'

The next two drawings represent the first attempt of expressive exhaling after a one day derivé in Trieste –directly from memory. Figure 2 above (Cvetkova) exhibits urban symbols that are recognizable and universal, while yet — highly personal, and relevant. A red colonnade, a dome-mosaic framing Jesus Christ and Virgin Mary (as adults) in a cloud of Gold, fragments of a ruined basilica ascending towards the rain and the new meaning of their appearance, patterns of a spontaneously discovered synagogue — all that organically connected in a mental route map and woven with the presence of water in the whole (the sea, the rain, the humidity as cycle of changing atmospheres). Figure 2 bellow (Bogdanova) is a day after answer to figure 165 above: the crane (Ursus) floating above the water, the 'sentences made of vaults', the dialogue between the central and the lateral nave — the second covering holy letters with a ray of light, or the 'alertness due to cobblestone-denivelation'.

RE-CREATING THE MEANINGFUL: FROM INTUITIVE WALK TO EYE-OPENING DIAGRAMS

watercolors and ink, dimensions 120x100cm (3 pieces 50x70), 30th May-13th June (Bogdanova and Cvetkova)

If you are a participant in a thorough profusion and creational understanding with another person, you've probably came to a limit-condition moment of inevitable conflict. Then, an urge for establishing an ascending line towards a new mutual creative desire is needed. No explanations, no apologies. We decided to go away from our city for a day: we chose to immerse into Trieste, without having any conceptual preparations about our possible investigation in this city. We decided to immerse into uncertainty; we've let our souls to wander around the city and to orient the flow of the process after the embodied experience of the walk. And most importantly: we consciously decided to get lost: no abstract maps, no previous urbanology-research, nothing except the knowledge of the distance between the railway station and the sea, and the will to find new meaning to devote to. We followed our responsiveness to each spatial atmosphere. We've stopped, listened, recorded, discussed and walked again, decided each step according to our mood and intuition.

After the trip, we tried to reconstruct our movements on a map 'in scale'. Placing a reduced plan drawing of the city (the bare 'reality'), we covered it with poem-drawing metaphors of our experiences in perspective / section / axonometry. We marked moments of surprise, anger, hunger, pleasure, fear, enlightenment, vertigo, spatial vividness, medita-

tional silence. In doing so, we tried to understand which spatial values brought us to such rhythms of mood. We've colored with our emotions only the roads we've walked through, adding windows of additional extensions of expressed experience in the empty space. Since the format was large, we worked on different areas. At the latest stage of the process, we've changed places: we've made silent dialogues by intervening on each other's inscriptions: completing, extending, deepening the layers of reading a shared atmosphere. We've tested the 'aggressiveness' in completing each other, and worked on further cultivation of its tenderness. The blind walk has grown into an eye-opening diagram of new degrees of a shared reality.

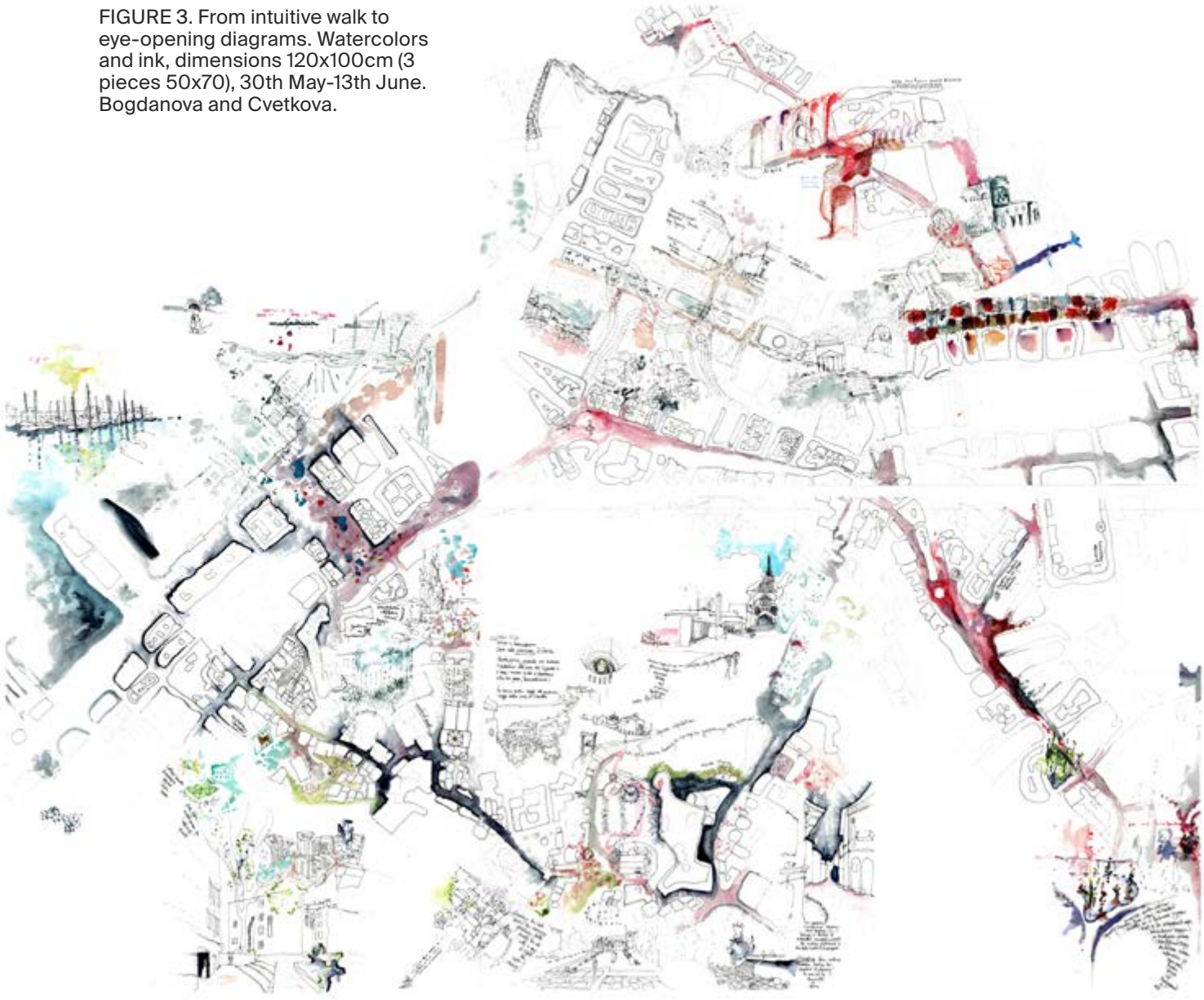
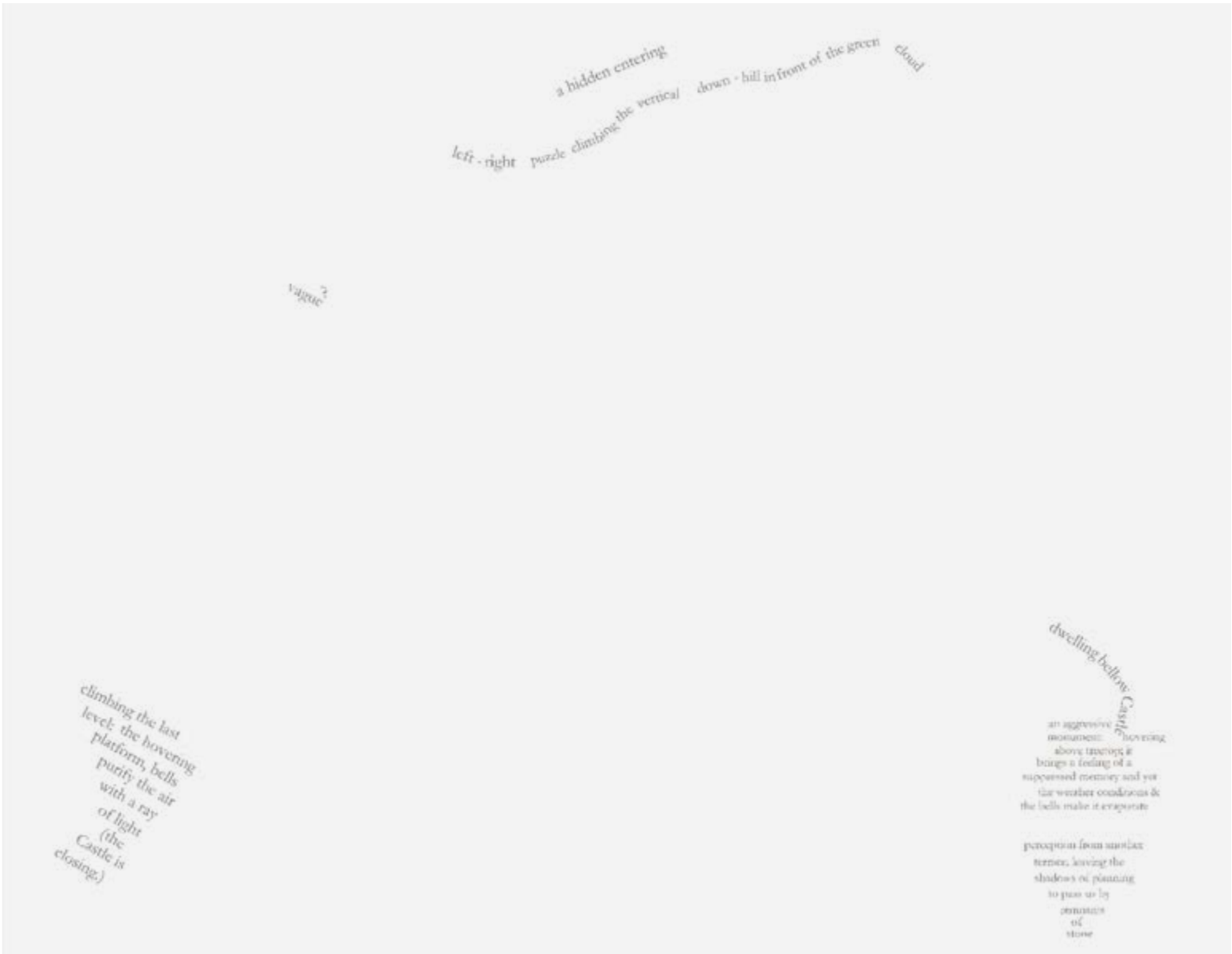


FIGURE 3. From intuitive walk to eye-opening diagrams. Watercolors and ink, dimensions 120x100cm (3 pieces 50x70), 30th May-13th June. Bogdanova and Cvetkova.

FIGURE 4. Fragments from figure 3

FIGURE 5. Transcription.



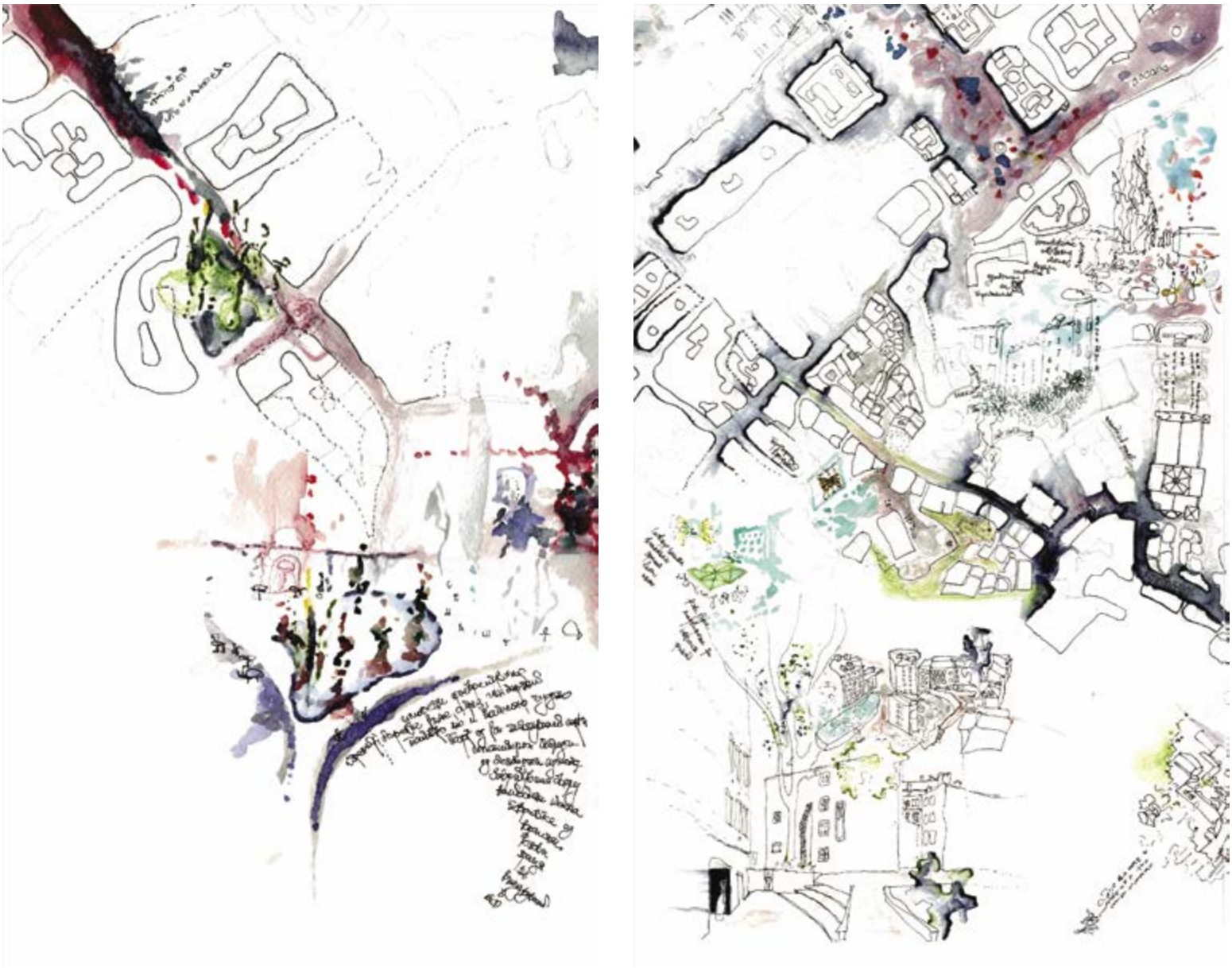


FIGURE 6. Fragments from figure 3.

NOTATIONS.
Ink, 3 pieces format + tran. paper, 5th June.
Cvetkova, Cvetkova & Bogdanova.

Have you ever thought of drawing your own experiential alphabet? Have you ever thought about telling a story through your own letters, symbols and memories? Did you ever believe that an attempt for personalized pictorial writing can grow into communication device in a bottom-up way — deriving from your own spatial experience?

In this tryptich (Cvetkova), you can see the desire to reduce the expression to an ascetic movement of the black ink. It narrates the one-day walk in Trieste in another manner: just like the lines in a text structure, it exhibits graphic fragments of experience in a linear configuration. The flow of the line transforms the spatial and atmospheric symbols from plan to section or axonometry. Created after the completion of the large map (P-D 4), which was done with an assistance of scale drawings, photographs and discussed memories, this handwriting is done on ‘a desert island’, away from any previously recorded urban material. Deriving directly from memory, it strives to forget the abundance of information in order to extract / select / evaluate what is truly relevant, more severely.

A day after, we tried to interpret the newly born notations together (Cvetkova & Bogdanova). Putting pieces of transparent paper upon each part, we wrote down verbalization of the ties between our mood and the spirit of the place: ‘triangle of hope’, ‘branching of the Way’, ‘surrounded by danger’, ‘the urge to ascend, ‘Red’, ‘a flowered wall’, ‘topographic spiralizations’, ‘leaking through the Wall’, ‘sounds of children over a church’, ‘arcadic embrace’, ‘light-falling fruit’, ‘roof of treetops’, ‘edge-breaking raindrops’, ‘inhaling the scent of the sea — vastness enclosed’, ‘twisting market place’, ‘inhaling a liquid steam when the spirit folds you’, ‘a winged window’, ‘a hindered touch with the sea’, ‘faucet embraced by a Maple’, a ‘laborious descending — we’ve just had too much of Beauty’.

FIGURE 7. Notations. Ink, 3 pieces format.
5th June. Cvetkova.

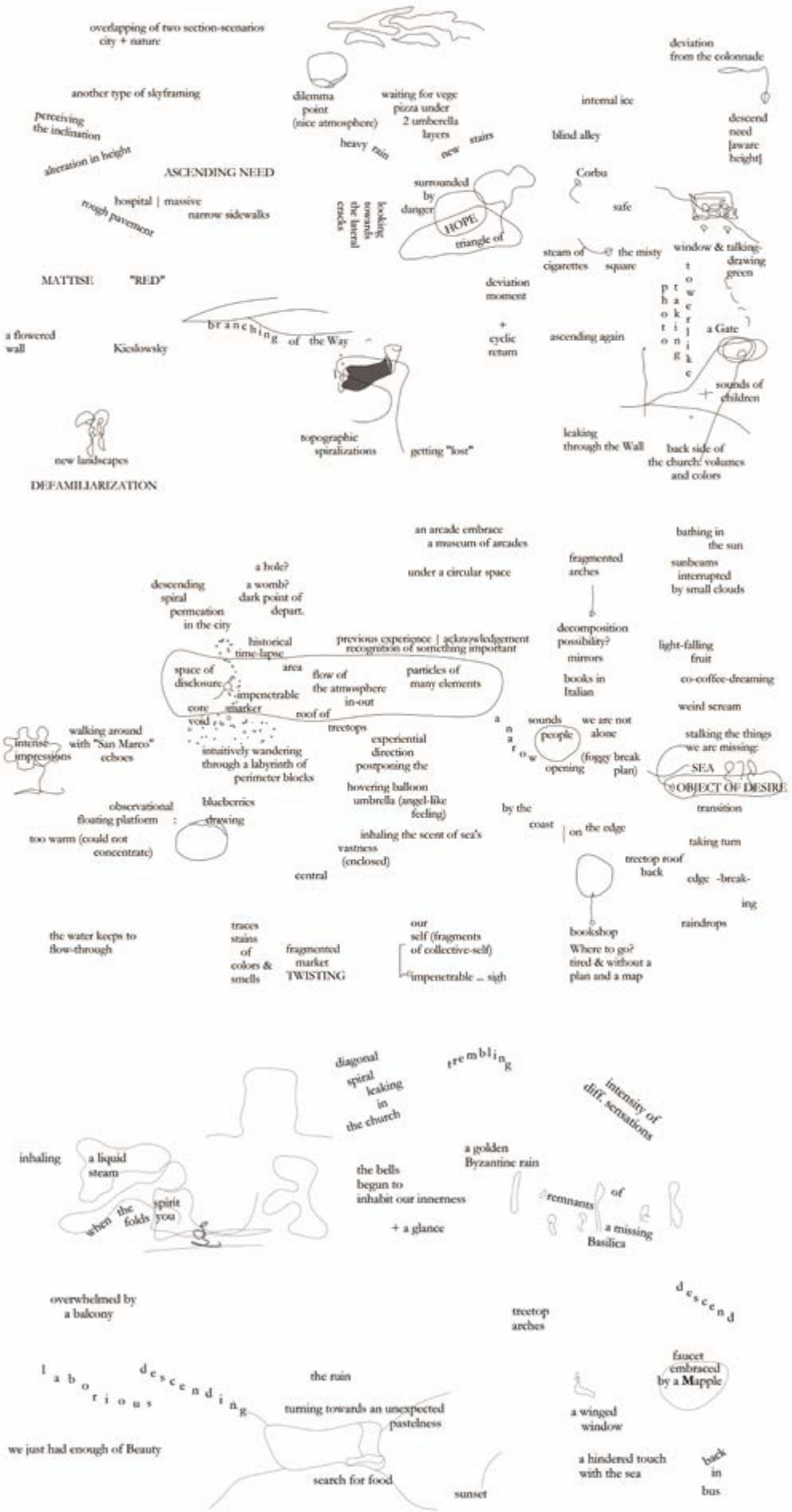


FIGURE 8. Notations. Ink, 3 pieces format on transparent paper. 5th June. Bogdanova and Cvetkova. Mood-change notations (watercolors and ink, 15.5x15cm, 6th June, Bogdanova)

MOOD-CHANGE NOTATIONS
(watercolors and ink, 15.5x15cm, 6th June, Bogdanova)

After the verbo-graphical dialogue unfolding upon the Trieste notations, we wanted to develop another question: how to map the change of emotional density and flow through reduced colors and a bit of ink on a single small format?

The following (10 minutes) diagram is a graphic answer to the previous notations, (answered by the other interlocutor, Bogdanova). It is a personalized attempt to forget the precision and the numbers and to test the memory again, but this time — after the large format experience — only with few movements of the brush. It maps the spatial flow of emotional energy and attentiveness from one urban point to the other. It develops as a circular meander; in-depended islands of intense experience are connected between each other by a labyrinth of fading routes: the marine blue radiation of iodine, the vertical growth of the city above the sea when seen from the stone pier, the endless ascension of tree rows towards the sky, the stairs meandering through the vertical gardens leading to the Castle, the 'Red' coffee protecting us from the heavy rain, the funnel-like pedestrian flow from the dense urban tissue to the water edge through the noisy square, the memorized fragments of the church square, the otherworldly feeling of purification and peace after the golden mosaic and the bell-toll under the open-sky basilica, the disturbing but miraculous dissension through the wet cobblestone, the unpredicted appearance of a secret square with a large Ruin, the spontaneous entering in inner yards abundant with vivid public happenings, the chaotic

search for food through the urban blocks, the interrupted approach to the sea after 20h (the violent incision of the strong desire for iodine and sea) and the slow return to the beginning point.

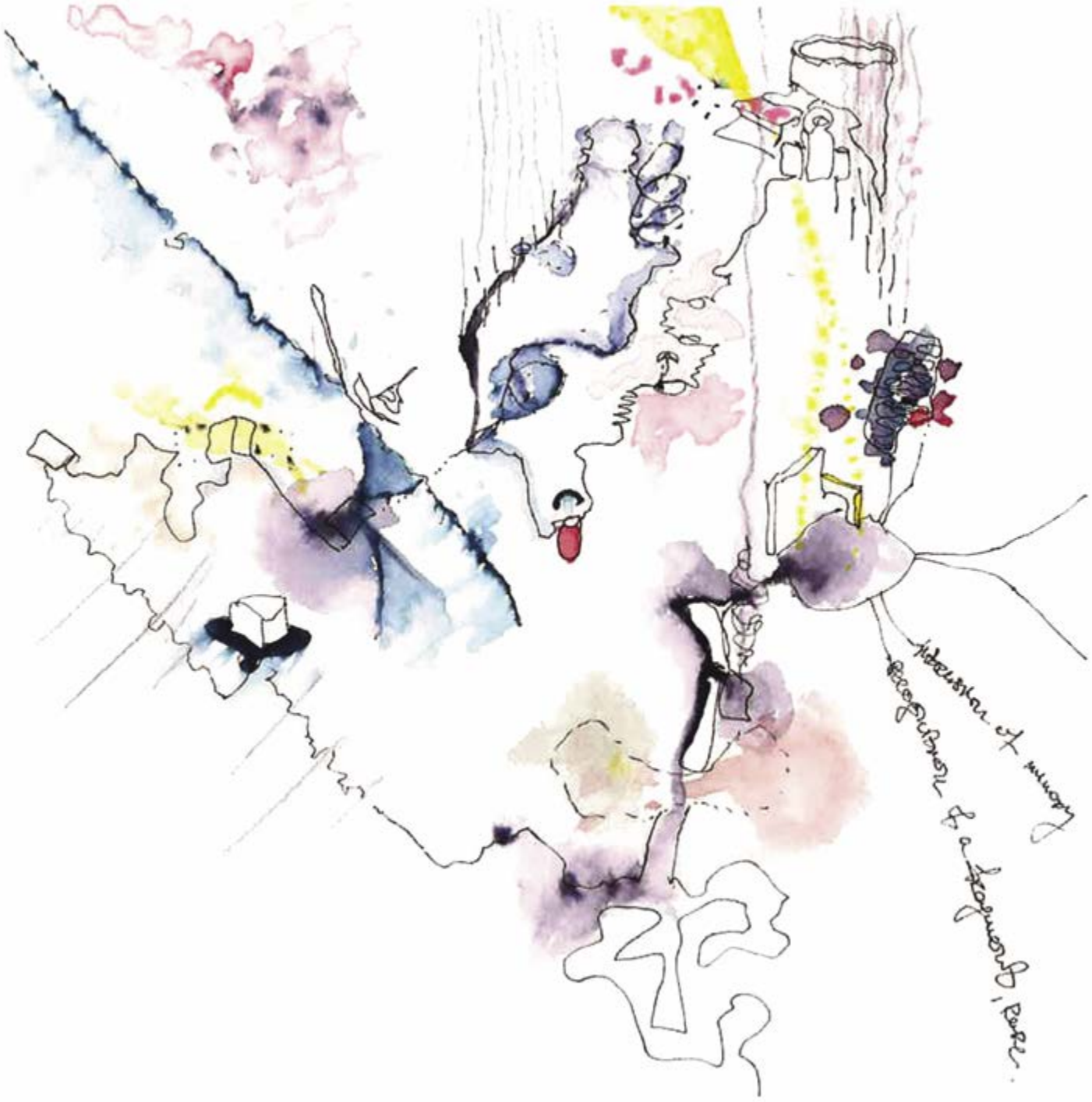


FIGURE 9. Mood-change notations
Watercolors and ink, 15.5x15cm, 6th June, Bogdanova.

PURELY VISUAL MANUSCRIPT
(watercolors & ink, 2 pieces 15.5x15cm, 16th June, Bogdanova)

This diptych (Bogdanova) exhibits a story of a one-day shared creational walk through Ljubljana. Flowing in tall lines like a text, the story unfolds through cinematic sequences experience, drawn mostly in perspective, section and axonometry (with the exception of two plan sketches). Each unit of the long sentence is a micro-drawing of a — simplified but yet recognizable — spatial memory.

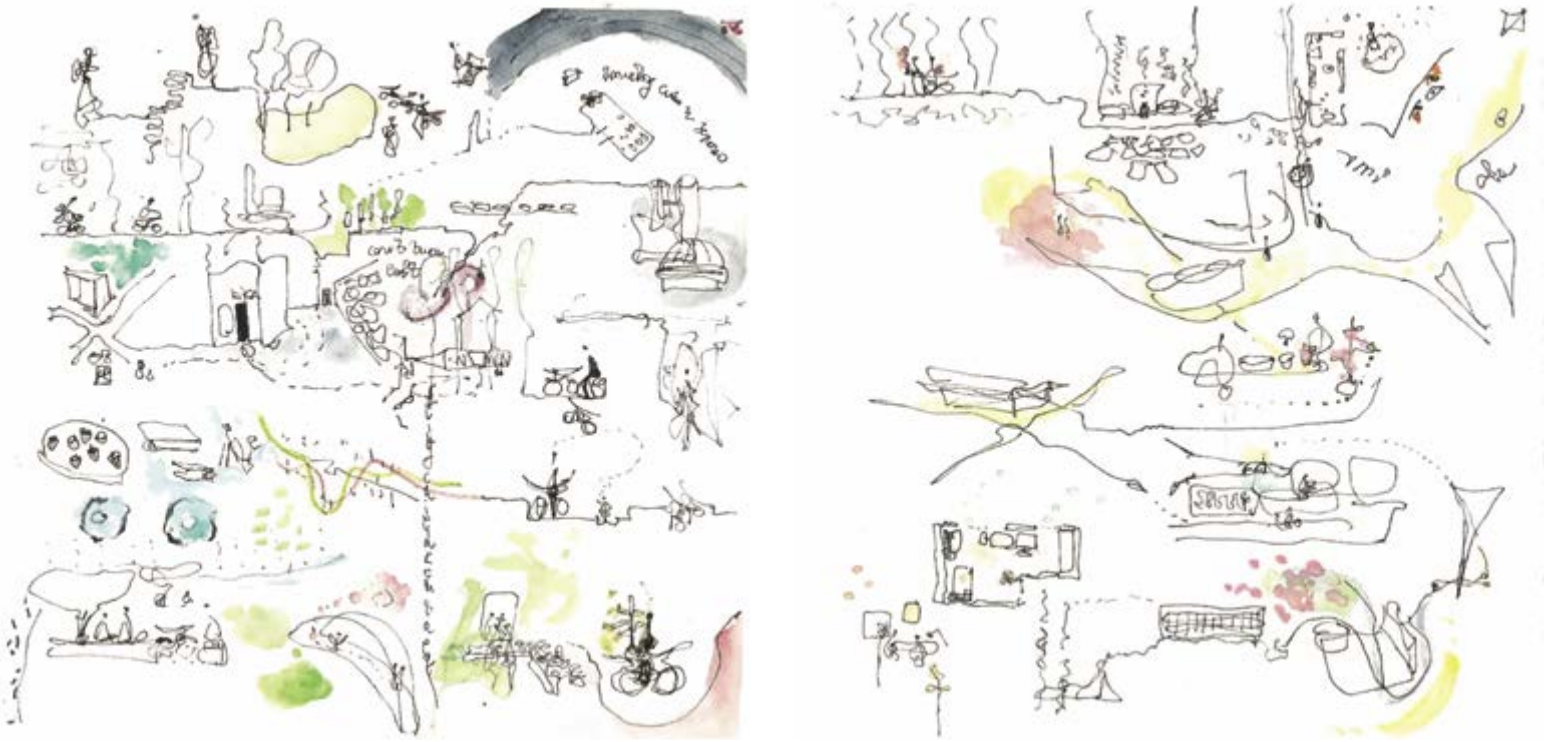


FIGURE 10. Purely visual manuscript. Watercolors & ink, 2 pieces 15.5x15cm, 16th June, Bogdanova.

FEW-SECONDS-RESPONSE: A FULLY ATTENTIVE DIALOGUE

watercolors on aquarelic paper, ink on transparent paper, 70x50cm, 24-28th June. Cvetkova & Bogdanova

In the previous collaborative poem-drawing sessions, we've usually constructed the dialogues by verbal contemplation upon already (independently) drawn mental maps, by intervening on different parts of the format and — later — on each others languages, or by silent graphic response to each new expression. By contrast, in this session, we tried to respond both verbally and graphically in an approximate interval of few seconds: the brushes followed each others flow while at the same time responding to the questions which are spoken out in the air.

The poem-drawing is done in two layers. The first one is the drawing, created within an hour and a half. It *exhibits* discussed memories of a walk taken in February: departing from the Botanical garden in Ljubljana as a place of regular weekly visit — it grows into a nebulous map of a long route surrounding the Roznik Hill and arriving back at the Center. It is drawn without the assistance of material records of the above mentioned spaces. The second part is the transparent paper (the poem) covered with linguistic verbal and written re-interpretation (self-criticism and self-reflection) of what we've drawn, four days later (created within an hour).

The process was recorded also in an audio format: the questions, doubts, metaphors — all of these feelings that precede and shape the moment of inscribing a spatial memory on the paper. The voice

recordings, the drawing layer and the writing layer can make a ‘poetic’ sense independently; yet, one can have a sense of their co-influence and co-formation only if one observes them simultaneously. The spoken word oscillating between our drawing souls brought to being a poem-drawing that breathes more easily.

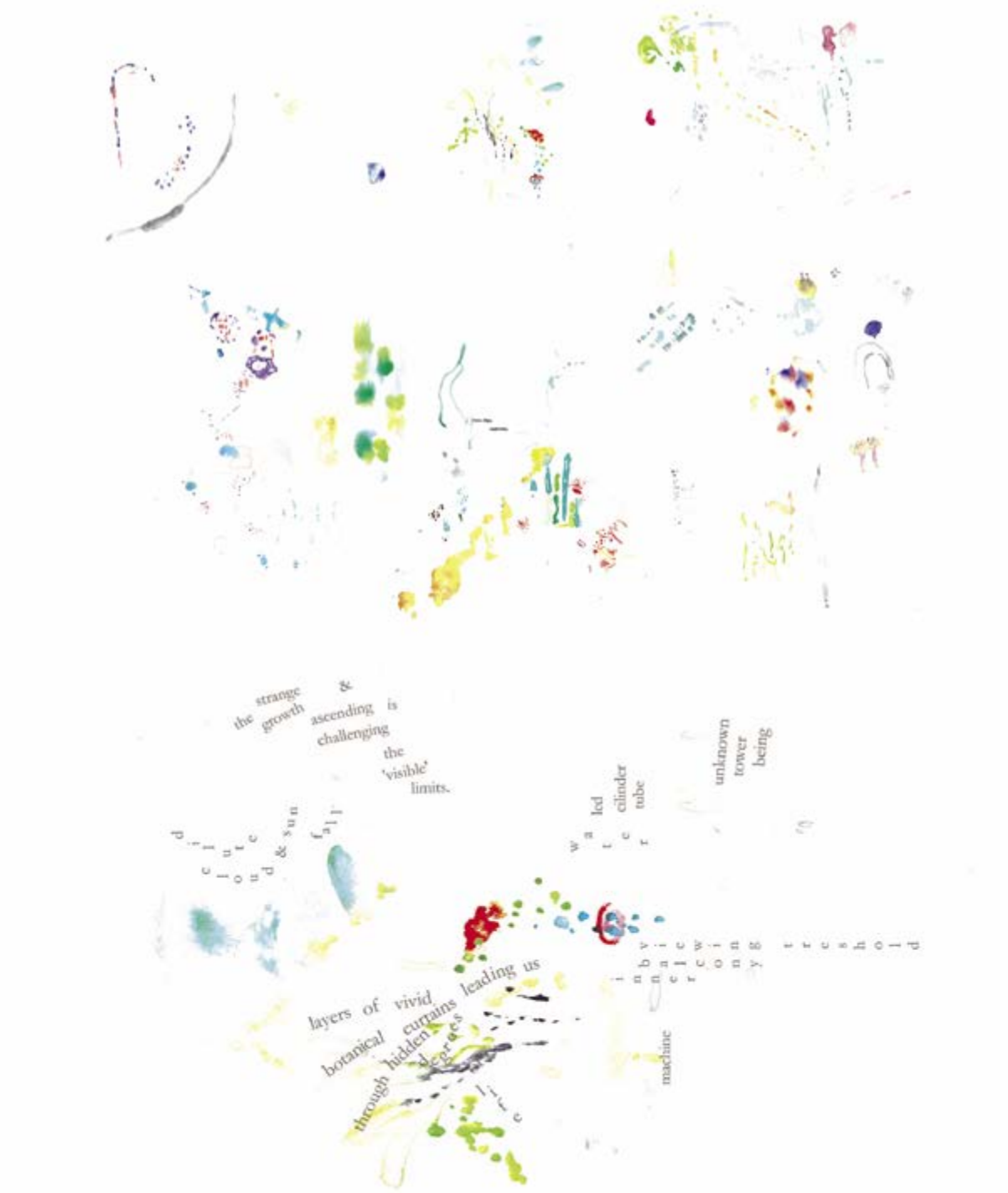


FIGURE 11. Few-seconds-response: a fully attentive dialogue. Watercolors on aquarelic paper, ink on transparent paper, 70x50cm, 24-28th June. Cvetkova & Bogdanova. Top — the whole. Bottom — a fragment.

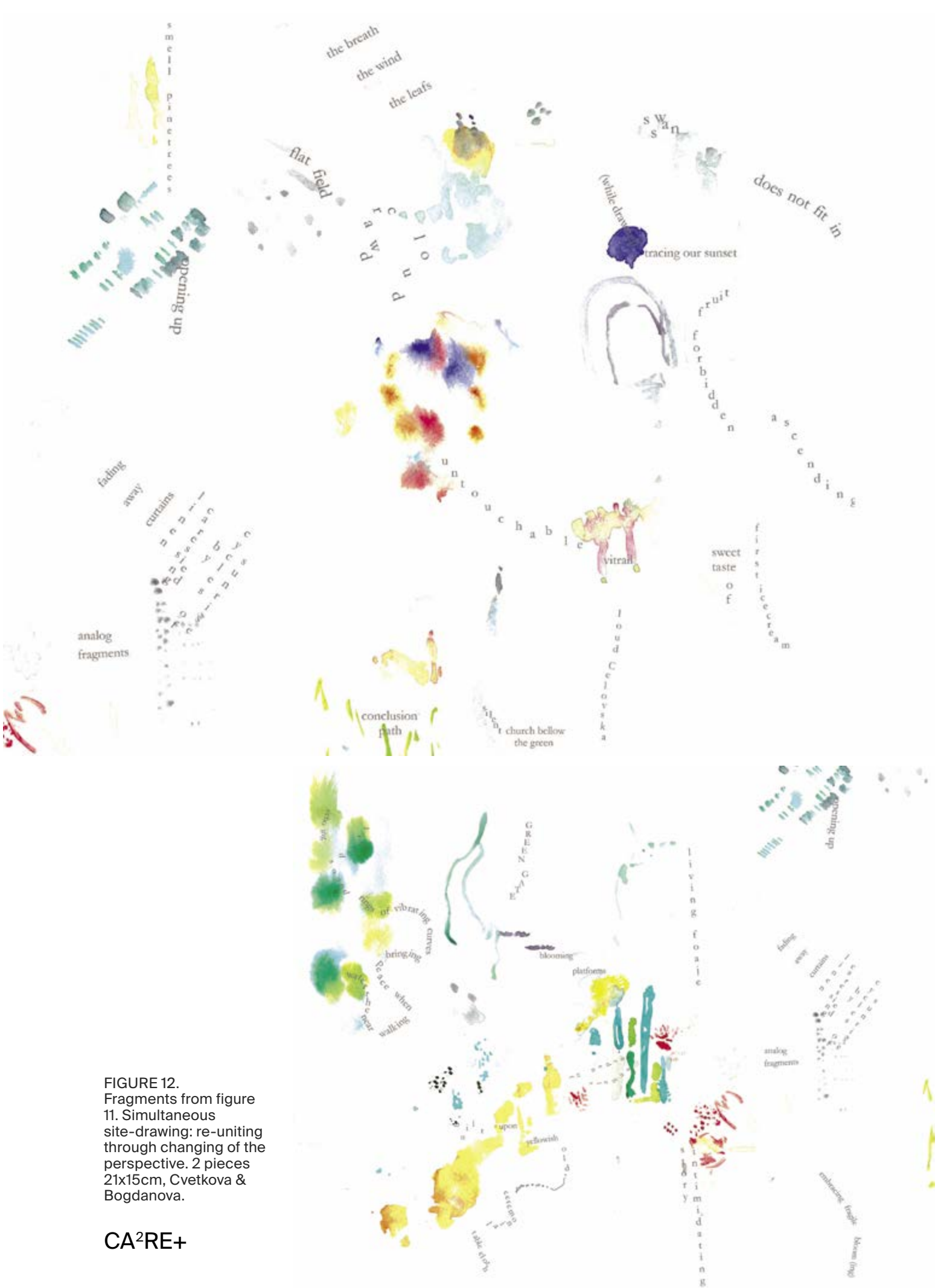
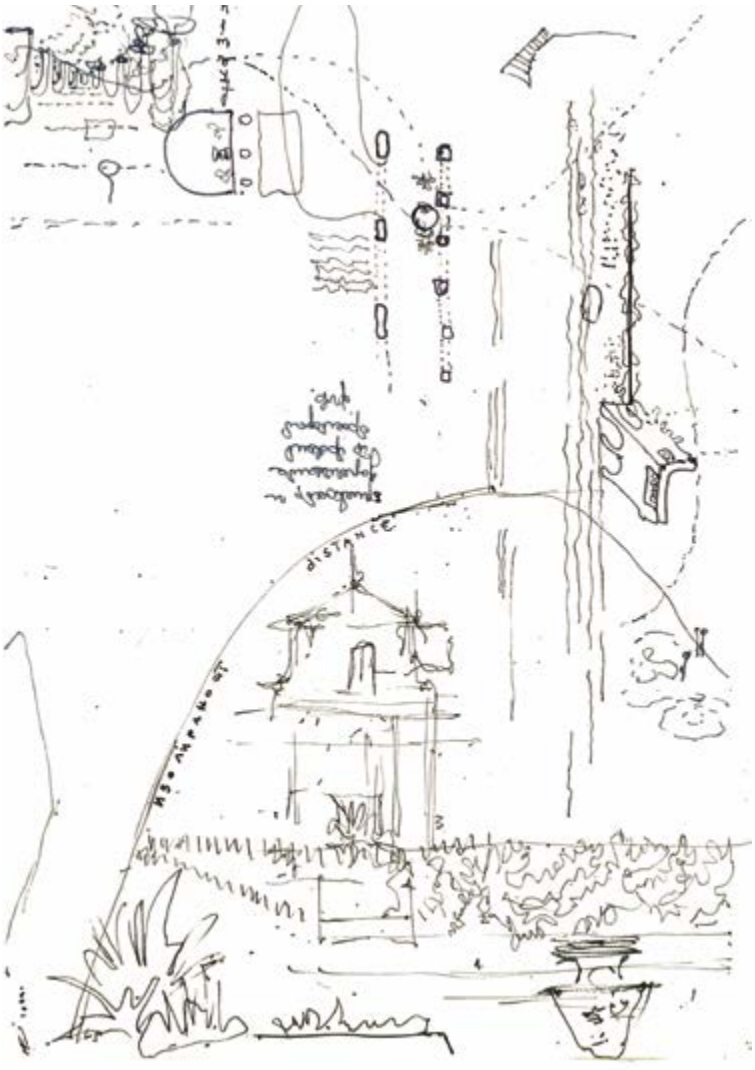


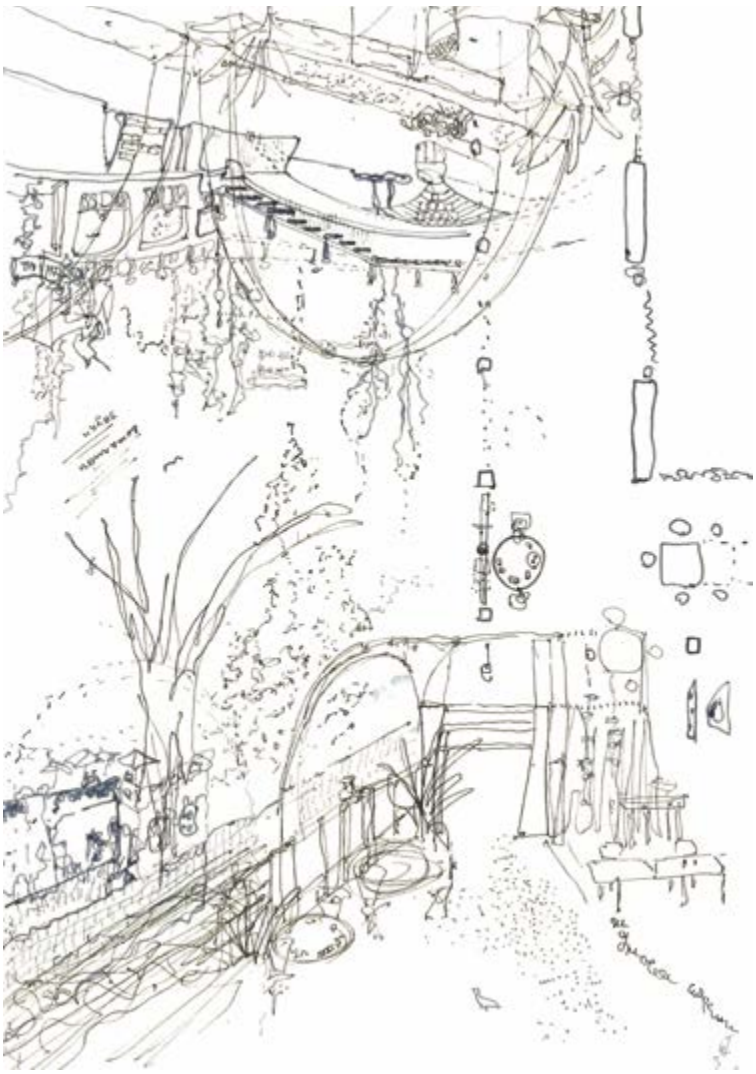
FIGURE 12.
Fragments from figure 11. Simultaneous site-drawing: re-uniting through changing of the perspective. 2 pieces 21x15cm, Cvetkova & Bogdanova.

CA²RE+

A creative one-month break happened during the summer because of trips and side obligations. Long-distance poem-drawings were created as postcards testifying the lived experience but act of drawing on a single paper was not performed within a month. The first encounter after the break happened as a lunch in a restaurant located in Plecnik's market masterpiece, near the river. The poem-drawing reflects the site through the eyes of both interlocutors, sitting faced to each other. After few minutes of drawing, we switched sides and intervened on each others' drawing, trying to grasp and complete what the other missed to perceive.

FIGURE 13. Simultaneous site-drawing. 2 pieces 21x15, Cvetkova & Bogdanova.





9 CO-DREAMING A DREAM: SCENARIOS OF THREE SPECIES OF TIME-SPACE.
3 pieces 50x70cm. Ink and watercolors. Cvetkova and Bogdanova.

During the six months of collaborative poem-drawing, we mapped a place that caught our attention as a possible future studio — an abandoned sewing office. We became obsessed with the place and crossed in front of the door frequently. On the opposite side of the door, on the other side of a quiet pedestrian street, there was a curved bench. We took three formats and went there on a cold summer morning and on a warm summer evening in a single day. We were drawing three species of time-space: the present appearance of the wider context, the layers of memory related to the place, and the layers of an imagined time-space.

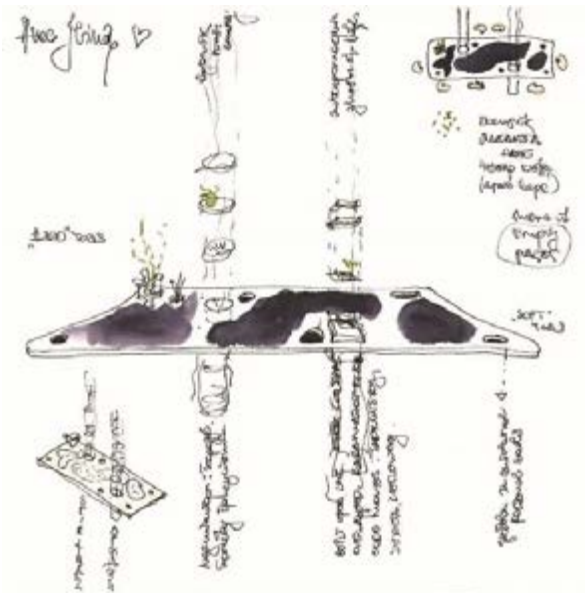


FIGURE 14. Up. An imagined table in the office, drawn after the discovery of the place. 15x15cm. Bogdanova.

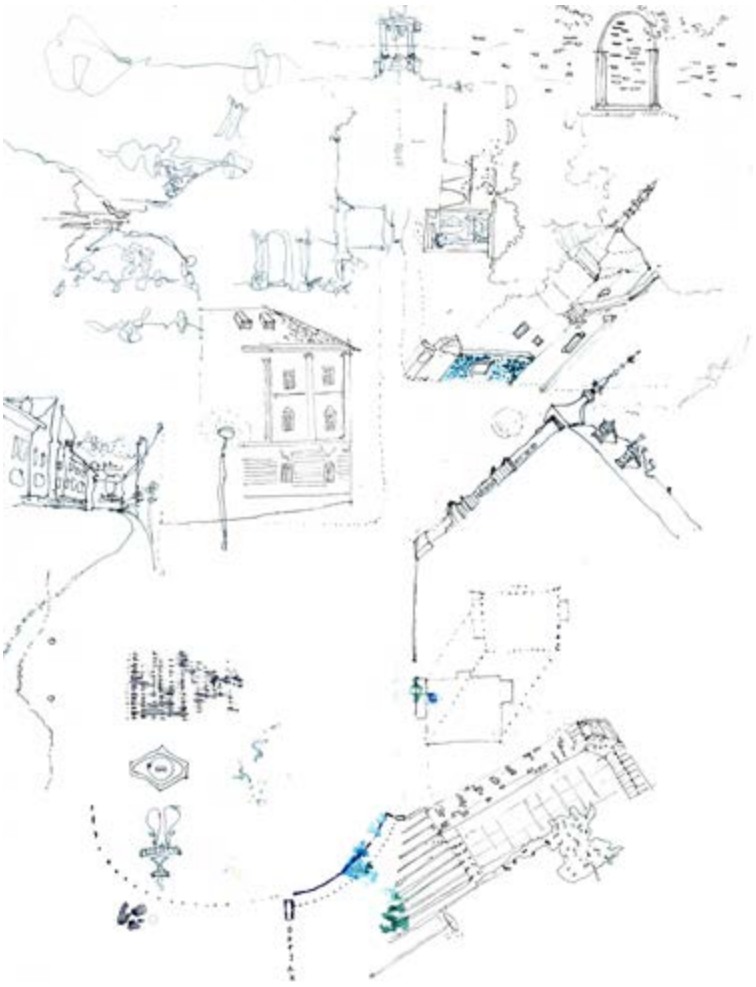


FIGURE 15. The present unfolding. 50x70cm. Cvetkova & Bogdanova.

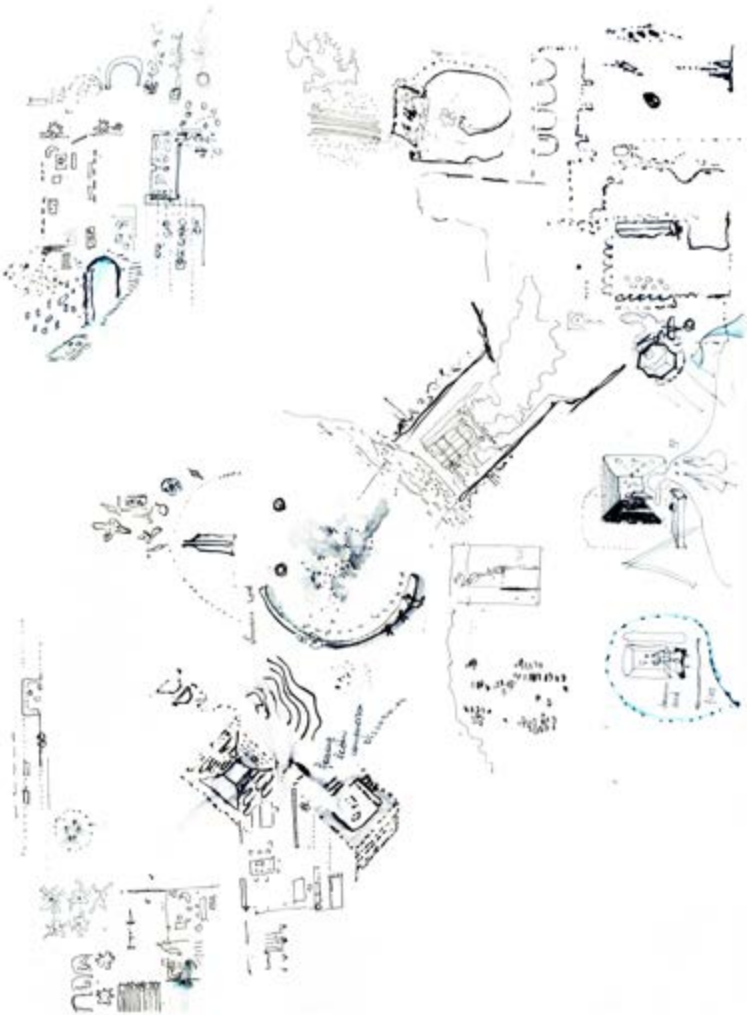
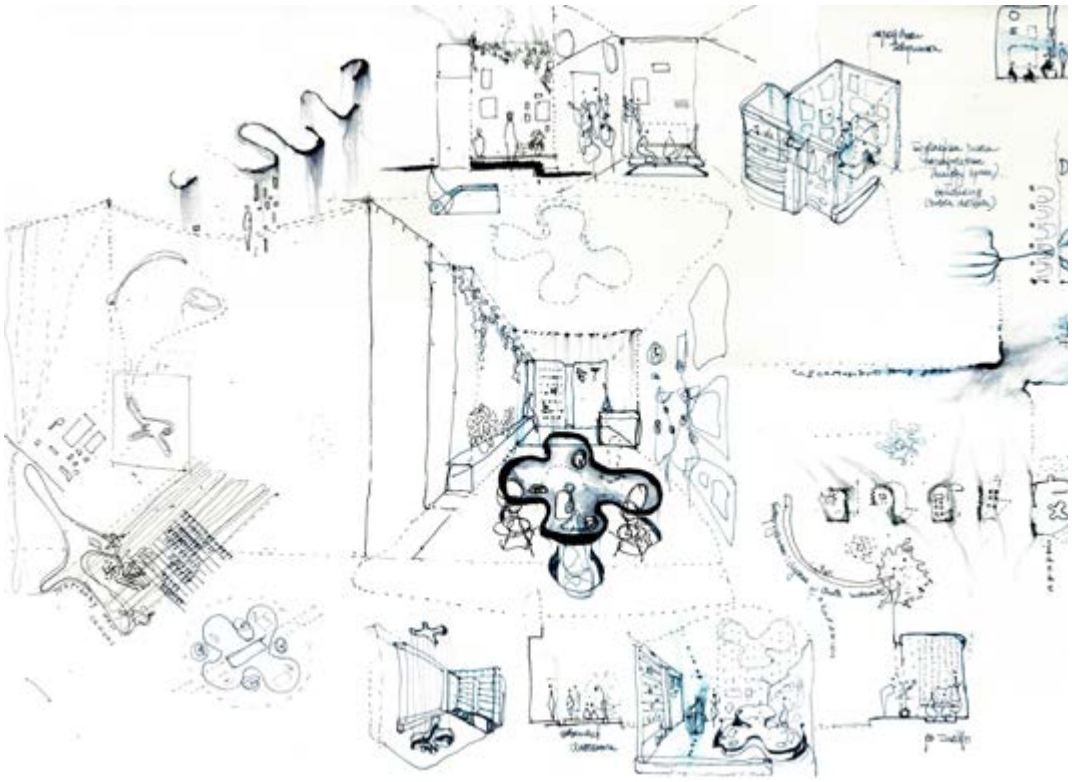


FIGURE 16. The layers of memory. 50x70cm. Cvetkova & Bogdanova.

FIGURE 17. The layers of a co-imagined time-space. 50x70cm. Cvetkova & Bogdanova.



Unlike the poem-drawings that are processual tools in a design task (few of them were exhibited at the conference), the artifacts introduced in this sequence are flowers which sprouted from a trembling soil: without precise aspiration, without ‘why?’ and ‘how?’ and ‘what for?’ They are there because they emerged as an urgent need to cultivate a spatial dialogue through means other than purely verbal meditations. Communicating in silence contributed to our thorough mutual understanding in relation to spatial doubts and questions. At the same time, we created a notation/artefact of that discussion that is transferable a wider range of indirect interlocutors.

The contribution to a collective learning environment, that such a research can bring, is the stimulation of the following points through *search for order by the growth from the inside and releasing a particle of truth from the unrepeatable moment of creation*:

1. Learning to listen responsively (creative and critical compassion);

2. Bringing a design decision / spatial judgement built upon such self-softening;

3. Continuous recording and erasing of experienced spatial values: a simultaneous cultivation and destabilization of the value system, beyond any authority.

FIGURE 18. Photographs from the performance. Credits: Tadeja Zupančič. CA²RE conference, Ghent, October 2019.

MOVING GROUND
FROM INFRASTRUCTURAL CONSTRUCTION SITES TO LANDSCAPE

Chiara Pradel

FOREWORD
Synthesis of the research structure

The research is addressed to the investigation of moving ground action and its founding, relevant role inside landscape architecture discipline, chiefly reflecting on contemporary complex construction sites and on the design solutions based on earth coming from the realization of big infrastructural interventions.

According to John R. Stilgoe, the etymology of the word “Landscape” recalls the earth shovelled and shaped for human life (Stilgoe, 2015: IX). This interpretation of the meaning of the root of the word, as defined in the Indo-European tradition, gives an enlightening significance to a discipline, through

FIGURE 1. Earthwork deposited in the building site

FIGURE 2. Excavation in a construction site, Switzerland

which we unceasingly re-think our evolving and living ground.

The on-going PhD research process, at the moment, is composed by different interlaced chapters, in order to define a suitable operating method. The first part is organized around a critical acknowledgement of the topic:

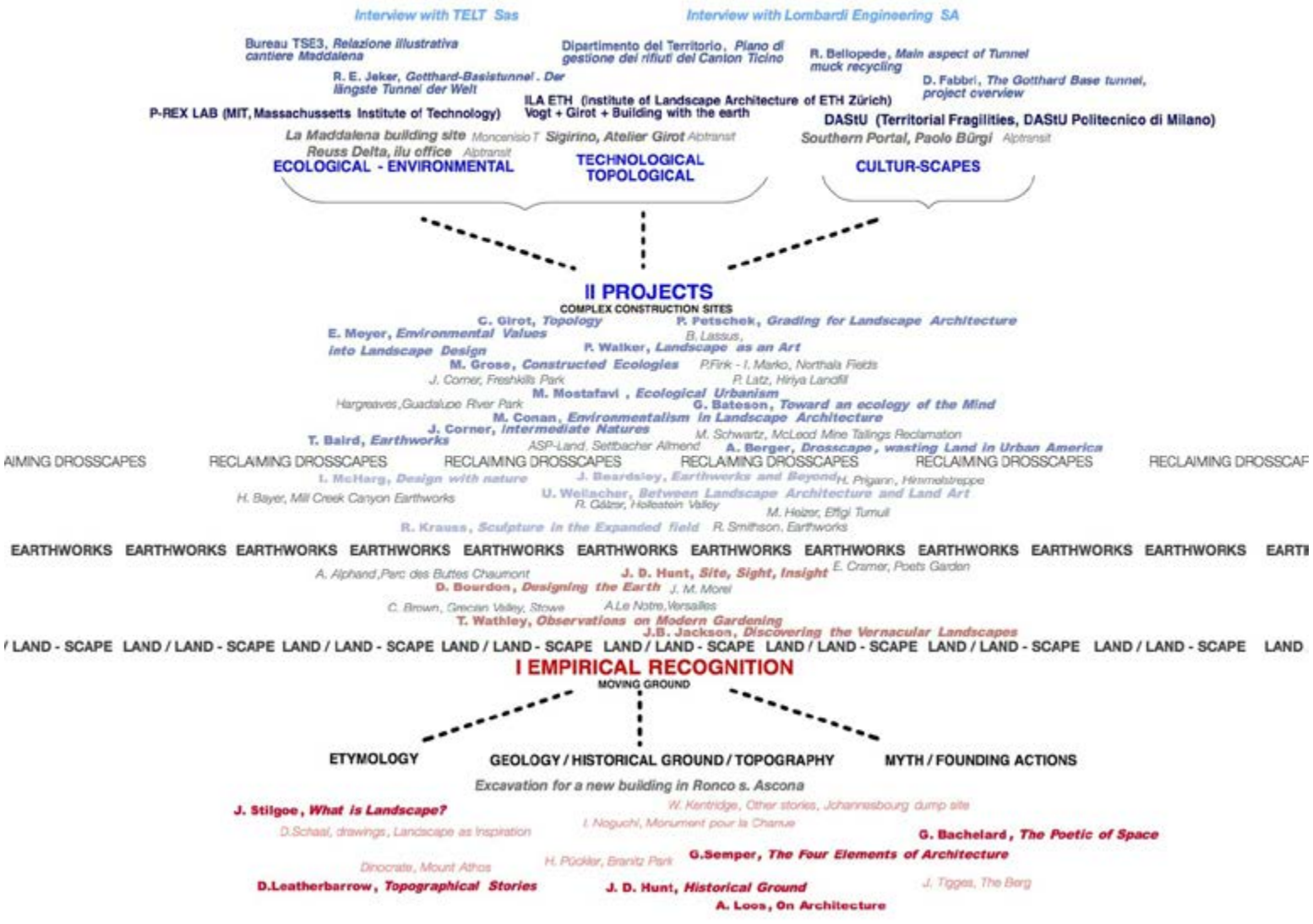
- an introductive observation of landscape through photographs and descriptive texts (fig.1) that constitutes an initial recognition of both the physical and inspirational aspects of earthworks, between “retentissement”, memory and imagination (Bachelard, 1975: 19), in particular interpreting the ground movements meaning inside the expanded field of landscape architecture (Krauss, 1979) and their effects in the contemporary perceived intimate landscape (Kentridge, 2014: 69-98) .

- An investigation on the construction phases of design interventions planned and realized in the south part of Switzerland (fig.2), in which it becomes clear the practice of excavation, embankment and dislocation of spoils within the Tessin region, where the produced inert waste can reach a volume of about 1.5 million of cubic meters in a single year. How can architecture give form to these earthworks? The analysis evidences how, most of the time, the usual dislocation and deposit procedures are omitted and excluded from the architectural creative process and design phase: the rearrangement of contemporary earthworks indeed involves mostly environmental engineers rather than landscape architect, as, among other things, current envi-

ronmental regulation about soil and inert waste management (LPAmb, OTR, OSiti...) demonstrates.

- An attempt to define a theoretical framework composed of literature and reference projects (fig. 3) and to outline, through it, an existing dialectic interplay between the historical, symbolic and founding meanings of ground movements inside landscape and more technical-technological issues about contemporary ground-based actions (digging, shaping, dredging, grading, dumping, levelling, recycling, reusing...), passing trough the concepts of Historical Ground in landscape (Dixon Hunt, 2014), of Earthworks (Flam, 1996: 177-187) and of Drosscapes (Berger, 2006: 36).

FIGURE 3. Teorethical Framework



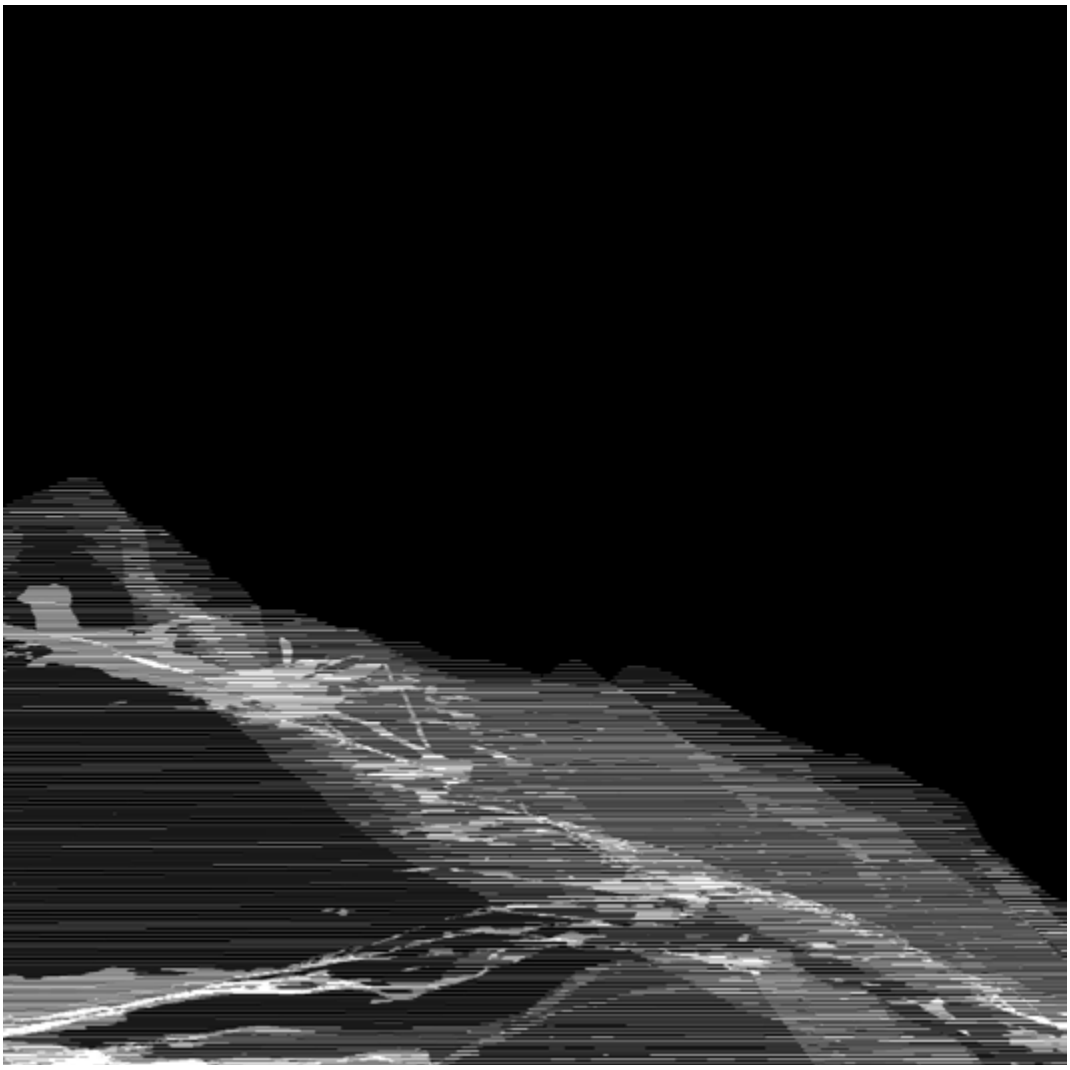


FIGURE 4. Topographical drawing, Piano di Magadino

The second part, which particularly concerns projects, constitutes the current argument of the investigation and the possible topic of the CA²RE Ghent presentation, is at the same time oriented:

- toward a detailed analysis of excavated earth management, disposal and reuse projects and toward a research by drawings about landscapes that deal with latencies and changes of the sites' surface -"the Lie of the Land" (Dixon Hunt, 2016: 1-14)- in relation with the AlpTransit intervention. The essence of drawing re-discovers the latent potentialities of the site, renewing sense and meaning of its history by an intention of "constructed genealogy", facing the future (Tafuri, 1990 : 8). Topographical drawings (fig. 4) serve

as a tools to “trace praxis” (Leaterbarrow, 2004: 251) of ground movements inside landscape before, during and after the realization of the infrastructure, focusing both on a territorial and on a smaller scale and searching for a middle ground between the extremes of abstract interpretations and of contextual thoughts, between mode of seeing and objectivity. Visual representation therefore can function as a form of design research, introducing a different kind of knowledge: an epistemological contribution that supplements and enriches our understanding of science, nature and architecture (Agrest, 2018: 9) and introduces new compositional urgencies.

Expected outcomes

The research aims to witness landscapes as processes rather than immobile places, where the movement of the earth excavated from an infrastructural intervention should lead to renewed landscape design approaches that lies between a resignification of ecology (environmental approach), technology (topological approach) and ethos (cultur-scapes approach).

EARTHWORKS
Monumental ground movements

Building sites are places of production of inert waste, but also chances to experience, inside a landscape design context, how to reuse and to recycle earth. Nevertheless, as seen during the observation of small to medium landscape interventions, the fragmented nature of the C&D (construction and demolition) practices, the standardized procedures and the lack of geographical

and temporal overlap between different ground activities make quite difficult to implement the rethink and reuse of debris at a significant design level.

The study of infrastructural interventions that deeply affects landscape, by contrast, allows the observation of great earth movements inside challenging construction processes, which often should anticipate and clarify design strategies and policies in a concrete and strategic way, leading to a broader awareness of the prominence of the topic and of the suitable architectural instruments to deal with.

AlpTransit

The Alps region, placed at the hearth of Europe, connects Italy, Switzerland, Germany, France, Liechtenstein, Austria, Slovenia and Hungary.

To overcome the difficult, mountainous topography, since the XVIII century it has started a “tunnelling Alps” activity that has never ceased to proceed. As a result, today only in Switzerland there are around 2000 km of tunnelled traffic and water connections (Anagnostou and Ehrbar, 2016: 6), while the European Union is fostering the development of the Trans-European Transport Network. In the Alpine arc, indeed, six HSR lines (Genoa-Marseille, Milan-Lyon, Genoa-Basel, Genoa-Zurich, Verona-Munich, Venice-Vienna) are at the moment under construction.

Among them, the recent monumental project of the New Rail Link through the Alps (NRLA) is now in the final completion stage and consists of the Lötschberg tunnel, inaugurated in 2007 (about 35 km long) and the Gotthard axis, made by three important

tunnels: the Ceneri Base Tunnel in the southern part (about 15km long, scheduled to be operational in 2020), the Zimmerberg Base Tunnel in the northern section (total length 20km) and the Gotthard Base Tunnel (57km long), inaugurated in 2016.
The inspiring, strong relationship between mountainous regions and streets, railways, tunnels, has already been the object of several investigations, that have highlighted the existing critical connection between infrastructure, territory and strong formal architectural interventions (Frampton and Bergossi, 2008), or between the imaginary, mythical alpine landscape and its implications on the collective identity, as in the case of the Gotthard massif (Burkhalter and Sumi, 2016), or the connection between rough, uneven topographies and great technological-engineering challenges (Conzett, 2010). In particular, during the 90s it was consulted a trans-disciplinary group to reflect on how to include landscape into the upcoming design of the infrastructure of AlpTransit, questioning most of all the possible “windows” of the open sections of the new rail line toward the countryside, the natural valleys and the urban developments (Fumagalli, 2000: 73).

This research aims to look at the topical relation between infrastructure and landscape rather from a different perspective, in which the so called “infrastructural monuments” (MIT Center for Advanced Urbanism, 2016) or “megastructures” (Banham, 1976), are inextricably linked with the produced “monumental invisible ground movements”: broad excavated earth’s volumes, often not acknowledged and not easy to recognize, spread as spoils inside the nearest territories. Indeed only the Gotthard axis construction, which consists of two single track tubes around 40 metres apart linked to each other

by cross-passages, originated more than 13.3 million of cubic meters of excavated material (earth and rocks): the equivalent of five Cheops pyramids of inert waste (Fabbri, 2004: 12) , a kind of a present reference to the monumental mount Athos envisioned by Dinocrate for Alexander the Great and described by Plutarco (Backhaus and Murungi, 2009: 117).

Among this enormous spoil amount, only the high-grade materials could have been reused for producing concrete and shotcrete aggregates (46 per cent), while a considerable surplus was destined for the so called “recultivation requirements”, like environmental restorations or filling for cultivation, inside landscape.

The current European Directive 2008/98/CE implies the recycling of at least the 70% of inert waste deriving from construction sites, in the attempt to exit from a “cradle to grave” process (Braungart and McDonough, 2009: 27) to face social, ecological, economic sustainability; moreover, one of the main purposes of the new NRLA flat rail route, besides the aim to create a more efficient and safe European north-south transit connection, is to enhance environmentally compatible transports (AlpTransit Gotthard AG, 2017: 249) to protect the Alpine territories and beautiful panoramas. Following this premises, some urgent questions rise: how to shape this monumental amount of earth inside landscape? How can we intervene, through landscape architecture?

RECOGNITION AND INTERPRETATION
Perception and participation: discovering unnoticed relationships

Depots are historically moving a collective imagination about the idea of landscape.

Nowadays there is a widespread relevant contradiction between how inert waste depots affect everyday, familiar landscape, urban settlements, small historical villages, natural protected areas and the fact that they are frequently concealed, not designed, closed to the people for long time and excluded from the social life and experience. Earth depots indeed often give rise to public debates and to a controversial idea of landscape, sometime linked to a sense of beautiful picturesque panoramas completely ruined by the earth depots, other times of an idea of disrupted ecology or of a presumed original topography disturbingly altered by the building activities, very rarely they are perceived as challenging opportunity inside an endlessly changeable nature.

Some exceptions, from the Guadalupe River Park by Hargreaves to Hiriya reclamation by Peter Latz, introduce examples of new design approaches, that overcome the required simple earth dislocation in a (supposed) environmentally-compatible way.

The Stettbacher Allmend, in the Zurich outskirts, was used from 1989 as a compensatory area to collect ca. 500000 cubic meters of molasse rock coming from the excavation of the tunnel through Mount Zürchberg. The first purpose was to recreate new sporting area arranged on the existing plain raised by about three metres with the spoil.

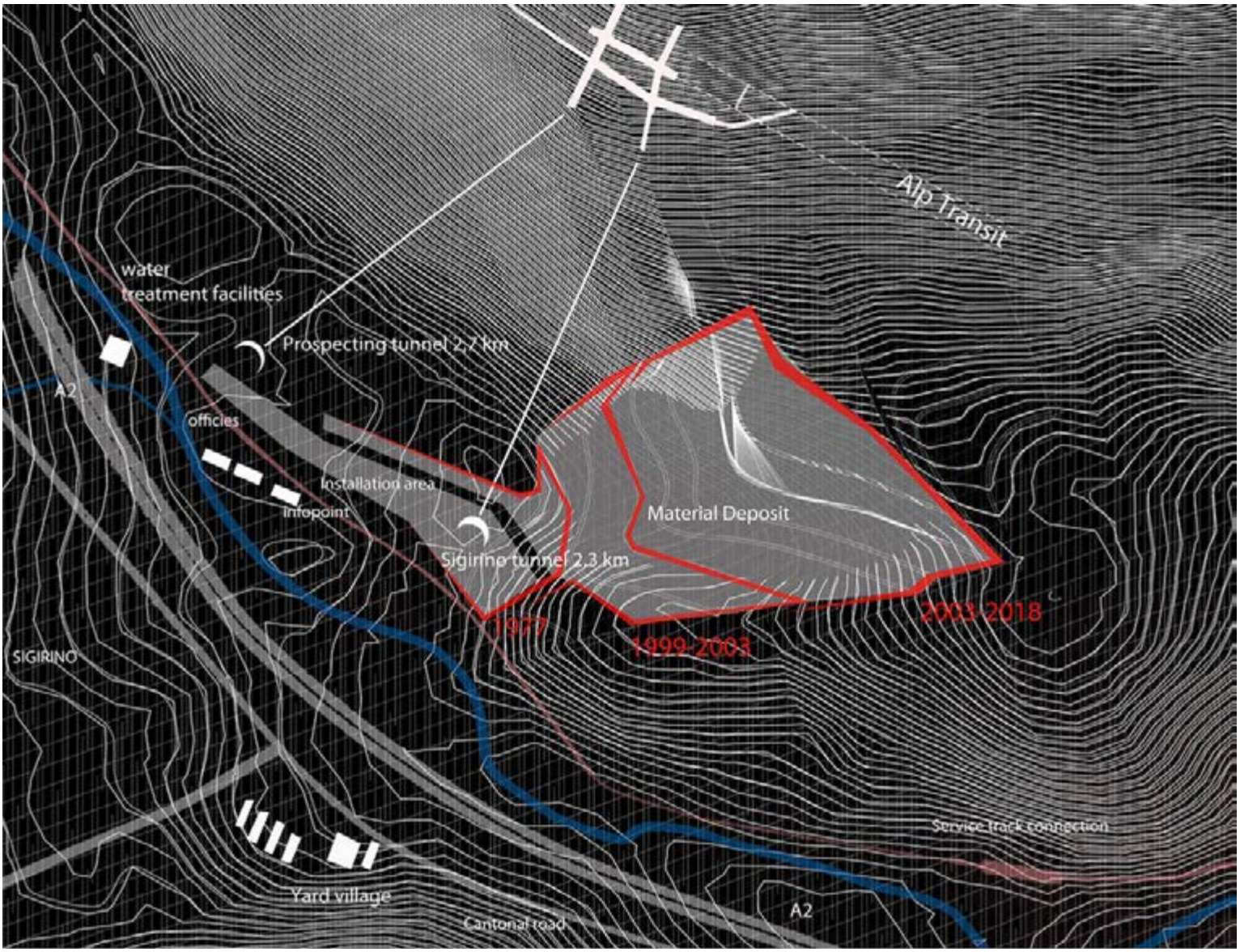
After the depots, however, geobotanists recognised a similarity with an ice-age terminal moraine, because of the natural erosion forms of the sterile soil material, and it was decided to not carry out any planting, leaving the untouched deposited ground to natural succession, to natural erosion of water and pioneering advance of vegetation. These spontaneous character, the preserved biodiversity of the flora and the overall artificial naturalness have increased together with a gradual possession of the waste empty space by people, since the depots has become a successful experiment of self-management by the inhabitants and still is considered a peculiar recreational area inside the city.

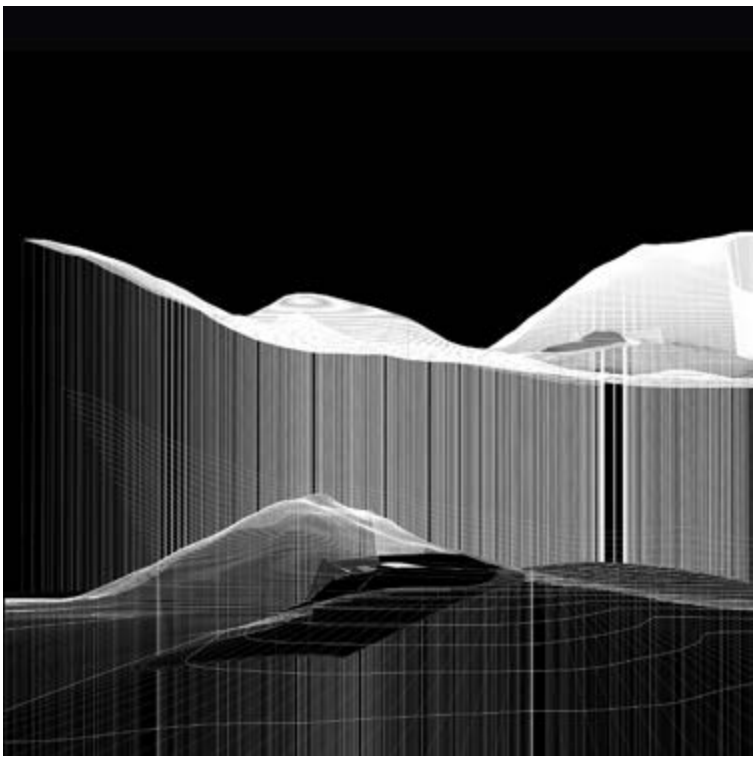
This approach indicates an attempt to not hide waste material, but rather to attribute it a new value founded on a cultural, as well as ecological approach that is not purely based on camouflage or environmental restoration: a chance to "view the fragility of the planet and its resources as an opportunity for speculative design innovations, rather than as a form of technical legitimation for promoting conventional solutions" (Mostaffavi and Doherty 2016: 17).

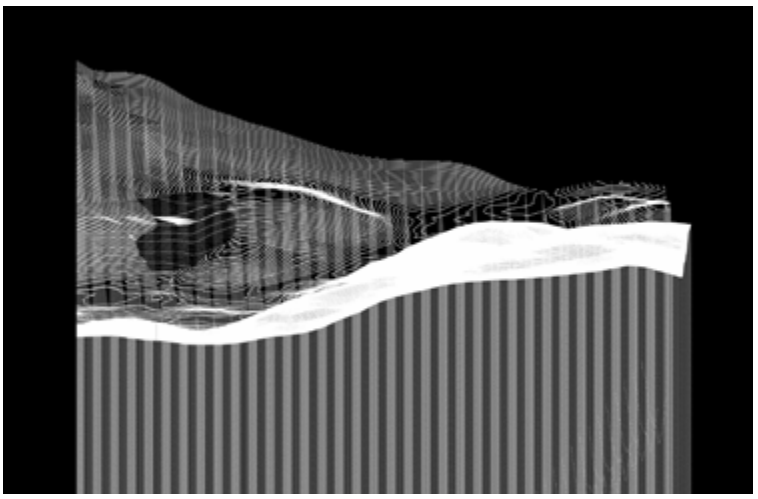
Construction sites and depots

The present investigation thus considers broad construction sites related to the AlpTransit, like the Faido access tunnel area, the Sigirino or the Sedrun installation area, where the earth is excavated, dropped and moved within a complex management system, following the construction dynamism of the tunnelling intervention, to search for strategies and thoughts behind earth movements and to scrutinize possible landscape design solutions in earth final depots procedures.

The need for great areas for intermediate temporary storages, for embankments or for spoil processing plants, together with a required flexibility and the amply dimensioned material management system, explain the reason of the exceptional extension and size of the AlpTransit building sites. However, if one considers the large technical NRLA project documentation, with rare exceptions like the Sigirino depots intervention, designed by Atelier Girot together with the ETH landscape students using geo-referenced point cloud models (Girot et al., 2013), it will be quite difficult to find a complete landscape drawing of the entire construction sites, as the available official AlpTransit railway project representation (sections, schemes plans, maps...) is almost technical (between engineering and geologic drawings) and quite abstract, without a detailed site-contextualization. On the contrary, an overall drawing of the construction or working sites could be relevant, in particular considering how this moving-ground spaces powerfully enter in relation with environmentally and topographically significant places, interact with rivers, agricultural fields, pre-existing motorways or touch critical urban settlements. Within few kilometres, in the Tessin region, many different scenarios come into sight, as the “Buzza di Biasca” depots, which collects, thanks to a TBM excavated transportation tunnel and a conveyer belt system more than 3.5 km long, about 6 million tons of debris in a narrow mountainous valley from the Gotthard southern portal in Bodio, or the near Vezia south portal for the Ceneri tunnel, integrated inside a densely built up district in the suburb of Lugano. Nevertheless, it is clear that different solutions and design approaches should be used for such a broad context and important sites diversity.







TOP: FIGURE 5. Costant Motion: Sigirino construction site (work-in-progress)

RIGHT: FIGURE 6. Sigirino depots, topographical investigation (work-in-progress)

LEFT: FIGURE 7: Sigirino depots, topographical investigation (work-in-progress)

For all these specific, different cases, the constructions sites temporal maps (fig.5) and the topographical drawings (fig.6, fig. 7) become not only a way to recognize the new ground as the substratum of the present structure and identity of the site, but also to project the site, with its renewed ground, toward the future, integrating it to the context and to its new possible shapes.

The investigation subsequently takes into consideration the landscape resulting after the infrastructure construction end, observing the deep transformations of the territory and changes of involved sites. The Sedrun intermediate attack location, for example, occupied more than 20 hectares near a small touristic alpine village in the Graubünden Canton to allow the realization of emergency stopping stations and the excavation of the Gotthard Base Tunnel during a remarkably long period of about 20 years. After the completion of the infrastructural intervention, the previous topography of the site resulted highly altered. In particular, since the tunnel construction generated more excavated soil than planned, it was decided to create an artificial lake on the top of the depots and to open it to the population, thanks to a landscape design intervention that takes advantage from the new morphology of the hilly landscape.

MOVING GROUND
Searching for design solutions

The Lac da Claus in Sedrun is only one of the first different landscape interventions that the AlpTransit construction activity left behind.

If in Erstfeld, Canton Uri, about 3.3 million tons of lower quality aggregates were transported by train and then by ship to be used to fill the mouth of the river Reuss to promote the natural process of depositing the delta of the river, differently in Sigirino the entire volume of non-hazardous material is deposited against the existing slopes of Ferrino Mountain, near the construction site, in such a manner that several steps are created and greened up, first and foremost according to environmental guidelines and to the aim of reproduce a form as close to nature as possible, thanks to high technological methods of site representation and efficient construction techniques (the depots will be the most high Swiss artificial mountain).

The research therefore, through the selection of relevant study cases, highlights three main different but interlacing topical approaches as evidence of a gradual transformation and an increasing effective methodology (from the concept to the executive design phase) linked to rethinking the ground and inert waste.

- The RECONSTRUCTED ECOLOGY, in a completely artificial environment, means a design intervention that reuses excavated soil on the basis of the fundamental codes of natural phenomena and processes, and requires the reintroduction of specific, morphological elements of the environment that cover an essential role in the functionality of the ecosystem. In this sense landscape design shifts “from thinking in terms of a stable nature and a destabilizing humanity to working with an unstable and changing nature” toward a “constructed ecology” (Grose, 2017: 13-14).

- The TOPOLOGICAL APPROACH, implies, through high-technological experimentations as robotic modeling of the grounds or highly efficient earth management systems the opening of the site to spatial and temporal transformations and to a deeper metabolic relation with the environment.

- The cultural awareness — or CULTUR-SCAPES — searches for a deeper understanding of landscape and its resources, and acts by design to transform the site thanks to a sculptural interpretation, staging its irretrievably vanishing, tampered, fragile aspect. Earthworks are no more conceived as a mere passive object inside a Kantian natural beauty to be redeemed, but rather elements than can nourish both the design meaning and the materic character of the landscape intervention (Braae, 2015; Rocca, 2006: 10).

CONCLUSION

The research is intended as an instrument to interpret and deepen the compositional, strategic meaning of moving ground actions inside the contemporary landscape design process.
Conclusions at this point of the research are intermediate, since the investigation is still in progress, however, the main objectives could be summarized as follows:

- to foster a critical attention to the understanding of the landscape spaces resulting from ground movements during construction activities of infrastructures and to witness the effects of contemporary constructive actions on landscapes.

- To claim the strategic value of design as a mean to find creative solutions between formal structures (revealing contemporary figurative and symbolic value of the ground) and functional requirements (as reuse of earth, reduction of C&D inert waste, optimization of construction sites in landscape, valorisation of new ecologies).

- To evidence how landscape design interventions can inspire technical and ethical changes in infrastructures construction fields and vice versa.

- To reflect on how, millennia after first ancestral earth mounds, earthworks inside landscape could today become part of a continuously renewed sublime collective imagination.

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TRANSFORMATION OF CULTURAL ENVIRONMENTS

Mathilde Kirkegaard

POINT OF DEPARTURE

With a point of departure in the work by the research group ‘Screening af Kulturmiljøer’ (SAK), the PhD-project will investigate a transformation strategy of cultural environments in Denmark. SAK is currently categorizing and mapping the Danish cultural environments. The research group is doing this together with the respective municipality and has currently described 2000+ cultural environments in Denmark. The group evaluates the cultural environments current status and the cultural environments intrinsic abilities — such as the ability to contain habitation, tourism, business or culture.

Cultural environments consist of an area, a built whole and its landscape, that conveys a historical narrative. The narrative of a former industry, an

ancient work method, a social structure or a type of living. The buildings within the cultural environment can have an official degree of preservation value, but in many cases, the buildings can't be granted that status, and they are historical relevant in relation to the context of the cultural environment. It is the collective of buildings and its landscape that conveys a strong narrative, and that ultimately categorizes it as a cultural environment.

In Denmark, there is no official preservation law for cultural environments. The municipalities can make preservations plans for an area, but this is very costly, and the government can only grand the landscape or the individual building with an official preservation status. Often cultural environments are being left for decay, due to changes in society, or their potentials are being overlooked in planning. This is posing a threat regarding the preservation of cultural environments, but the intrinsic abilities of the cultural environments are likewise not being unfolded and used in planning. Examples show how some transformations of cultural environments generates a newfound local identity and sense of belonging.

Cultural environments cannot be preserved as museum artefacts. They need to be considered as part of a context of the surrounding buildings and a network of people living in and around it. The point of departure for the Ph.D.-project lies within the understanding that preservation of a cultural environment is its ability to retell its narrative with its intrinsic potentials of habitation, business, tourism or culture. In short, creating value for people today.

Cultural environments can be perceived as a living format that has witnessed important happenings, states of society, work methods, demographic compositions, etc. Marc Augé describes in 'Non-Places' from 1995 the importance of places not being "completely erased" (Augé 1995:79) and having a relational value, historic value and an identity (Augé 1995). This can also be described as the narrative of the physical environments. The narrative can be a strategic baseline for a development that can underline a unique strength and identity of the cultural environment. When dealing with the built environment the shapes, site and materials, and the sensing of these can be understood through phenomenology. The architectural theoretician Christian Norberg-Schulz describes in 'Genius Loci' from 1980 how a building must be understood in its physical, social and historical context.

"To respect the genius loci does not mean to copy old models. It means to determine the identity of the place and to interpret it in ever new ways. Only then we may talk about a living tradition which makes change meaningful by relating it to a set of locally founded parametres." (Norberg-Schulz 1980:182)

He states that the genius loci — the spirit of the place — must be respected, and by doing so the identity of a place can be enhanced or reinterpreted in a transformation that relates to the local context. Another part of Norberg-Schulz's genius loci is the notion that the identification with the built environment varies according to individuals. His theory leads to the importance of contextual and local understanding. Australian professor Laurajane

Smith describes in 'Uses of Heritage', from 2006, how heritage is of great importance to its context and connected to the local community. The quote below expresses Smith's view of heritage that — like genius loci — has to be perceived as something beyond the physical object:

"Heritage is something vital and alive. It is a moment of action, not something frozen in material form. [...] There is an interlinked relationship between the activities that occur at places and the places themselves" (Smith 2006:83)

She underlines a clash between the tangible heritage and the life evolve around and in it, and stresses challenges with the management of heritage and the western "physical" orientation. In the matter of architectural management, the architectural critic Jane Jacobs is one of the first to advocate a more democratic approach to the built environment (Jacobs 1992). These theoretical views outline the importance of local understanding and citizens involvement when dealing with the physical environment.

UNESCO has expanded their notion of cultural heritage with an immaterial list of 508 cultural heritage subjects of an intangible nature (UNESCO list 2019). The material list of UNESCO is comprised of 1121 subjects (UNESCO list 2019) and to these subjects there are clear guidelines for the preservation and development of the heritage. The immaterial list is in its nature of definition not connected to something tangible, but there are exceptions. One of the exceptions is the Chinese traditional architectural craftsmanship for timber-framed structures, which in its essence is connected to the physical wooden

structure, but since it is the craftsmanship that comprises the — UNESCO defined — heritage it is registered on the intangible list.

The example of the traditional Chinese architectural building method articulates one of the current imbalances when defining cultural heritage and thus an imbalance in the fundament for preservation or development. Cultural heritage is comprised of both the physical elements, but also to an intangible value of certain use, act or work, or the intangible value it generates for people today. In the Ph.D.-project cultural environments will be explored as a type of heritage that is in-between the immaterial list and material list, as something that also contains something intangible — a social layer.

RESEARCH QUESTIONS

As mentioned above, the built environment can be understood to be something beyond the physical object and to contain a social layer. The theoretical orientation tries to broaden the understanding of, and approach to, cultural environments. The definition of cultural environments made by SAK, in short: 'a collection of buildings or/and landscape connected by the same historical narrative', will be a point of departure for the first research question. The question will investigate an extended understanding of cultural environments:

R.Q. I: WITH AN EXTENDED FOCUS ON THE SOCIAL ASPECT, WHAT IS A CULTURAL ENVIRONMENT TODAY?

The importance of historical references in the physical environment is partially due to its intrinsic

accumulated knowledge and phenomenological quality, e.g.: site-specific identity, sense of place, historical introspect, etc., and this can advantageously be valued in planning. The value of the built environment is described above with Christian Norberg-Schulz and Marc Augé, as something within the built environment, and as something that can affect its context. This raises the question of the role of the cultural environment in its local context, today and in the future:

R.Q. II: WHY ARE CULTURAL ENVIRONMENTS RELEVANT IN THE DEVELOPMENT OF THE RESPECTIVE LOCAL AREA AND THE MUNICIPALITY?

The development abilities of the cultural environment, described by SAK: culture, tourism, business and habitation, leads to the matter of unfolding the intrinsic abilities and potentials. Laurajane Smith and Jane Jacobs were mentioned as advocates for a democratic approach to the process of alterations and implementations in the built environment. They describe this as a possible asset and a vital part of developments. Citizen inclusion is a common method in relation to urban design and city planning, but it is a new phenomenon when dealing with cultural heritage. In Denmark, official and governmental organizations define what is worth preserving and how. When opening the definition of cultural environments to be more than the physical frames, the matter of how to deal with cultural environments becomes vital.

The Danish cultural ministry defines the Danish cultural heritage with it being “ours” and a “mutual” value, but the measures to which it is being treated

is strictly “top-down” (Kulturministeriet 2019). Rules and regulations to preserve the buildings are often not inclusive of the life that is being lived in the cultural heritage or can be unfolded within it. A cultural environment can contain a few buildings having an official preservation status, but otherwise, it is without a collective preservation plan. This can both generate a possibility to be freer in the alteration of cultural environments, but it can also allow the cultural environments to be destroyed by development.

On UNESCO’s material heritage list, there are different types of subjects and some of them can be described as whole areas and categorized as cultural environments. A few of the areas have been labelled “in danger”, but almost all the sites have a description of elements that pose a threat against the preservation of the heritage. One of the sites that could be categorized as a cultural environment is Antigua Guatamala, which in 2017 had the following threats: *“Commercial development, housing, and impacts of tourism, visitor and recreation”* (UNESCO Antigua Guatamala 2018).

If historical buildings and areas are being recognized containing an individual value and recognized to be “ours”, it should be treated more democratically and be allowed to generate a value for people today. Different case examples, both national and international, show how cultural heritage becomes a central part of their respective local communities. One example is, how the municipality of the Australian city Ballarat placed cultural heritage in the focal point of a large regeneration strategy. Another example is how the Danish city Ebeltoft experienced a transformation by local initiative of

an abandon industrial building, into a community centre. Both cases express how the historic traces become a part of a new narrative for the local community and a central part in the development strategy. The means of how the two cases unfold this leads to the final research questions:

R.Q. III: HOW CAN DANISH CULTURAL ENVIRONMENTS BE TRANSFORMED TODAY, COMPLEMENTING THE DEVELOPMENT OF THE RESPECTIVE LOCAL AREA AND MUNICIPALITY?

RESEARCH METHODS

The research approach will be centred in an experiment in a cultural environment. The overall method is the humanistic method Action Research which allows the researcher to access the project in two ways: as a researcher and as an active part of the design intervention (Brinkmann 2010). Action Research allows the researcher to be part of the experiment, which is often needed in the method Research by Design.

Design-based research is associated with a degree of involvement from the researcher, just as the designer cannot be separated from the design. The researcher's involvement in an experiment is recognized in humanistic research and it is an essential part of qualitative methods. The research in the cultural environment will explore a process that invites different local parties and the local community, which is expressed by both Jane Jacobs and Laurajane Smith, as an aspect needs to be a part of the processes in the built environment and the management of heritage.

Jacobs and Smith also touch upon the notion of identity, which is linked to the narrative of the cultural environment. By introducing the narrative, as part of the methods, the understanding of the cultural environment as a living thing becomes evident, both in terms of the history and future, but also in terms of the cultural environment being dependent on the life surrounding and defining it. This understanding of the cultural environment will be investigated through architectural methods and combined with a phenomenological approach inspired by the phenomenological architectural theory.

DESIGN INTERVENTION

The investigations revolve around a physical design in 1:1 in a selected cultural environment: a design intervention. The design intervention has the purpose of activating the cultural environment both to inform and invite the local community to engage. Jesko Fezer describes in 'Urban Catalyst — The Power of Temporary Use' how small designs can act like acupuncture that, with a small needle, gives energy to an area beyond the small pin (Oswald et al 2013). When one is working with designs as a catalyst to activate an area, the main purposes is to explore the opportunities of the area and to change the perception of the area. As described, the group SAK points towards a set of potentials within the cultural environment: habitation, tourism, business or culture. This can be translated to potentials for "new life" in the cultural environment, which underlines the importance of integrating the local community and respective relevant parties in the design intervention.

The design intervention will visually communicate a process of alteration and it aims to unfold the narrative of the cultural environment. The design intervention will use the method Research by Design. The research will explore the effect of inserting design(s) to the cultural environment. Investigations will be made before, under and after the insertion of the design, and the investigations will be made with the ambition to understand the local community's perception of the area. In correlation to interviews and surveys, architectural investigations will likewise be made before, under and after the insertion of the design. It is not the specific design that is the "product" of the research, but rather the effect of the design which will be investigated before, during and after. This also allows the designer to step away from the design and shift between the role of a designer and a researcher, which characterizes the method of Action Research.

The design intervention is a mean that interacts with the physical frames of the cultural environment. The design intervention investigates whether the inherent narrative of the cultural environment can be highlighted through a design. As mentioned, the design can be informative, inclusive and/or inviting. Inform about change, be inclusive in the process or in its form invite a new kind of use. Whether the design intervention is informative, inclusive and/or inviting, the design intervention is of a temporary nature: an intervention for a period of time. Temporary design interventions can work as part of a process-oriented development. A temporary design intervention can act as a test, creating a visible and open development process. This approach is inspired by inclusive urban plan-

ning theories, as well as a democratic approach to cultural heritage development.

The design intervention strives to work with the social aspect — both according to co-creation, but also through a possible change in the perception or increase the use of the cultural environment.

ACTION RESEARCH AND INVESTIGATIONS

Action Research works as an umbrella for the smaller investigations in the cultural environment, which consist of a songline-investigation*, a design intervention and a quantitative questionnaire, as well as qualitative interviews with politicians and municipal employees. Various qualitative methods are included in the songline-investigation with the aim to track the perception of the informants: how they relate to the cultural environment and how they perceive it.

The songline-investigation* explores the individual perception and gives the researcher a view through the optics of the informant. The study explores the individual experiences of the cultural environment, which is linked to phenomenology, that describes the sensing between the individual and the object,

* The songline-investigation begins with a semi-structured interview in which the informant elaborates on his association with the cultural environment and views on the cultural environment. After the semi-structured interview, the informant is asked to draw two optional routes on a map of the cultural environment, examples: everyday and weekend or route in car and route on foot. The routes are discussed and one of them is selected. The selected route is then walked by the informant in the cultural environment while the informant is taking pictures. The informant is given a small note with topics to have in mind, for example: positively/negatively charged elements, characteristics of the harbour, practical elements or points of orientation. After this, the informant is subjected to another interview about the pictures (which is printed). The informant is free to describe the walk, often the informant places the pictures chronologically and then into themes. To gain an impression of the general attitude of the informant, some pictures of different cultural environments and public spaces are presented and discussed. The final question is about the future development of the cultural environment.

but also the theory that advocates for more democratic management of cultural heritage since places are experienced and perceived individually.

A quantitative survey with 100+ responses, made before the design intervention, generates a notion of the general status the cultural environment has in the local community. The survey can be carried out again after the design intervention, and thus trace changes in the perception.

PROCESS ORIENTATED
DESIGN INTERVENTION

The diagram, presented together with the abstract, represents a “timeline” with two possible approaches and outcomes of the design intervention: A and B. The diagram tries to state that there will be made investigations before, during and after the design intervention, and that the level of cooperation can differ.

The integration of the local community and relevant parties can vary from e.g.: actual cooperation (see diagram, 1A) to casual interaction with the design (using it, watching it, touching it) (see diagram, example 1B). The effect of the implementation of the intervention will be documented before, during and after, and this is done through a field log with photographs and the investigations described above. The intervention will, as mentioned, strive to activate the cultural environment, open a dialogue and invite the local community and relevant parties to engage. The diagram shows a “next phase” (see diagram, 2A and 2B) which can consist of permanent new design or development plans for the site. The design interventions will work as catalysts and

strive to activate the respective area, and it has the purpose of exploring the opportunities and to change the perception of the area.

The Ph.D.-project originates from the perspective; that cultural environments contains both physical and social understandings and should be developed in relation to its context of social network and its physical context. The initial research question examines a social aspect of cultural environments, concerning the social network, the use and the relational value. In the second research question the understanding of cultural environments, as being part of and influencing its context, is central. The third research question explores the method by which cultural environments can be developed.

The design intervention strives to motivate and allow a broad engagement. In symbiosis, the cultural environment will influence the local community, and the local community will help the development of the cultural environment. The physical interventions will communicate the narrative of the cultural environment and generate a common understanding. By the narrative of the cultural environment, there will be gained a common development direction. Likewise, the new discourse on cultural environments, as being a vibrant historic line of events that continues into the future, can allow the cultural environments to be contemporary and functional.

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REFLEXIVE PRACTICE
TRANS-MEDIAL PROCESS AND METHOD

Maja Zander

How can different creative practices inform and challenge each other? And, how can medial transpositions contribute to operate complex conditions in architectural creation?

This project addresses the process of architectural creation as a trans-medial practice, here instantiated as an encounter between text, drawing, photography and model. The project enquires how these distinct medial affordances affect the architectural articulation through transpositions and interactions between them within an iterative process.

DOCUMENTATION AND PROPOSAL FOR PRESENTING THE ARTEFACT

1 A series of assembled photographic fragments of the model, 8 b/w photos and 8 colour photos, 15x20 cm, coupled in pairs, turnable glass-frames 4xA3

2 Four booklets of photographic series of the model, loose-leaf format A5

   a. black and white, photographic fragments of the model, *spatial experiments*, view
   b. colour, photographic fragments of the model, *spatial experiments*, view
   c. colour and black and white, photographic fragments, *experimental side effects*
   d. black and white, photographic fragments of the model, *spatial experiments*, plan-view

3 Model, disassembled, glass plates 2 á 2x80x160 mm, 4 á 2x120x160 mm, 4 á 2x120x200, rubber bands

4 A booklet of photographic series of the drawing, loose-leaf format A5

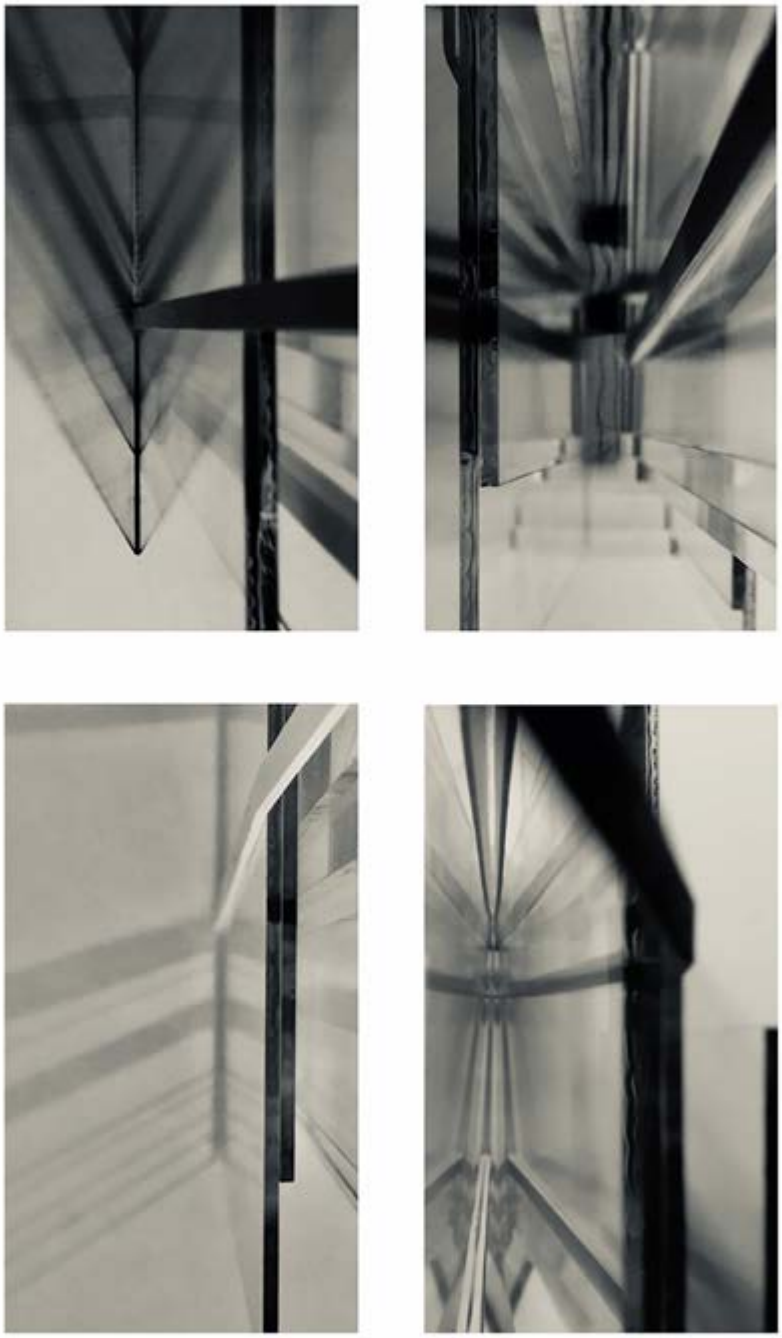
   a. Photographic fragments of the drawing
   b. Montage

The presented artefact consists of the above described components and can be exhibited on a podium (or similar) of min. 1000x1200 mm. All of the components can each be taken up in the hands, perused and examined further at exhibition.

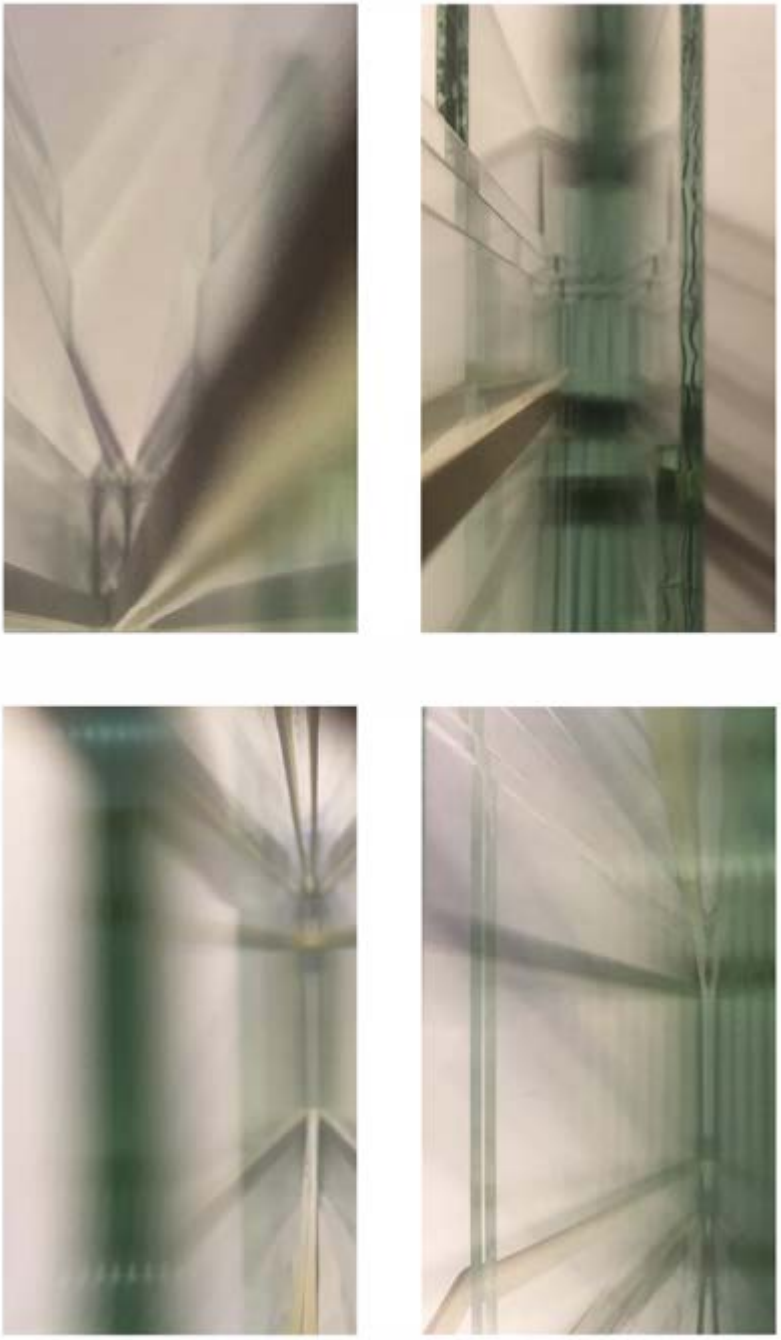
1 Assembled photographic fragments of the model

2a. Diagram, assembled photographic fragments of the model, 4xA3 two-layered glass frames

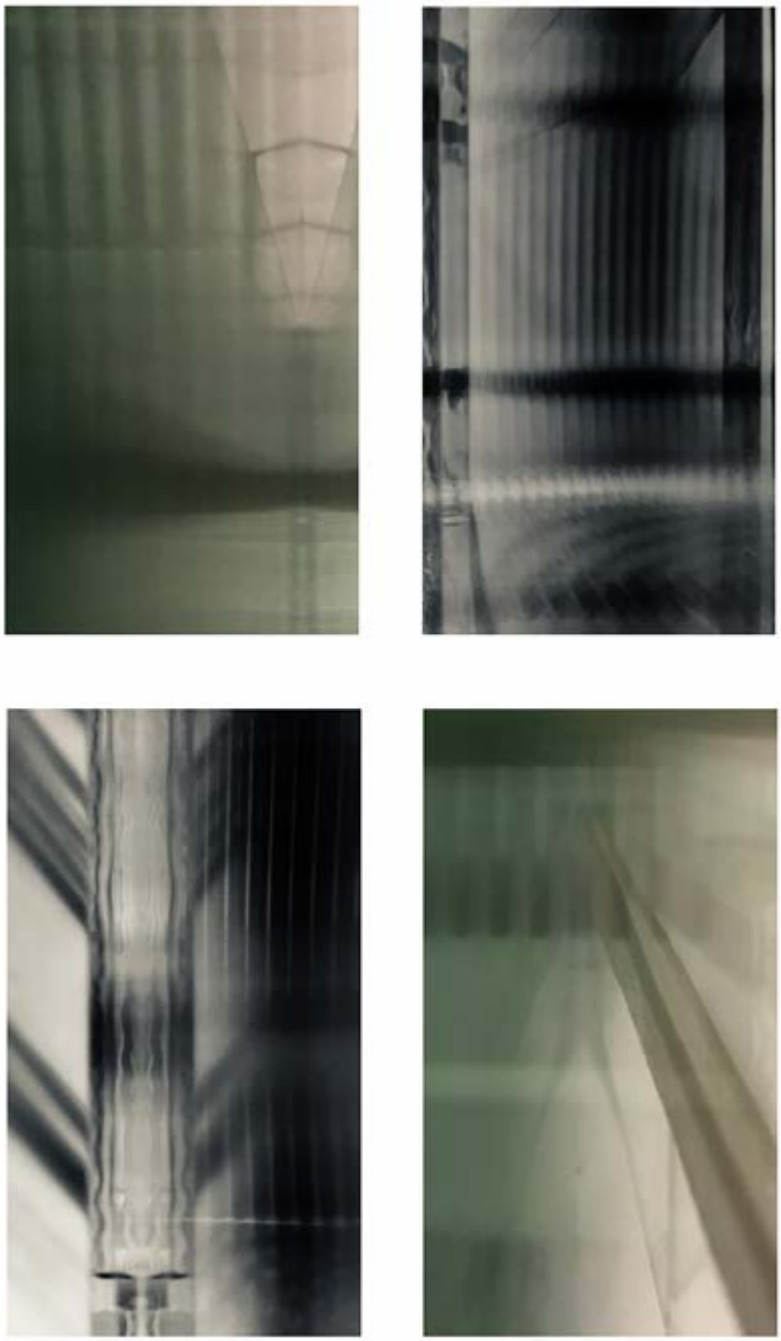
2b. Photographic fragments of the model, *spatial experiments*, views, examples from booklet



2c. Photographic fragments of the model, *spatial experiments*, views, examples from booklet



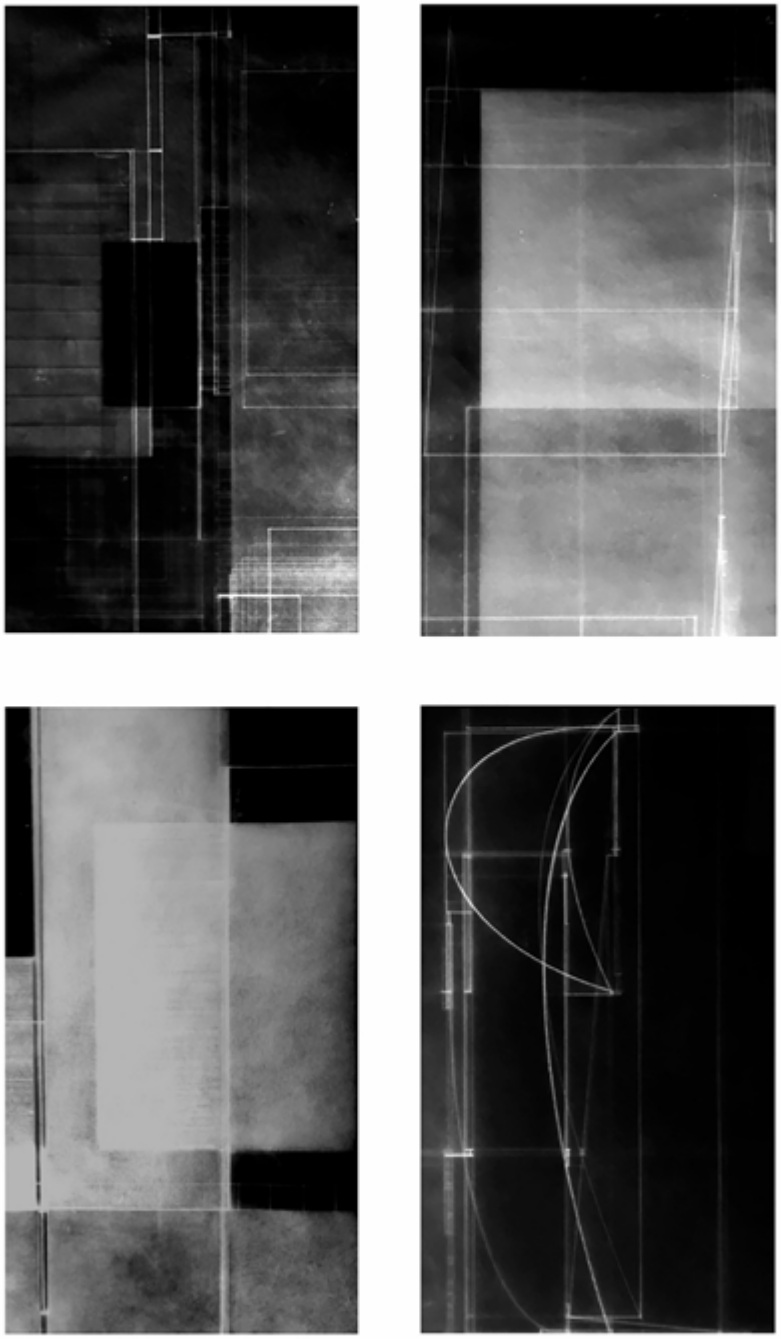
2d. Photographic fragments of the model, *experimental side effects*, examples from booklet



3. Photographic fragments of the model, *spatial experiments*, plan view, examples from booklet

4a. Model, disassembled

4b. Montage, photographic drawing fragments, from booklet



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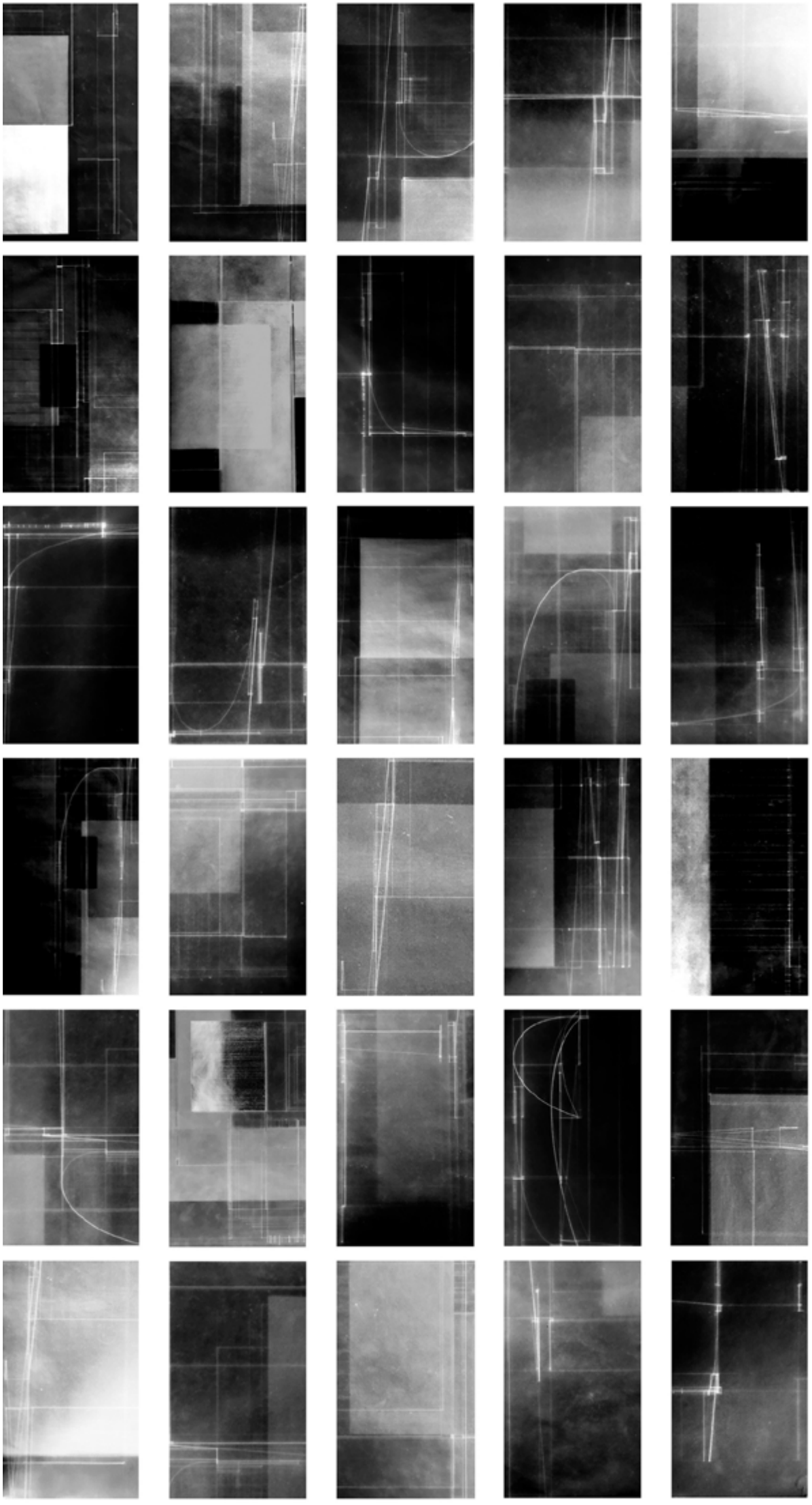


CA²RE+

The presented material is part of an ongoing research project on trans-mediality in the process of architectural creation. The enquiries are conducted through iterative series in the media of text, drawing, photography and model. The different stages of the process will be documented, but the presentation will put emphasis on the process of interaction between a physical model and photography.

The contention of the project is that any material articulation always is engaged in and inseparable from its specific medial mode of expression. A given problem materialises in different ways when it is processed in different media and media environments. Thus, the differentiation of medial affordances is essential: the differences enacted in the trans-medial practice work as a vehicle for creation, premised on the transgression of the specific medium's limitations. To identify specific medial affordances, the project enquiries establish sets of specific media environments.

The investigations are premised on the identification of a set of specific medial parameters. For the text: enunciation and scene; for the analogue drawing: layers and transparency; for the photograph: framing and light; and for the model: body and scale. As the project progresses, the scope of medial parameters is reconsidered and nuanced. The textual enquiries situate the work, based on a literary text, and on a reflection upon its relations to other media. Focus is on the relationships between structuring parameters, and on how the text establishes a contextual situation.

The subject of the drawing is derived from the text as the contextual framework of the drawing, not defined as a geographical place, but as a space of material and immaterial structures. The purpose is to investigate how the drawing as a relational diagram in interaction with photography enables a juxtaposition of heterogeneous topologies: social, spatial and temporal relations.

The first photographic series has the drawing as its object and investigates how montage of photographs enacts relations and events. Based on the process of the analogue drawing and its successive layering, a series of photographic fragments of the drawn plan is presented. The series explores the initial textual act: the variance of that which is experienced and that which is experienced through. The structure and dimensions of the model are based on structuring principles and dimensional conditions of the drawing. Yet, the model is not a representation of the drawing, but a modulative spatial construction; it does not look like the drawing, it works due to a set of operational criteria similar to those of the drawing. The purpose of the model work is to explore the articulation of situations in sets of specific spatial distributions, as a re-territorialisation of relational events as new time-space environments. As a consequence, the next photographic series become substantial for the articulation of the model, its scale and its spatial qualities. The model is examined through four series of photography:

- A black and white series of photographic fragments of the model, *spatial experiments*, plan-view

- a black and white series of photographic fragments of the model, *spatial experiments*, view

- a colour series of photographic fragments of the model, *spatial experiments*, view

- a colour and a black and white series of photographic fragments, *experimental side effects*

The first photographic series of the model conveys *plan-views*, a horizontal order closely related to the organisation of the drawing. Focus is on how the initial parameters of the photograph, framing and light, have an impact on the spatial manifestation, different from the photographic series of the drawing. Whereas the layering of glass-plates is related to the logic of the layered drawing, the matter of materiality is here of a very different character.

The three following photographic series of the model convey *vertical views*, and are developed simultaneously. These series share the same photographic technique, extreme close-ups of the model with a continuous motion of the camera lens. Hence, the variety of the captured spatial modulations is induced by the consecutive displacements within the model itself, the movement of the glass layers, and the movement of the camera. This technique allows to register very small temporal differences with significant effect on the spatial configurations. Though the series share technique and object, they most notably differ through the use of black and white or colour photography. It is a part of the investigation to consider how this set of parameters affects the experience of materiality, light, reflections, etc. The third series is a colour and

a black and white series of photographic fragments, categorised *experimental side effects*. These studies reflect upon the deviations between technical and material effect and spatial appearance.

To sum up, the project investigates how medial affordances configure events based on different sets of relations. Through the iterative series, the project gauges how different media articulate relations and events, and how transpositions between these media contribute to re-format time-space configurations.

This paper uses a collaborative project that is taking place three weeks in September as it's point of departure. The project is observing, registering and documenting an area in Copenhagen, which is appointed for city development despite massive resistance from citizen. The area provides a structure for many different ways of living — for many different people.

The paper examines and registers the process of the resistance of citizens and at the same time it scans the ongoing city development approach, the political situation and the opinions towards the area itself with its cultural milieu, built environment, landscape and social relations.

It explores the motives and reasons for city development priorities as well as it explores the different

living conditions and possibilities of the self-grown community.

It reflects on the organisational and collaborative set up of the project; — on how 150 1. year students of architecture — in dialogue with the local community, teachers of architecture, anthropology and architectural theory, a choreographer and a specialist in cultural heritage — have come together to observe, register and document the situation.

It follows the course of battle through participating in a debate at 'Sydhavnens Folkemøde', (The People's Democratic Festival at the South Harbour Area in Copenhagen) — and through writing and creating an interactive website consisting of edited material from the student's observations and registrations.

The project emphasises the general conflict between commercial city development and how citizens want to live their everyday life. In perspective of earlier projects from the practice — the paper asks what and how we can learn from self-grown situations and how city development can remind itself of the importance of spending time learning about qualities and values of places before making the decision of transforming them.

Screenshot of interactive documentary 'Ang. Stejlepladsen' - https://angaaende-stejlepladsen.kadk.dk/content.html

LEFT: Students drawing at the piers in 'Fiskerhavnen' – Photo: Gitte Juul

RIGHT: 'Sydhavnens Folkemøde' – Photo: Gitte Juul

KEEPING IRELAND MODERN
ST BRENDAN'S COMMUNITY SCHOOL, BIRR

John McLaughlin

INTRODUCTION

St Brendan's Community School in Birr, County Offaly, by architects Peter and Mary Doyle is an internationally recognised and unique exemplar of Irish modernism. Paradigmatic of a seminal cultural shift in Irish education, it was designed as a flexible and adaptable building, described by the architects as ideally having 'no fixed form'. In their efficient use of a cheap, mass-produced portal-frame structure, the Doyle's realised a carefully articulated series of generous social spaces. In continuous use since its opening in 1980, generations of students have benefitted from the intimate relationship between the culture of the school and the architectural form and fabric which facilitates it. It is these relationships between the technical and the social — so central to the architects' original vision — that this grant

aims to conserve and continue. The exhibition is developed from research funded by the Getty Foundation's 'Keeping It Modern' grant, awarded in 2018. The research team was led by Queen's University Belfast working with John McLaughlin Architects.

Currently the building suffers from on- going material degradation and thermal and environmental issues. Through investigative surveys of history, use, material and environment we have examined and revealed the varying ways in which the technical and social overlap and influence each other in the building. These enquiries relate to the building's origins, its current use, and to its future in the aim of sustaining the vibrant school community and addressing thermal performance. The aim, effected through a team of experts of diverse specialisations is to deepen the understanding of the building and its significance and accordingly inform the priorities to be set out in the conservation management plan. The opportunity is for the school to continue as a successful paradigm for 21st century education by proposing the means by which its learning environment and energy use can be improved and optimised in a manner consistent with the core design concepts of the architects and the integrity of their built design.

OVERVIEW

The research methodology has brought together historical, fabric, social and environmental analysis to understand the school's daily performance, programmatically, socially and environmentally, within the context of its architectural significance and its material vulnerabilities. Mapping and recording this broad picture of the school included archival research, along with oral histories, condition surveys and open-

ing up work and considerable environmental data modelling and monitoring alongside the social surveys. Typical classroom and breaktime spaces were monitored with temperature, relative humidity, and air quality monitors to understand the daily fluctuations in use. In addition, sound analysis, thermography, air pressure testing and thermal bridge and condensation risk analysis help us understand the performance of the spaces. This layered approach surveys how the school is used, and also critically how the building is perceived by its users.

TOP: View of Social Space, 1980

BOTTOM: View of Social Space, 2018

SURVEY 1
HISTORICAL RESEARCH

Principal Investigator: Aoibheann Ní Mhearáin with Gary A. Boyd and John McLaughlin.

SURVEY 2
BUILDING DRAWING AND CONDITION SURVEY

David Maher and Associates.
Window condition survey by Lambstongue.
Opening up works by Frank Murray Builders.

SURVEY 3
SOCIAL RESEARCH METHODS

Principal Investigator: Tara Kennedy with Ros Kavanagh photography.

SURVEY 4
ENVIRONMENTAL

Thermography and Air Pressure Testing by Greenbuild.
Acoustic Testing by iCAN Acoustics
Monitoring and Desk Top Analysis by Andrew Lundberg Passivate, with thanks to Aengus Byrne in St Brendan's Community School.

SURVEY 1
HISTORICAL

Archival Visits + Interviews

Archival Research at Irish Architectural Archive
Re-visit of Peter & Mary Doyle Collection

Interviews

Peter Twamley
Architect working with Peter and Mary Doyle during tender and construction phases of the project
John Meagher
Architect working with Peter and Mary Doyle during competition stage of the project
Brother Denis Minehane & Tom Foley
Former Principals, St Brendan's Community School
Ming Loughnane
Current Principal in St Brendan's Community School and teaching in the school since its opening.
Ann Doyle
Daughter of Peter & Mary Doyle

Precedent Project Visits

Free University of Berlin, Candilis, Josic, Woods, Berlin, 1963 ; refurbishment Foster and Partners, 2005
University of Leicester Engineering Building, Stirling & Gowan, Leicester University, Leicester, 1963; refurbishment ARUP 2017

Hunstanton School, Alison and Peter Smithson, Hunstanton, Norfolk, 1954

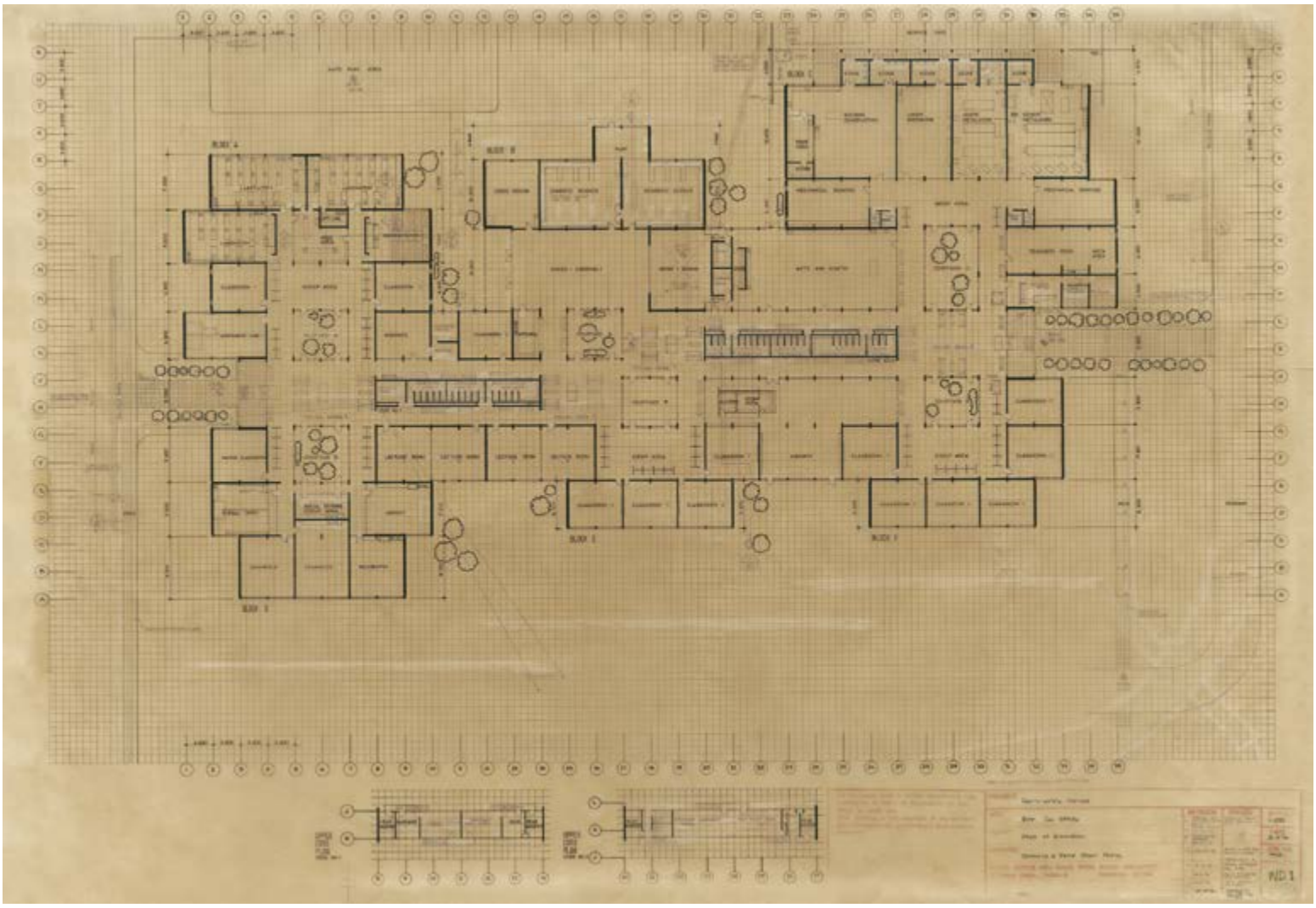
University of East Anglia, Denys Lasdun, et al, Norwich, East Anglia, 1963 -

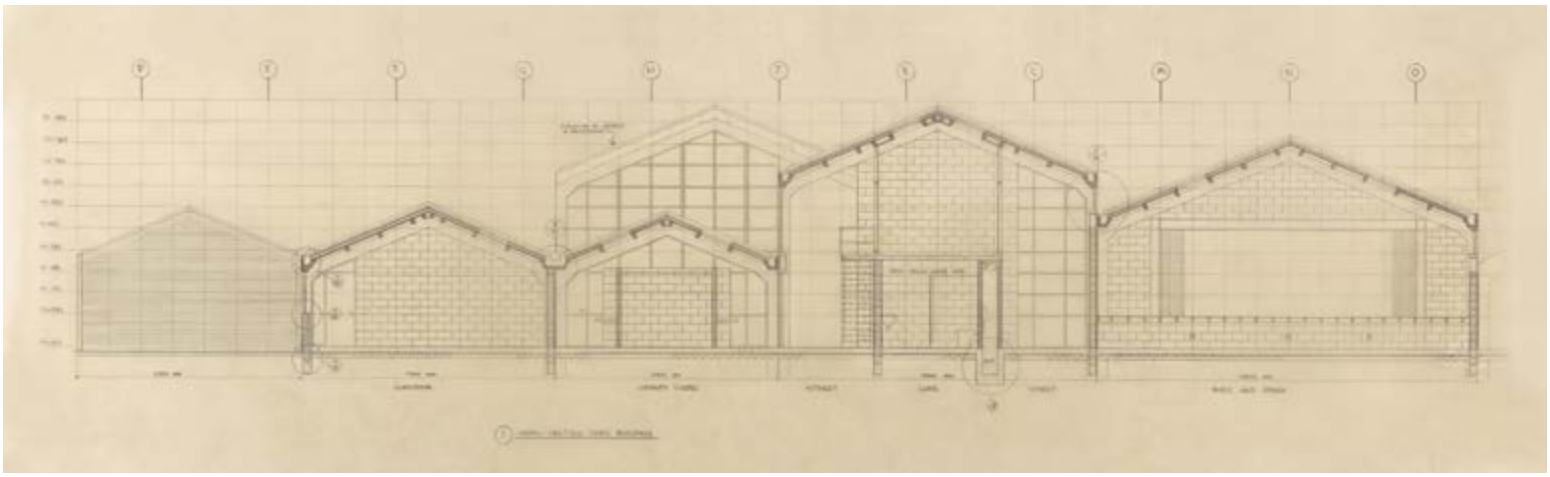
Van Nelle Factory, Brinkman and van der Vlugt, Rotterdam, 1931; refurbishment Wessel de Jonge Architecten, 2004

TU Delft Aula, Van den Broek and Bakema, TU Delft, Delft 1966

Open Air School, Jan Duiker, Amsterdam, 1930; refurbishment Wessel de Jonge Architecten, 2010

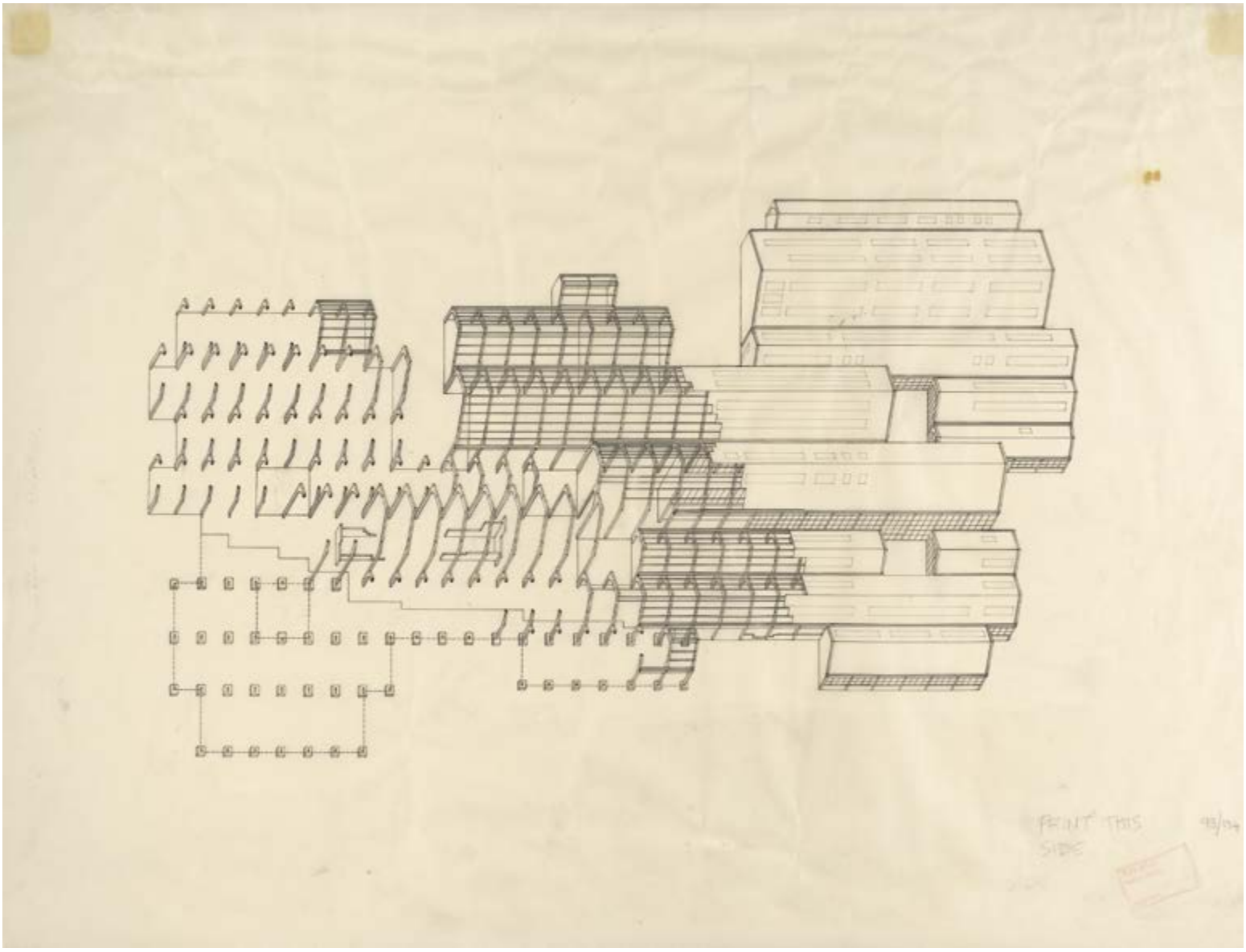
Willemspark School, Herman Hertzberger, Amsterdam, 1983





TOP: Archival plan
Bottom: Archival section

CA²RE+



Planometric drawing

SURVEY 2
CONDITION

Methodology

Survey 2 involved a comprehensive building and condition survey. On site observation, measurements and recordings located all the key elements in the building, including services and details. These records were cross referenced with the archival drawings along with selected opening up works to provide a comprehensive set of survey drawings that accurately reflect the ‘as built’ building. The drawings provide the baseline for future analysis and calculation, providing an accurate model of the building’s form and fabric.

A specific survey was commissioned on the original steel windows on site as these are mainly intact and an important, specialist element of the project.

Findings

The condition survey identified locations of moisture ingress creating spalling of plasterwork and damp areas in the ground and these were marked on the drawings.

New RWP locations in courtyards create very long runs in valley to outlet, contributing to moisture ingress.

Lack of zoning of the heating system was

identified as a problem.
Insulation was identified in the cavity of the external wall but not below the floor slab.
Insulation in new roof performs well except at junction to roof valley.
The original windows were generally considered to be in reasonable condition.

STAGE 1

SURVEY 3
SOCIAL

Methodology

Walking Interviews: Interview were conducted with a cross section of the school population including 2 teachers and 5 pupils to understand their use of the building, their daily routine and their relationship to the spaces. The interviews were filmed and the interviewer accompanied the interviewees around the school, tracing their movements

Student Photography: Students were tasked with photographing the school under 5 different categories: ‘like the look of’, ‘feel represents the spirit of school’ ‘feel comfortable in’, ‘feel uncomfortable in’ and ‘like to spend time in’. This allowed the students to provide personal feedback on the school and its spaces.

Photography & Film: A series of ‘Then and Now’ photographs were produced, with John Donat’s original photos from 1980s

being re-photographed. Timelapse photography of the main social spaces was created to show occupancy over the course of the day. Walkthrough films moving along ‘the street’ were produced to describe the variety of spaces at different times during the day.

Findings

Benches form the centre of social life hosting everything from homework to birthday parties. Original benches lining the social ‘street’ are the most sought after.

Then and Now’ images are analytic documents to understand the life of the school across 40 years.

Mapping the student photographs shows a concentration of images on the social spaces. The spaces the students ‘spend time in, feel comfortable in and feel represents the spirit of the school’ centre on the social ‘street’.

The canteen is a place people feel comfortable in and spend time.

Service spaces e.g. lockers and toilets are uncomfortable.

Elevated views — Recurring high view from the stairs looking through school.

Courtyard views — Recurring ‘spirit of school’ view through courtyards.

School in landscape — Expansive views out to wider landscape.

Not an object — The students do not try to capture the school in elevation.

SURVEY 4
ENVIRONMENTAL

Methodology

The environmental analysis conducted was of 3 types:

- on site testing
- on site monitoring
- desk-top analysis

On site testing included: thermography, air pressure testing and acoustic testing. The thermography was taken inside and out and concentrated on the classroom space. The air pressure testing was conducted in a classroom to identify the air leakage overall and particularly leaky areas. The sound analysis was conducted mainly in classroom spaces and tested the reverberation times in the classroom, the sound transfer from classroom to corridor space and the internal noise levels to understand the key parameters in school design that affect the space.

On site monitoring included the installation of sensors collecting data on temperature, relative humidity and air quality over a period of 8 weeks. Key areas in the building were identified, to allow for a range of information across the typical spaces. These included 2 main social spaces, 3

typical classrooms — one in an exposed location, one in a sheltered location, and one new classroom — and one technical classroom. The air quality monitor identifies key parameters affecting air quality including PM2.5, VOCs, and most notably CO2, which is of particular relevance to teaching spaces.

Desk-top analysis was made possible following the comprehensive building survey. Computer models were generated to assess key thermal bridge assessments, condensation risk analysis and a PHPP Model was built to test dynamically the performance of the building and possible interventions.

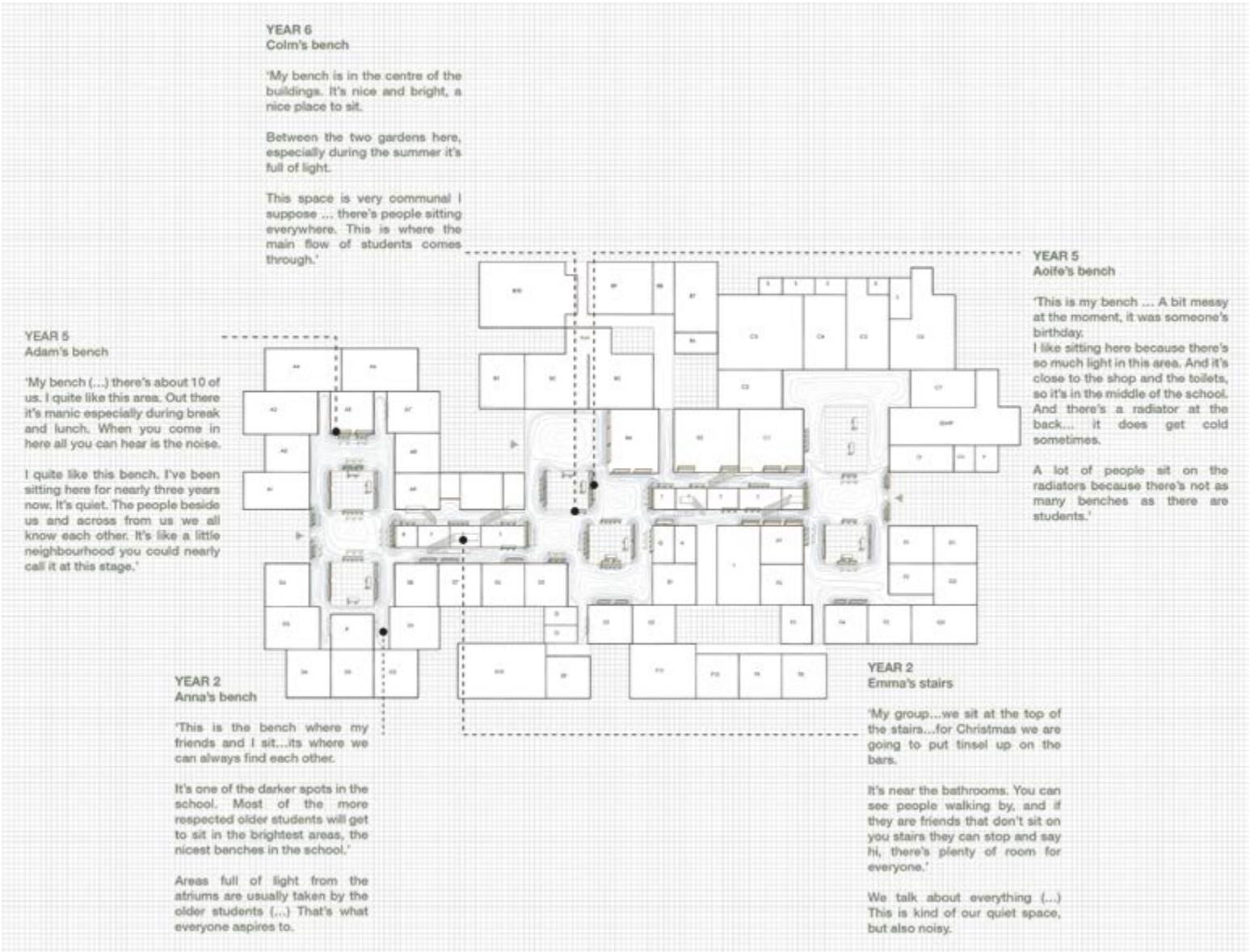
Site Location Map

The school in its suburban, rural and bog-land context, drawing by research project team, 2019. While the competition entry had no specified site, the system- built construction and original peat-burning heating technologies embed the school within the mass- produced landscape of the industrially harvested peat- bog as well as the agricultural lands of County Offaly.

Site location map

Benches form the centre of social life hosting everything from homework to birthday parties. Although generic furniture has been added to accommodate as many of the 900 strong student population as possible, original painted timber and blockwork benches designed by the Doyle’s lining the spaces of the social ‘street’ remain the most sought after.

Social heat map



Students were asked to make photographic responses to a set of questions about the school. The resulting images map a huge concentration on the social spaces. The spaces the students ‘spend time in, feel comfortable in and feel represents the spirit of the school’ centre on the social ‘street’.

Student photography

This composite drawing combines the shearing layers; what emerges is a portrait of the multiple elements in the building and their relationship to each other. Of highest significance is the social performance of the street, which is supported by the qualities conferred by the courtyard, daylight, structure and relationship to adjacent spaces.

The term of ‘society’ relates to the original design intention as well as the socially historical significance; it also points the direction for the future of the school.

RESEARCH TEAM

QUB: Professor Gary A.Boyd & Professor Greg Keeffe; John McLaughlin Architects: Irene Brophy, Tara Kennedy, John McLaughlin, Aoibheann Ní Mhearáin, Tomás Prendeville, Tani Sanchez; The Department of Education and Skills: Frank Lewis and Ciaran O’Brien; David Maher, David Maher and Associates (Structural Engineering); Ros Kavanagh (Photography & Film); Bill Hastings, ARC Consultants (Conservation Consultancy and Daylight Analysis). Additional consultancy from: Andrew Lundberg of Passivate (Energy Consultancy), Greenbuild (Thermography and Air Pressure testing); ICAN Acoustics (Acoustic Testing); Lambstongue (Specialist Window Consultancy) and graphic design by New Graphic.

Drawings by John McLaughlin Architects

With special thanks to the Getty Foundation and to our sponsors, The Irish Architectural Archive, Queen's University Belfast, the Department of Education and Skills, RIAI, St Brendan's Community School Birr, Cement Manufacturing Ireland, Banagher Pre-cast, Loughnane Concrete, and CCAE. This project would not have been possible without the help and co-operation of the students and staff at St Brendan's Community School, including: Principal Ming Loughnane, former Principals, Br Denis Minehane and Tom Foley and Deputy Principals Fidelma Foy, John Kennedy and Paul D'Arcy; teachers Brian Kennedy, Aengus Byrne, Sharon McConnell; school staff Margaret Hensey, Jackie Dunne and Christy O'Sullivan; students, Emma Mulrooney, Anna Morris, Adam Hart, Aoife Scallan and Colm Hogan. Also with thanks to the Doyle family, Peter Twamley and John Meagher for participating in interviews and supporting the project. With thanks to Wessel de Jonge, Sheridan Burke and Thomas Pearson for their continued support of the project during site visits. With thanks to Colum O'Riordan, Simon Lincoln and Anne Henderson in the Irish Architectural Archive for their help in organising the events.

ACTIVATING EMPATHY THROUGH THE ACT OF DRAWING

Louise De Brabander

INTRODUCTION

In this paper we propose the act of drawing as a moment of embodiment and a tool to further enhance empathy in observations of phenomena related to architectural design which are difficult to grasp and understand otherwise. This research aims to develop ways of understanding fragility in architecture through developing different kinds of drawings. The paper aims to critically assess and reflect on three series of drawings, their interrelation and how making those drawings contributes to understanding fragility through empathy. The drawing series comprise: (1) A selection of drawings from the first author's drawing archive, (2) a series of sketches as memo drawings, employed and further elaborated in (3) a series of drawings that gradually unravel and decode spatial observations.

Pallasmaa advocates a fragile architecture, and more precisely an architecture of fragile structure and image, as opposed to an architecture of strong structure and image (Pallasmaa, 2000). However, in architecture, fragility's meaning, where and how it occurs, and the criteria that determine whether or not a context (material or mental) is fragile, are not explicitly defined. The use of the term fragility is often based on vital intuitive hunches (Lagrange, 2015). Fragility may well be intangible and understandings can therefore not only be communicated in words.

The research therefore initiates, as a hypothesis, an (empathic) drawing process to (1) understand and (2) communicate the emergence and agency of fragility.

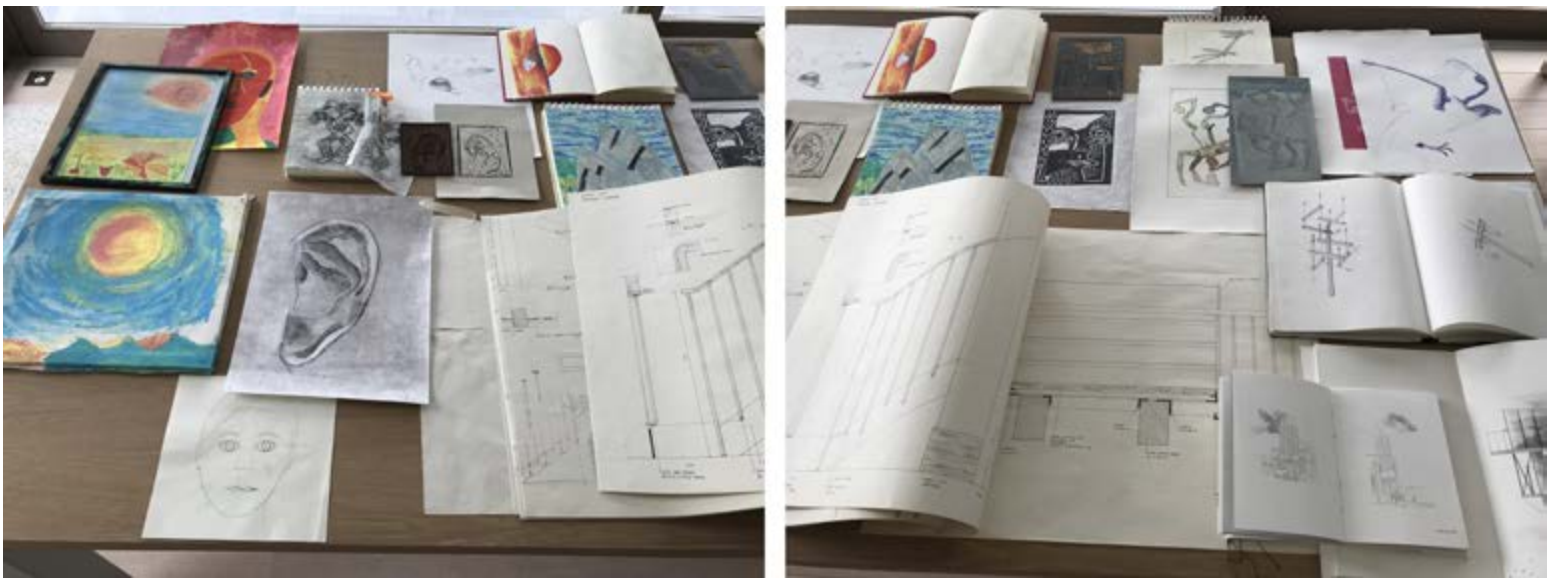
ARCHIVE/PORTRAIT

Drawing has been the most intense form of observation for the first author-as-draughtsman. To obtain insight in the author's way of drawing and hence observing, the author's drawing archive has been observed. The archive encapsulates drawings made as a child, a youngster, an architecture student and an architectural researcher. Over the course of multiple weeks, the archive has been brought together and the gathered drawings have been systematically revisited through photographing and chronologically ordering them, gradually dwelling in them.[1] Regardless of the indications that many of the drawings are interlinked on different levels e.g. techniques, tools, methods, and

1 The archive comprises 400-500 drawings. A selection of 150 drawings has been closely observed. The drawings have been categorized by their years of production, allowing the author-as-draughtsman to interlink drawings from different time periods.

subjects, and that in every drawing, elements of previously made drawings are embedded, the observation gradually started to delineate a portrait of the author-as-draughtsman (Fig. 1). Bart Verschaffel states that a portrait is not merely about resemblance, but also about ‘visagéité’ (faciality), for which the ‘pierced surface’ is essential and reveals the presence of an inner something or someone. Every opening in a surface looks but also absorbs and pulls in (Verschaffel, 1999 and 2012). Each drawing in the archive lies on the table as a peeping hole and narrates the way it was made, how the subject was meticulously measured with the pencil or imaginarily made up, how the draughtsman was drawing to understand the drawing subject (Vico, 1725).

FIGURE 1. Photographs of a selection of archival drawings



Here, empathy comes into the scope. Empathy is an inborn and intuitive capacity that can be worked on intellectually, and enables us to project ourselves into the inner world of others on the basis of our own bodily states, regardless of whether these others are persons, creatures, places or things (Robinson, 2015). Giambattista Vico stated in his New Science:

"As rational metaphysics teaches that man becomes all things by understanding them, imaginative metaphysics shows that man becomes all things by not understanding them [...] for when he does not understand he [...] becomes them by transforming himself into them" (Vico, 1725).

Taking a Belgian dune landscape as a case study and subject of the drawings, we observe slowly, hence deeply through a lens of empathy, induced by the act of drawing: prolonged (empathic) looking and thus drawing steadily as a method of deep observation in order to understand, in this case fragility, through direct experience, observation and transformation (Pallasmaa, 2000; Vico, 1725).

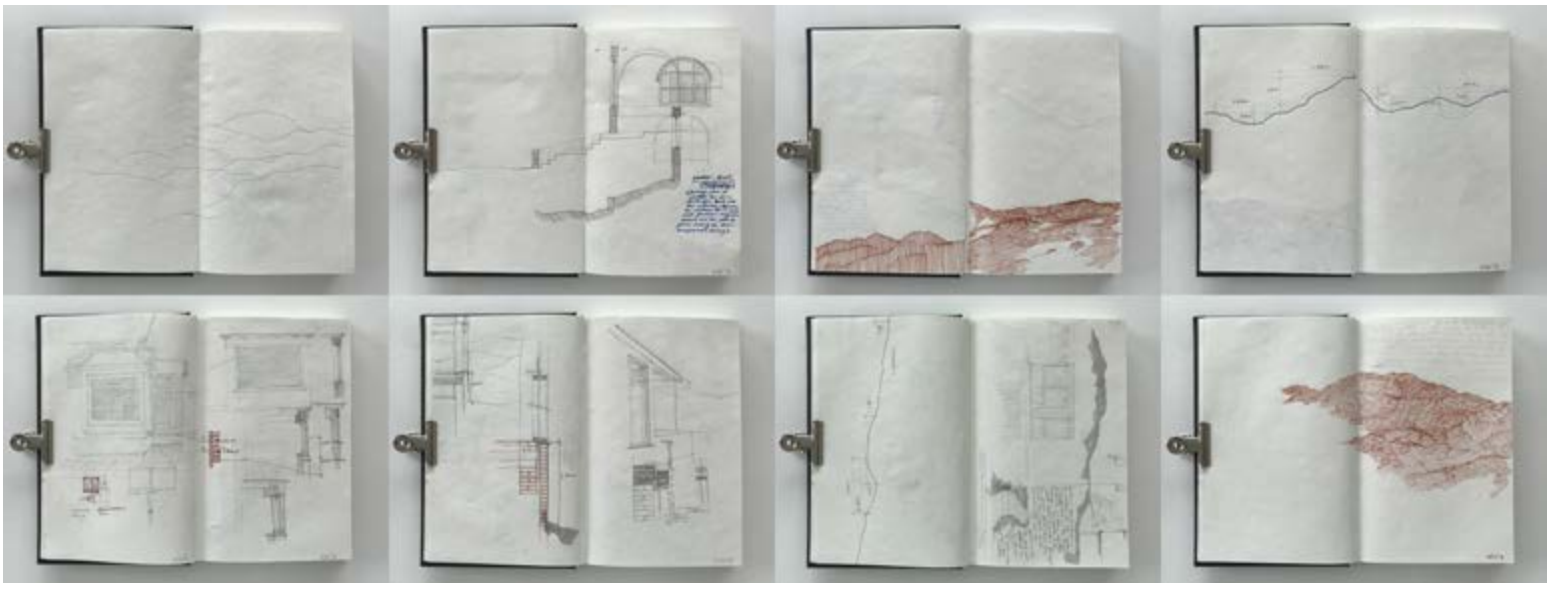
Two drawing cycles have been made in the latest stage of the research:

(1) A series of sketches as memo drawingsmade on site that initiated a second series of drawings.

(2) A series of drawings that gradually unravel and decode spatial observations.

The drawings in the first cycle exhibit how the author dwells in the landscape and gradually develops focus through drawing on site. This landscape triggers a sense of solitude elicited by the absence of people and physically embodied by desolate buildings and especially their windows that are often closed off by curtains or window blinds. Edward Hopper always wondered what a room would look like when there was no one there to see it, or even to look in (O'Doherty, 2013). A similar solitude at those windowed edges of the dune landscape arouses interest because of the impossibility to look at the landscape through the windows, and to visibly and physically enter the spaces they enclose. Looking at the landscape through those windows and dwelling in the spaces they enclose is the only position that cannot physically be taken. Therefore the draughtsman tries to take that position through drawing. The drawn fragments and details are imaginations of how the windows and parts of the spaces they enclose might have been designed (Fig. 2).

FIGURE 2. Selection of memo drawings made on site



Back in the research studio, the sketches as memo drawings have initiated a second drawing cycle consisting of three sub cycles.

Firstly, sketches of the dune landscape have been transposed to layered etchings comprising the sky, the landscape's section and topographical surface (Fig. 3). (Sub-cycle 1)

FIGURE 3. Etching in sub-cycle 1

Secondly, the sketches of details and fragments of windows, the spaces they enclose and the landscape they overlook have been further elaborated in a next series of drawings (Sub-cycle 2), hence sketches as memo drawings. They have been unravelled and taken apart (decoded) in drawings on silk paper (Fig. 4). The draughtsman has drawn a way from one side of the window to the other, capturing the process of unravelling that imaginary movement.

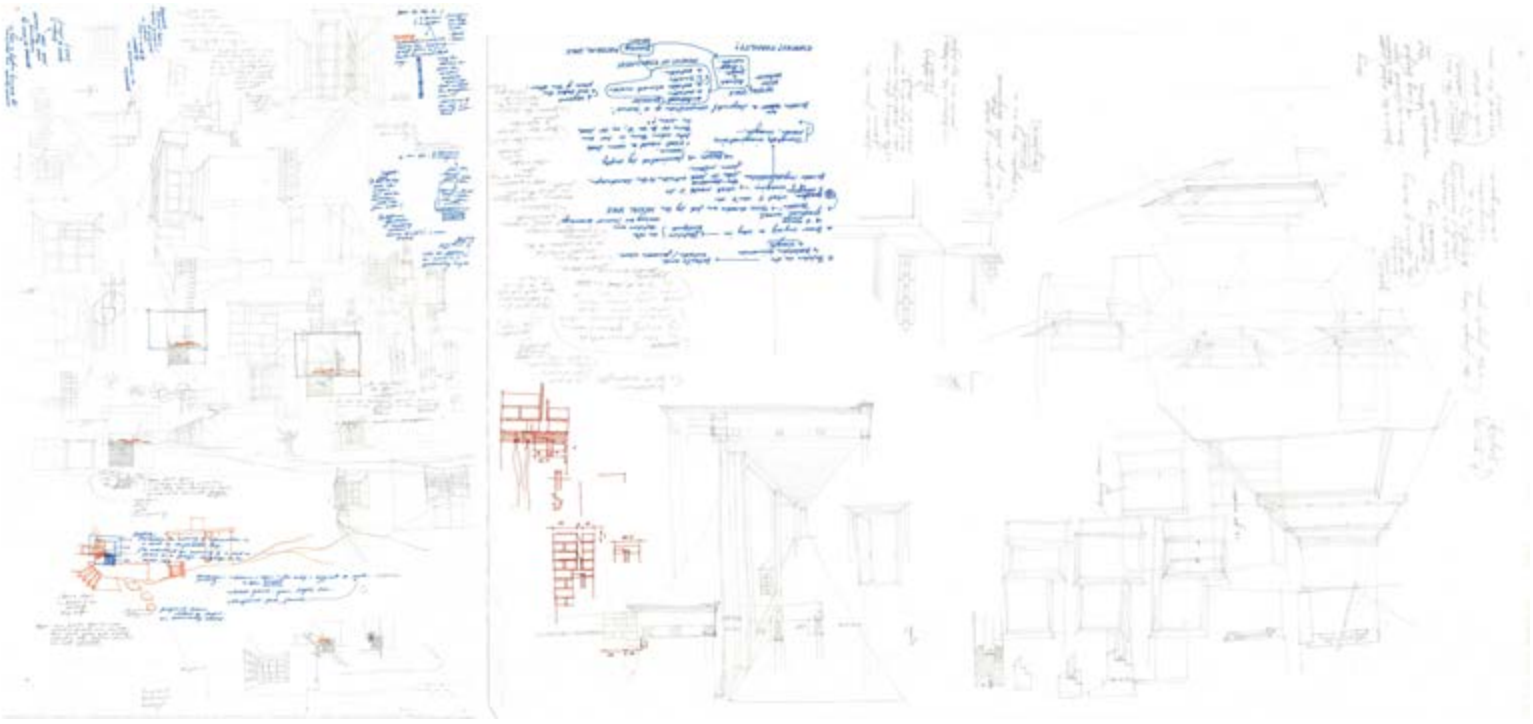


FIGURE 4. Two drawings in sub-cycle 2, silk paper, 50x75cm

Thirdly, but simultaneously, the first sub-cycle has been continued by drawing layered pencil drawings on the etchings to intermediately synthesize the stream of thoughts in the second sub-cycle (Fig. 5).

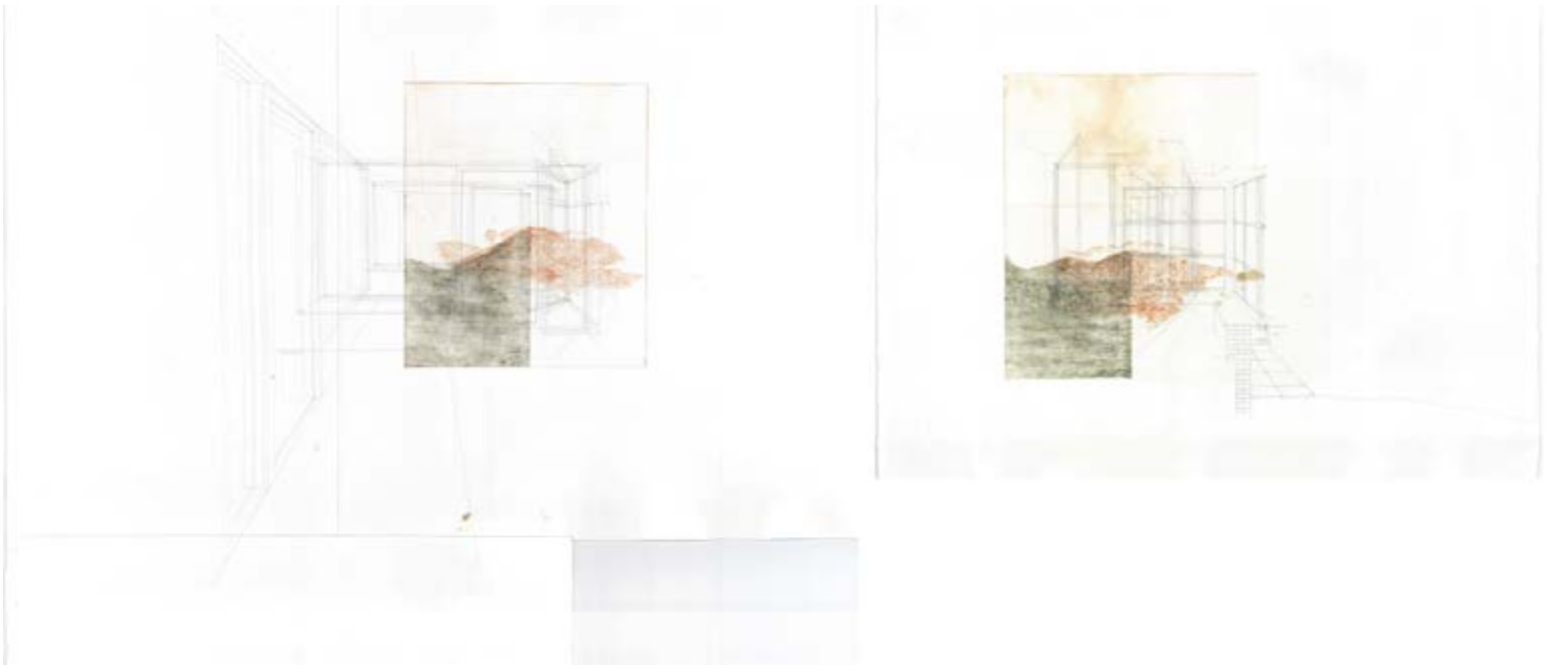
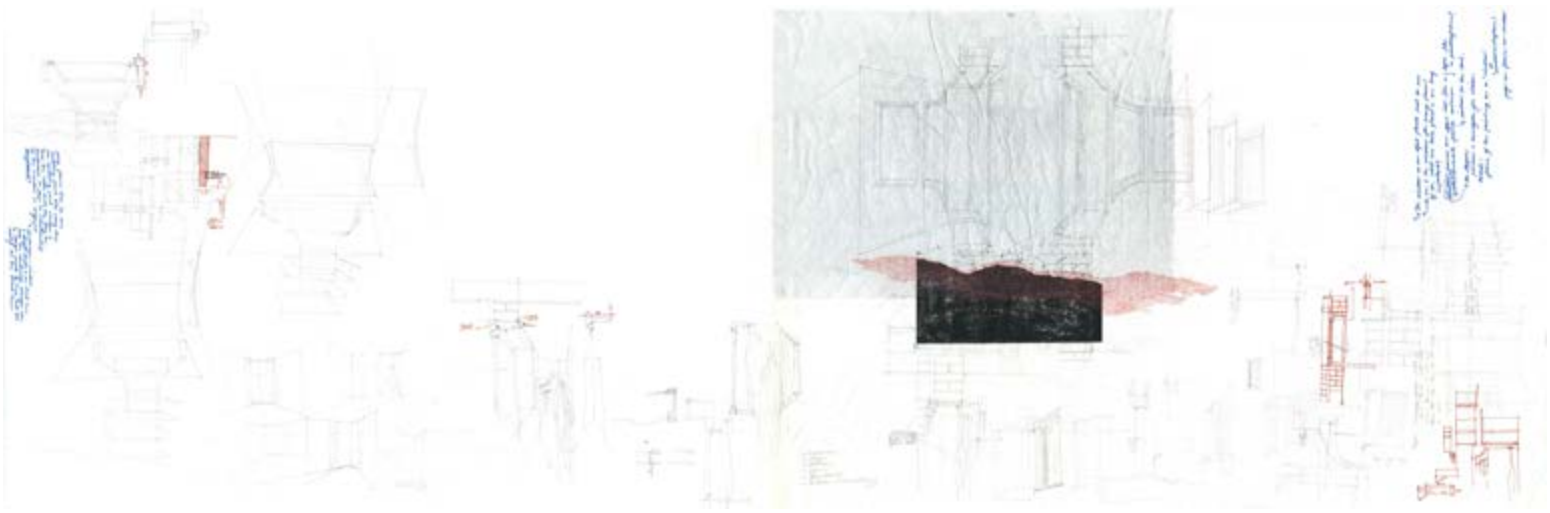


FIGURE 5. Two drawings in sub-cycle 1,
72,5x87,5cm and 49,5x68cm

To diminish the physical and mental distance between analysis (sub-cycle 2) and synthesis (sub-cycle 1) and to avoid that the act of drawing was continuously interrupted by alternately working on both drawings, they have been combined on the same sheet of paper (Fig.6). (Sub-cycle 3)

The drawing cycles and the way they interrelate exhibit how the draughtsman excavates through matter in order to understand. We call this process decoding drawing (verb), with decoded drawings (noun) as outcomes, as they reflect a process of unravelling and taking observations apart to understand the meaning of information given in a complicated way.

FIGURE 6. Drawing in sub-cycle 3, silk paper,
50x150cm



The drawing process as described above provided the research process with the leverage that was necessary to question the status of the window. First, the window has been drawn and understood as an object placed next to the draughtsman. Subsequently its possible different meanings and metaphoric relations to the way we observe and thus draw came to the fore (Friedberg, 2009). Is the window an object placed next to the draughtsman who is looking at one place? Or does the draughtsman personify the window for many places? If so, what are these places and are they important? These questions will be the subject of the next research phase. The drawing cycles as described above have been necessary steps to make this clear. The material window has become part of us, we are empathically becoming the window (Vico 1725) in order to see, look at and thus understand an underlying and elusive concept such as fragility. The research is making clear that the act of drawing is an intense and empathic moment of embodiment, hence being a moment it is temporal. In that moment the draughtsman dwells where his 'object of obsession' that he is drawing resides. In that moment the draughtsman and this 'object of obsession' coexist, become one another (Vico, 1725). This moment of becoming, and thus the empathic window through which we observe, is extremely fragile. This is the fragility we are seeking to investigate and understand through this research. Architect and draughtsman Umberto Riva talks about impermanence by choice: the fragility of the unstable as opposed to the certainty of the defined (Zardini, 2015). The drawings are a way to avoid the destruction in this moment by capturing it in drawing cycles of this kind so they can possibly give more permanence to 'the fragile'.

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SCRUTINIZING SPATIAL POTENTIAL BEHIND THE REPRESENTATION THROUGH PERSPECTIVE DRAWING

Eva Beke

The establishment of linear perspective, the geometrical tool to suggest a 3D systemized and infinite pictorial space on a 2D surface — based on the principle that all parallel lines converge to one central vanishing point –, dates from early 15th century. It was a significant feature in Renaissance art, and ever since it has played a substantial role — if not dominant — in (architectural) representation and spatial understanding. This doctoral design driven research however argues that there is a hidden potential to perspective as we know it and that it could be employed as an actor in the process of (three-dimensional) space-making as well. Furthermore will this generation of new spatialities provoke further reflection on how we look at space.

In the West, a tendency toward a more accurate architectural representation was resumed around

1300. Giotto di Bondone (c. 1267 — 1337), a painter-architect from Florence, is broadly seen as a central figure in the development of pictorial space, as it is largely within his frescoes that the concept of “portrait of architecture” was consolidated (Benelli, 2016). With a renewed interest in the corporeal reality, the figures became more detailed and concrete. In contrast with the flat iconic tradition of the foregoing medieval centuries, these actors were allowed to take up space, to become grounded. Parallel to this development the architectural space enveloping the figures became more elaborated as well. It was a way to create depth and suggest a sense of reality as experienced. The geometry of architecture offers a mathematical clarity and a place to posit one figure in relation to another or to his surroundings. It seems only logical that the development of depicted architecture and the evolution of “perspectivization” (Vesely, 2004) were interdependent processes. The architectural elements hold the painting together: as a visual composition, as a framework of relations, and as a significant actor in the narrative itself.

The period in which Giotto was active, the Proto-Renaissance, can thus be seen as a transition period between the flat iconic medieval space and mathematical Renaissance perspective. It is however not a mere, unskilled, predecessor, but holds a representational system as autonomous and authentic as any other culture or person at any other time had. “Realistic representation,” as Goodman (1968) outlined, “depends not upon imitation or illusion or information but upon inculcation”. And it is this inculcation, or “period eye” as Baxandall (2011) refers to it, which determines how we think about or understand space, what we define

as standard. Interesting about Proto-Renaissance representation, and possibly contradicting how we perceive space today, is that depth was explored without the dominance of one central vanishing point (as linear perspective prescribes) which freezes a situation and locks the gaze. Paintings from that time are works of plurality, where the eyes can move across freely. There are different actions going on, there is a multitude of vanishing points, hence station points. Time is collapsed, not linear. Space was not conceived as a frozen moment in time, a view through a window on reality (Alberti, 1935), where everything happens simultaneously — like the unified and instantaneous photographic image of actual space that we are used to now. The Proto-Renaissance space was conceived as a combination of different structural elements, enabling time to move on and the narrative to take place. It is an imaginative space which can be read as a story: instead of monolithic it is a polyscenic depiction, where, instead of simultaneous, sequential viewing is facilitated.

This pictorial style, characterized by the multiplicity of sequences, and with the continuous narrative as a lever, is thus an ideal context for this research on perspective's potential and the associated perception. As it is contradicting the conventions of today — from the general assumption that a convincing representation implies simultaneity, offered by one point perspective (Lews, 1995) — this discrepancy can on the one hand question the prejudices (about alleged restrictions) that perspective suffers and on the other our conditioned attitude.

Within the context of this diverging representational style, this research aims to critically question the

perspectival dogma in our spatial production and understanding as architects. For doing (designing) and thinking (perceiving) are strongly intertwined in the generation of creative and knowledge production, in architecture practice in general and this design driven research in particular. In order to defy the perspectival paradigm, two innovative and interconnected shifts are aimed for: liberating both (1) the practical process and the (2) mental one from the dominance of linear Renaissance perspective. (1) On the practical level, we approach the conception of perspective as a geometrical construct, aiming for a shift in use: unlocking perspective's potential to become an innovative 3D tool that gives access to a milieu of spatial possibilities. (2) Following from these pragmatic explorations, we will subsequently address the intended shift on the mental level. In this context, perspective is engaged as a cultural construct (Panofsky, 1991; Damisch, 1994; Elkins, 1994), shedding the dominant paradigm and opening up for a more conscious way of 'looking' — a shift in perception.

As a first case the fresco The Birth of the Virgin (200cm by 185cm) was selected (Figure 1). It was finished by Giotto and his workshop in 1305 and decorates the walls of the Padovan Scrovegni Chapel, as a part of the cycle that depicts the lives of Mary and Christ. The scene takes place in Anna's bedroom, a rather remarkable one-room-house, one side opened towards the onlookers in the chapel, but still feeling claustrophobic because it is packed with people. On the foreground two of the midwives are sitting on the ground around a basin of water, having prepared the cloths and taking care of the infant Mary. Central we see Anna in the bed, reaching out to the nursemaids standing next to her

to take over the newborn. At the left, a similar gesture is taking place at the doorway where the bread is being handed from the outside to the inside. The Virgin is depicted twice; it is a polyscenic painting where different sequences in time happen at the same moment in the same peculiar room. Peculiar, but specific. It answers to the needs of the narrative. The architectural object organises three instants and does that from within an inner logic, not constructed by being subjected to external rules.

FIGURE 1. Giotto di Bondone (1304-1306) — The Birth of the Virgin [fresco]. Scrovegni Chapel, Padua.

Our first step in the empirical exploration of Anne's house is interpreting the composition as a spatial organisation of three planes (Figure 3). These three planes, perpendicular to the surface of the fresco (from left to right: the portal between the columns, the wall with the door, the wall with the window) divide and structure the composition and the story. The three atmospheres (referring both the treefoldedness of the human actions and the built structures) are ingeniously assembled together into one image. Every aspect requires its own 'perspective' and therefore its own vanishing point, hence station point. Through performing analogue perspective drawing interventions, we are able to penetrate the picture plane and (re)construct possible versions of the depicted architecture; a reversal of projection leads to a transformation from 2D rendition into 3D reconstruction. The three station points that are related to the tree vanishing points as mentioned above, are located in front of the picture plane and plot a walk along the interior wall of the chapel. The movement from viewpoint to viewpoint, from instant to instant, corresponds with the sequential occurrence in the painting. On the tracing paper, locating these station points is the primary step in the perspectival reversal, or physical articulation, of the representation. By casting out of these points the sight lines, projecting lines and the lines converging towards the vanishing point, the space emerges line by line behind the picture plane and spatial suggestion becomes spatial occupation.

This three-dimensionalization, is an amalgam of projections (three layers, related to the three vanishing points, on top of each other) that suggest a coinciding of different moments in time (the same depictions seen from the three points of

view) joined together in one new space (Figure 4). The polyscenographic drawing of this composite space serves as a looking machine which is accessible and expresses the possible, the temporal, the narrative. It is a new space that is ambiguous and dynamic. Drawn out — literally — from Giotto's fresco, it is not a mere (re)construction, but a fiction that is unconventionally composed — and from some points of view even unsettling –, enabling the exploration of one's own looking while simultaneously exploring the space itself, comparing expectation with experience. The temporal aspect, which was already inherent to the original image, contributes to the flexible and instable, but fascinating character of the three-dimensionalized fictive field: a context where confusion and ambiguity (characteristic for Proto-Renaissance depictions) are tolerated and, moreover stimulate further virtual explorations and potentially subsequential innovation. The 'faults' and paradoxes serve as trigger and eye-opener, for they are cracks that open up to the network of possible places, challenging the potential of perspective as a tool when it breaks with the conventionally associated rigidity and how it in doing so can question perception.

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EXHIBITION PROPOSAL
ARTEFACT

As artefact we would like to present the intermediary output of our dwelling behind the surface: the confrontation with Anne's house after being subjected to a perspectival disclosure. Central is (1) the drawing (pencil on tracing paper) that shows the represented house, approached as an autonomous architectural object but at the same time brought into relation with the physical reality of the chapel that incorporates the fresco. At the right hand side the position of each figure is investigated. The original drawing will be physically presented at the conference. The paper measures 90 by 200 cm and should preferably be laid down. The extra (2) model and (3) drawings that accompany this centerpiece will be displayed in relation to it: placed on the paper, integrated within the surface area, so to form one whole and not to exceed the 90x200cm borders.

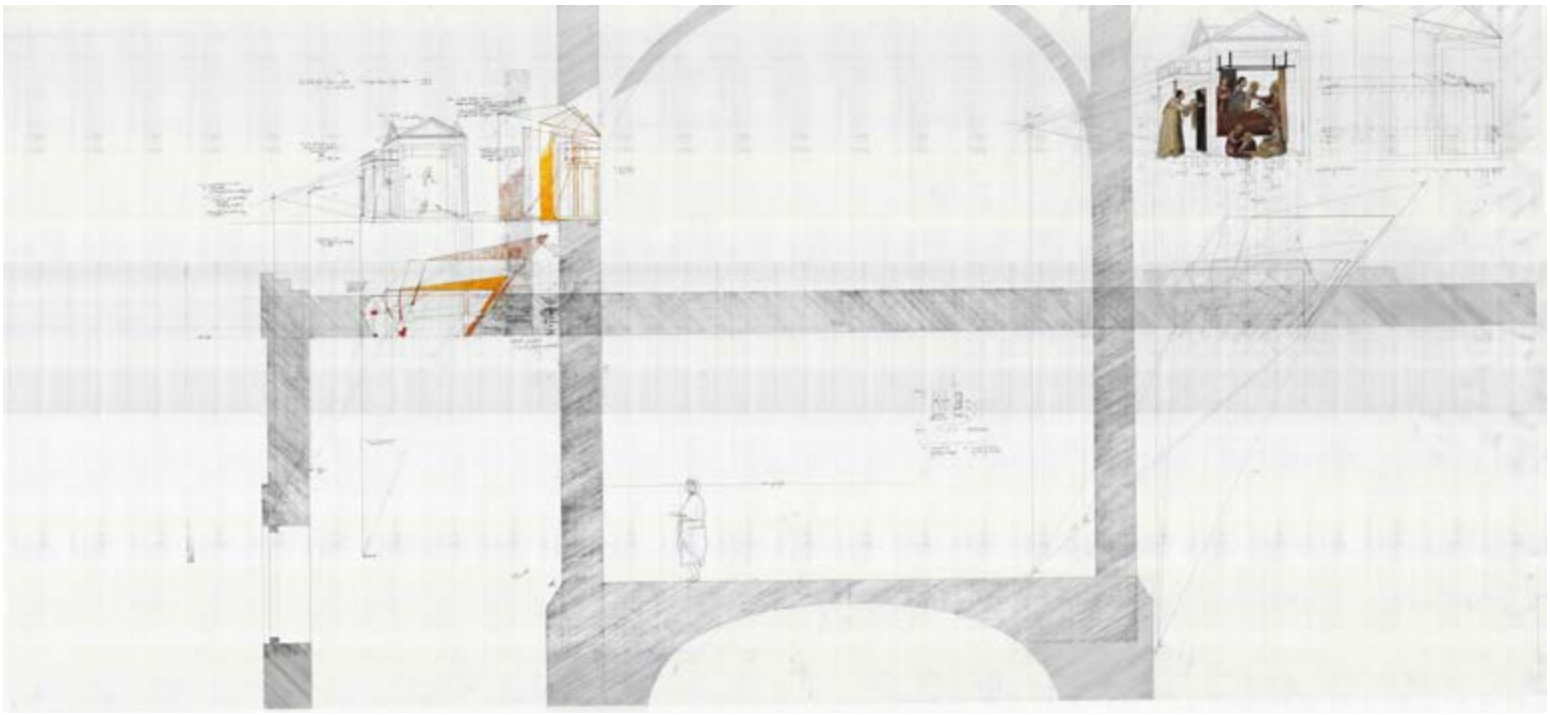
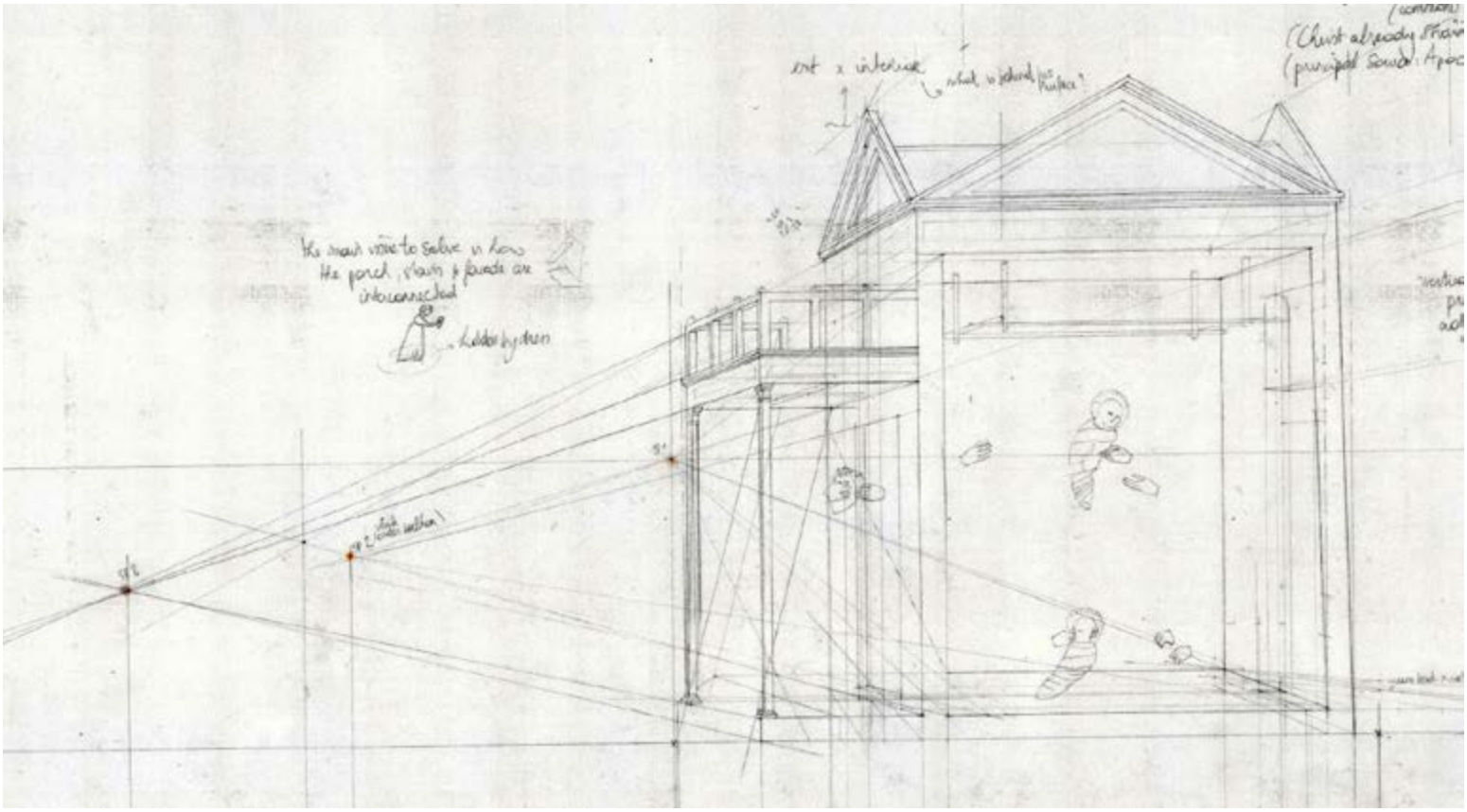


FIGURE 2. Drawing out The Birth of the Virgin. Pencil on tracing paper (200 x 90 cm) (image by the author).

FIGURE 3. Detail of the drawing (image by the author).



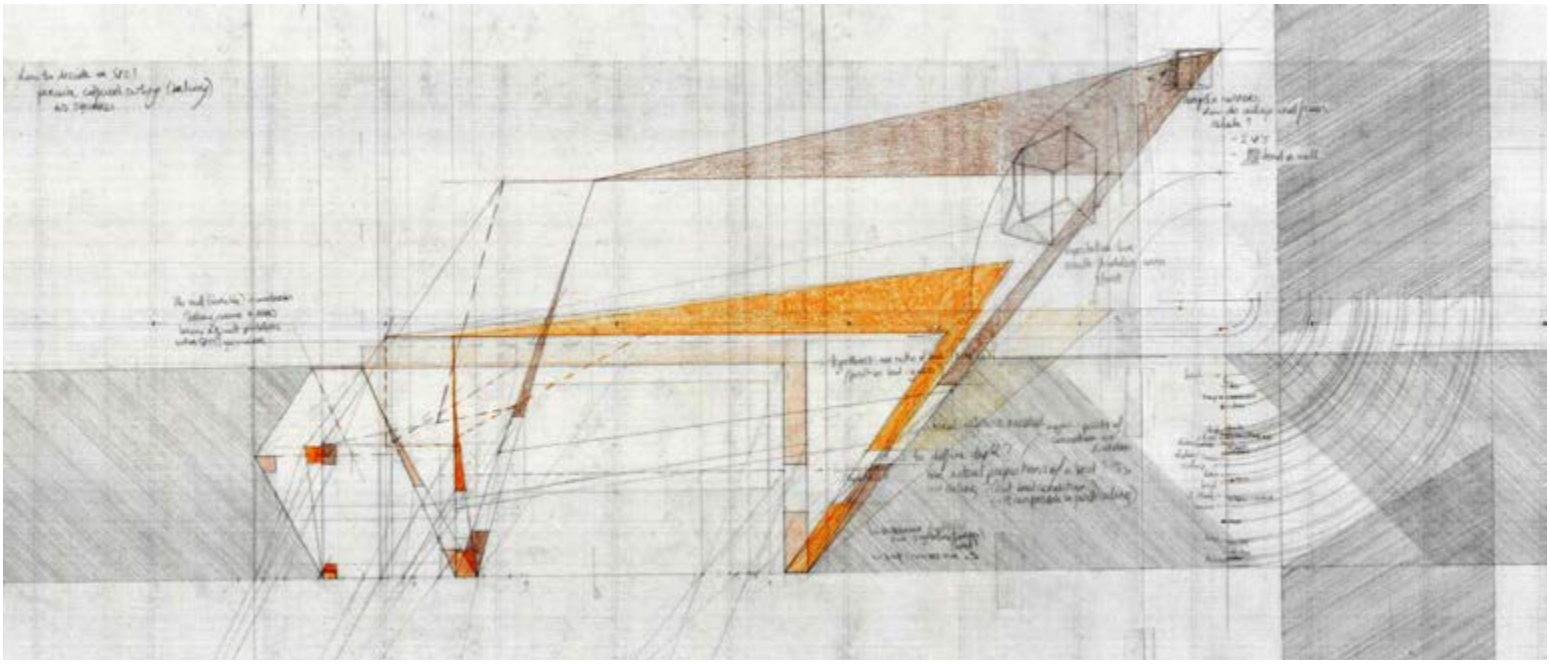
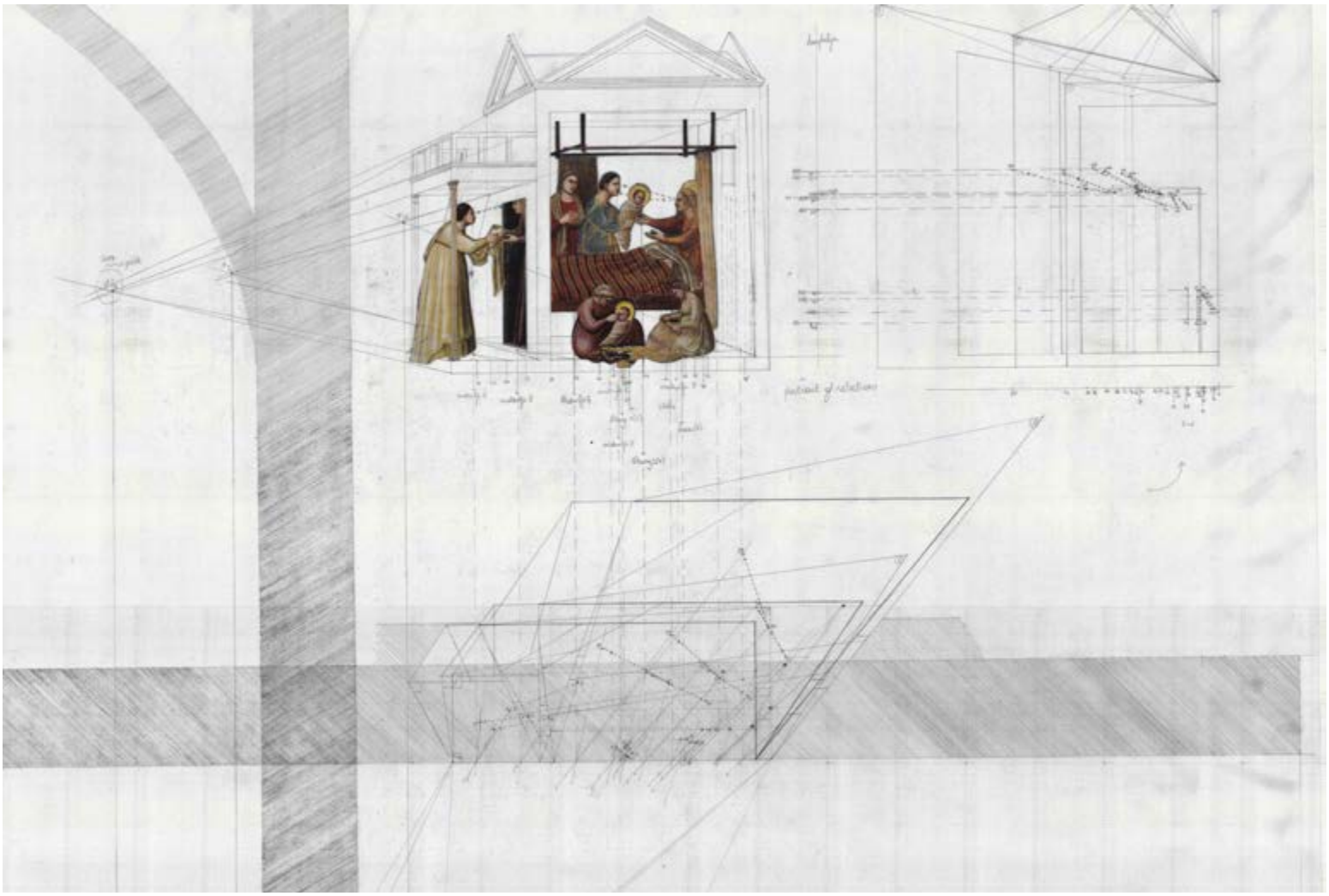


FIGURE 4. Detail of the drawing (image by the author).

FIGURE 5. Detail of the drawing (image by the author).



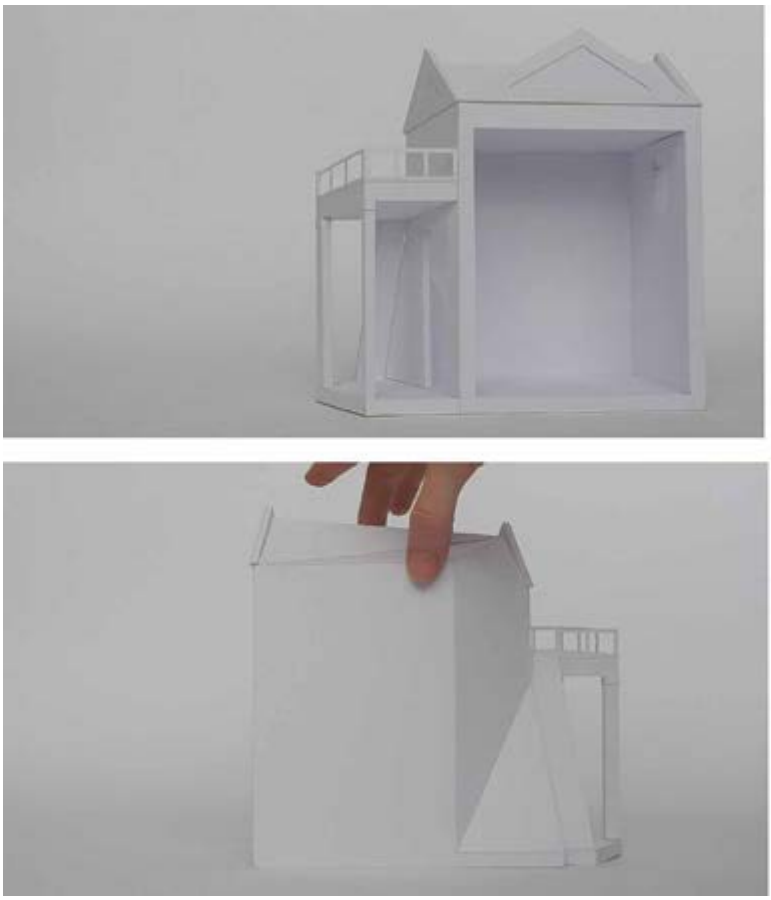
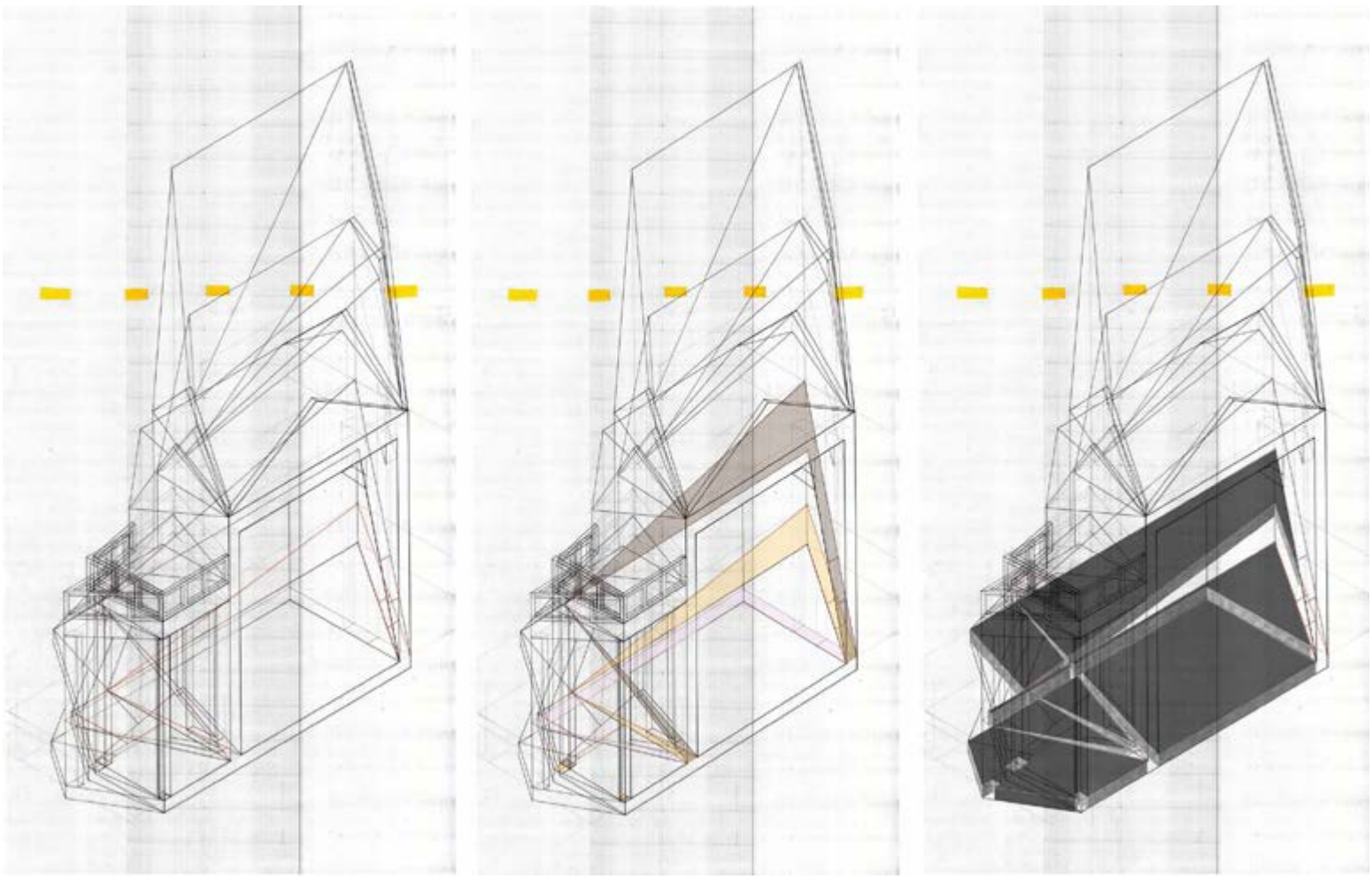


FIGURE 6. Stills from a video showing the mise-en-scène of the (distorted) paper model. video url: https://vimeo.com/user78638615 (images by the author).

FIGURE 7. Isometric drawing of Anne's house. Pen on tracing paper (images by the author).



Testimonials
Ghent

Christoph Heinemann
Ralf Pasel
Dominik Mohs
Anna Hougaard
Fabrizia Berlingieri
Pier Paolo Tamburelli

TESTIMONIAL
Christoph Heinemann

The conference in Ghent was the first CA2RE conference I attended. Introduced by my colleague, Matthias Ballestrem, with whom, together with Antje Stokman and Mona Mahall, we initiated a network to enhance design driven research at HCU Hamburg, it was a great opportunity to get further insights on the matter. The setting at Sint-Lucas / KU Leuven was quite impressive; the large group of peers attending from all over Europe and the mix of panels, informal gatherings, exhibitions, performances was inspiring and dense.

During three days, involved as a panel member, I was confronted with quite diverse topics and different approaches on design driven research. The bandwidth of the projects was as wide as could be hoped for, and therefore the question on how design driven research could or should be defined and framed in comparison to methods following other disciplinary sets of rules for scientific research was raised repeatedly.

Some projects were office-based architectural design projects, where it was unclear what the leading scientific question was. The simple definition of practice as research is thereby not convincing, as practice most of the time is strongly bound to constraints, which hinder proper and free research. In these cases, it should be made clear how it is to be secured that the work in practice is independent and benefits from enough scope to provide results beyond the average.

Other approaches used empirical research, work based on grounded theory, elaborated on complex sets of research methodologies, while leaving unclear what the design-based part of the research would or could be. The approaches were often sound, but one was left with the doubt if the approach should be considered as design driven research.

As the abstracts on the research projects were only available shortly before the presentations, and thus knowledge on the contents of the works was very limited, the discussions on the panel, the critique, and reflection of the work was often affective and reactive, thus not precise enough to really provide substantial support to the doctorate candidate. It would certainly enhance the performance and success of the conferences if the content of the different research projects would be communicated in due time before the event, so that the candidates could really profit from an interdisciplinary encounter. This being often a blind date, a deeper knowledge of the work to be debated would also allow for discussions at eye level–which is especially not the case when the panel member is considered as a critic at higher level, more than as a peer.

These frictions being minor weaknesses, the conference provided multiple occasions to communicate and allowed for exchange on many levels. I would be glad to take part again, and will certainly promote design driven research as an option and alternative approach for doctoral candidates at HCU Hamburg.

TESTIMONIAL
Ralf Pasel

The first CA²RE+ event in Ghent was informed by a wide range of formal and informal encounters within a wider research by design community that spanned all over Europe. On various occasions the topic of Design Driven Doctoral research (DDDr) was presented and debated from a content view in the PhD presentations of the candidates, from an administrative view in the partner meetings, and from a methodological point of view in the collective workshops. The overlay of all three layers generated a broad and deep insight into the full complexity of that relatively young scientific research field.

THE ADDED VALUE OF DESIGN DRIVEN RESEARCH

Most enriching were the numerous approaches that applied design, or better, the actual act of designing, as a research method and a way of gaining new insights into complex questions or even (super) wicked problems. As a consequence, the PhD projects that consisted of design-project-research were particularly interesting due to the fact that the format of the exhibition was a revealing added value to their presentations. The work of the artefacts and the precision of the work stood in many cases for the research itself, and was deeply grounded within the project methodology.

In contrary, the more classical and mostly theoretical projects that were presented in a classical, frontal setting (classroom-like situation) stayed in many ways more hypothetical, leaning their findings on partly quite daring allegations.

The combination, however, of presenting the findings in words, drawings, and artefacts created a triptych of information that in the end revealed more insights than the sum of the three parts by themselves. This added value is highly valuable. Reflecting deeper on this, it may be worthwhile considering generally combining Design Driven Doctoral research projects with the creative act of producing artefacts. It diminishes the distance between creator and observer and brings us closer to the actual core of the project, the content. Also, this would allow for a better and deeper understanding of the specific findings within the PhD projects; it would open up the research to a wider interpretation and contextualisation of the specific findings.

Almost needless to say, this of course also requires a peer committee that is able to reflect, review, criticise, and negotiate the content of the projects on multiple layers on that challenging level. With respect to the culture of peer reviewing, substantial differences could be observed between the peers and their backgrounds. Interesting was the fact that this gap was less due to cultural differences but more rooted within the different disciplines and the fact whether the peers were experienced in designing themselves, or not–a fact that is not a given in all European countries.

DIFFERENT RESEARCH BY DESIGN CULTURES

Generally, the parallel sessions in multiple (3) streams allowed for a good overview of the different design driven research approaches. The

manifold projects presented an enormous spectrum of what design driven research actually comprises. From specific design activities solving a complex question, to methodological questions on how the act of designing contributes to the development of new tools or strategies that are relevant for practice, to theoretical considerations that took 'design driven' from an observing angle, trying to position it within the bigger framework of knowledge production as such.

Interesting was the fact that even though there was no doubt about the relevancy of research by design on one hand, there seemed to be no common understanding amongst designers of what research by design really is, or is meant to be, on the other hand. Consequently, the contributors stayed fairly vague and uncertain in their presentations in positioning their research in that context.

This is even more important, considering that most of the design driven research issues treated in the PhD projects related to the bigger scope of societal questions that, in one way or the other, tried to solve a problem by approaching it from a spatial perspective. Here it seems particularly interesting exploring the potential to cross-overlap it with other disciplines and bring it to a wider level.

Nevertheless, the different research cultures within the European bandwidth were interesting and showed the importance of the CA²RE+ project once more.

To conclude, the question may be asked in how far a more focused selection of the candidates, with respect to the immanent quality of their

design work, would have provided a deeper and more challenging insight into the field of design driven research and would have allowed for (even) more exciting results.

TESTIMONIAL
Dominik Mohs

METHODS OF PHD STUDENTS

All of the presentations of the PhD applicants try to cover the field of practice-based research by doing design-based research. That means, in a broader sense, that projects based on individual thought and realisation are used as a base to generate knowledge. The base of reflection of the design-based researchers should be linked to well-defined theories; vice versa, theory is used as a starting point to design or gain further knowledge from their practice.

Before commenting on specific examples that I saw at the CA²RE+ colloquium in Ghent, two observed general tendencies of the presented abstracts should be mentioned:

The *first tendency* consists in using projects from the candidates' professional practice as architecture, landscape architecture, design, etc., to post-categorise and connect it to fields of knowledge to which it could correspond in its initiating intentions. The hope is to get a critical judgement of the project's qualities, or to get back to a quality that might have been lost during the design process.

The *second tendency* is to develop new projects or experimental settings for the specific context of knowledge in which theory and practice are intertwined from the beginning, and to be curious where the initial research intuition might lead. This tendency is, in most cases, positively supported by the mentors of the applicants and the

observers, because it gives hope to real innovation in both practice and theory.

In the *first tendency*, which one could call the *connection tendency*, an attempt is made to use practice and theory in a separated way to produce knowledge. A good example for this approach is the art historian who judges and categorises the work of an artist on the basis of their expertise. This is supposed to have the advantage of objectivity in the analysis of the work, because the critic is not entangled in the often confusing conditions of production of the researched object. The design-based researchers following this tendency try to take the part of an expert in theory and the producer of the design at the same time. As in most of the presented approaches of the doctoral applicants, the design process is the subject of research; the disadvantage of the *connection tendency* is that there is a big distance, even a rupture, between process, object of design, and critical analysis. The other problem when theorising professional practice of applied arts is often a too strong entanglement between the different participants' opinions and interests in projects like, for example, those of architects investors, engineers, or clients.

In the *second tendency*, one of the advantages is that research question and research setting, like in empirical methods, can bring clear results. Clear results in this case means that the research setting and its design is only influenced by the researcher's intentions. Like in laboratory environments, only those influences and circumstances are made possible or rejected which afford ideal conditions of observation.

But the second tendency, which one could call for the above-mentioned reasons the empirical tendency, also has disadvantages in the fact that the developed research settings are often hardly connected to the everyday design work of, for example, a landscape architect. The research question in that case often concerns only a small part of the designer's professional practice. With their methods, most of the PhD applicants of the CA²RE+ programme stand on the threshold between using realised projects and the development of an adequate setting for their research.

METHODS OF THE MENTORS

The above-mentioned methods of the PhD applicants might explain the critical methods of the mentors: if the applicants' research approach consists in the *connection tendency*, the mentors try to motivate the definition of a more clearly identifiable own concept or research question of the applicants. Another often mentioned point was that the authorship of the content should be identifiable in a clearer way. Often the candidates do not mention or are not conscious of the way they were influenced by others. Designing and artistic practice mostly use other methods than scientists to produce knowledge. Often it consists of an intuitive appropriation and transformation of knowledge. For that purpose, the mentors are supporting the *empirical tendency* to have a process of conscious appropriation of knowledge and its positive development at the same time. The relevance and efficiency of the design-based doctoral programme CA²RE+ consists in the reflection of artistic practices as a unique field of knowledge and its immediate connection to and through practice and practitioners.

The doctoral students profit from a rare openness, patience, and experience offered by the mentors in questions of design work, which often conflicts with a clear explanation.

The mentors give advice to similar design and research approaches and open questions, to reinforce the relevance of the research questions. The individual approach of the applicants is motivated to foster the potential for innovation.

METHODS OF SCIENTIFIC JOINT STAFF

The scientific joint staff marks the scientific context by their questions and comments. Often they demand a clear research question or criticise non-scientifical methods which consist, for example, of unclear authorship. The mentor sensibly reinforces the personal research approach, similar to the artistic education of designers or architects; the scientific joint staff completes the mentorship by offering an initial benchmark for scientific relevance and the consistence of research questions.

DISCUSSION TO IMPROVE THE APPLIED METHODS

The discussions to improve methods take place in a circle of applicants, mentors, observers, and scientific joint staff. Its atmosphere is one of openness. Everyone has the right to their opinion. Those who have more experience in scientific work ask for a clearer framework of research, for example, to find themes for future CA²RE+ events. At the same time the unique approach to knowledge that consists of the integration of artistic and design practice should not

be categorised too early. Everyone confirms that the differences between the methods of the colloquia taking place at the different participating universities and the CA²RE+ colloquia is a value which should be conserved. Cultural difference is by no means limited by a general method for all participants. A clear description of the different methods applied by the different research groups in every country, as well as taking the diversity of the universities' and applicants' approaches as a base for the CA²RE+ programme, seems to be a promising challenge to improve a general method of analysing practice-based research in the context of CA²RE+.

TESTIMONIAL
Anna Hougaard

The CA²RE+ conference in Ghent presented a peer-reviewed selection of design-led research in architecture, mostly on PhD level but also beyond. So far, I have experienced three CA2RE conferences: one in Berlin (October 2018), one in Lisbon (April 2019), and the latest one in Ghent (October 2019).

Because the conference series is focusing on methods and methodology, the research contributions are sometimes quite different in terms of content. However, during the two last conferences in Ghent and Berlin it seemed as if there was an additional focus on the overall theme of methods/methodology. This additional theme was not directly outspoken, but indeed traceable in the tone of the conferences. In Berlin, there was a focus on actual *building* and *crafting*, which was reflected in the keynote lecture about Bauhaus. In Ghent, there was an additional focus on *drawing* in architecture. This was reflected in the two keynote lectures by the architectural draughtsmen Mark West and Perry Kulper. It was also reflected through the fact that there were many presentations about drawing that were carried out through drawing. I personally enjoyed this focus, since drawing is also my research focus.

Although the richness in the variety of themes is a force of the CA2RE conferences, these additional areas of interest can be helpful to make the conferences more concentrated, because they gather the participants around more than method and methodology. Having a joint theme where

methods and methodologies have been applied makes it easier to compare how the research has been carried out and the outcomes. It also makes it easier to become aware of how different methodologies are used and see when there are similarities in methodologies and institutional frameworks. That being said, I want to stress the fact that the CA2RE conferences also very much live from generosity in terms of content and openness towards new approaches, a quality of the conference which is important to sustain.

During the presentations in Ghent, it became clear that the various participating architecture schools have different institutional frameworks, not just different research models. There are not only different research traditions, there are also different institutional frameworks (i.e., legal prescriptions about what qualifies a PhD). Some schools have more freedom in terms of what counts as a PhD, others have a more conventional framework. Some schools are open to experimentation with what a PhD can be–for instance, if it can be shown in an exhibition–while others are not. Knowing such differences in institutional frameworks would be good for the feedback situation between presenters and peers. As a peer, I give feedback in regard to the institutional situation of the presenter; that is one way of making the feedback as relevant and useful as possible for the presenter. It would both be interesting for the CA2RE community to become more aware of such institutional differences and also help focus the feedback situation. An effort of mapping such differences would make different traditions visible, and thereby easier for participants to recognise differences and similarities in national

and institutional traditions. Maybe the additional thematic focus points could also be strengthened even more, to help locate more precisely where new methods can be learned and where one's own research is situated. Mapping the different research traditions and methods could form a base for forthcoming design-led research in architecture–a landscape of methodologies where future design-led PhD candidates could situate themselves (or draw a new map).

Regarding the quality of the discussions in the presenter/peer situation, there was in general a positive and constructive tone. The network of peers in the CA2RE community has a broad range of expertise, which is good; however, the thematically matching peers and presenters were not always put together, which was a bit of a shame. However, in most cases the thematically correct people had been paired. Making sure that this is always the case would be important for future events. Exactly this problem was discussed in plenum at the end of the conference, and the organisers of the next CA2RE conference in Trondheim are well aware of this issue. Regarding the large common discussions, I appreciate that everybody is being heard, however, I wish for a bit more structure in the discussion, and maybe one person gathering the inputs and documenting them.

TESTIMONIAL
Fabrizia Berlingieri

PARTNER MEETING

TOPIC

The first day of the CA²RE+ event in Ghent was reserved to attend the partner meeting in which all the partners were present to discuss the settings and the modalities through which to conduct the Erasmus+ project and its relation to the past editions not funded by CA2RE.

COMMENTS

From an external point of observation the meeting seems to be effective in time and with a strong commitment in participation. The platform of discussion is horizontal and non-hierarchical between all the members. As a first meeting within the Erasmus+ programme, most of the discussion concentrates on different kinds of procedures (agreements/reporting/cost and risk management) but also on instruments for communication and dissemination (database and books) and on the overall organisation format for the next events.

STRONG POINTS
AND WEAKNESSES

The variety of the partnership is surely a strong point of the consortium, both geographically and in the type of institutions that are present (schools of art and architecture, technical universities/polytechnics). In that sense, an opportunity would be to set an individual position about Design Driven Doctoral research from each group (or institution); also, to envisage common routes

or divergences that may result during the panel sessions when listening to PhD candidates. To declare a specific position would be an interesting passage, also to better define the partner's contribution to the overall consortium.

RECOMMENDATIONS/ REFLECTIONS

1. *Procedures/contents:* the twofold discussion about bureaucracy/procedures and contents appears balanced, however, more time to deepen the discussions around them is still needed.

2. *External invited quality control board:* the proposal to ask for a quality control board seems to be interesting, in order to have an external reference for evaluating management and contents expressed during the partner meetings.

3. *DDDr conclusions on observation:* as reported before, a more clear conclusion on the topic of the Ghent event, 'Observations', should be proposed. Observations regarding the different approaches to DDDr research; the cultural background of DDDr institutions; the scientific impact and evaluation criteria, etc.

4. *Evaluating models of DDDr within CA²RE and CA²RE+:* as mentioned before, part of the discussion focused on the relation between the two experiences and how to connect them; a possible interest could be focused on which expertise has been produced during the past editions, in order to

ground the common model(s) for evaluating design driven research within the European framework and its relevance.

SESSIONS

TOPIC

The second and third days during the CA²RE+ event in Ghent were reserved to attend the sessions in which PhD candidates present their research (DDDr).

COMMENTS

The session is articulated following a precise scheme. The sessions are not organised thematically and the discussants (professors) are always exchanging and not always involved in the type of research presented (each panel has a different audience for evaluation). Joint staff in training attend as reporters.

Each presentation lasts for 25 minutes and receives comments from the discussants for 25 minutes. It is an exceptional opportunity for the researcher to deepen their subject within an international and highly skilled audience.

STRONG POINTS
AND WEAKNESSES

Regarding the structure and timetable, some adjustments can be assessed as suggestions for future events:

1. *Panellist introduction and profiles:* which type of research has been conducted, within which programme, and at what stage of the PhD programme the candidate is pre-

senting. The researcher profile should also be exploited (professional/teacher/100% research).

2. *DDDr motivation:* the candidate should declare or observe the general motivations that stand for considering the personal research as DDDr; which are the exact implications between art/architectural practice and theoretical research, and which are the mutual benefits.

3. *Presentation dynamics:* a general introduction of the research and aims could be useful to frame the discussion while focusing the presentation on a specific topic (chapters/ nodes/ conclusions of the research); a specific topic on how DDDr is expressed in the research and the applied methodology (tools/conceptual/case studies/critique/ research by design, etc.); what are the expectations of the panellist in presenting at CA²RE+ event.

4. *Discussion dynamics:* a strong point appears when other researchers and PhD students comment on the panel presentation, beyond the appointed discussants. The final discussion is centred on the research itself, and less on how to define/explicit it as DDDr (and eventually to mitigate or solve the weaknesses).

RECOMMENDATIONS/ REFLECTIONS

In general the impression regards the wide variety of research typologies on DDDr that could be

useful; also, to set research branches or lines for developing the potential of design driven methodology in doctoral research. The amount of presentations should be reviewed and assessed in these terms, in order to better understand the different ranges of approaches presented during the several sessions. PhD students use design as a driver and main method of investigation on familiar grounds; others use it as a tool for investigating and presenting case studies; and for others, design research is the research scope itself. So, a really wide variety of applications and uses of design processes in research that should increase in considering the specific values. It also relates to the diverse cultural background of the institutions they come from.

Another interesting reflection consists in how to evaluate the relevance of the presented research as DDDr itself, and how to manage two distinct (often intersected) approaches: a personal approach referring more to artistic research (sometimes to professional practice), and a scientific one referring to common ground contextualisation of the research topic. The encounter between these two spheres appears a critical point; on the one hand, it is necessary to avoid an individual trajectory that doesn't fit with the relevance and impact of doctoral research in scientific community; on the other, often individual fascinations or inductive approaches can further move to original results.

The deep and focused discussion on the research panellist should also go beyond the topic itself, addressing other questions/reflections on the way in which we can evaluate and discuss the research

relevance, clarify the often tacit knowledge of design within the PhD experiences, and determine which benefits design driven research can bring specifically to the panellists' research (is it fully exploited, and which clear methodology has been followed?).

Another recommendation would be to effectively structure the discussant table following precise expertise and according to the presentation topic and discussant background. In that sense, also the comments can be more focused. For the general dynamics, the ever-changing composition of the discussant board is also inconvenient and inefficient. In those moments of moving around, the pathos and concentration is lost.

TESTIMONIAL
Pier Paolo Tamburelli

SESSIONS

NOTE: *This was my first participation as a CA²RE member, so I think my observations should be read (and are therefore useful, I believe) as the impressions of an outsider, with their inherent limits and the associated potential. Most likely, many of my points have already been raised, but I believe it is always refreshing to have a look from the outside, so I will not shy away from naive comments and suggestions.*

1. SEQUENCE AND TIMING

I appreciated a lot the fact that candidates have a considerable amount of time for their presentations and that there is also abundant time for debating the various research proposed. I also believe it is important that the number of 'respondents' is limited, so that the conversation with the candidates can remain focused and–at least to a certain extent–intimate and not intimidating for the candidate.

2. SPACES

I found the use of spaces for discussion at the Ghent event extremely successful. In particular, the room used for exposing 'artefacts' had a perfect balance of scale and informality that defined an extraordinary context for staging the artefacts. I think we should all learn from this elegant and appropriate mise-en-scène.

Also, the small 'guide' booklet with abstracts of all the presentations was extremely helpful in moving between the flow of parallel presentations.

3. DISCUSSION

I took part in two discussions as 'respondent' over three days of presentations. As much as I believe the timing and structure of the discussion of each single candidate is perfectly appropriate, I think the sessions lack a moment of more general discussion. It could maybe be possible to introduce a discussion among all candidates and respondents involved in a session, even if this would make the system more rigid, as it would not be possible to move among different panels for the people explicitly involved in a specific panel. The pros and cons of this change of structure need to be evaluated. Anyhow, I believe it could be useful to find ways to stimulate a broader discussion and to try addressing more general and theoretical issues.

Also, the format might profit from a bit more conflict and polemics. Indeed, I think it is always positive when different approaches and theories are directly confronted. By introducing moments of 'possible disagreement' it will be possible to offer a platform to candidates for criticising the research hypothesis and to grow into a more conscious intellectual position.

4. KEYNOTE LECTURES

I found the keynote lectures not particularly challenging (and honestly, a bit out of touch with contemporary architectural discussion). It seems to me that it could be more productive to

have lecturers coming from the region where the hosting institution is located. In this manner, the series of CA2RE events could operate as a sort of Grand Tour among different possible approaches of contemporary European architecture. I would endorse a stronger connection among keynote speakers and the hosting city.

5. ON-SITE VISIT

I believe it would be interesting if each event could include a visit to one special building in the host city, which could be selected by the hosting teaching staff in order to address a specific research topic. It could be interesting to visit the building together with the author(s) or with the user(s) or owner(s). The selection of the building to visit could act as a marker of specific aspects to be addressed in the discussion.

TESTIMONIAL
Jacopo Leveratto

WORKSHOP

TOPIC

The afternoon of the first day and the morning of the second were dedicated to a workshop with all the participants (excluding those attending the partner meeting) that was intended to introduce and develop the specific topic of the conference, which was the role of observation in the evaluation of DDDr practices. The first day, the workshop consisted of a frontal lecture on the concentric circles of observation that are detectable when evaluating DDDr practices, which was followed by an individual exercise of self-reflection through which the participants had to individuate their own circles and intersections, and a collective discussion on the theme. The second day, the workshop was held in the form of direct experimentation aimed at physically reproducing the concentric circles of observation, with the participants interpreting different roles in two different sessions of play, which were followed by another, shorter discussion.

COMMENTS

The workshop represented a very effective way of setting the tone of CA²RE+ event, by immediately focusing the scientific and didactic topic of the conference and creating an immersive learning environment that helped to exchange information among the participants. The lecture, despite being frontal, was clear and very useful in expanding the theme beyond usual patterns, and the exercise of self-reflection was an inter-

esting tool to start flipping the roles gradually. However, the most relevant moment to consolidate and experiment with the previously acquired information was that of the physical re-enactment of the concentric circles of observation through a participation simulation. This enabled translating the scientific and didactic notions into an environmental framework in which also behavioural patterns, tacit knowledges, and non-verbal approaches contributed to clarify the different roles of observation in DDDr practices.

STRONG POINTS AND WEAKNESSES

The workshop was very well designed. The strongest point in this regard was the variety of activities conceived for such a short time and the graduality with which they directly engaged the participants in the construction of the meaning related to the topic. The second point was that of attempting to translate scientific and didactic content into a learning environment, which represented a device to exchange information in an immersive way. The only weakness was that the workshop was organised at the same time as the partner meeting, and many partners of the consortium could not participate due to this coincidence.

RECOMMENDATIONS/ REFLECTIONS

The workshop, along with the follow-up discussions at the end of candidates' presentations, is one of the most important moments of CA²RE+ conferences, both for scientifically focusing the topic of the single events and for creating a learning environment that is the strongest point

of this format. The first suggestion is to further stress this relevance when organising it, allowing everyone to participate, and improving the communication related to its aims and objectives, thus making it one of the central appointments of the event. The second one, regarding the forthcoming events, is to produce a dedicated format for each topic faced, by following the same principles as the event in Ghent; namely, the variety of the activities, graduality of the progression, and engagement of the participants. The third, also in this regard, is to continue pursuing the environmental dimension of the learning activities, since it represented the most effective and characterising feature of the format, because of the above-mentioned reasons.

Trondheim

Trondheim Workshop, June 2020

Markus Schwai

Sharing was the underlying theme for the conference in Trondheim, with a focus on how institutions and individuals understand design driven research. Share it. Rather than predefining and limiting the notions of sharing in the context of design driven research, we approached this workshop following the local (Scandinavian) practice. The workshop and preparatory activities were organised as an open-ended invitation to collect and reflect on the meaning of 'sharing'.
Why do we share? How do we share? Who do we share with?

Making available what is otherwise hidden.

I. **To approach the theme of sharing in the research context, we started with questioning participants before participating at the conference one-to-one. The result gives us a sketchy outline of what sharing means to the participants, which we try to code as follows: (activity, *achievement*, attitude). The amount of responses and feedback to the posed questions made it necessary for us to organise them. The responses came, not unexpectedly, in all imaginable forms and variations. To be able to use them, we had to simplify the responses, being careful not to lose important parts. There were clearly three different ways of seeing 'sharing' that appeared, which we used to code the material. This coding also made cross-relations visible, connecting the three chosen 'uses'.**

Active listening
Allow insights
Allow space for interpretation
Authentic speaking
Caring
Co-creation
Collaboration
Collectivising
Common ground
Common space
Common understanding
Communicating
Community
Concerts
Connect
Constant transformation

Cooperation
Counteracting competitiveness
Co-work
Critical dialogue
Curiosity
Dialogue
Discuss opinions
Dissemination
Documentation
Education
Engage
Evolution
Exchanging
Exhibitions
Experiments
Explaining

Gaining
Generosity
Giving
Honesty
Ideas over ego
Knowledge
Language
Learning
Lectures
Library
Observation
Open resources
Openness
Opportunity
Peak moments
Performance
Provide insight

Publication
Publishing
Sharing space
Sharing opinions
Sharing platform
Speeding up innovation
Summer school
Surprise
Taking
Teaching
Teamwork
Thinking
Transforming knowledge
Transparency
Understanding the 'others'
Workshops

II. **The second step in approaching sharing was questioning the preferred methods, still on a subjective level, but now coded in a slightly different way: (interaction, *medium*, attitude). This list is part of the open invitation to discuss the validity of the respective methods in individual cases, and we are very much aware that the coding can vary for different stakeholders and users.**

Acting responsibly
Active participation
Conferences
Consensus
Constructive discussions
Conversation
Conversational
Critics across institutions
Data sharing
Dialogue
Direct dialogue
Discussion

Documenting
Drawings
Encourage
Engaging more people
Equality
Explanatory discourse
External examining
Hands-on workshop
Images
Informal meetings
Informal situations
Interdisciplinary activities

Journals
Listening
Mentoring research
Mutual agreement
Online
Online media
Open access
Open science
Oral communication
Participation
Playing
Presentation

Publications
Research
Response
Round table
Seeing
Seminars and conferences
Sharing experience
Sharing expertise
Sharing texts
Showing
Teaching
Workshops

III. The last part of the subjective/personal approach was a request to share the participants' do's and don'ts. In the following section, we try to highlight important elements which were comprised from the answers we received.

SUGGESTED ACTIVITIES

Hands-on workshops — Field trips — Many seminars — Attend workshops and conferences to develop your career and knowledge — Write articles and conference publications — Build trust and be clear about expectations and rules for the use of the material to be shared

SEARCH FOR

Opportunities to see how others work and think — New topics outside the studio — New connections and relations — Ways to think carefully about the other interlocutors and their thoughts — Ways to gain from the experience of others — Ways to contribute to the experience of others

WAYS TO GET FEEDBACK

Try to clearly communicate what you want to share and the reasons behind it — Keep repeating what you want to share as long as your interlocutors indicate they don't understand — Share everything — Welcome criticism of your ideas — Have a network of trusty fellow colleagues to share your findings with — Appreciate all contributions — Provide an introduction or access to your work — Listen to the people you share with

Follow a process of trial and error — Take your time to document your processes, decisions, and discoveries — Give and take — Try to see the order in the things — Remember to give credit for work that is done well — Create continuity between teams — Read, learn, copy — Train your listening capacity — Listen actively — Remember that even if your contribution is technical, it still counts — Co-create!

VALUES

Be brave enough to share — Be open, polite, engaging, constructive, and involved — Value openness, honesty, and respect — Be fluid and multiple.

TAKE CARE NOT TO

Overshare, be sure to make space for others — Share for the wrong reasons — Forget why you want to share something — Be afraid to share your most secret failures — Expect everyone to contribute the same sorts of things — Underestimate the details — Publish projects that are going to be built — Categorise all the information — Focus on just one person or group — Pretend to know if you don't — Keep knowledge to yourself — Wait until you get to learn or know new topics in university — Lose the uniqueness of each team — Forget that possession is obsession — Show your ideas to dishonest people — Be obsessed with perfection — Reject other people's ideas just because of their expression or differences — Mix people who give more with people who take more — Romanti-

cise — Follow a predefined list of do's and don'ts, tricks and dangers.

IV. Groupwise reflection, to summarise and highlight. In order to discuss different aspects, negotiate importance, and try to sketch an objective part of the sharing discussion, the workshop at the CA²RE+ Trondheim online conference and event concluded with group discussions. The following section gives a short overview and shows extracts from four very different discussions in the group work:

HOW IS DESIGN DRIVEN RESEARCH UNDERSTOOD BY YOUR INSTITUTION AND YOU? WHY DO WE SHARE? HOW DO WE SHARE? WHO DO WE SHARE WITH?

GROUP 1

UNIV1: **Tradition fosters artistic research as an addition to 'classical' scientific research. Now there is a new initiative to invite practitioners to perform design driven research as a PhD project and also to qualify their project(s), making this knowledge accessible to the community and driving academic discourse through issues from practice.**

UNIV2**: Design driven research is acknowledged, but in a very applied understanding—either as a kind of sophisticated form of consultancy on architectural and/or urban issues, or as product development. It is supported as an additional flow of income, next to the funding flows of (more traditional) scientific research projects.**

UNIV3: **Does not have a tradition in design driven research. Tradition is a separation of theory and practice—a separation of academia and practitioners. The aim is to establish design driven research, especially research by drawing, but an Italian tradition aims at drawing as 'Disegno', as 'Design'—a medial practice to produce knowledge. In the Italian tradition, students enter the PhD programme directly after their master's studies, so there is rarely a body of work to reflect on (like in the ADAPT-r programme).**

Connecting the notion of design driven research with artistic research may result in an extra burden when implementing it in (more traditional) academic environments. Design as a mode to thematise interests and to open a space for cultural dialogue. Design-based research as contributing to the design community from a small practice.

UNIV4: **Assistant professors as a transfer between practice and academia. But the only direct way to enter academia is through theory or history.**

UNIV5: **There is no real tradition of design driven research in architecture, but rather in art, through artistic development, which is now a technical education and open for architects. Otherwise, strict separation between theory and practice is needed.**

GROUP 4

We are facing a complex phenomenon influenced by cultural backgrounds, a variety of research traditions, personal contexts, and institutional situations. Reflecting for 90 minutes on sharing

as a concrete action is quite a challenge. Therefore, we see the workshop as a first exemplary form of sharing that, in its development, will already illustrate this complexity. To structure this conversation, we formulated the following three questions:

Why do we share when investigating design driven research? How do we share when investigating design driven research? Whom do we share with when investigating design driven research?

To this conversation we immediately added the question: What do we share when investigating design driven research? This extra question already illustrates how sharing takes place.

The fact that our thoughts are rewritten in this text is a form of sharing and, inevitably, filtering. Thus, in a way, sharing by making a report is imperfect. I impart the other participants' ideas and thoughts by recreating these thoughts, thereby using my notes, memory, and way of writing. Is sharing, when it is done in an honest way, not becoming a form of taking care? A way of curing and reassembling spoken thoughts in a new form?

WHY DO WE SHARE WHEN INVESTIGATING DESIGN DRIVEN RESEARCH?

There was a PhD candidate among the people joining the workshop. For her, it was obvious that communication is key in research. When there is no communication, it all becomes useless. Sharing your insights through communication is essential.

This brought us to the idea that sharing is part of creating a healthy ecology. It is an important opening step in the development of this ecology. It is an opening and starting point, towards unknown directions. Once you share, you create openness, not knowing where it will end.

For sure it is a form of detoxification during a PhD process, knowing that you can share. It brings the PhD candidate into a context of comparable situations. Besides this healing aspect, it activates knowledge.

Of course, while sharing, PhD candidates can find themselves in a fragile situation for many reasons. Will it be possible to share experiences and knowledge from others? Will it be taken seriously?
How do we share when investigating design driven research?

An obvious way of sharing is through teaching. The qualities and characteristics of the language used has a huge impact on how we share.

In this Covid-19 period, we saw how digital platforms became dominant as instruments for sharing. These platforms direct our way of sharing. Sharing is reduced to the constraints of the platform. Not sharing the same space is indeed already a concrete reduction.

WHOM DO WE SHARE WITH WHEN INVESTIGATING DESIGN DRIVEN RESEARCH?

Through Covid-19 we have lost the haptic notion of an environment (for sharing). Of course, this leads to other possibilities. What are the characteristics

and rules of these new situations?

We can compare this situation with the architect and their creation. The situation is as follows: the architect creates a project and people come after. The architect's main way of sharing starts the moment the project is accomplished. This creates a very open perspective. Some outreach by researchers has similar mechanisms. The idea of looking for circles of sharing, like the circles of observation described in Ghent, seems not to be appropriated. This concept is dismantled.

WHAT DO WE SHARE WITH WHEN INVESTIGATING DESIGN DRIVEN RESEARCH?

For this last and extra question there was no time left. We quickly shifted to the fact that a PhD is one of the main formats we share. We also share the experience of the PhD trajectory and the relationships between practice and academia.

GROUP 5

Some thoughts on sharing.

Architecture is a cultural practice and design is a cultural act facilitated by technical means but not realised purely within them. Much of the value in design driven research is social, and as such, it resists measurement or simple classifications.

The goal of architecture is cultural/artistic, not technical. A vital element is the aesthetic experience anchoring and developing our grasp of the sociological and cultural capital of our community and our place or role in it. Beauty/impact supports

reflection upon our transformative experiences as more than rational, legal, or technical. Both in the moment and when coming back to reaffirm our commitments. This is how we can share without servitude.

The process of architectural design is the means of arriving at a research goal in architecture, valid if it is shareable.

Let's add shareability to the criteria of rigour, relevance, and originality of research.

Rather, shareability is not a criterion for research, but a precondition to be research. In Research Excellence Framework, the definition of research is 'having new insights effectively shared', and after this definition is fulfilled, then you can go to the criteria to talk about evaluation of the quality of the research.

To work together across different agendas and fields, common goals can help us to collaborate towards a greater vision or set of objectives.
By developing sets of common methods and approaches, we can develop greater confidence in talking about design driven research.

It can be useful to think clearly about exactly what we do and how we can collaborate and share. Sharing of experiences, knowledge, and questions regarding the architectural design is only possible if you and your peers are able to listen and engage in experimentation in a post-Cartesian and post-technocratic sense, with openness for the embodiment theory and one's own embodiment.

In this way, we can address the spatial phenomena and not merely the ideas about the space.

Part of the value of design approaches lies in how we share and test knowledge through presenting our research and ideas to peers and the panel. This approach is not common across other disciplines and seems vital to design driven research. Finally, design driven research is intrinsic to architectural research.

Also...

Pedagogy is a border field of sharing. I believe that sharing should not provoke judgements over contributions and should remove hierarchical barriers among participants.

How can we frame design as a research starting point, a case study, an experimental environment? To work together across different agendas and fields, common goals can help us to collaborate towards a greater vision or set of objectives.

By developing sets of common methods and approaches, we can develop greater confidence in talking about design driven research.

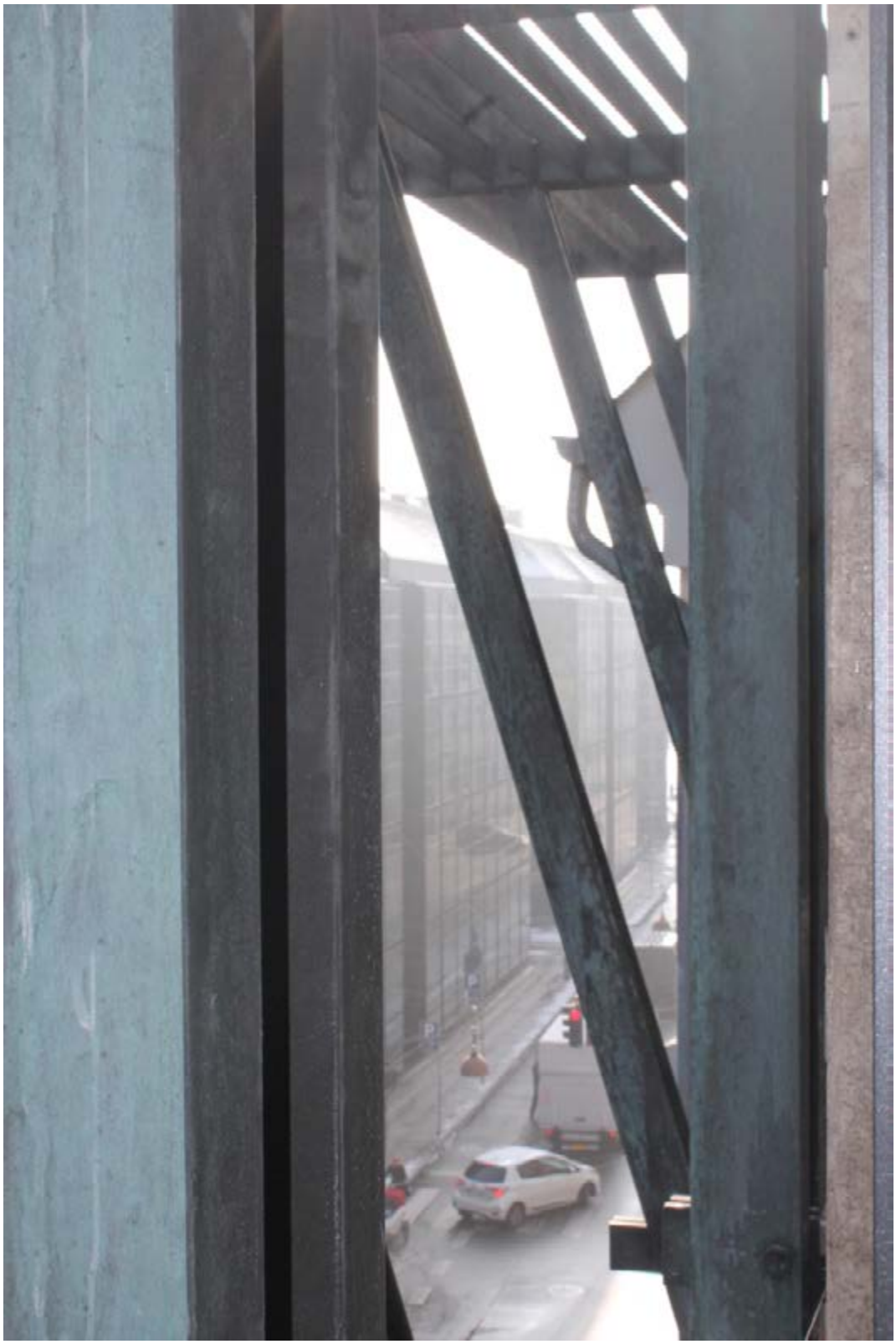

GROUP 6
RTC Stills Library
open
▲ Film Landfill Harmonic was screened at festivals across the world this year. Photograph: The Landfill Harmonic

The workshop activities and this attempt to summarise them highlight the wide range of aspects when discussing the meaning, methods, and approaches in/of ‘sharing’. Still, when reviewing and comparing the responses, there were some directions and distinctions visible. We tried to gather, simplify, and order/code them in the first part of this description, but left the variety shown in the workshop’s group reflections. Some of the results were too comprehensive, so it was only possible to show examples and their different presentation. Still, these examples represent the majority of thoughts, a starting point for an open-ended invitation to collect and reflect on the meaning and use of ‘sharing’.

Selected fellow presentations

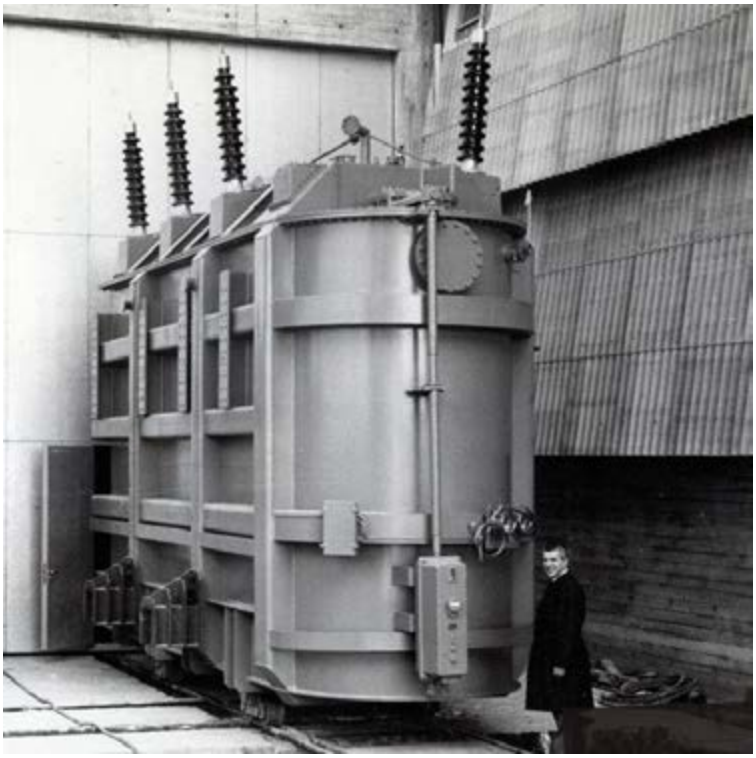
Aida Espanyol
Gianfranco Orsenigo
Taufan ter Weel
Monica Tusinean
Agata Kycia
Sinan Mihelcic
Eva Demuynck
Enrico Miglietta
Bjorn Melas
Joel P. W. Letkemann

MATERIAL MAP
Aida Espanol Vilanova



The presentation is structured in the following parts:

1. Introduction to the PhD topic and methodology
2. Position of the artefact, *material map*, within the PhD project
3. *Material map:* Development, content and format
4. *Material Map:* a demonstrative and generative experiment
5. *Material map:* Methodological approach



1.
INTRODUCTION TO THE PhD TOPIC AND METHODOLOGY

The overall PhD project aims at documenting, analyzing and interpreting the built works by HCH developed under the policies of the Danish Welfare State between the late 1930's and early 1970's as a project leader at the office of the City Architect in Copenhagen.

The purpose of the project is:

1) to provide knowledge of a little known Danish architect and body of work, which is material and tectonic-wise extraordinarily rich, and quite unusual in its geographical historical and cultural context 2) and to situate HCH's works within a tectonic discussion from a practice-based and bottom-up approach.

The PhD project is developed following a *Research through Design (RtD) methodology* in which *Experiments –activities and artefacts-* of different nature and duration, are supposed to expand on the overall knowledge and of the project.

Although, the specific methodologies and tools differ according to each *experiment*. However, as a general perspective, the project starts out at the building site, rather than the archive. This is due to 1) the lack of HCH's personal information 2) and the author's believe on the capacity of the built works to provide with data.

> "Compared to the fugitive, ephemeral world of language, it seemed a relief to turn to something that had substance, where there were physical objects to see and touch."
> Forty, A. *Concrete and Culture. A Material history* (Reacktion Books 2016), 7.

The project deals and relies with the physicality of the works and uses the opportunity to interpret them by being there, on site.

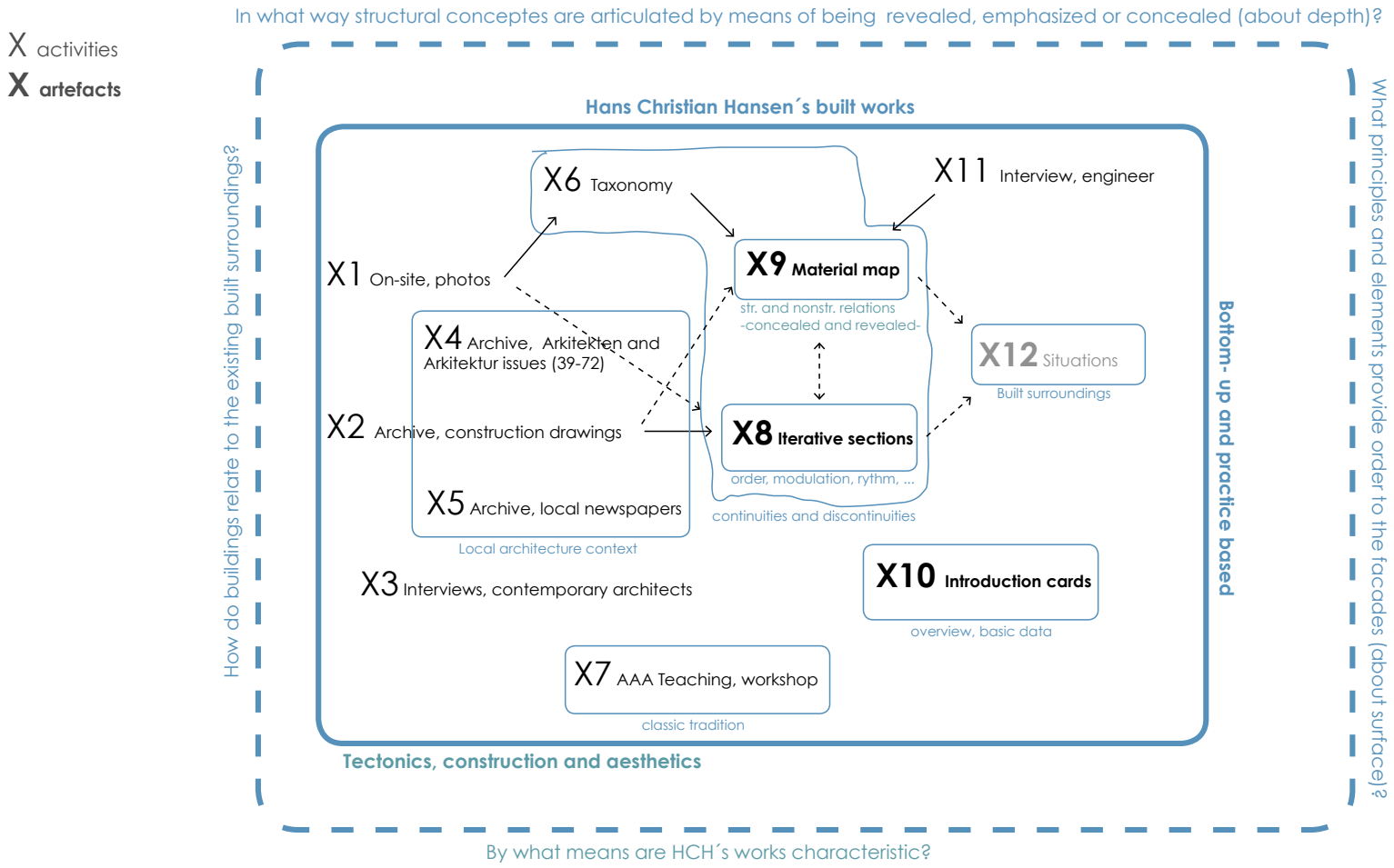


Diagram based on the concept of *Dynamic Research Sketching*
Markussen, Bang, Pedersen, Knutz (2001)

2.
POSITION OF THE ARTEFACT, *MATERIAL MAP*, WITHIN THE PhD PROJECT

There are four main concepts that interact in positioning and structuring the project:

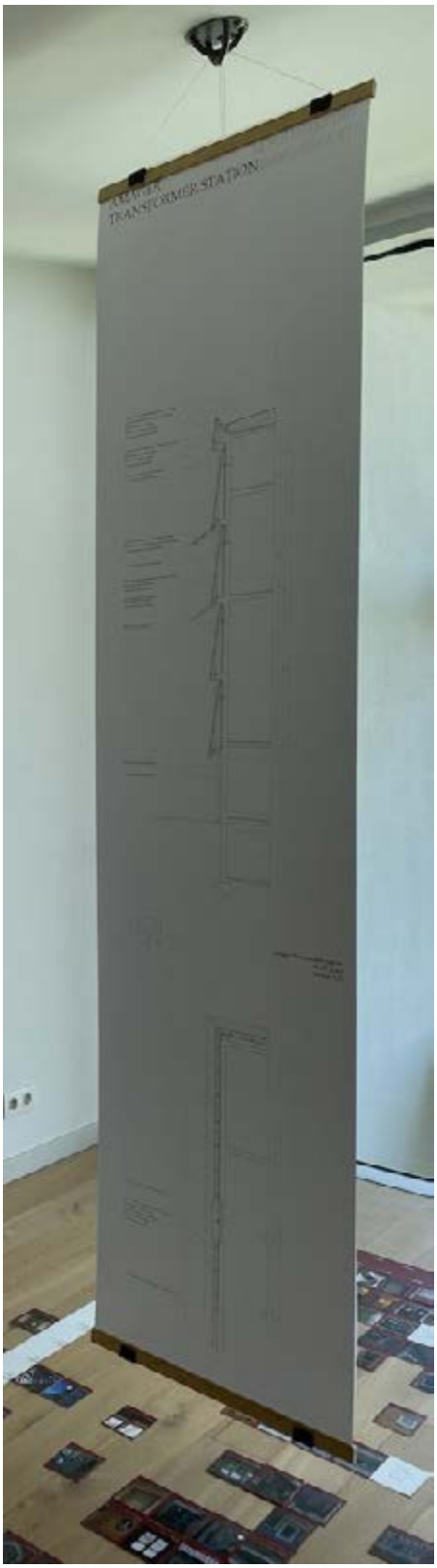
a) Research through Design

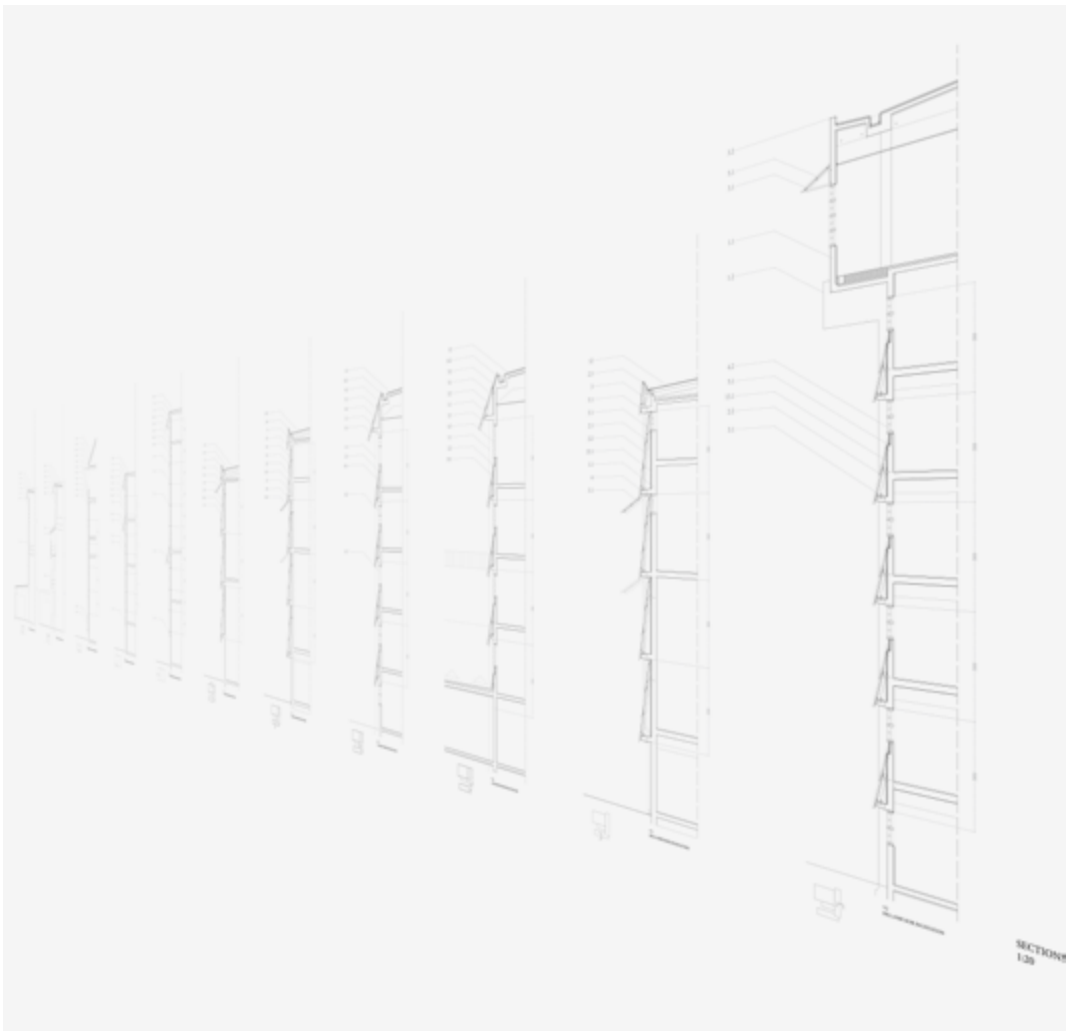
Through implies that design serves as a model for how to explore the subject matter. A particularly interesting aspect of this approach is that the iterative, explorative and constructive modes of inquiry that characterize designerly reflection and practice is presented as a valid research strategy. Furthermore the theme here is also design related, specifically architecture related.

I differentiate between *activities* and *artefacts* (8, 9, 10 and 12 are *artefacts* and the rest are *activities*). While *activities* keep, and will probably end, in a working process state, the second ones require a certain estate of final presentation, among other reasons, in order to better communicate the findings. Furthermore, having in mind that an important part of the final project presentation is an exhibition.

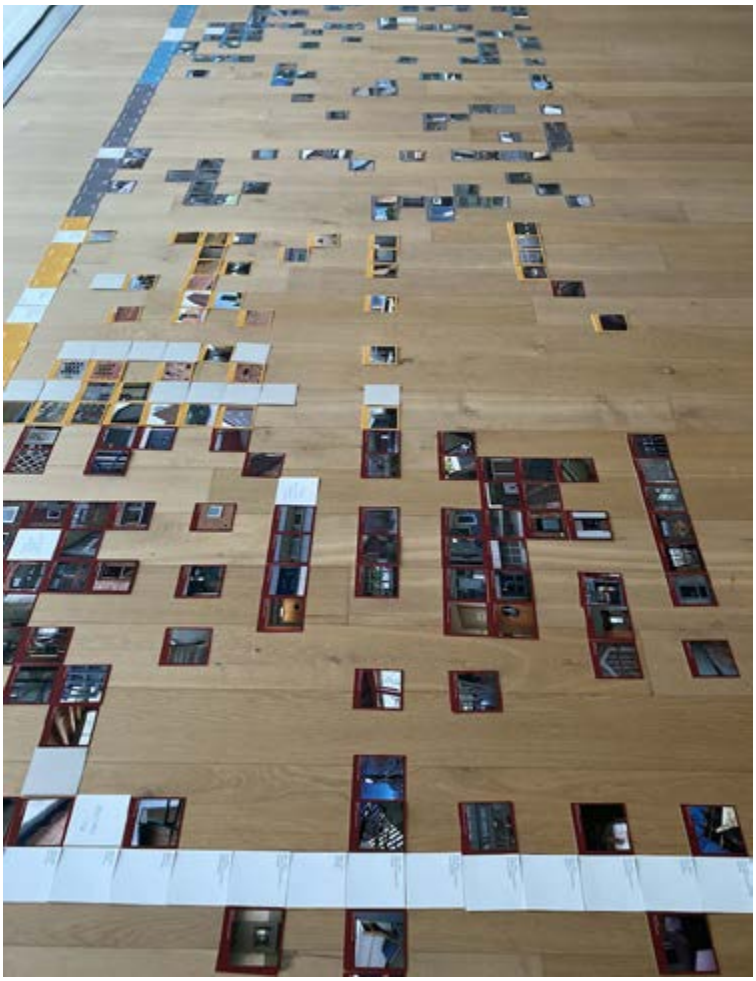
Experiments in general are not a simple question of confirmation or rejection... they could be seen as exploratory probes to sharpen the *program* and therefore the *research questions*. Furthermore experiments, which are developed through design based tools as, models, photos, sketches, drawings, etc... have the capacity to talk back.

Find below an image of each one of the artefacts
-work in process-





X8 Iterative sections



X9 material map

X10 introduction cards

It is seen as a conceptual framing that embeds all *experiments* which should briefly explain and delimited the theme of the project. This is considered in both directions: program influences on the choice of experiments and the development of experiments sharpens the definition of the program. Even though the main focus shouldn't change, there is a lot of flexibility to reformulate it.

As it is now, the program could be briefly defined as the following:

> The PhD project aims at investigating the little known works of the Danish architect Hans Christian Hansen, which are quite unusual in the local contemporary panorama, though from a very broad perspective they could be seen in connection to other European architecture works. There is a focus put on tectonic issues which seems to be a significant characteristic in all the works -19 buildings have been found within Copenhagen-. Facades seem to have a rather consistent idea of order which implies its both dimensions: 1) the vertical, since often buildings can be depicted through the three common classical parts as base, body and entablature 2) and the horizontal which is comprised of the same or similar limitless repetition of materials, elements and also measurements. The project is conducted by following a bottom-up approach which integrates on-site observation and data gathering, mainly through photography, with archive examination, meaning basically collection and analyzes of construction drawings.

And finally, It is through the dialogue between *experiments* and *program* that it is possible to elaborate on the specific questions. From general to specific, these are the research questions:

- By what means are HCH's works characteristic?
- In what way structural concepts are articulated by means of being revealed, emphasized or concealed in and on the facades?
- What principles, materials, elements and measurements, other than structural issues, provide order to the facades?
- How do buildings, specifically tectonic related issues, integrate the existing built surroundings?

3.
MATERIAL MAP: DEVELOPMENT, CONTENT AND FORMAT

As explained in the Dynamic Research Sketch I started out the project with two parallel activities: One, consisted of visiting all the works and registering what I could mainly see through photography. With no specific focus other than an interest in tectonic related issues and comprising small and big scale facts and details. The other activity consisted of collecting construction drawings and memories of the projects which exist in the construction archive in Copenhagen.

Considering the collection of photos taken at the building site, next step was to find a way to organize them. Intuitively, I decided to see the works as one life work, since for me it was rather obvious

that it existed certain continuities and discontinuities throughout HCH's works. As a first reference I took Rem Koolhaas book, Elements of architecture and the parallel research project in which Venice is scrutinized through the given elements of Koolhaas book, Elements of Venice. Thus, I tried to do the same by using an adaptation of Koolhaas' elements, which ended up being a rather heterogeneous list.

Categories

Facade generator
Window
Door
Base
Top
Brie soleil
Balcony
Corner
Skylight
Joining-Detail
Water drain
Lamp
Ventilation
Chimney
Clock
Cladding
Stairs

Material table

Afterwards I switched from the rather heterogeneous list of elements as well as building situations to a list of basic materials. I set up a table in which the first column provides with a list of materials, the second column describes different material formats within each type of material and the rest corresponds to one building per column. Although this document gave me a first overview about material situations in each building which kept the idea of continuities and discontinuities among works, however the table format asked for something more detailed to illustrate the variety of specific situations in each building.

Material map

The long list of materials developed into a short list of the 5 most relevant materials: *wood, ceramic, concrete, metal and eternit.*

I discarded *glass*, since there were too few formats and situations to analyze and I also discarded all the nonvisible materials. This last decision is first in connection to the *tectonic* notion, the art of making mere structural/ construction features and needs aesthetically manifested, something that definitively seems relevant to consider in HCH's works and second the will to investigate and communicate these materials through photography: Within tectonics it seems relevant to discuss on the visible as manifested, and the invisible as concealed. And photography seems to follow this distinction since the image, unless it exists a previous subjective relation with the thing that is represented, can only

show what is there. However, a careful analyses of the photo might probably detect some of the hidden information.

About authentication...

> “The Photograph’s essence is to ratify what it represents.”
> Barthes, R. *Camera Lucida Reflections on Photography* (Hill and Wang 1981), 85

> “The material relation between the image and what it represents is an immediate and non-constructed one. And is indeed like a trace.”
> Berger, J & Mohr, J. *Another way of telling* (Bloomsbury Publishin 1982) 93

As Barthes states we have the need to scrutinize the photo and try to read it from what is missing or hidden.

> “...to clean the surface of the image in order to accede to what is behind: to scrutinize means to turn the photograph over, to enter into the paper’s depth, to reach its other side (what is hidden is for us Westerners more “true” than what is visible).”
> Barthes, R. *Camera Lucida Reflections on Photography* (Hill and Wang 1981), 100

The abovementioned 5 materials -wood, ceramic, concrete, metal and eternit- were supposed to be displayed on a long wall (if the conference had taken place in Trondheim). See the mock up in the next image:

PROTOTYPE

NEW FORMAT
8 X 8 MMM
250 GR
PRINTED ONE OR TWO SIDES

PROVISIONAL FPORMAT

Wall map

Aida Espanol Vilanova, PhD Fellow, MArch

However time, almost 3 months later, the virtual format of the conference and a different exhibition room has developed the artefact into something a bit different. The format is now a squared photograph framed by 5 different colors corresponding to each material. The color palette of the frames takes inspiration from the most used colors in HCH's buildings in relation to each one of the materials. Moreover, the overall set up changes from wall to floor.

As the next image shows materials are displayed at the Y axis and buildings at the X axis. Colors correspond to each one of the materials and some white spots replace missing photos or indicate issues to revise... Thus, the floor set up of the material map still acts as a working process tool/ space. It is already possible to foresee that it is difficult to visualize the connections -continuities and discontinuities among building situations and materials mentioned earlier on- maybe because of the distance among photos and too much information seen at the same time, which makes difficult to concentrate in one image.

Besides this, having to consider the transportability of the artefact and its easy manipulation proposes another set up mounted as a small booklet.

Each material is divided into two volumes or more corresponding to structural and nonstructural implications. Inside each volume photos are grouped according to material formats and within this we can see the specific applications in each building.

Furthermore, in connection to the other artefact Iterative Sections, it seemed relevant to be able to

Floor map

Booklets

visually connect them both. Having in mind a final exhibition of the different artefacts, the suggestion is to have a fix vertical set up for the section drawings and a small portable device as the booklet for the material map. Specifically, the connection between both artefacts would be done by using a written reference system, a code, applied to each material format and specified in both artefacts.

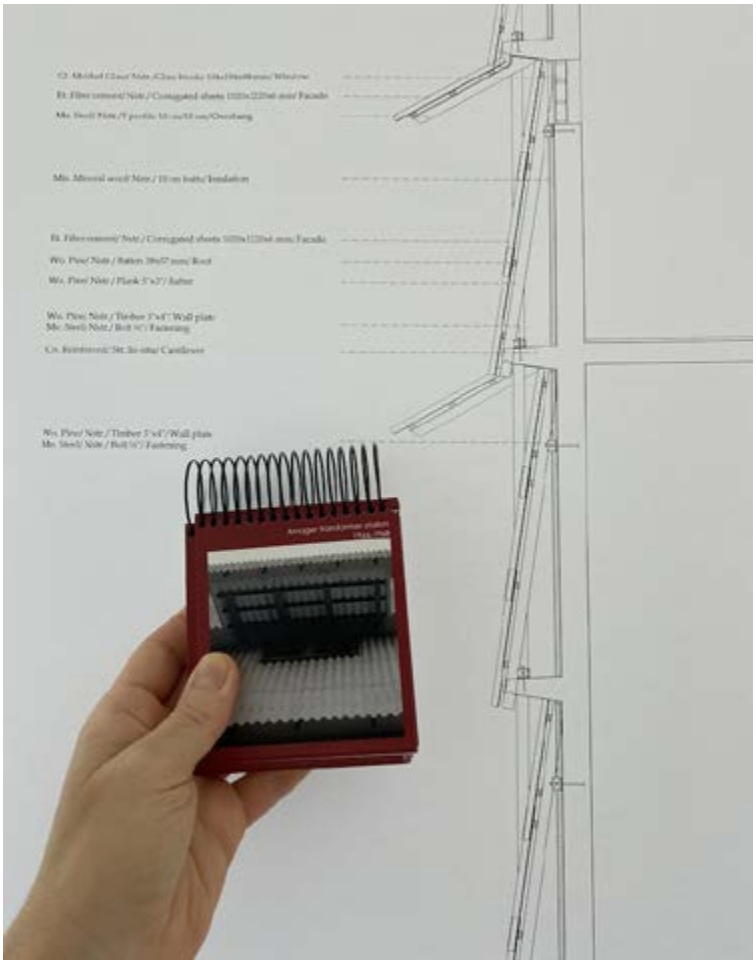
4.
MATERIAL MAP: A DEMONSTRATIVE AND GENERATIVE EXPERIMENT

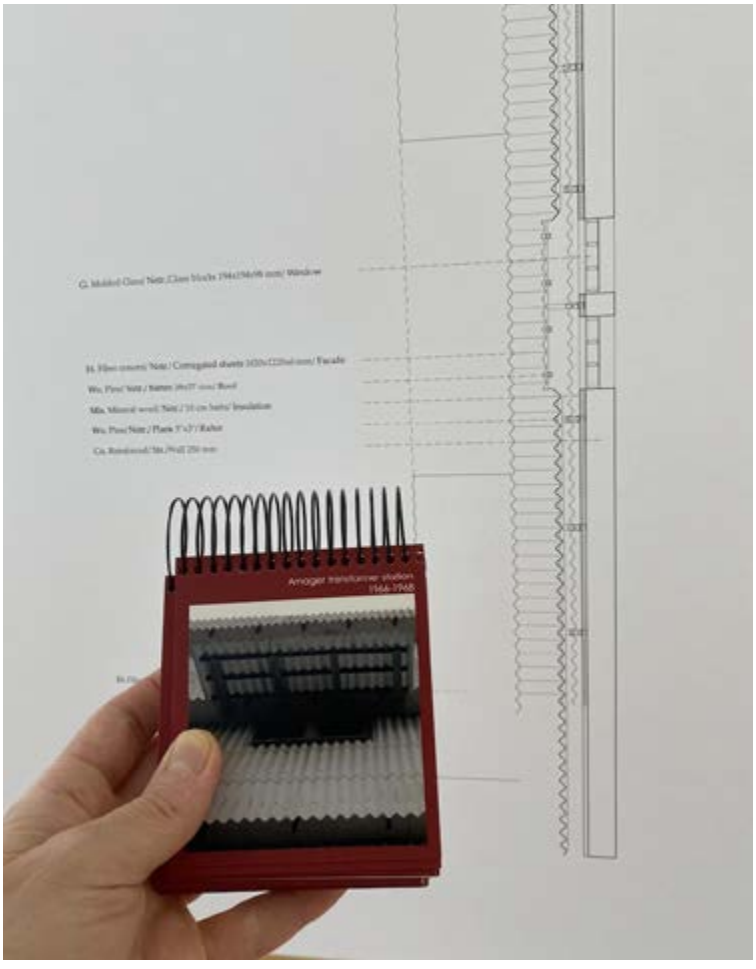
What the artefact material map demonstrates is certain continuities and discontinuities by looking through the pages of each booklet. This is something I could foresee and actually what I expected the artefact to communicate, but at the same time, the process of developing the *material map* generates new insights into the works of HCH, which I didn't expect.

The most relevant knowledge that it has opened up is about relations among ceramic, wood and concrete concerning structural and nonstructural meanings. Which in fact, helps to understand the evolution of the works in correspondence to the contemporary material development.

Booklets

Iterative sections — material booklet





HCH's use of reinforced concrete was coincident with the introduction of this material in the building discipline (other than for industrial buildings), which slowly would take over some of the applications of local traditional materials as brick and wood. In this regards, it is relevant to mention that HCH's construction solutions often incorporate mixed -traditional, new, global and local- techniques and materials. Although HCH's works innovative construction solutions would manifest in a rather unique and personal aesthetics, however, in terms of construction, HCH's experimental approach wasn't an isolated circumstance, but a common way of making for other contemporary Danish architects during the first half of the XX c.

The last part of the presentation will go through some of the booklets. In this case, I suggest a lecture throughout some of the pages of the booklets to explicate basically the introduction and evolution of concrete and its various formats in HCH's works.

The first buildings, exemplified mainly by housing blocks, would still use wooden beam slabs, brick loadbearing facades and interior partition walls.

However, staircases were already at that time built of in-situ concrete, which actually eliminated the need of two wooden staircases per apartment and therefore reduced overall building costs.

Then, due to programmatic needs/ possibilities, as to have bigger rooms without structural walls in between, together with the will of having nice views towards the garden, lots of light and the chance to integrate within the façade the balcony of the upper floor,... Skydebanehaven childcare is built with one of the facades with in-situ concrete pillars and beams. First work which employs exposed structural concrete on the façade resulting with a specific structural layout and important aesthetic implications.

The opposite façade, is solved as a loadbearing traditional brick facade covered with yellow plaster -as seen in some of the houses from the XVII and XVIII c. in the center of Copenhagen- and a wooden lattice structure which helps to make the brick texture beneath disappear.

However, it is not the first time in which HCH employs structural concrete: A laundry building for a psychiatric facility, somehow an industrial building, was already designed as an in-situ concrete frame exposed in the façade and filled in with yellow brick.

Concrete was also used for the roof, built as kind of a shell in a sawtooth geometry.

This is Næstved chapel, a private commission built almost entirely out of brick. There is some in-situ concrete inside the tallest brick columns in the façade to provide with the required stability. But in this case, it is totally hidden and only perceivable through the construction drawings.

Just after the church, HCH builts Hanssted School that shows a development of the same façade features seen in Skydebanehaven childcare. The school is comprised of two aisles positioned in a V shape: One of them with classrooms and the other with bigger common rooms that demand the structure direction to rotate 90 degrees and therefore, the rotation of beams activates the facade as a loadbearing element. Though in this case, it is basically built as a façade shell, instead of a frame as before. While in the base part of the building concrete is always exposed, in the upper part it is concealed by white eternit elements.

However, there are a few spots -often positioned a bit hidden from a person's sight level- that reveal the shell solution.

Afterwards comes the last housing block, situated in Blankavej street, in which HCH uses concrete beams for slabs and concrete thresholds, as well as for windows and doors, in contrast to the curved ones which were utilized in the two previous housing projects.

This fact is revealed by the straight top line of win-

dows and doors, in which bricks are just covering a concrete beam beneath.

Furthermore, in this same project he introduces the first massive concrete block. It basically seems an ornamental feature as part of a low brick wall which defines the storage sheds, bicycle parking and access to each staircase. And at the same time, it negotiates the rectangular geometry of the blocks with the specific street geometry.

Here we can see the first Transformer Station (TS), Nyborggade, which further explores the concept of a shell or in this case, dented shell. In the outside part of the facade we only see the slender pillars, the rest is cladded with brick. The pillar proportion and specially the way the corner is constructed suggests a wood construction imitated by reinforced concrete.

In the inside part of the transformer station we see the continuous shell painted white.

Here we seen another TS, Bellahøj. Again structure-wise solved with a concrete shell, which is manifested in the base part of the building...

... and a few other spots in the upper parts, which integrates the design of the ondulated eternit

plates. Its tilted geometry probably helps to get rid of the water faster, while it at the same time provides the façade with a smaller scale close to the height of a standard building floor.

This is another facade of Bellahøj TS also built as a concrete shell with dented pillars... However in a much bigger scale.

... which introduces a non-structural prefabricated concrete panel with embedded round glass blocks.

And in the garage building next to this TS we see the first use of lightweight concrete block...

... Which will after be used in Ringbo psychiatric hospital as the plinth part of the facade, with no structural function.

It is the interior division brick walls which provide with the structural principle of the building. Some of them are visible in the façade.

Most of the times they are plastered, unless the ones defining the common spaces/ entrances, in which yellow brick is left exposed when outside...

... or painted white inside the common room.

This is Bremerholm TS, which totally conceals the in-situ concrete shell in the front facade by covering it up with a cooper lattice structure, and only exposes it at the back façade.

Here we see Brøndbylund psychiatric hospital which for the first time uses prefabricated concrete panels with a very strong design roll: To set up the layout of the entire building, which is dimensioned according to the dimensions of the panel in its different parts and spaces, as patient rooms, offices, common rooms.

The whole building is made of loadbearing partition walls and slabs built of prefabricated concrete panels .

Besides this, the base part of the facade is constructed with prefabricated panels, left with a rough texture, with non-structural function.

This is another TS, Amager, built as a variation of Bellahøj TS

In this case, the substructure for the eternit plates is left exposed at the edge of the thin ondulated plates.

And again it incorporates another type of façade corresponding to the aisle where offices, changing rooms, canteen,... are located. It is built very similar to Bellahøj, however it doesn't have a cantilevered volume at the top.

We can see the same prefabricated panel with round glass blocks, specially designed for these two TS

Here we see another TS, Svanemølle, with a very interesting case of permanent formwork made of slender wooden battens. This wooden filigree structure has been left exposed in the outer side of the façade and removed in the inside, where we can see the in-situ concrete shell uncovered.

This is the base part of Svanemølle, solved with a rough concrete prefabricated panel, the same as the one used in Brøndbylund. In this case it performs as cladding for the in-situ concrete shell beneath. It solves the different topography around the TS and protects the wood from being too vulnerable in the lower part of the building.

Tagensbo church utilizes a similar solution to Nyborggade TS, however concrete pillars are here cladded in the exterior with a kind of prefabricated concrete pillar. This solution has no structural purpose other than translating the pillar rhythm to the exterior. Furthermore it solves the cold bridge while keeping the same façade expression.

This is a very small building, a gas pressure regulator built next to Bellahøj TS some years later.

And finally, the last building designed by HCH, Gasværksvejens school which uses a prefabricated system of panels and prefabricated pillars and beams, for both facades and slabs, which set up the layout and modulate the entire building. One of the photos shows the garage level since it is the easiest place to detect the structure.

Structural prefabricated panels are left exposed in the corridors

Prefabricated panels, made out of a vertical wooden formwork, are also used for cladding some of the façades.

And here we see the first prefabricated staircase.

To end up with the *concrete tale* I would like to go back to Barthes statement that says *what is hidden is more true than what is visible*. Here, within the context of HCH's works, and with a focus on tectonic matters, I understand true as relevant or active regarding construction or and structural features. From the photos we have just seen sometimes what is relevant is fully visible, sometimes partly exposed and others, a few, totally hidden.

> "...to clean the surface of the image in order to accede to what is behind: to scrutinize means to turn the photograph over, to enter into the paper's depth, to reach its other side (what is hidden is for us Westerners more "true" than what is visible)."
> Barthes, R. *Camera Lucida Reflections on Photography* (Hill and Wang 1981), 100

> "The material relation between the image and what it represents is an immediate and non-constructed one. And is indeed like a trace."
> Berger, J & Mohr, J. *Another way of telling* (Bloomsbury Publishing 1982), 93

Without these traces -photos of HCH's built works- unfolding these continuities and discontinuities among materials, formats and works wouldn't have been possible. I have of course visited the works two or three times, but some issues are not possible to capture and elaborate on while on-site, probably due to that it is difficult to digest to whole building at once. Therefore, while being off-site and revisiting buildings through photos, has besides the on-site visit revealed a substantial amount of data.

5.
MATERIAL MAP:
METHODOLOGICAL APPROACH

To finish the presentation I would like to briefly introduce the chapter called *circulating reference, sampling the soil in the amazon forest* from the book *Pandora's Hope, Essays on the Reality of Science Studies* by Bruno Latour. Somehow it gives a relevant overall theoretical framework in which to position the artefact *material map*.

Latour shows us the different steps by which events in the material world are transformed into facts of scientific knowledge. And this chapter is specifically about the author going together with some botanists and soil scientists in the amazon rain forest and looking into how empirical knowledge is turned into text. Latour says that throughout the process of measuring and sampling, etc... we lose "locality, particularity, materiality, multiplicity, and continuity" but we gain "compatibility, standardization, text, calculation, circulation, and relative universality", which actually reminds me the relevance of the photos and being able to check and analyze them several times in order to stablish relations among works and gain distance.

EXPERIMENTING THE POSSIBLE THE TRANSFORMATION OF SPACE AS AN INQUIRY TOOL

Gianfranco Orsenigo

ABSTRACT

Three experiments of real transformation of space in marginal contexts carried out in distinct researches conducted at the Politecnico di Milano (in which I have actively taken part in). The value of these realisations lies in being *artefacts of engagement* of local realities and triggers a process of participant observation (Ingold 2013). On the broader research framework, they try to witness the capability of inquiry by design.

Through the storytelling of their conception and realisation process, performed collaboratively, I want to investigate possible innovations played by architecture design. In particular, contributing to making decisions in transformative processes of marginal contexts. Multi-problematic situations

often excluded from requalification programmes and projects for their complexity. They are thought “wicked areas”.

The realisations described are not to be understood as attempts to resolve, but as tools to investigate the opportunities of contexts, following the cut (Ingold 2013) to see where it goes, ever alert and responsive to clues in a variable environment. Starting from what the project does (and not what it could be), putting the peculiarities of architectural knowledge at work, the project opens up to the collaboration of others. The engagement takes place through doing.

The project assumes the form of a relational process, a contingent and relative ‘social object’ (Ferraris, 2009). It opens to the contribution of different actors and knowledge, professional and common. In this habitat, the specific contribution of the architecture is to advance tentative forms, an explorative prefiguration of the conditions of transformation. They aren’t a prototype but an attempt to define an effective method.

From this point of view the designer becomes an activist as described by Hirschman “it is not my aim to predict trends; rather, I apply myself to trying to understand what is possible and to calling people’s interest in it” (1994). It turns out that the project is not so much an image of a future state of the world as an orientation to action and “continuous work on potential effects” (Pasqui 2018).

* ***Prison Architecture: from Space of Detention to Place of Relationship***, **FARB2016, a call for basic university research.**

** ***West Road Project. A device for activating networks and public spaces throughout the diffuse neglected areas*. Polisocial Award 2017 that rewards research with social purposes.**

Over the last few years, I have been participating in the research activity of a heterogeneous group of the Department of Architecture and Urban Studies of the Politecnico di Milano engaged in *defining a design method of relational architecture for collective* (not just open) spaces, particularly in critical areas.

The investigation crosses some distinct research's lines and practices them in different ways, participating in calls for funding and intersecting research with educational activities. The common intention is to use *architectural design and realisation as tools for analysis and proposal for modification*, exploring the relational character of collective space as a support for the formal quality and use of places. Open and shared research is an attempt to build a bridge between theory and practice, academia and society, architecture and other knowledge involved in the design process.

The two studies, in the form of action-research, are the field and investigation tool of my PhD research: *Prison Architecture* and *West Road Project*.

Prison Architecture: from Space of Detention to Place of Relationship is research funded by the Basic Research Funding (FARB) of the Department of Architecture and Urban Studies (DAStU) of the Politecnico di Milano. In the selection criteria, the call for proposals requires that the research funded must be "activities aimed at the expansion of scientific and technical knowledge not related to specific and immediate industrial or commercial objectives".

The research group[1] wanted to address the issue of the “prison space” because it represents a civil emergency in Italy to which it has not so far been possible to give adequate and structural answers, despite the daily commitment of the operators (Directors, staff, etc.) and the associations active in the prison world”. The objective of the research is the definition of a planning method, translated into a series of guidelines, which aim to qualify/requalify Italian prisons through punctual interventions of reuse and transformation of a plurality of spaces. To explore and investigate the theme, it used the tools of architecture and urban design, directing his gaze towards the “relational” values of places.

West Road Project — is a research project selected and funded by Polisocial Award 2017.[2] The theme of that award edition is the “Urban Suburbs” and the reference area is the Metropolitan City of Milano. It is an opportunity to address a theme investigated for some time by the members of the research group,[3] intertwining it with the interest of Italia Nostra Onlus- Milano Nord and the metropolitan belt to promote a bicycle link between the great parks of the west and the city centre.

The project is imagined as a device for activating networks and public spaces throughout the western periphery of Milan. The Spatial analysis and co-design methods are employed in order to foster the improvement of neglected spaces and the future

1 The group is composed by Andrea di Franco (scientific advisor), Antonella Bruzzese, Emilio Caravatti, Lorenzo Consalez, Francesco Infussi, Gianfranco Orsenigo, Laura Pogliani with Paolo Bozzuto, Ilaria di Genova, Benedetta Marani, Riccardo Miccoli and Luca Sala.

2 Polisocial is the social engagement and responsibility programme at Politecnico di Milano. Every year it funds initiatives that promote responsible and multidisciplinary research with an effective involvement of local partners and actors, activating productive forms of collaboration on projects with a high social content.

3 Polisocial is the social engagement and responsibility programme at Politecnico di Milano. Every year it funds initiatives that promote responsible and multidisciplinary research with an effective involvement of local partners and actors, activating productive forms of collaboration on projects with a high social content.

development of local soft connections. The device proposed is an ‘adaptive masterplan’ that, through the lens of “right to mobility”, encourages networks of micro-intervention able to take on a new meaning for public spaces and promotes active engagement of citizens.

Through the comment to a selected picture of our research actions, I try to underline some potentialities of the built experiments.

#01 RED HOUSE — *Prison Architecture*

A space for familiar relationships: a small red-wood pavilion inside the meeting garden of the Milano-Bollate prison (2017-2018).

#02 VIA GIGANTE — *West Road Project*

A new public space of coexistence: a grass, a wooden platform, seats, flower boxes and a painted pavement. Inside San Siro, a public housing neighbourhood in Milan, highly multi-ethnic and conflictual.

#03 VIA QUARTI — *West Road Project*

A new public space of coexistence: the pedestrianisation of a street, coloured horizontal graphic, seats, flower boxes and three new trees. Inside a public housing neighbourhood in Milan, a highly conflictualed marginal located place.

TOOL OF ENGAGEMENT THE CONTEXT

#04 VIA GIGANTE.

The transformation of a place could be a tool to show its spatial potentiality and allow new practices of use. The horizontal graphic emphasise the public nature of the pavement, it is an opportunity for children to play, the seats are an opportunity to have

a break and a meeting and so on. It is an ordinary public space in a non-ordinary place.

#05 RED HOUSE.

A non-conventional, because intimate, in its use brings attention of inmates, relatives and police officers to the theme of maintaining affective relations during the period of detention.

#06 VIA QUARTI

Through working together (researcher, inhabitants, associations and students), relationships based on trust are built and contribute to the development of “investigating communities

#07 VIA GIGANTE

The realisation is a way to make space to the spatial agency, accepting the conflictual also. During the lockdown, a Roma group use the table for play blackjack, vandalising it, generating a sense of insecurity in the inhabitants. See as a moment of a process, the platform is a tool to deal with the negotiation of existing conditions with the prospect of reformulating them in part.

A PROCESS TO DEVELOPE CORRESPONDENCE AMONG PLAYERS

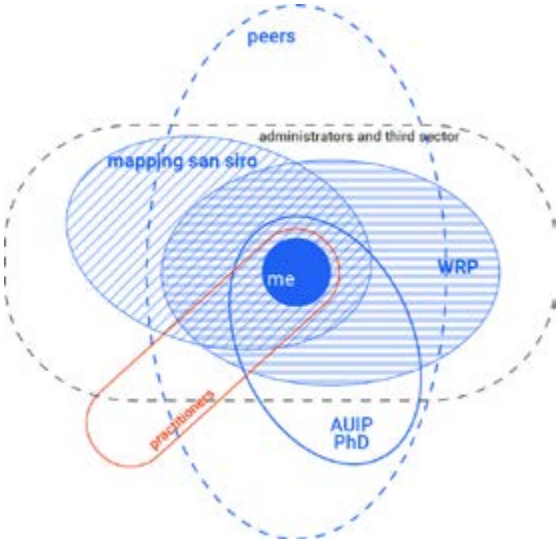
#08 RED HOUSE

The realisations are often the outcome of co-design

processes, in the case of the red-house between students, inmates and police officers, where the proposal of a spatial modification is an activator of a more comprehensive design thinking.

#09 VIA GIGANTE

From experience to experience each intervention adopts authorisation and implementation procedures available at that time. The interventions in Via Gigante and Via Quarti have carried out thanks to the signing of a Collaboration Agreement. A new instrument adopted in 2018 by the Milan administration for the shared management of common assets.



#10 CIRCLES OF PERTINENT KNOWLEDGE

The experiments are a moment of “pertinent knowledge” production. A knowledge aimed at doing

and shared at different levels: personally; within the research group; with other researchers but also with those who are called to deal with marginal contexts daily — administrators and professionals

A TOOL TO ENABLE THE BRODER PROJECT OF TRANSFORMATION

#11 THE PERGOLA

At the Milano-Bollate prison, there are some clues about the operation of the “investigative community”. The year after the construction of the little red house, at the request of the surveillance officer, a shading system was created by recovering an obsolete metal structure in the meeting garden.

#12 VIA QUARTI

The opening of the transformation of via Quarti becomes the meeting opportunity between local stakeholders, public institutions and inhabitants to design the forward steps to continue the project process, sharing a method by fragments.

STRATEGIES FOR THE TRANSFORMATION OF ABANDONED INDUSTRIAL SITES IN ROMANIA

Monica Tusinean

DOCUMENTATION OF THE ARTEFACT

The proposed sound installation facilitates a continuous process of modulation and spatial distribution that behaves stochastically in relation to the input signals and commands it receives. A little noise in the system allows for feedback to emerge. Signals extracted from the presentation space are processed in real time. More specifically, it focuses on electromagnetic signals on the one hand, and structure-borne noises and resonances on the other. Telephone pick-up coils sense electromagnetic fields, the ultrasonic waves produced by wireless transmissions, conversions and computing processes. Contact microphones attached to far-reaching tubes and solid structures transduce impact sound and resonances, such as noises from elsewhere, the expansion and contraction of the

material itself, and resonating objects in a feedback loop. This background noise, sensed beyond the audible range (in terms of frequency and distance), indicates the ontological dimensions of the processes constituting this local environment.

electromagnetic waves

structure-borne noise

FIGURE 1: concept drawing (modified image; original from: https://www.kit.ntnu.no/en/content/galleri-kit)

The input signals are modified and spatially reconfigured. They are processed and distributed by means of a modular system which involves a set of primary control functions: modulation, filtering, conversion and probability distribution. These control functions are interlinked and cross-modulate in relation to the input. Loudspeakers are treated as single sound sources and redistributed signals

feed back into the system. A small modulation at one position can have significant implications for modulations elsewhere or the listening circuit as a whole. The abstract machine can adapt to different environments and the sound installation involves no pre-recorded and represented material.

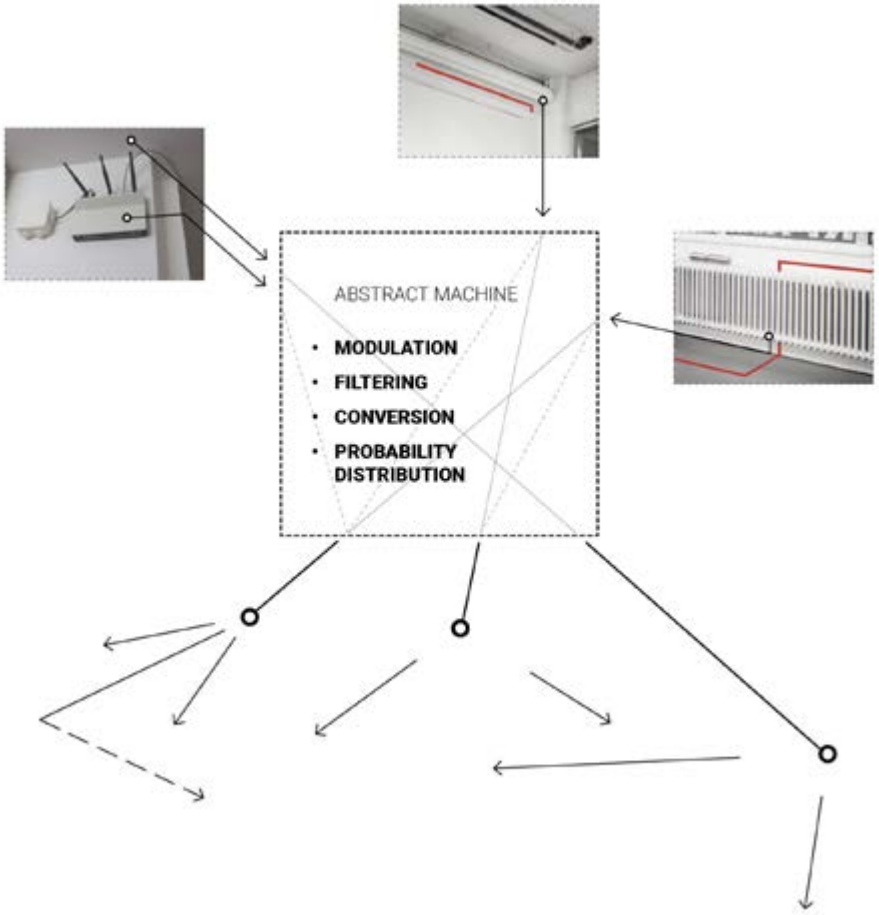


FIGURE 2: operational diagram (abstract machine)

RESEARCH STATEMENT

In present-day societies of control, mobile technologies make ubiquitous telecommunication possible and satellite-based radio positioning systems (such as GPS) enable global navigation, geolocation tracking and location-based responsiveness — as well as asymmetrical warfare by remote-controlled machines such as drones. Extensive infrastructural networks of undersea and underground cables and a proliferation of antennas, circuits

and processors facilitate the vast acceleration of data transference and circulation of capital. Social media govern social relations while surveillance seems to become unconfined with the Internet of Things. Algorithms are designed to automate decision-making and gatekeeping as well as to distribute information, whereby they channel desires as well as fears. To keep pace with the progress, our bodies become increasingly dependent on machines, which require compatibility and continuous updates — keeping so-called users locked-in. In the context of this concrete entanglement between abstract machines and social bodies, or abstract space-time and social realities, how could we address the problem of spatial control in order to recuperate the recognition of the right to actively engage in making our habitat? and develop the means to do so?

It may be important to distinguish between different levels of control, with respective scales and temporalities. On the one hand, we can identify the formation of new and more advanced global architectures of control, supranational entities which operate at the intersection of geopolitics and urban governance, and are predominantly technology-supported as well as market-driven (e.g. see Castells 1996; Sassen 2002). On the other hand, these architectures of control operate to a large extent at the level of interactions and relations between people and machines, whereby the latter govern access to resources, spaces and infrastructure, and modify perception and spatio-temporalities.

As ‘planetary-scale computation’ increasingly transforms modern geopolitics, Benjamin H. Brat-

ton (2016) proposes a specific diagram to map the shifting political geography and better understand the technologies that enable the formation of what he identifies as 'accidental megastructures'. His model 'works from inside out, from technology to governing systems', a conceptual framework derived from 'the multilayered structure of software, hardware, and network "stacks" that arrange different technologies vertically within a modular, independent order' (Bratton 2016: 3-4), cutting across and mediating between different layers: earth, cloud, city, address, interface and user. In line with Bratton, I would also argue that it is needed to develop design approaches that allow for moving across different levels, scales and temporalities. This requires abstraction and a sense of modularity. In contrast to Bratton, I focus here on signal processing rather than specifically on computing. It can be defined as the processing of signals, of physical carriers of information, which is incorporated in all electronic devices.[1] The emphasis of this approach lies on signal more than interface and process more than structure as mediator between bodies, machines and spaces. It suggests a different modality, which is not incompatible, but rather a modest attempt to mediate between time-discrete functions and time-continuous waves, movements and everyday rhythms.

The aim of the presented work and my current research in general is to contribute to the specification of the inner workings and implications of the formation of these advanced architectures of control by means of signal processing as analytical and

1 **Signal processing — The processing of signals by means of hardwired or programmable devices, the signals being regarded as continuous or discrete and being approximated by analog or digital devices accordingly. *A Dictionary of Computing*, Oxford University Press (2004).**

compositional tool which allows for moving across different levels, mediating between body-machine relations and socio-spatial practices. It does so by constructing a conceptual and contextual framework focused on the relations between technological developments in signal processing with respect to waves, abstractions of space and time, and technical operations and ensembles that indicate particular relations between central control functions and socio-spatial articulations (see Fig. 3). It seeks to contextualize specific architectures of control and resistance enabled by signal processing technologies from the late nineteenth century up until now (especially, transmission, radio-control and navigation as well as information processing), and map formations which cut across different scales and temporalities, from global circuits to urban spaces to body-machine relations, and affect socio-spatial relations and particular communities.

How is signal processing incorporated into the production of architectures of control? What does this reveal about their inner workings? What are the socio-spatial implications of their formation? How can we develop conceptual devices and instruments to rethink and transform their operating systems? These systems are designed and to a large extent need to be addressed through design, which in the context of this work is situated in architecture and spatial practice at large.[2]

2 **To avoid terminological confusion it may be needed to distinguish between two different definitions: architecture as spatial design practice and architecture as general organization of a hardware and software system, derived computer science. In this work, architectures of control refer to spatial control.**

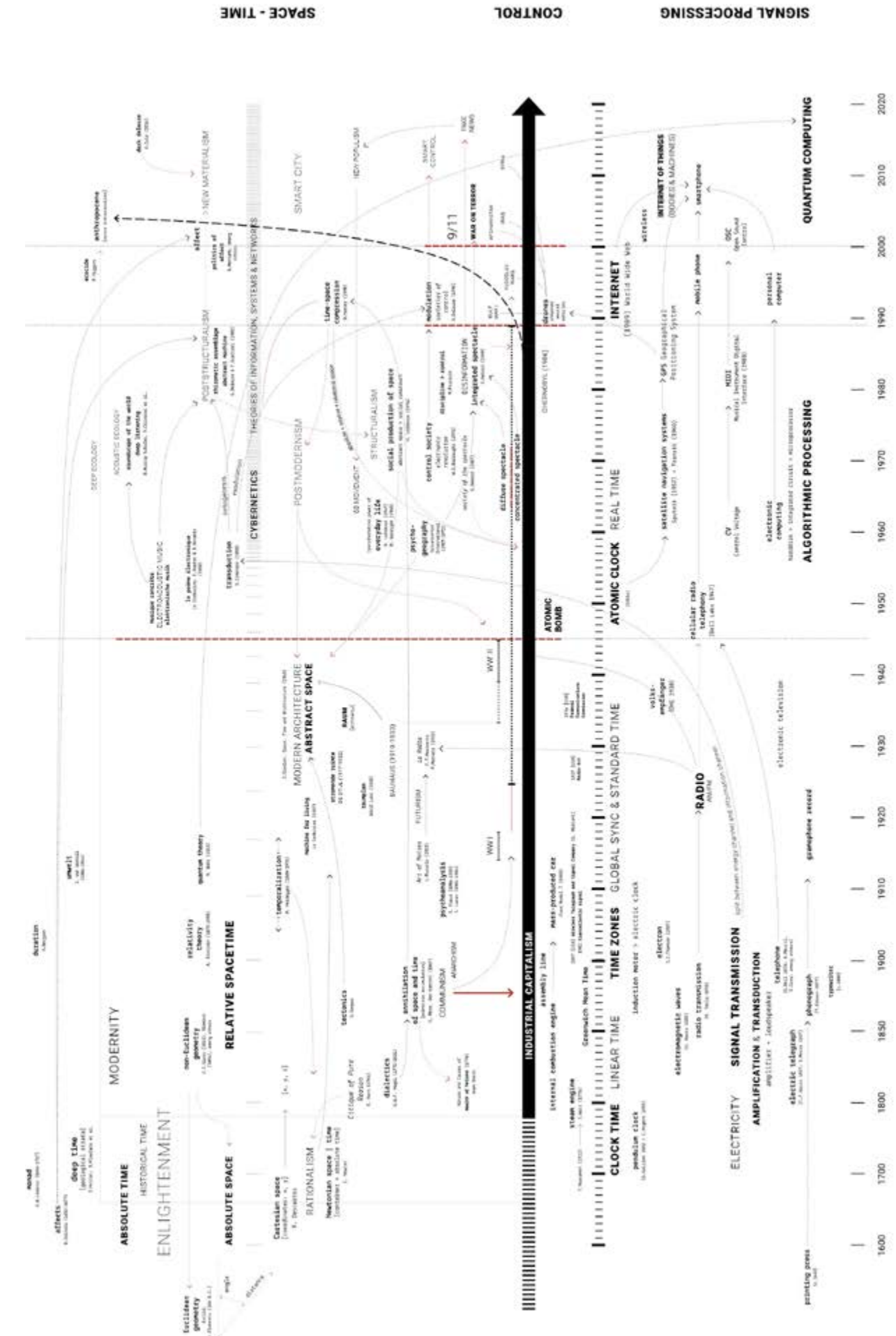


FIGURE 3: diagram of conceptual and contextual framework: signal processing, control and space-time

A signal is the physical carrier of information, of content and expression, transmitted through a medium. It requires the combination of a modulating wave that contains the information and a carrier wave. With the development of electric telecommunication from the late nineteenth century onward, the term signal became more significant (Niebisch 2009: 338). Gilbert Simondon (2017 [1958]: 144) pointed out the importance of the advent of signal transmission, of electric currents and electromagnetic waves as 'vehicles for information'. 'Their ability to be modulated makes them faithful carriers of information, and their speed of transmission makes them rapid carriers.' He argued that this caused a 'profound change in the philosophy of technics' characterized by the increasing importance of 'the accuracy and fidelity of the modulation transmitted by the information channel' (143-144). Coupled with the increasing precision of clock time, from mechanical to electric to atomic clock, signal transmission enabled the development of radio-navigation systems, such as the satellite-based Global Positioning System (see Mackenzie 2002). Technological advancements in communication and radio-navigation cannot be disentangled from geopolitics and military industry. Therefore, it is important to take into consideration the relationships between military and civil technologies. In this research, signal processing refers to producing, transmitting, receiving and processing signals, in order to communicate, express, exchange, navigate, localize, or interlink these functions — for instance in locative media.

Drawing upon Michel Foucault's ideas, Gilles Deleuze (1992: 3-7) argued that the crisis of disciplinary 'environments of enclosure', from World War II

onward, initiates the gradual transition to the 'societies of control', which operate through continuous 'modulation' rather than through confinement. We may recognise this mode of seemingly unbound and real-time control enabled by technological advancements in signal processing. Yet, in retrospect it appears that in the last decades (in particular after 9/11) this did not replace disciplinary environments of spatial enclosure but rather reinforced, modified and amplified them (see Crary 2013: 71-84; Rasmussen 2013).

Although the implications of electronic media are widely discussed in architecture and the various discourses on space, some dimensions of the problem of control and the social realities produced by it seem to remain overlooked. First, the increasing dependency on signal processing machines and transmission networks, coupled with the decrease in clarity of their inner workings, which is in part inherent in their expanding complexity, may create yet unknown (or not yet clearly noticeable) types of normalization, uneven distribution, segregation and exclusion. Second, signal processing significantly modifies our sense of space-time. It allows for seemingly unconfined communication, navigation and localization (which in turn changes habit, perception and lived space-time) but simultaneously enables spatially diffuse or ubiquitous forms of centralized control. Last, the incompatibilities and opposition between different theoretical and philosophical angles, in particular between dialectics and new materialism, which already emerged with postmodernism and post-structuralism and evolved further with the ontological turn, seem to distract attention away from certain key aspects of control. It might be of vital importance

to allow different modalities of thinking in order to remain critical while being sensitive to the changing modes of operation. We may argue that the theoretical incompatibilities that make it impossible to act on the present lie precisely at the points of conversion between continuous processes and discrete numbers. Overcoming this impasse requires a spatial theory and practice that is both analogue and digital, which may be found in the concept of abstract machine.

Abstract machine most commonly refers to the abstract model or operational diagram of a computer system, which is a time-discrete control mechanism (based on a quantized concept of time and space — an integrated and synchronized abstract space-time). Gilles Deleuze and Félix Guattari expanded this definition to any abstract diagram of a system (whether it is mathematical, algorithmic, financial, socio-political, or else) that is reduced to functions and matters and therefore 'independent of the forms and substances, expressions and content it will distribute' (Deleuze & Guattari 1980: 156). Abstract algorithms, however, articulate everyday rhythms. Think of search engines or social media algorithms that direct attention and become habits, for instance, or chatbots learning from social media feeds or other input regardless of content and expressions.[3]

The proposed artefact is a concrete abstraction that effectuates an abstract machine based on the following control functions, which derived from the aforementioned conceptual framework: modulation, filtering, conversion and probability distribution.

3 For instance, Microsoft's AI chat-bot that started to generate racist statements 'learned' from Twitter posts within one day; see Elle Hunt, 'Tay, Microsoft's AI chatbot, gets a crash course in racism from Twitter', The Guardian (24 March 2016).

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FORM-FINDING OF PERFORMATIVE SURFACES THROUGH 3D PRINTING ON PRE-STRESSED TEXTILES

Agata Kycia

ABSTRACT

This paper investigates the technique of 3D printing on prestressed fabrics as a way of creating three-dimensional textile composites and explores potential applications of this method in the architectural industry. Design methodology take advantage of the elasticity and self-shaping properties of these structures, looking into aspects such as materiality, modularity and scalability.

Design methodology relies on 3D printing a less elastic material such as thermoplastic polymer on top of an elastic, prestressed fabric. After releasing the tension, the fabric transforms into a three-dimensional textile structure. This self-forming process results from the interplay and search for the balanced state between the two opposing ele-

ments: the elastic, prestressed fabric and the stiffer, 3D printed polymer. Forms created in this way are pure representations of their material properties, energy stored in these materials and forces acting on them. As a result, they are structurally stable and inherently efficient.

The study consists of two parts. The first one aims to understand the physical and geometrical principles that influence the shape transformation. In nature, out-of-plane deformations of flat sheet materials are often the most energy-efficient solutions to deal with material access. Examples of such systems are kale leaves or seashells, which curl towards the perimeter since it costs them less energy than extending. In the case of prestressed fabrics, their embodied energy acts in the opposite direction and causes shrinkage, whereas the excess 3D printed material deforms out of plane creating wrinkles and curls.

The second part of this research investigates possible implications of proposed methodology for design and outlines new forms of architectural expression arousing from material form-finding. Focus is put here on modular assembly and performance. Softness and elasticity of designed composite modules are used to create performative assemblies, being able to change their shape and reconfigure. Moreover, design space does not only study various 3D-printed geometries, but also examines different custom-knitted patterns of the fabric. As a result, several modules are developed as case-studies to test different shape transformations and suggest various potential functions for both inner spaces and outer building envelopes.

As additive manufacturing becomes more affordable, materials more intelligent, and textiles more robust, the pool of potential applications of textile systems is continuously expanding. Proposed methodology suggests novel applications for lightweight textile structures in architecture and construction such as sun-shading, acoustics, air de/humidifiers, or wind/solar energy generators.

INTRODUCTION

Textile structures have been used in architecture since humankind first began to build. Nomadic tribes from all over the world used fabrics to build shelters for themselves and their animals, taking advantage of their tensile strength, flexibility and adaptability. Fast to construct and lightweight tents were initially built from natural and local material such as skins, barks, woven mats or woolen fabrics.[1]

The same characteristics, which led to the initial utilization of fabrics thousands of years ago, nowadays have brought textiles to the forefront of innovation. New highly engineered textiles with growing strength-to-weight ratio and low carbon footprint gradually replace traditional building materials.

New fabrication technologies, computer-controlled looms, knitting machines and robotics redefine textile production processes, while recent developments on the molecular level of material composition lead to the invention of new materials being able to self-actuate and reconfigure. Combining smart materials with advanced digital manufacturing creates new opportunities for tex-

1 Kycia A. (2018) *Material form-finding of modular textile structures*. CA²RE PROCEEDINGS, Aarhus School of Architecture

tiles as intelligent, adaptable facade solutions. According to Bradley Quinn 'the cutting edge in architecture is not sharp, but sensuous and soft.'[2]

GLOBAL CHALLENGES

'We have modified our environment so radically that we must now modify ourselves in order to exist in this new environment'[3]

According to the IPBES report[4] about 75% of land and 66% of ocean areas have been significantly altered by people. Human activities irreversibly affect the climate and environment, perturbing the ecosystem around the globe. We are facing environmental degradation and biodiversity crisis, which in combination with diminishing resources and incessant population growth demand radical changes in the way we live, act and build. Our life-style choices need to be reconsidered and new solutions must be found for more sustainable living and efficient use of materials.

The United Nations in the World Urbanization Prospect[5] predicts that by 2050, 68% of world's population will leave in the urban areas, which is 25% more than in year 1950. Considering this rapid urban-ization growth architecture needs to become much more visionary and courageous than in the previous decades, so that it can adjust to the rapid climate and environmental changes and serve future generations.

2 Quinn B. *Textiles in architecture. Architectural Design: Architextiles*. Wiley. 2006;11.
3 Wiener N. (1988) *The human use of human beings: cybernetics and society*. Da Capo Press: New edition.
4 Brondizio E.S., Settele J., Díaz S., Ngo H.T. *Global assessment report on biodiversity and ecosystem services of the Intergovernmental Science- Policy Platform on Biodiversity and Ecosystem Services*. IPBES 2019; Bonn; Germany. Tollefson J. *Humans are driving one million species to extinction*; NATURE. 2019;569; http://go.nature.com/2v4zbn9 (accessed 09 August 2019)
5 United Nations, Department of Economic and Social Affairs, Population Division. *World Urbanization Prospects: The 2018 Revision*; https://population.un.org/wup/Publications/Files/WUP2018-KeyFacts.pdf (accessed 09 August 2019)

‘Natural ecosystems have complex biological structures: they recycle their materials, permit change and adaptation, and make efficient use of ambient energy. By contrast, most man-made and built environment have incomplete and simple structures: they do not recycle their materials, are not adaptable, and they waste energy.’[6]

Most of the crude architectural solutions are still far behind the dynamic, intelligent and intrinsically efficient structures built by nature. Nevertheless, with the help of new cutting-edge technologies, advancements in material science and engineering, the idea of ‘smart’, adaptive built environment becomes more and more viable.

ADAPTIVE BUILDING ENVELOPES

Facades, being interfaces between buildings and environment, play an important role in the regulation of the energy waste in buildings. They negotiate between desired conditions of the indoor spaces and the fluctuating conditions of the outdoor environment. This strategic position in-between the two very different and complex environments may push facades to the forefront of sustainable thinking. As adaptive, intelligent systems they could help to optimize the energy used for heating, cooling, lighting or ventilating and in the same time provide optimal comfort for indoor and outdoor spaces.[7]

How can we maximize the use of natural energy sources, minimize material waste and design according to the local needs and conditions? Can

6 Frazer J. (1995) *An evolutionary architecture*. Architectural Association Publications.
7 Lopez, Marlen & Rubio, Ramón & Croxford, Ben & Martín, Santiago. (2017). *How plants inspire facades. From plants to architecture: Biomimetic principles for the development of adaptive architectural envelopes. Renewable and Sustainable Energy Reviews. Volume 67.* Pages 692–703. 10.1016/j.rser.2016.09.018.

we learn from nature and its laws of adaptation in order to create flexible systems adapting to the ever-changing environmental conditions? Can we design not only new buildings but also new materials and production processes?

MATERIAL FORM-FINDING

Technological advancements and material innovations are alone not enough to create new concepts for more sustainable living. Once we have intelligent materials and new fabrication methods, the key question becomes how to design with these materials and technologies. How to maximize material efficiency? How to use its intelligence for sustainable design solutions? The answer to many of these questions lies in the relationship between material and geometry and how these two relate to each other.

The efficient and functional, but also complex and diverse forms of plants and living organisms inspired architects and designers for centuries.[8] Unlike often in architecture, in nature there is no space for superficiality. Every biological form is a result of the morphogenetic processes, influenced by its material characteristics and environmental context.

‘The waves of the sea, the little ripples on the shore, the sweeping curve of the sandy bay between the headlands, the outline of the hills, the shape of the clouds, all these are so many riddles of form, so many problems of morphology, and all of them the physicist can more or less easily read and ade-

8 Pohl G., Nachtigall W. (2015) *Biomimetics for Architecture & Design*. Springer

quately solve: solving them by reference to their antecedent phenomena, in the material system of the mechanical forces to which they belong, and to which we interpret them as being due. '[9]

Seashells for example curl more on the edge than towards the center because they grow at a faster rate on the perimeter and creating waves is the most efficient way to deal with the material access. As Stevens remarks: 'nature makes cups and saddles not as she pleases but as she must, as the distribution of the material dictates'[10]

FORM-FINDING EXPERIMENTS

The following study aims to examine the out of plane deformations resulting from the process of 3D printing on prestressed fabric. This material form-finding method was developed by the MIT Self-Assembly Lab.[11] [12] It relies on 3D printing a less elastic material (such as thermoplastic) on top of an elastic, prestressed fabric. Once the tension is released, the textile transforms into a specific three-dimensional shape, whereas its form is influenced by the 3D printed pattern. This part of the research aims to analyze different parameters affecting the transformation in order to understand the relationship between the material properties, the energy stored in the pretensioned textiles and their final form.

9 Thompson D'Arcy W. (1917) *On Growth and Form.* University press in Cambridge. Introduction,10.
10 Stevens P.S. (1974) *Patterns in nature*. Little Brown and Company.
11 Tibbits S. (2017) *Active matter*. MIT Press. Introduction; p. 11
12 Papadopoulou A., Laucks J., Tibbits S. (2017) *General principles for programming material. Active matter*. MIT Press.

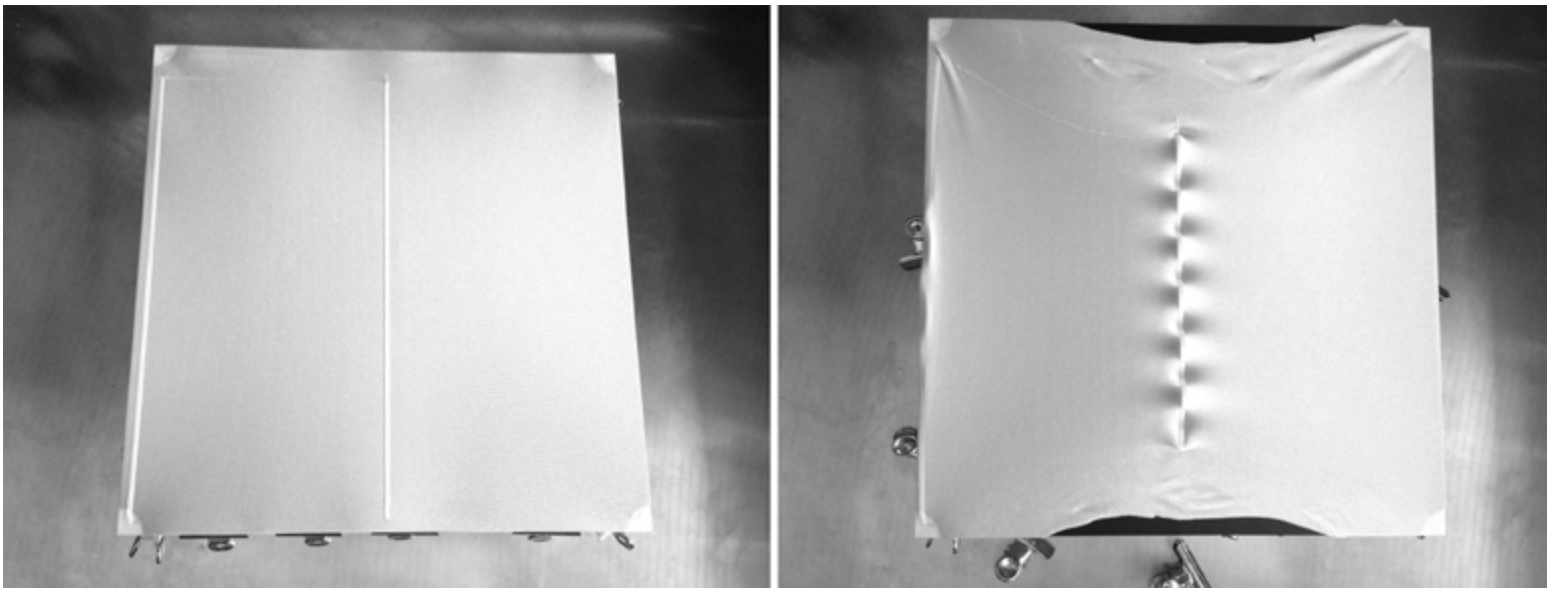
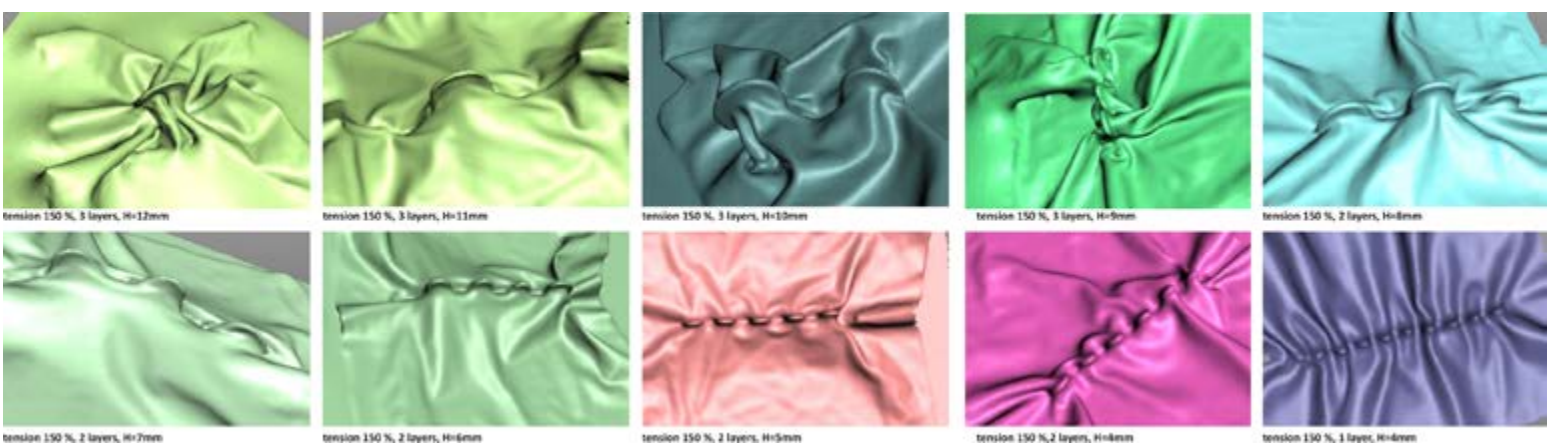


FIGURE 01. A deceptively simple straight line printed on a square patch of prestretched fabric (left). The onset of line buckling upon tension release (right) reveals the role of materiality and forces in this physical form finding process. Collaboration with Lorenzo Guiducci, Matters of Activity. Image Space Material. Cluster of Excellence at Humboldt-Universität zu Berlin

The first case-study focuses on the 3D printed lines transforming into waves. Two series of physical experiments were carried out where a single line was 3D printed on a fabric, which was prestressed only in its longitudinal direction.[Fig.01] The width and length of the line did not change throughout the experiments.

In the first series of tests the pretension of the fabric varied and the height of the line remained constant, whereas in the second series the height of the line varied and the tension of the fabric remained constant.

FIGURE. 02. Systematic exploration of single lines 3D printed on a prestretched textile. Line thickness decreases from left to right and top to bottom, fabric prestretch is constant at 150%. A variety of morphologies can be observed: whereas the lines follow and orderly arrangement (thicker lines resulting in fewer but more pronounced waves than in thin ones), the fabric relaxes into much more random shapes and behaviors: crumpling, draping, pleating, wrinkling. Collaboration with Lorenzo Guiducci, Matters of Activity. Image Space Material. Cluster of Excellence at Humboldt-Universität zu Berlin



After several tests the tension was released and all the textile composites were 3D scanned and analyzed. [Fig.02] As a result, every printed line transformed into a wave with different wavelength and amplitude. It occurred that different parameters of the 3D printed geometry affect different aspects of the transformed geometry: the height of the lines affecting the amplitude and the stretch affecting the wavelength. [Fig.03]

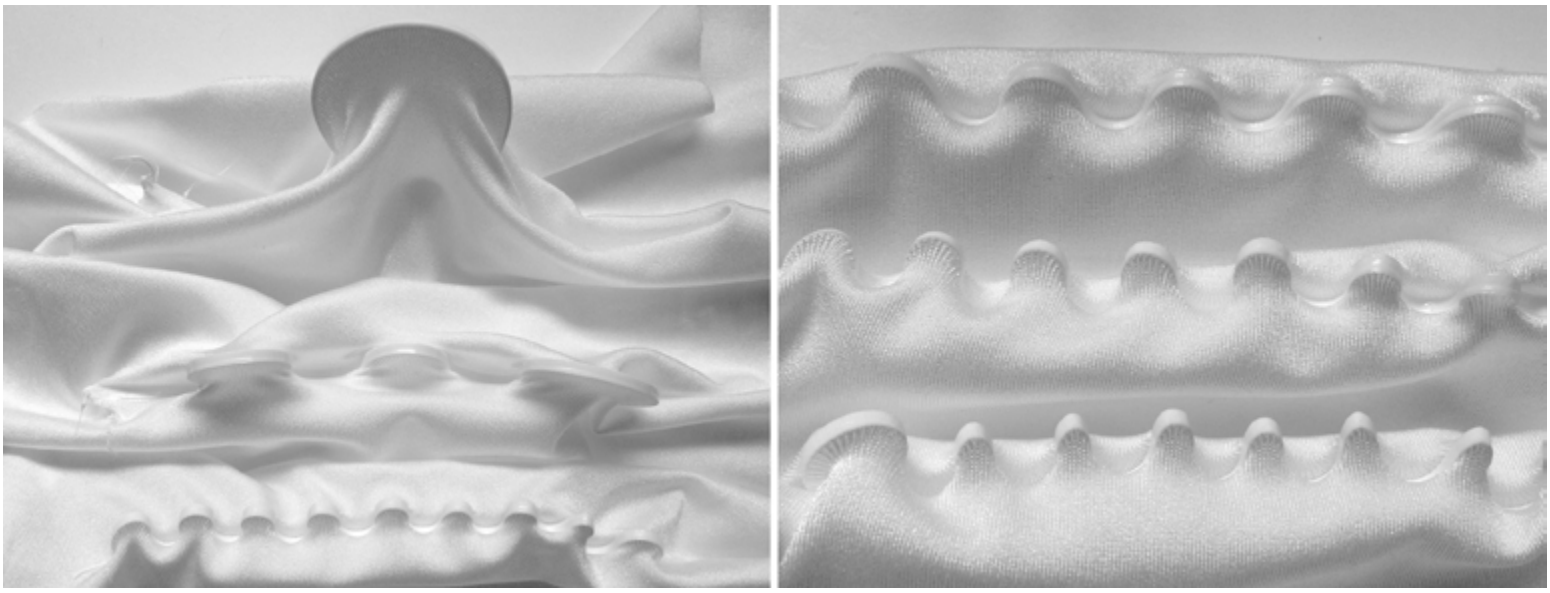


Fig. 03. Buckling and Wrinkling in 3D printed textiles. A simple straight line/rod 3D printed on a pre-stretched textile can generate diverse 3D shapes, thus being only apparently “simple”. An increase in line thickness (left picture, from bottom to top) gives rise to larger waves (both in amplitude and breadth). The initial fabric prestretch, only affects the waves’ breadth (right picture). Collaboration with Lorenzo Guiducci, Matters of Activity. Image Space Material. Cluster of Excellence at Humboldt-Universität zu Berlin

The experiment was then repeated with multiple lines of the same height and surface pretension, each time changing the distances between the lines. If the distance was big enough, the lines transformed independently into the same configuration. Once the lines were closer to each other, it affected the amplitude of the waves created on each line.

DEVELOPMENT OF PERFORMATIVE MODULES

The second part of the research aims to apply the observations from the previous experiments into the design process of performative textile surfaces. It focuses on the development of a textile module and its geometrical phase-change which would allow for multiple configurations. Several modules are then assembled into a larger surface and tested for an exemplar application as sun-shading envelopes.

For comparability of the results, the conditions of the experiment were the same for all the samples. They were all printed by the Fused Deposition Modeling (FDM) 3D printer using the same printing settings, materials and module sizes. The filament used for the experiment was polyactic acid (PLA) — a thermoplastic polyester derived from renewable biomass, applied on the elastic knitted fabric (85% Polyamid and 15 % Elastan) and pre-stretched in both directions to 150%.

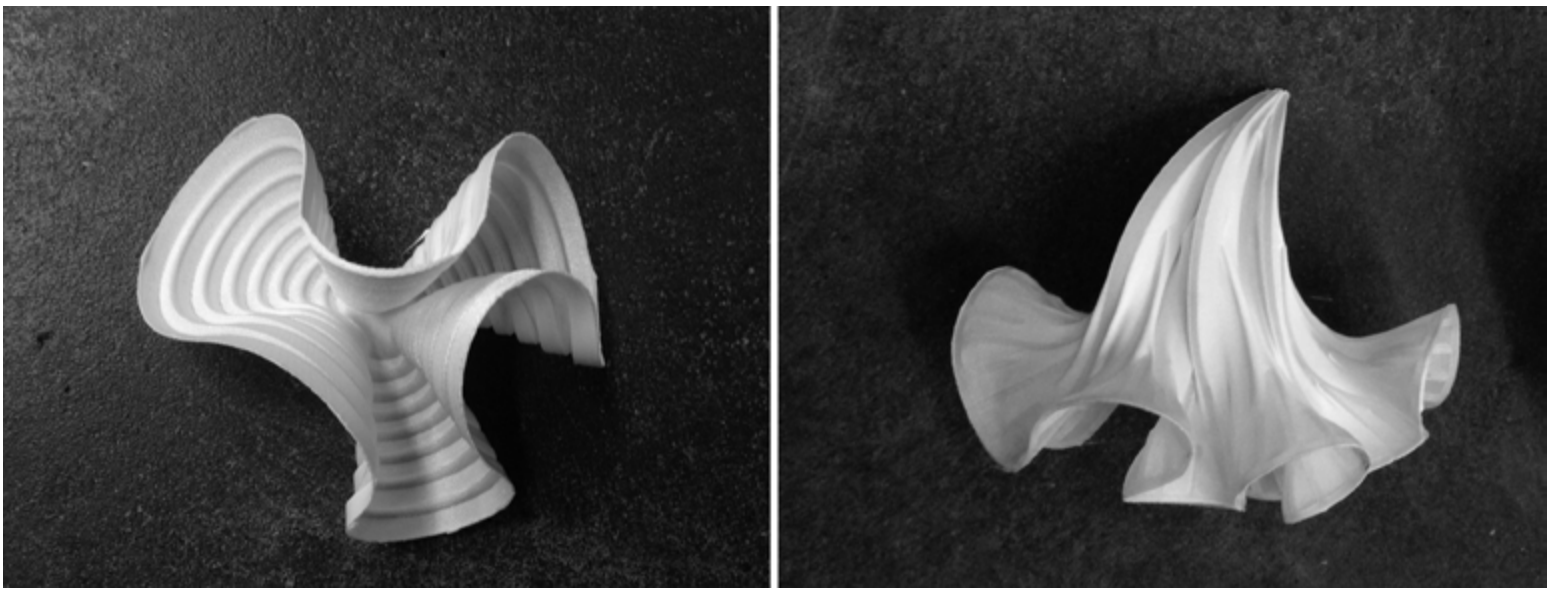


FIGURE 04. Circular modules representing two different strategies for stiffening the model: concentric rings (left) and radial ribs (right).

The starting point for the development of the textile unit is a circular boundary which transforms into a saddle shape. After diverse tests and prototypes with increasing complexity, two main strategies were chosen to stiffen the circular module and serve as case-studies for further development. The first strategy relies on concentric rings, the second one on radial ribs.[Fig.04]

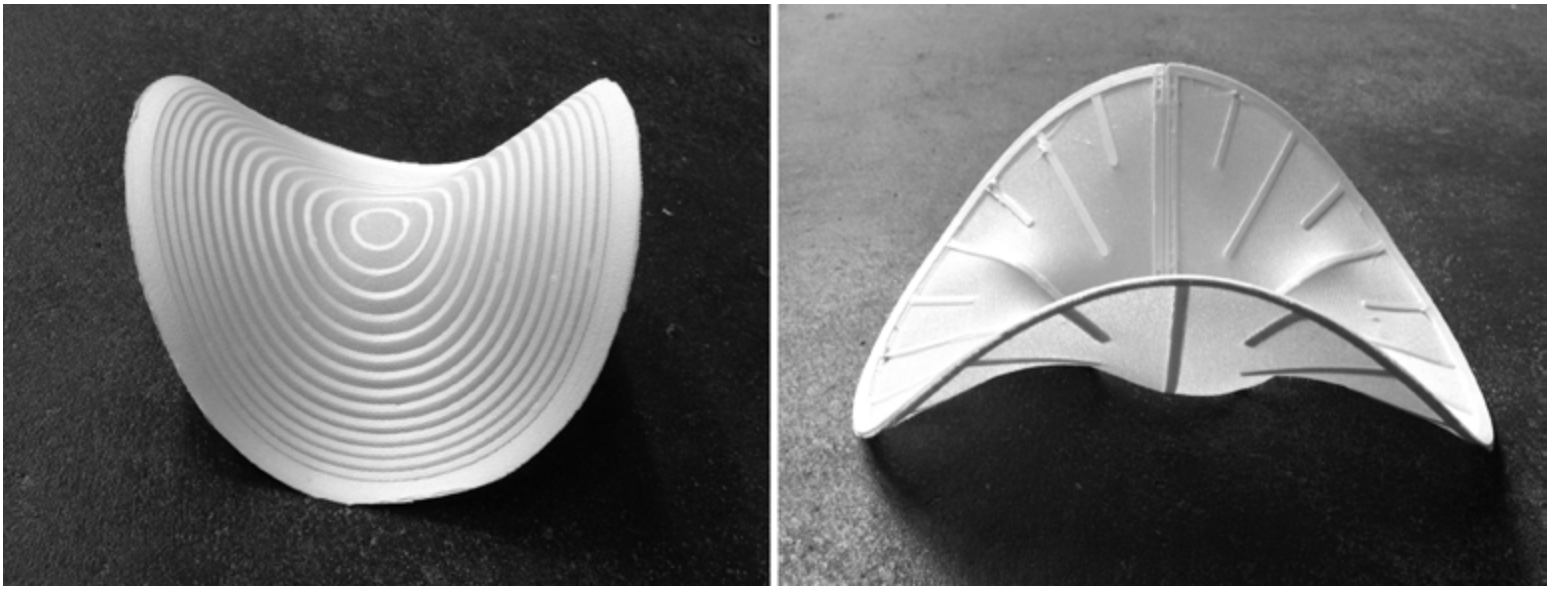


FIGURE 05. Two circular modules developed in order to test in a larger assembly: concentric rings (left) and radial ribs with enclosed boundary

These two strategies are developed further into modular elements that are able to change their form.[Fig.05] Both modules are then multiplied into a larger assembly. Different shape-changing mechanisms are designed for each of the models allowing the surface to control the amount of light that it lets through.

CASE STUDY_01

The first case-study model uses the elasticity of the modules for their shape-change. Single units can be compressed by pulling the two opposite sides towards each other. As a result, the mod-

ules form vertical, closed surfaces.[Fig.06] Once the force is released, they come back to the initial, balanced state. This methodology allows to reduce the energy needed to activate the system and use the intrinsic properties of the material to drive the shape transformation in one direction. In the other direction a mechanical activation is used at the moment, but alternative solutions are planned to be developed in the future.

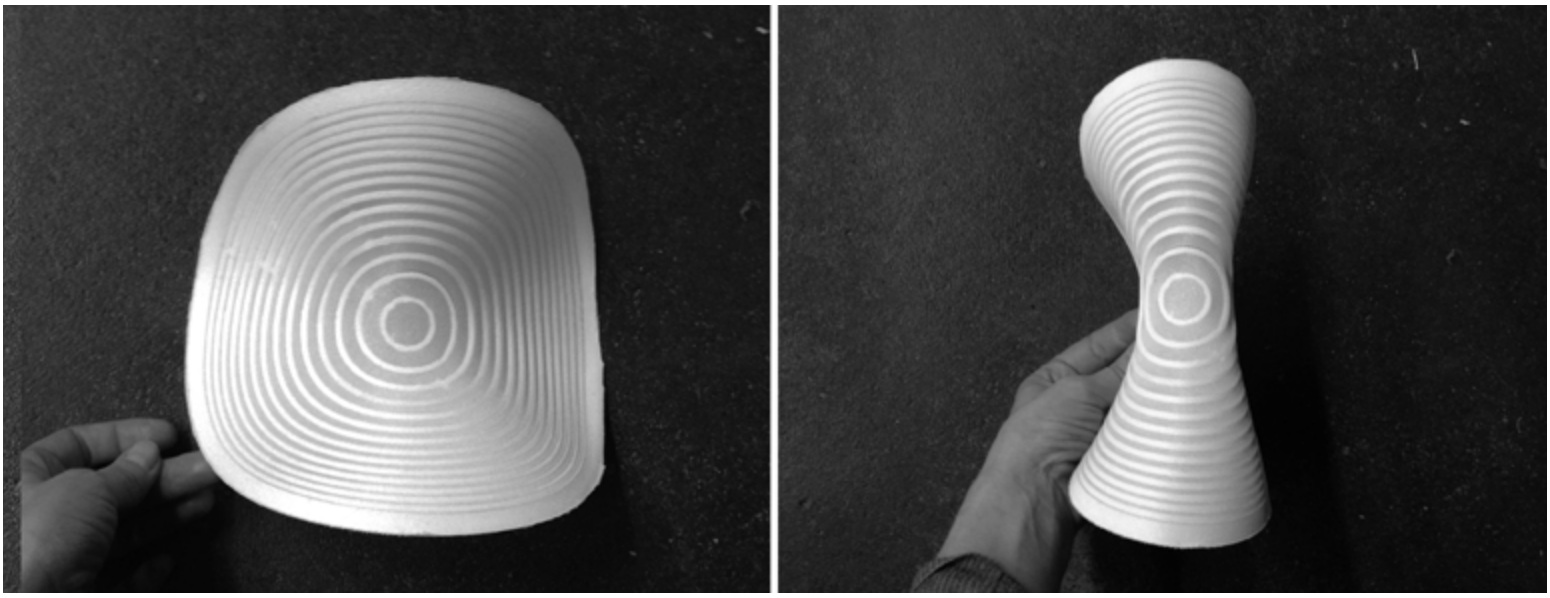


FIGURE 06. Geometrical transformation of the module with 3d printed concentric rings, created by applying and releasing tension

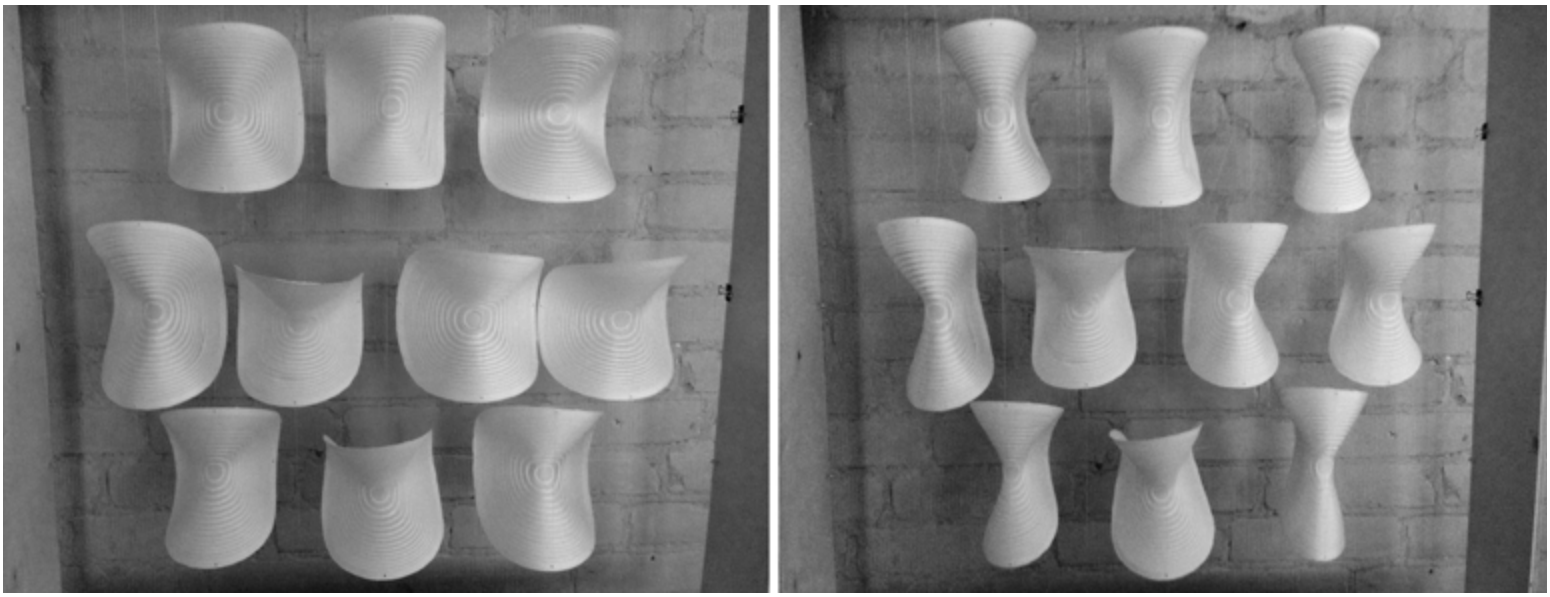


FIGURE 07. Assembly of ten circular modules opening and closing due to the application and release of the tensile force. Modules are attached to a wooden frame, 85 x 85 cm.

One of the challenges for fabricating identical modules lies in the pretension of the fabric. One can easily observe slight differences among the modules, which result from the manual pretension.[Fig.07] The imprecision could be minimized by decreasing the area of the printing bed, whereas the problem can be completely eliminated in the industrial production with automatic tensioning mechanisms.

FIGURE 08. Sun path analysis of open and closed modules facing south, located in Berlin, Germany on July the 17th at the following times: 10:00 AM, 12 AM, 3 PM and 5 PM.

In order to evaluate the results and test the functional of the proposed system, digital representations of open and closed modules are modeled and their sun shading performance is simulated. Sun path analysis [Fig.08] and solar radiation analysis [Fig.9,Fig.10] are carried out to compare the two strategic orientations of the modules: the southern and the western one. It occurs that on the southern side the open modules protect better against direct sun light, whereas on the western side the vertical modules perform better and let more daylight through. As a consequence, transformation of the modules from one state to another could be used to adapt to the sunlight conditions throughout a day. Such passive solar design strategy could increase energy efficiency and thermal comfort in the built environment.

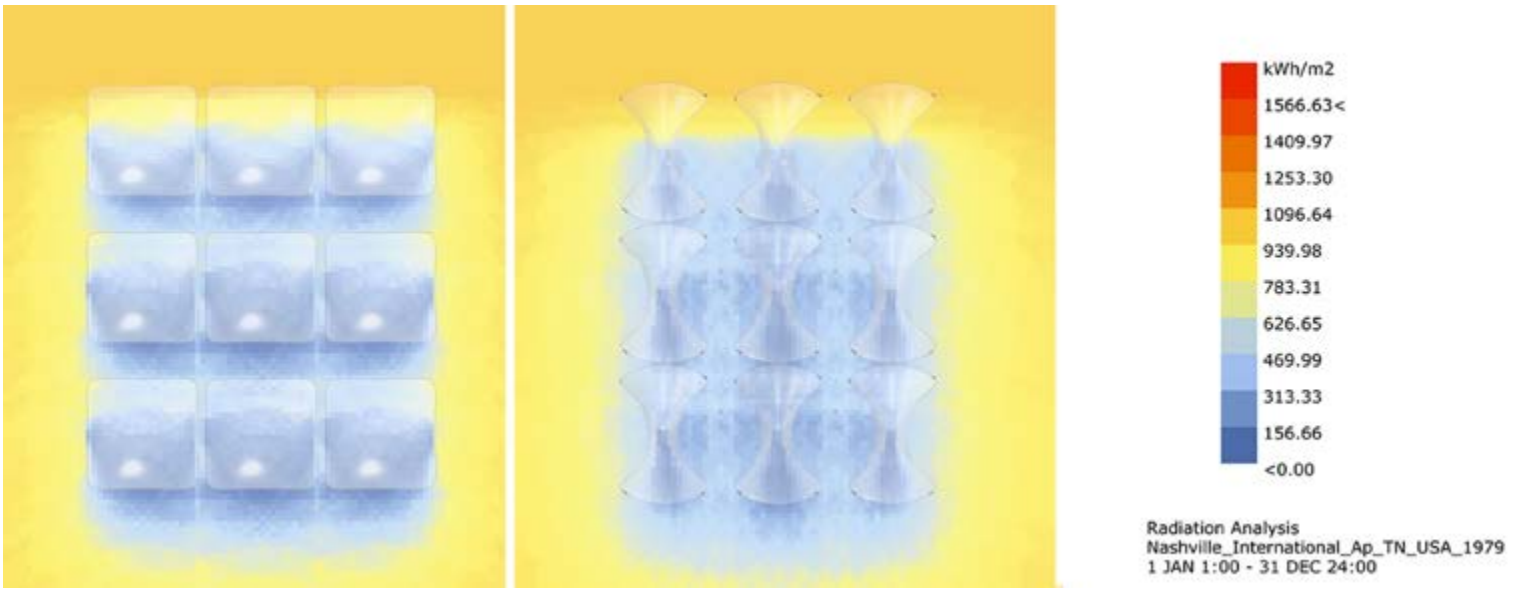


FIGURE 09. Radiation analysis of open and closed modules on the southern facade in Nashville, USA. Simulation created with Grasshopper Ladybug.

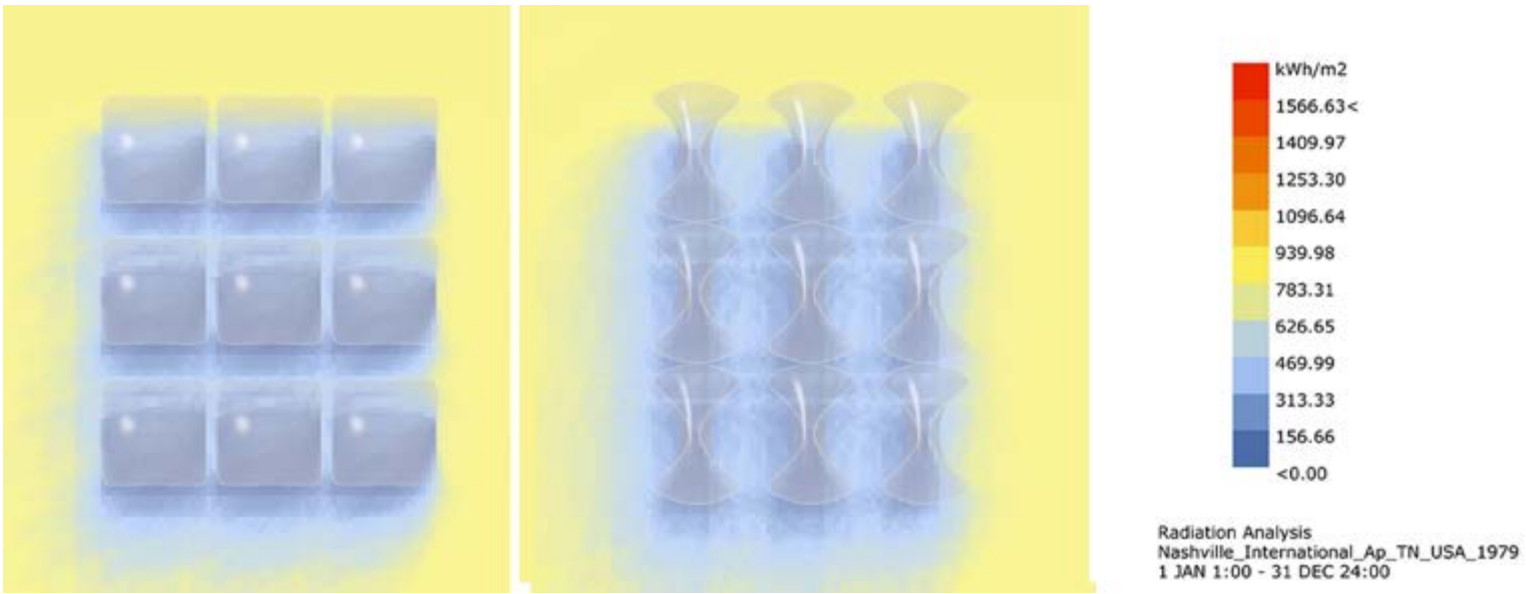


FIGURE 10. Radiation analysis of open and closed modules on the western facade in Nashville, USA Simulation created with Grasshopper Ladybug.

CASE STUDY_02

The second case study relies on the experimental design process where both parts of the textile composites are examined: the 3D printed geometry as well as the textile logic of the pretensioned fabric. This time the focus is put on the potential transformations of the second circular module with the stiffening ribs arranged radially from the center to the boundary. As a result of several prototyping

experiments, an additional cut is introduced into the geometry in order to create a spiral-like surface. Contrary to the previous examples, the phase-change does not happen now by applying tension or compression on the geometry, but by simply rotating the modules or parts of them.[Fig.11, Fig.12]

FIGURE 11. Studies of the movement of a textile module with ribs and enclosed boundary, attached to a wooden structure: top view (upper row), side view (lower row)

FIGURE 12. Single textile module with ribs and enclosed boundary, attached to a wooden support and rotated along its vertical axis.

Rather than looking at the individual modules independently, this study focuses on the orientation of single modules in a larger assembly. The following example demonstrates a system where the individual modules do not change their form but depending on their relative position to their neighbors, the character of the whole surface changes. Here the modules are arranged along the vertical ribs that rotate along the vertical axis.[Fig.13] As a result, the overall surface gradually transition from closed to open state. This system could be potentially activated by the wind energy, resulting in a fully passive and adaptive sun-shading scheme.

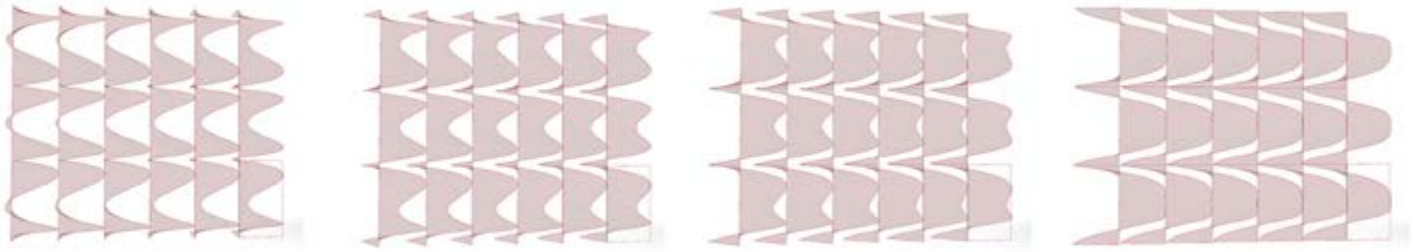


FIGURE.13. A sequence of multiplied modules rotating along their vertical axis, simulated in Rhino Grasshopper.

Another aspect which can increase material efficiency of the textile composites is the local differentiation of the knit pattern within the fabric. Several tests were set up in order to test the influence of the knit on the deformation of the fabric and locally control its stiffness, elasticity and porosity. Custom elastic knits for the experiments were produced at the STFI- Sächsisches Textilforschungsinstitut in Chemnitz. The tests focused on two different aspects of the production process: increasing sizes of the knit loops and diversifying the knit pattern in the specific areas of the textile. [Fig.14] Design of the custom knitted fabrics will be investigated in the next phase of the development,

looking into the several challenging aspects such as synchronization between the knit pattern and the 3D printed geometry and influence of the custom fabric on the geometrical transformation.[Fig.15]

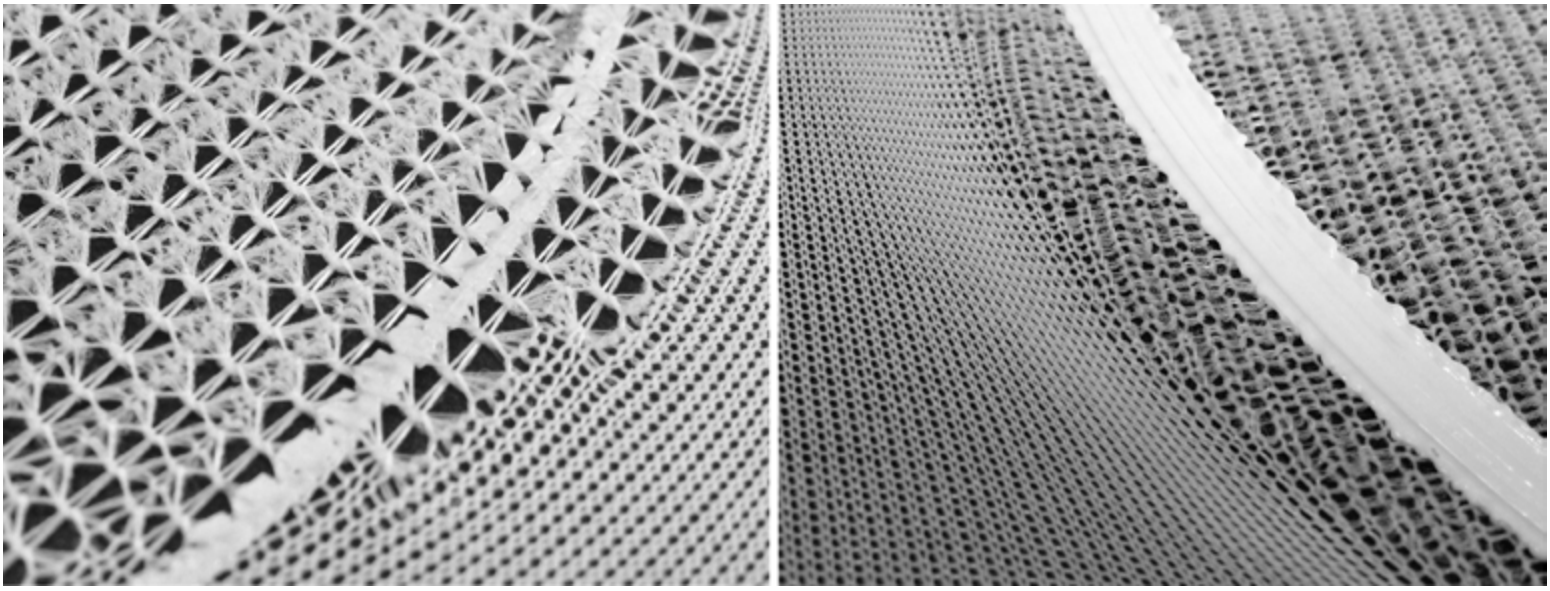


FIGURE. 14. A curved line 3D printed on a custom knitted fabric: fabric with tuck stitch pattern (left image) and four different loop sizes (right image). Collaboration with STFI- Sächsisches Textilforschungsinstitut e.V. in Chemnitz.

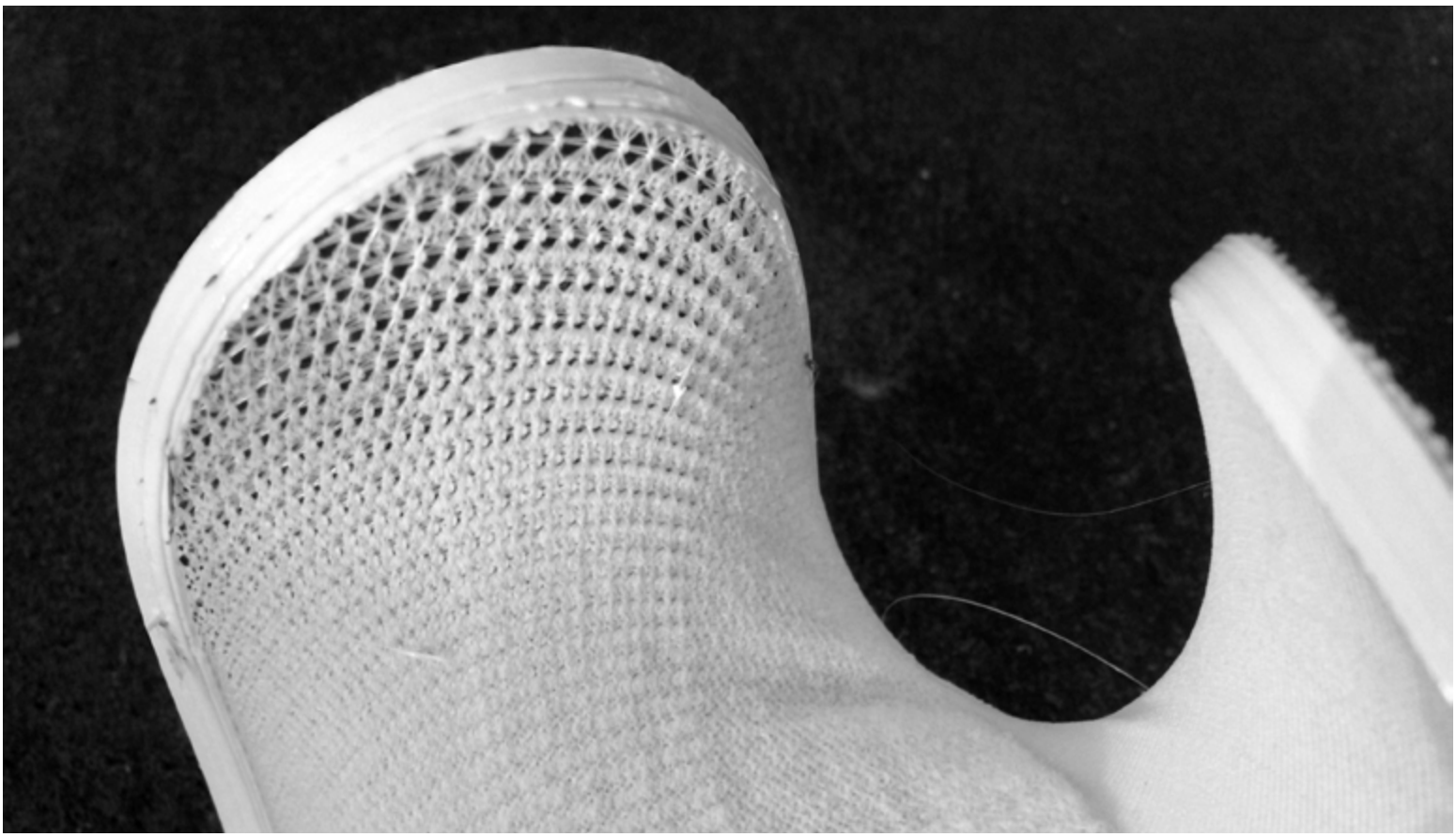


FIGURE 15. A circle 3D printed on a custom knitted fabric with tuck stitch pattern. Collaboration with STFI- Sächsisches Textilforschungsinstitut e.V. in Chemnitz.

Both case studies touch upon different aspects of the self-shaping textiles and their potential to perform different functions in the built environment. Rather than trying to solve specific technical difficulties, this paper aims to outline manifold directions and possibilities discovered in the design process which could be worth pursuing in the next phase of the research.

CONCLUSIONS

3D printing on prestressed fabrics is a robust methodology for creating three-dimensional, lightweight, transformable composites with a lot of potential as building structures or smart textile facades. Some of the remaining challenges in the architectural applications of this methodology are the materiality, durability and scaling up of the manufacturing process, however presented experiments demonstrate that the self-shaping principles could be used to increase material efficiency and allow adaptation.

Areas that require further development and improvement include: control and precision of the pretensioning to minimize differences between the modular elements, attachment and connections between the elements as well as assembly logic and configurations. Geometrical and behavioral studies will be carried out parallel with material prototyping and custom knitting.

Current phase of this research presents the principles guiding the shape transformation, negotiating between the tensile force of the fabric and the juxtaposed strength of the 3D printed geometries. Moreover, it aims to outline the possibilities of activating and enlivening these textiles after they have found an optimal state.

At the moment the transformation of the pre-programmed textiles in presented above case studies is stimulated by mechanical forces. Once the external force is released, the textile composites naturally come back to their balanced state. Nevertheless, recent technological advancements and material innovations make it possible to imagine reversibility of this movement or self-activation. One of the possible future scenarios suggests other activation models such as SMA- Shape Memory Alloys, sensorics or even passive methods such as active materials which could change shape due to the external stimuli such as temperature or humidity.[13] Moreover, responsive materials could not only replace the 3D printed part, but also inform the fabric itself.

As a result, combining the form-finding method with self-actuating materials could allow creation of living building skins adapting dynamically to the ever-changing environment. This process can be enriched by looking at nature- not by mimicking its solutions, but by learning from its laws of adaptation and understanding the relationship between form, material and forces.

13 Correa D. (2015) *3D-Printed Wood: Programming Hygroscopic Material Transformations. 3D Printing and Additive Manufacturing.*; 2.3; 106–116.

DESIGNING AND STRATEGIZING THE CREATIVE CLUSTERS FOR SUSTAINABLE REVIVING OF SUBURBIA

Sinan Mihelčič, u.d.i.a.

ABSTRACT

PURPOSE

Suburbia, with its many sustainability problems, is possibly the next biggest frontier of extensive pro-sustainability measures in *Slovenia (or/and Europe)*. One of the possible measures how to revive suburbia is trough establishing and supporting creative clusters, which are small sub-urban areas, with stronger concentration of creative industries. The aim of this initial phase of my doctoral investigation is to elaborate possibilities how to design and support those clusters and why some of them are succeeding, others not.

METHODS

To answer this question, I will analyse my professional work with those clusters in the last decade, including ‘‘bottom up’’ and ‘‘top down’’ projects and initiatives and compare it with similar practices from local and regional level. First part of the research will focus on experience through interviews and personal observation, later in the process I expect to add some amount of measurable data.

IMPLICATIONS

Within the research, I expect to create a better understanding, where in suburbia creative clusters are appearing and why and how creative clusters effect on local circular economy and sustainable development. Later I will use this data to create guidelines for developing the tactical urbanism policies, for designing creative clusters and frameworks how to invest into creative areas in order to shift from existing models of suburbia into more sustainable developments.

TRONDHEIM GOALS

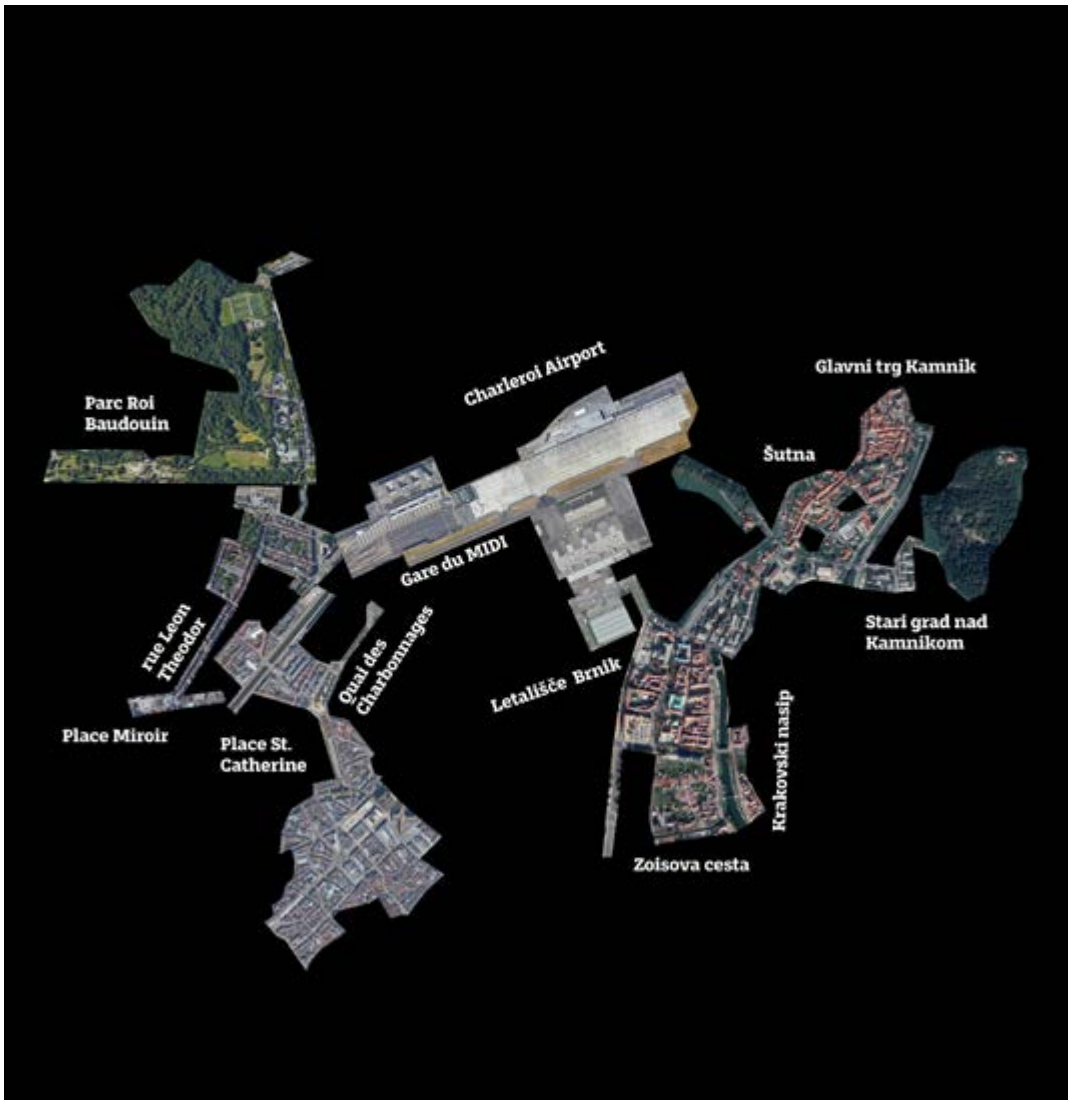
The initial data and personal experiences indicate, that fluidity of people, accessibility of affordable individual transport and less constant way of life *(peer to peer way of life)* are main challenges for creative clusters areas to achieve positive impact on the sustainability.

My first goals for Trondheim are to present my personal experiences and findings from my creative practice in suburbia and elaborate on the findings. I will expose the question of how much mobility

(physical and mental) of creative class individuals is effecting the success or failure of those creative clusters initiatives. I will present story and experiences of people involved in *Štajn students* architecture group (later *Štajn architects*), which I have lead for last decade. Through the printed graphic material, statistical data and presented parts of interviews with its members, I intend to open a debate around the table on the topics of reviving suburbia with creative clusters.

IMAGES

PEER TO PEER WAY OF LIFE



A collage – which I call hypercity. We do not live only in one city, but in different parts of several global cities. Artistic image represents mental and physical patchwork of my personal global ëísuburbsíí.

Photo, above: Larisa Kazic
Photo, others: Nina Humar

THE EMBODIMENT OF CONSOLATION AN ARCHITECTURAL UNFOLDING OF DWELLING IN THE PRESENCE OF ABSENCE

Eva Demuynck

ABSTRACT

Recent bereavement studies are observing and documenting a growing divide between the well-known existing *'deathscapes'* (Sidaway & Maddrell, 2016) and the changing socio-cultural landscape of mourning within our secularised western society. Memorial practices are moving away from the public domain towards the everyday and private environments while the strive for closure is shifting towards a longing for *'continuing bonds'* with the deceased: an *'open-ended process of ritualization'* (Hockey et al., 2010) which relies on the sensation of the deceased's presence attached to a material object or a place.

This study positions itself within the aforementioned 'gap' and argues that this changing landscape is full

of potential to explore new ways of designing space within the context of loss.

This claim is supported by the author's master dissertation 'Consolatio Loci': a design-driven research that involved the hypothetical renovation of the author's childhood home in response to the passing of one of its inhabitants. Materialising site-specific memories into the architectural detail culminated in a series of three spatial interventions: a room for saying goodbye, one for remembrance and one for dreaming.

A reflection on this first successful case study reveals how both the design process and the resulting space were able to transform the uncanny sensation of the deceased's presence inside of the house into a comforting experience, thereby embodying consolation. The author subsequently uncovers possible intersections between the disciplines of Architecture and Creative Therapy by contextualising the different steps leading up to the final design and by unfolding them as a *'rite de passage'* (Van Gennep, 1909) consisting of the following phases:

(1) SEPARATION: observing the initial experience of the home environment while mapping emotional traces throughout the house and conceptualising these observations by means of a literature study and the reading of existing case studies

(2) TRANSITION: associating the concepts from phase 1 with spatial elements and implementing these elements into the home environment through a cyclical drawing process

(3) INCORPORATION: reflecting on the consequences of these spatial propositions on the analogous space of the house and observing the changed experience of the home environment

The author is currently preparing for a PhD project relying on Kolb's Experiential Learning Cycle to research how architecture's non-verbal media 'drawing' and 'space' can be implemented towards the development of a more empathic architecture. This reframes the position of the architect as a mediator between mental and physical space.

INTRODUCTION

The recent history of funerary architecture within western society is defined by a relocation of the cemetery from the inside to the outside of the city centre (18th — 19th century), by a decrease of attention towards the design of tombstones and memorials from the discipline of architecture (19th — 20th century) and by the (re)introduction of memorial practices into the private environments of the bereaved (20th — 21st century). This paper will reframe these three spatial developments in relation to secularisation and the introduction of cremation to reveal a growing divide between the built and the socio-cultural landscape of mourning. It will then reveal the potential of architecture to help fill this gap by contextualising the author's master dissertation as a first successful case study within a literature study on the interaction between mourning and place through creative expression. Unfolding the design process as a 'rite de passage', ultimately opens up new avenues to explore the therapeutic potential of architecture.

Today's final resting place for the deceased has undergone very little change since the development of the Parisian Père Lachaise cemetery at the beginning of the 19th century. This extra-muros typology offered a solution to the growing concerns regarding the health and hygiene of burial sites previously located at the heart of the city (e.g. Cimetière des Innocents) (Cuyvers 2005 ; Schoonjans 2014). Even after cremation became common practice, this procedure did not impart any fundamental changes to the cemetery. Apart from the necessary addition of a crematorium, a columbarium, a meadow to scatter ashes, etc., it was simply imbedded within the by then well-established spatial framework so that it would feel more familiar (Kellaher et al. 2010).

This standstill continues in the design of tombstones and memorials. A closer look at the history of tomb sculptures (Panofsky 1964) and the evolution of our attitude towards death (Ariès 1974) reveals how funerary architecture has slowly faded to the background of the architecture discipline during the course of the 20th century. The work of a few well-known exceptions (e.g. Gunnar Asplund, Sigurd Lewerentz, Aldo Rossi and Carlo Scarpa) illustrates how architects have continued to rely on classical geometric forms and time-withstanding materials to shelter the dead (Azara 1999). Instead of implementing the innovative materials and concepts that emerged alongside modernist and contemporary architecture (e.g. transparency, mobility, etc.) (Cuyvers 2005), "architects have availed themselves of the forms of the past

because the latter, which are immemorial and at odds with the passing of the centuries, are the ones most suitable for evoking beings who have escaped the presence or the weight of time" (Azara 1999: 36).

THE SOCIO-CULTURAL LANDSCAPE OF MOURNING

The implementation of the extra-muros cemetery and the reverting to classical forms for the design of memorials has resulted in a distancing between the world of the dead and that of the living, while sustaining an illusion of immortality (Cuyvers 2005). These spatial developments have thereby reinforced the banishment of grief from the public domain due to the secularisation of western society. The corresponding disappearance of traditional mourning rituals has created a lack of available symbols that would allow the bereaved to reposition themselves in relation to the deceased (Visker 2007).

Since the end of the 20th century, death and bereavement studies have started to move away from pathologizing grief based on theories that strive for closure and detachment (Freud 1917/2001) to observe how the bereaved attempt to continue their relationship with the deceased instead (Klass 1996). This process of 'continuing bonds' relies heavily on 'material foci' whereby "past presence and present absence are condensed into a spatially located object" (Hallam & Hockey, 2001: 85). These objects evoke the sensation of the deceased's absence-presence, which is perceived as either a comforting or an unsettling experience (Jonsson 2019), leaving us unable "to put the uncanny in its rightful 'place'" (Trigg 2012: 28). Continuing bonds through material practices at the cemetery endow

the bereaved with a sense of nearness (Sørensen 2010), but has also led to an increased privatisation of the only remaining public space for mourning (Woodthorpe 2010). Consequently, memorial practices are being (re)introduced into the everyday and private environments of the bereaved (e.g. the home), which thereby become the central place for remembrance. These practices are no longer linked to culturally imbedded rituals (e.g. the covering up of mirrors or the freezing of time), but involve a highly personal process of meaning-making.

This personalisation of mourning resonates with the aftermath of the increasing number of cremations and the increasing number of people who take the ashes home after cremation. Studies of the subsequent trajectory of these ashes, conducted in the United Kingdom and the Netherlands, illustrate how the focus on the single death ritual (e.g. funeral) is shifting towards an open-ended process of ritualization. This involves an act of place-making for the ashes of the deceased, which is developed over time and is based on personal meaning ascribed to specific places (Kellaher et al. 2010). The dry and mobile form of the ashes opens up new perspectives for the bereaved to renegotiate their relationship with the deceased and establish a good balance between the proximity and distance of their remains (Mathijssen 2017).

A GROWING DIVIDE

While the built landscape of mourning (consisting of the cemetery and the memorial) has remained largely unchanged for the past 200 years, the socio-cultural landscape of mourning (encompassing the memorial practices of

the bereaved) has transformed considerably. As a result, the growing divide between the two demands for a new approach towards (the design of) funerary architecture.

The architecture discipline has already begun to respond to this need, by advocating for a re-appreciation of 'memento mori' by reintroducing burial sites at the centre of public space (Cuyvers 2005) and by pointing out the importance and challenge of integrating these changed perspectives towards death within new typologies for cemeteries (Schoonjans 2014) and crematoria (Delbeke 2014). Even though this re-evaluating of existing funerary architecture is necessary and valuable in light of the collective experience of mourning as a community, this does not account for the personalisation of mourning observed within bereavement studies. Consequently, there still remains a lack of spatial framework for the bereaved after the single death ritual (e.g. funeral & cremation) has taken place. Meanwhile, bereavement studies have focussed on observing these changes, rather than engaging with them. Even though it is argued that the discipline could benefit from including "solace that comes into sorrow as one of the outcomes we can help to foster" (Klass 2013: 614).

This paper therefore directs its focus towards the individual experience of mourning related to the private space(s) of the bereaved to explore if and how architecture — encompassing both the design process and the (re)designed space — can be used to develop a new way of space-making that resonates with the personalisation of mourning observed by bereavement studies.

To that end, it will contextualise the author's master dissertation 'Consolatio Loci' within a literature study on the interaction between mourning and place through creative expression and unfold it as a 'rite de passage' consisting of three phases: separation, transition and incorporation (Van Gennep, 1909/1960). The project involved the hypothetical renovation of the author's childhood home in response to the passing of one of its inhabitants and in search of a place for the cremated remains of the deceased.

The first phase of the research involved a close observation of the author's experience of her childhood home following the passing of one of its inhabitants. This allowed her to identify the places where absence-presence of the deceased could be felt the most. Mapping these emotional traces (e.g. memories, unfinished dreams, etc.) throughout the house, resulted in an emotional floorplan, which lay the foundations for the subsequent design process (see part II — transition).

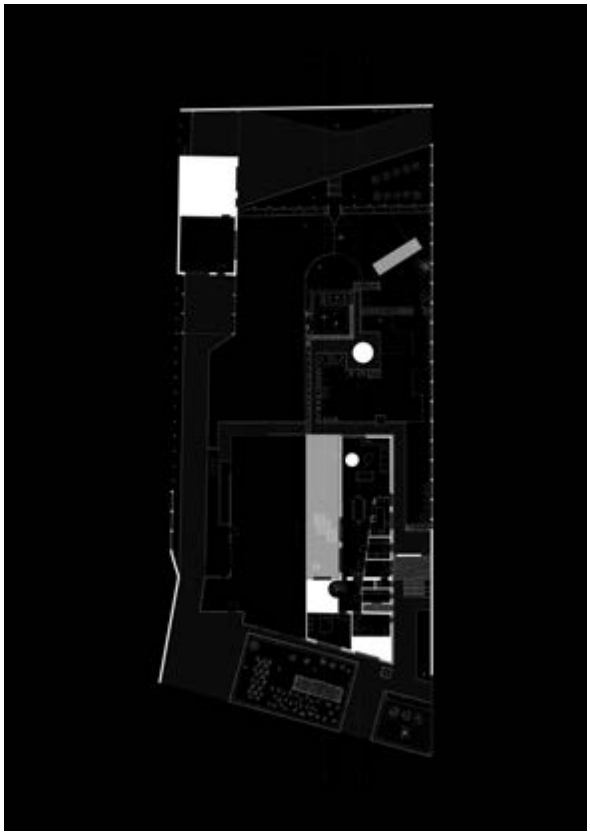


FIGURE 1. Emotional floorplan of the house

Recent bereavement studies are exploring how 'continuing bonds' is not only connected to material objects, but can also be rooted in place. These 'person-in-place-bonds' (Jonsson & Walter 2017) rely mainly on 'spaces of memory' (Gibson 2008: 191): personal places that are separate from the cemetery and other official places where the dead reside. This resonates with the personalisation of mourning and with writings on more contemporary 'deathscapes' (Maddrell & Sidaway 2010).

These studies are also showing interest in new perspectives for mediating the absence-presence of the deceased through material practices (Klass et al. 2018), which enable 'transforming bonds' with the deceased (Mathijssen 2018) and an interaction between place and consolation — i.e. 'consolationscapes' (Jedan et. Al 2019).

This interaction between mourning and place is also being picked up by emotional geography (Davidson et al. 2005) : a subtopic within human geography which focusses on the

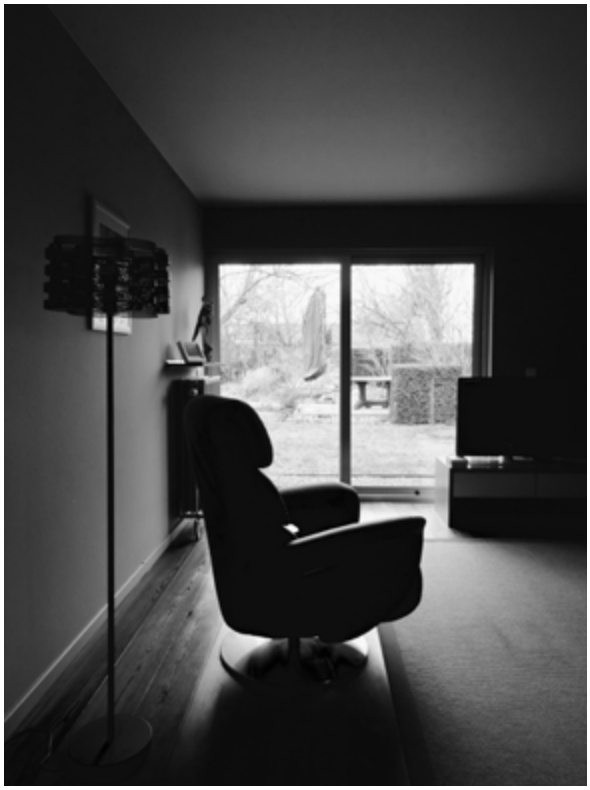


FIGURE 2. Place linked with absence-presence

interaction between space and emotion. Within the context of mourning, this involves studying how the bereaved connect with the deceased through "emotional-embodied practices and material markers of death and remembrance" (Maddrell 2013: 518). Mapping someone's 'invisible topography of grief' allows for a 'dynamic cartography' which identifies the spaces significant to the experience of bereavement. The resulting 'emotional-affective map' provides a central tool for conscious self-reflection and exploration with a therapist (e.g. grief counsellor). It consists of a "complex dynamic assemblage, shaped and marked by emotions, acknowledged and unacknowledged, memories and affective responses evoked via the senses" (Maddrell 2016: 173).

The second phase of the research involved relating the emotional associations with the house (see part I — separation) to spatial elements (e.g. water well, tunnel, fireplace) and implementing these elements back into the house through a cyclical process of drawing by hand. This materializing of site-specific memories into the architectural detail culminated in a series of three spatial interventions: a room for saying goodbye, one for remembrance and one for dreaming.

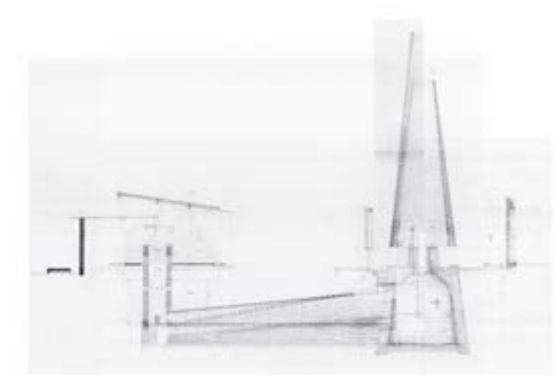


FIGURE 3. Collage of process drawings

MOURNING & CREATIVE EXPRESSION

Philosopher Alain De Botton describes art as a therapeutic medium that acts as an extension of our body to mediate our psychological limitations and defines 7 psychological functions of art (Armstrong & De Botton 2013). The first function — remembering — does not merely involve finding a way to 'hold on' to that which is lost. Creating an image is an 'active process' that involves the 'representation of a representation', meaning the representation of a memory of the original object/person instead of a direct representation of the original object/person itself (Demuynck & Geldhof 2017). This active 'reframing' of memories disconnects them from the current reality and stimulates the recognition of the experienced loss. It is therefore seen as a sign of progress within a process of mourning (Leader 2009).

The therapeutic potential of art is explored further within Creative Therapy: a discipline that ties together art, psychotherapy and psychoanalysis to include non-verbal creative media (e.g. visual arts, music, dance, drama,

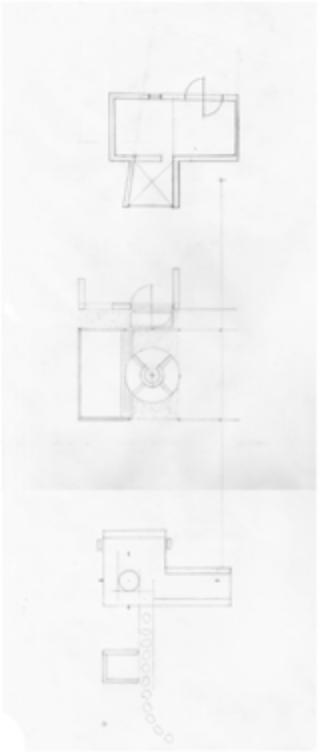


FIGURE 4. Drawing of spatial sequence

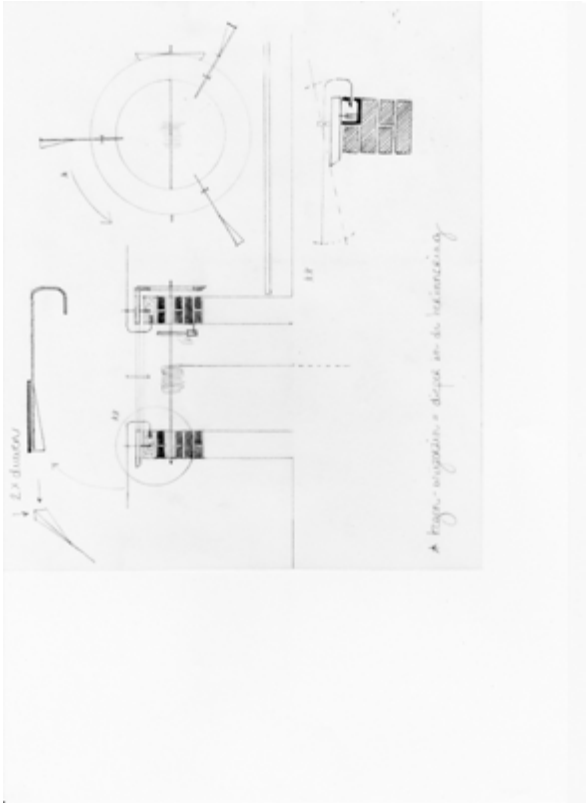


FIGURE 5. Detail for lowering the cremated remains

etc.) within the dynamic between therapist and patient (Demuynck & Geldhof 2017). Psychologist and psychoanalyst Danielle Knafo refers to the dynamic of this 'analytic couple' as a dance and emphasizes how both art and psychoanalysis rely on a creative process which "utilizes the unconscious in a quest for transformation and healing". She also presents a number of cases that illustrate how artists have used their art to work through trauma (e.g. self-portraits by Egon Schiele) (Knafo 2012). Her work resonates with a recent study of the healing-potential of creative expression within the context of mourning throughout the lives and work of a series of 20th-century artists (e.g. drawings by Paul Klee) (Dreifuss-Katan 2016).

Drawing on the notion of a 'rite de passage' (Van Gennep 1909/1960), A recent study in search of new mental and physical spaces for death- and farewell rituals, demonstrates how the integration of artistic creation within these rituals provides the bereaved with a sense of healing as well (Raes & Van Poucke 2018).

The third and last phase of the research involved a reflection on the design process and the resulting design.

The slow act of drawing by hand allowed the author to work through her process of mourning by mediating the absence-presence of the deceased, thereby revealing the therapeutic potential of (re)designing space. It also enabled a non-verbal dialogue between the author and the other inhabitants of the house. The final design, even in its unbuilt form, resulted in a renewed experience of the house. It retains a strong connection to the author's mental space, which is evoked through the drawings.

FIGURE 6. The space for saying goodbye

CREATIVE EXPRESSION & PLACE

The sensory experience of our environment is how we reconcile between ourselves and the world around us (Pallasmaa 2005) and is shown to impact our (mental) wellbeing (Cold 2001). This subject has also been approached from Phenomenology, by putting the body central to our connection to the world (Merleau-Ponty 1962) and calling out for a 'topoanalysis' — meaning a systematic psychological study of the sites of our intimate lives (Bachelard 1958).

The way our bodily experience of the built environment interacts with our inner mental space, is also investigated within the field of Psychoanalysis.

Bringing together ideas from psychoanalytic and architectural theory demonstrates how buildings design us as much as we design them: When a subject encounters a building, an architectural event starts to unfold. Firstly, our conscious and embodied experience of the building allows us to physically merge with it based on a mimetic *identification* with its architec-

FIGURE 7. The space for remembrance

tural features. This is followed by a moment of *detachment* when the sensory cues that we receive allow us to merge with the building psychologically. This triggers related unconscious material, which is then disclosed again by the conscious self. The subject ultimately experiences this as a moment of personal insight and *transformation*, “which couldn’t have been arrived at through the efforts of rational deliberation alone” (Huskinson 2018).

Huskinson therefore advocates to cultivate this transformative potential of architecture by means of a more evocative architecture, claiming that “the power of architecture lies not in its capacity to represent the unconscious, but to evoke it” (Huskinson 2018: 223). She sets out some general guidelines to achieve this (e.g. balancing open and closed space, light and shadow, expectation and surprise), but doesn’t go beyond these rather vague descriptions.

Contextualising the author's master dissertation within the literature study reveals how the start of the research required a separation from the house to identify the emotional traces related to the deceased. The resulting map became a tool for (self)reflection as it lay the foundations for mediating the absence-presence of the deceased through a cyclical process of drawing. This period of transition allowed the author to reframe her memories of the deceased within the current reality. The author's incorporation of the resulting design both transformed her bonds with the deceased and turned the uncanny sensation of the deceased's presence inside of the house into a comforting experience. The design process thus became a rite de passage, while the experience of the house was unfolded as an architectural event. The project therefore presents itself as a successful case study of how architecture can be implemented towards the embodiment of consolation.

The literature study clearly indicates that mourning has a spatial dimension, meaning that contemporary memorial practices are often rooted in place. Even though bereavement studies are observing the consolatory effect of mediating the related absence-presence of the deceased, they do not propose any method to cultivate this particular outcome. Emotional geography proposes that mapping these invisible topographies of mourning can have a therapeutic use. However, this does not currently present itself as easily accessible for a non-expert audience (i.e. the bereaved) and does not refer directly to the space in question, contrary to e.g. an architectural floorplan. Creative Therapy

points towards the therapeutic potential of creative expression through non-verbal media. However, this does not specify if the same applies for architecture, a creative discipline which relates closely to the arts (e.g. visual arts, sculpting) through its discipline-specific instruments 'architectural drawing' and 'built space'. Meanwhile, psychoanalytic studies are demonstrating how our bodily encounter with the built environment has the potential to transform us, but do not specify whether or not this applies to mourning, nor do they provide concrete guidelines for the design of evocative architecture. These leads in existing research, combined with the lack of direct referral to the therapeutic potential of architecture, point out the need for further research on the interaction between mourning and place through creative expression.

CONCLUSION

This paper has revealed how the growing divide between the built and socio-cultural landscape of mourning within our western society has created a lack of spatial framework for the bereaved after the single death ritual has taken place. A study of the related scientific literature has established that mourning has a spatial dimension, that creative expression can transform a mourning process and that the built environment impacts our (mental) wellbeing. Contextualising the author's master dissertation within this literature study has revealed the therapeutic potential of architecture, thereby illustrating that the discipline is capable of closing the aforementioned gap.

It could improve the mental wellbeing of the bereaved by implementing its discipline-specific

insights and instruments — i.e. drawing and space — as both the research tools and the communication tools between the different stakeholders involved, towards the design of a spatial experience that is able to cultivate and support 'transforming bonds' with the deceased.

Because of the lack of direct referral to the therapeutic potential of architecture within existing research, the unlocking of this interaction between mourning, drawing and space, necessitates the development of a methodology for mapping, engaging with and transforming the (in)tangible topographies of mourning of the bereaved through architectural drawing and built space. Exploring both their therapeutic potential and the position of the architect within the dynamic between patient, medium and therapist will ultimately unlock architecture as a new medium within creative therapy.

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THE ARCHAEOLOGICAL ATTITUDE AS ARCHITECTURAL DESIGN STRATEGY.

Enrico Miglietta

The following studies are, like others I have previously undertaken, "historical", due to the sphere they deal with and the references they utilise; they are not, however, the work of a "historian". This does not mean that they summarise or synthesise work which may have been done by others; they are — in one wishes to regard them from a "pragmatic" point of view — the record of a long and groping exercise, one which has often had to be revised and begun anew. It was a philosophical exercise; its stakes were to find out the extent to which the effort of thinking about one's own history can liberate the thought of what one thinks in silence, and to allow one to think in a different way.[1]

1 M. Foucault, Introduction to L'usage des plaisirs, Paris, Editions Gallimard, 1984: 15.

With archaeological caution, the research aims to find in the practices, in the material vectors of the works or drawings, a form of tacit knowledge, a design attitude outside of a historiography, as restitution of an interpretative orientation, (in)actual and extensible methodology of analysis and design. Rereading our architectural history, starting from the years of post-WWII reconstruction, a common thread seems to interconnect a small group of European architects who work on a Barthesian form of re-writing on the existing, a reading of the artifact (physically present or only ideal) as a critical text or, better, a proper construction paradigm.[2]

Lessons of balance, the works of masters such as Carlo Scarpa, Dimitris Pikionis, Sigurd Lewerentz or Sverre Fehn seem to move from the fragment, from a work on the detail where each singularity participates in the organisation of the organism-architecture.

The projects of those authors of the other modernity seem to work seamlessly between the interior and exterior, by starting from the small scale and then rediscovering an idea of unity — perhaps more than in the overall composition of the structures — precisely in the design process or in a particular attitude, revealing a possible form of tacit knowledge in the "veiled messages" mostly identifiable in their drawings rather than in writings or declarations.

In fact, we can describe them as a generation of silent masters, who rarely published treatises and

2 G. Postiglione, 'L'intervento sull'esistente come "ri-scrittura" dello spazio', in F. Lanz (ed). *Patrimoni inattesi: Riusare per valorizzare. Ex-carceri, pratiche e progetti per un patrimonio difficile*, Siracusa, LetteraVentidue, 2018: 251.

writings about their project methodology, or created "schools", rather leaving us works and drawings as materials from which we can draw a reflection on their poetics. Even the European architectural culture, which on the one hand has exalted the great quality of the works, has often avoided dealing with a wider reflection, relegating their works and identities to "historiographic cabinets" that have accentuated their isolation, thus attributing the success of their works to a particular talent or a form of genius that was impossible to imitate.

An in-depth analysis of their working method shows instead of a disciplined design coherence where, even if the work is set in motion by personal drives, a particular process of research of the origin seems to free them initially from an idea of form, subsequently found among things through a patient research.

That genius is (also) discipline can be demonstrated by investigating the work on the physical matter operated by Carlo Scarpa, architect who in Italy paradigmatically inaugurates a design practice that has as its principle a careful re-reading and re-writing on the existing, a "conscious manipulation that continuously transforms".[3][FIG. 01]

The ongoing indexing process of the huge archive of preserved drawings, offers us the opportunity for a study and a reinterpretation, precisely through the drawing,[4] of some of his paradigmatic works, allowing us to find also in detail, in its execution, the research for a *point of onset*.

3 Ibid.
4 The inventory work is currently being carried out by the 'MAXXI Architecture Archives Center' (Rome, IT) which manages the Carlo Scarpa archive acquired in 2001, by the 'Archivio Carlo Scarpa-Museo di Castelvecchio' (Verona, IT) and the 'MAK – Museum of Applied Arts' (Vienna, A).

FIGURE 1.

The work that can be considered the author's testament is certainly the Brion Cemetery in San Vito d'Altivole (1969-78). Thanks to the full design maturity, the presence of an enlightened client and a considerable financial availability, the exceptional sequence of artefacts and built spaces seem to be suspended between several times, born from a stratification of subsequent interventions and connected by an uninterrupted narrative.

The investigation of the initial ideographies, the sketches and the drawings that precede a finished draft, can possibly reveal an extensible methodology.

For Scarpa, to each phase of the design process corresponded a drawing method, a scale and a technique. For the initial studies the drawings were made in charcoal on heavy paper prepared according to the Beaux-Arts technique of the *stretcher*, in order to allow a quick and continuous modification of the same design while keeping a trace of the previous ones.

The working method is first and foremost a selective practice that seems aimed at isolating: to the interrogation of matter corresponds a process of extraction of the detail, of the “fragment” (material or immaterial) that defines a first separation, a boundary.[FIG. 2]

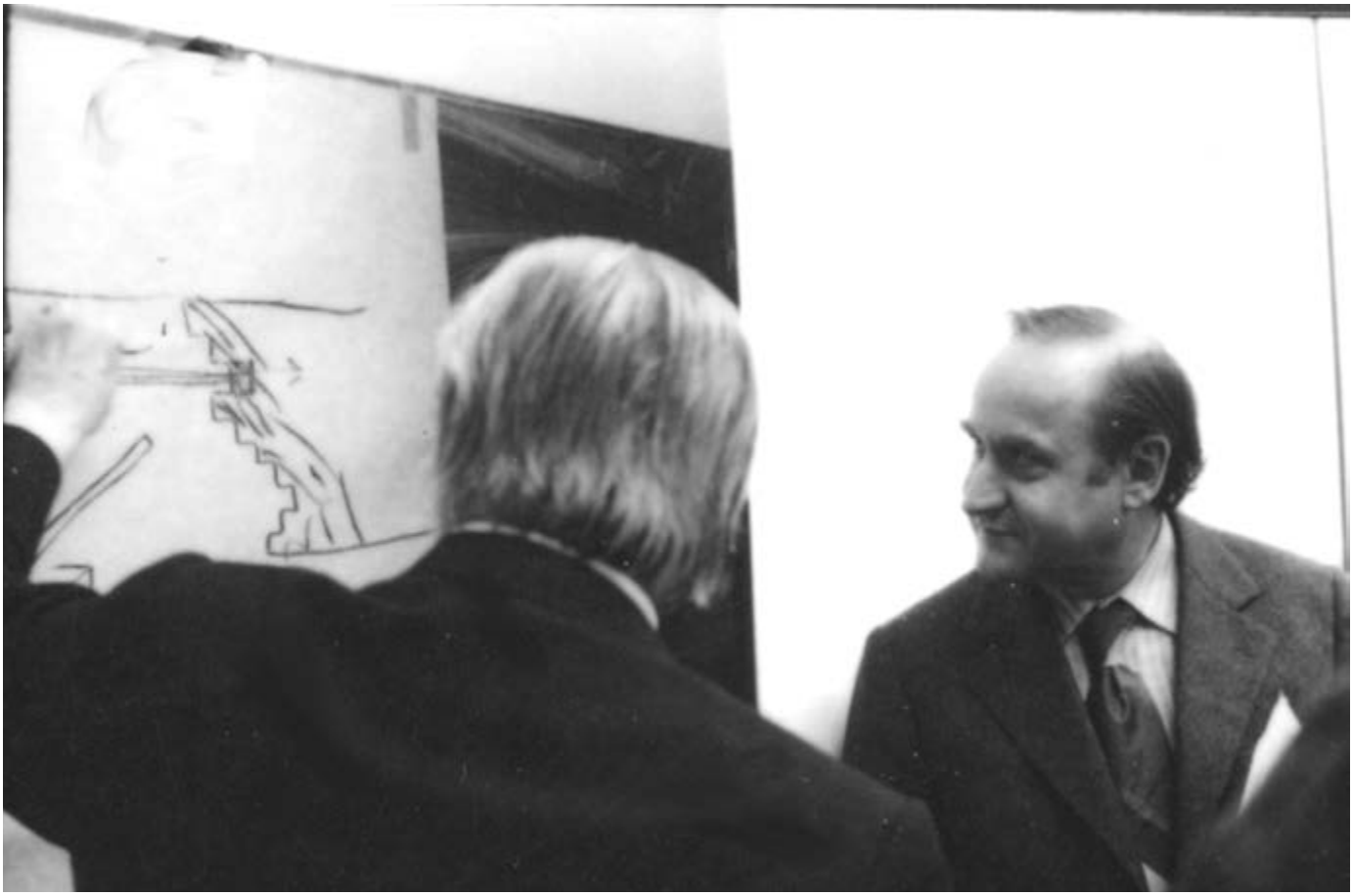

FIGURE 2.

The intent seems to research what Goldschmidt would define as “form-element”, a paradoxical structure, both sensitive and mental, which somehow contains the *éidos*, and it is produced through a “lay alongside”, a “join together” and, above all, a “exhibit” and an “expose”.[5]

The author seems to be tracing an excavation perimeter in preparation for his investigation campaign, as an archaeologist delimits the area by initially defining a hypothesis of the artefacts to be revealed. Drawing is, in fact, always the projection of a program of uses to be developed as construction but, at the same time, a measure of one’s own obsessions, a primordial act.[6] Intended in its broadest sense as an instrument of knowledge, it forces to question the structure of appearances, placing the author in direct comparison with the “vagueness” of observation. Thus, even the simple operations of measurement and annotation, of redesigning a terrain, can be productive processes.

Starting from a repertoire of simple geometric shapes (the square, the circle, the rectangle) he seems to build a topography of interconnected signs, to be investigated later and of which he always keeps track during the process. From its venetianity he “derives a perverse dialectic between celebration of form and the scattering of its parts, between the will to represent and the evanescence of the representation of its parts”.[7] In a certain way, he does not take pieces from Venice but totally reconstructs his idea of the city, of rela-

5 V. Goldschmidt, *Le paradigme dans la dialectique platonicienne*, Paris, Vrin, 1985: 53.
6 As in 1945 A. Giacometti wonderfully describes “In every work of art the subject is primordial, whether the artist knows it or not. The measure of the formal qualities is only a sign of the measure of the artist’s obsession with his subject; the form is always in proportion to the obsession”, quoted in: J. Shatzky, M. Taub (eds). *Contemporary Jewish-American Dramatists and Poets: A Bio-Critical Sourcebook*, Westport (CT), Greenwood, 1999: 302.
7 M. Tafuri, ‘Cultura e Fantasia di Carlo Scarpa’, *Paese Sera*, December 3, 1978.

tionships between spaces, paths and atmospheres. In a sense it can be seen as landscape-recall from memory that, more than to a form of contextualism, can be assimilated to what Michael Heizer does in his *City* project, an attempt to synthesise its *lume materiale*, ancient monuments and industrial technology.[FIG. 3 + FIG. 4]

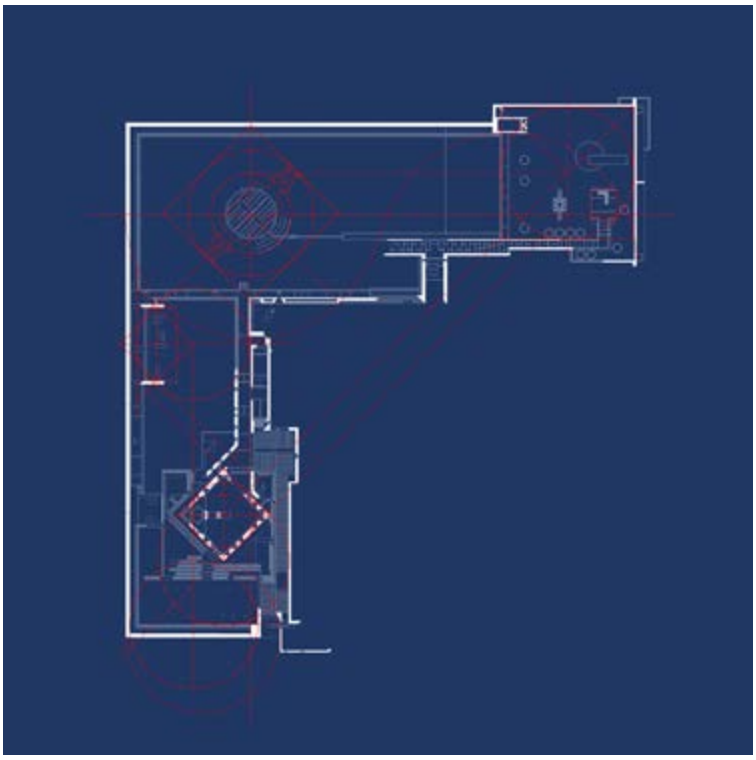

FIGURE 3.

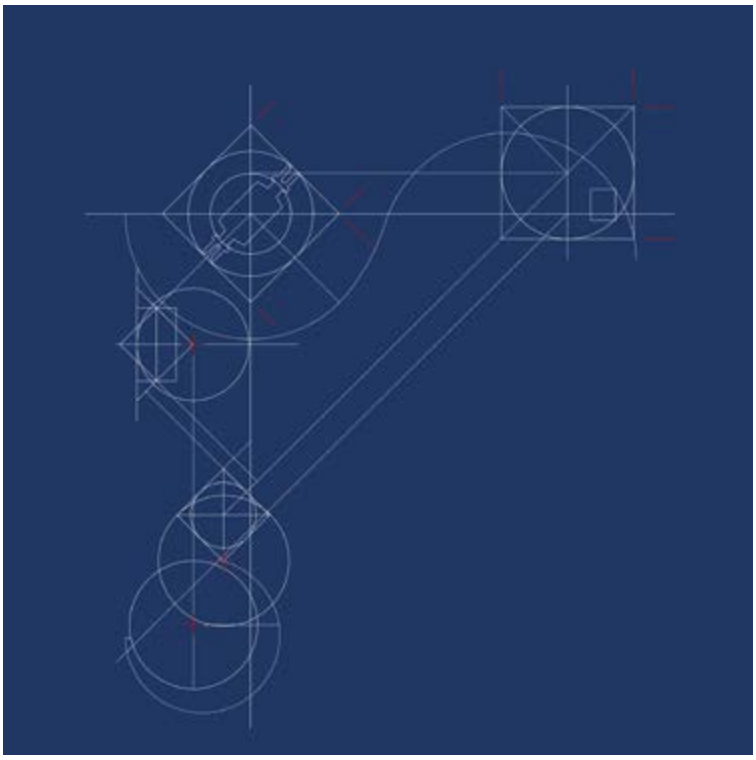

FIGURE 4.

The countless tests, modifications and stratifications of drawings thus outline an aphoristic and systemic inclination, which is not in itself conclusive. That “unruly magician” that is involuntary memory[8] has yet to elaborate the experience precisely through the trace.

As Tafuri already pointed out in his essays about Scarpa, it would indeed be wrong to speak of a fragmented architecture, with a nostalgic charac-

8 Cf. S. Beckett, *Proust*, Milano, SugarCo, 1978: 28.

ter, as this tendency to isolate and the regard for the artefact does not exclude his “playful game” with the same. It seems to be taking place, instead, through an elaborate use of geometry as a remeasuring element, a “poetic made of “figures” [...] as to indicate the traits of possible happiness even in a “time of crisis””.[9]

The artist’s initial *segnatura*, the use of the famous 5.5 x 5.5 cm module, is in this sense a form of pre-understanding of the material, not an ideal abstract. The same, rooted on a personal and specific idea of community, derives from this its system of proportions, to then build up the whole. Techné is *construction* on and not *creation of*, it is not the *art of memory* but *memory of art*.

The joint as onset point of form: the exposure
We can therefore define as an archaeological attitude, to say it with Agamben, that practice that deals not so much with a generic “origin” of things as with their *point of onset*, in the grounds of technics, in which the architect experiences history deconstructing its paradigms.[10] What seems to be of interest to the architect in the subsequent design phases is precisely the interstitial, the link between the various elements arranged on the table. In fact, we can see in the joint a sort of “primary particle” of architecture and its construction process.

Making poetry of the jointing also requires discipline. The increase in the hardness of the pencil corresponds to the use of different drawing techniques; on Scarpa’s *cartoni*[11] the permanence of the

9 M. Tafuri, ‘Il frammento, la “figura”, il gioco. Carlo Scarpa e la cultura architettonica italiana’, in F. Dal Co, G. Mazzariol (eds). *Carlo Scarpa: 1906-1978*, Milano, Electa, 1989: 79; 86.
10 Cf. G. Agamben, *Signatura rerum: Sul metodo,* Torino, Bollati Boringhieri, 2008.
11 The term refers to the way Carlo Scarpa used to call his cardboard flats.

different lines, erasures and overlaps highlights the history of the project. The choice of the orientation of the drawing is also fundamental as it will be the same maintained during the construction phases.

The drawings seem to be permeated by vector intentions: always aimed at resolving the details, the joints, the moldings, the architect does not work scaling down from a general drawing but, as Zevi perfectly describes “he would reverse the process, attacking with ferocious inventiveness and extraordinary tension of energy each and every detail, in order to make them signifying, in the certainty that from their dialogue and interlacement it would spontaneously spring the message of the whole”.[12]
[FIG. 5 + FIG. 6]

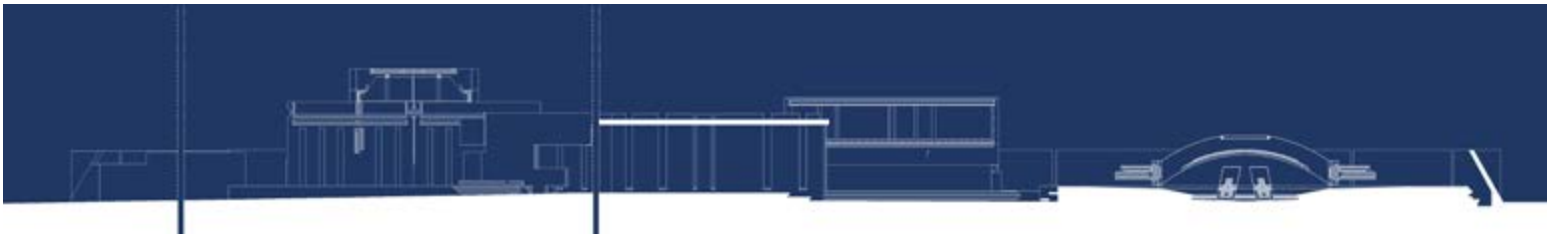

FIGURE 5.

FIGURE 6.

12 B. Zevi, ‘Un Piranesi nato nel’900’, *L’Espresso*, January 15, 1981: 143.

It is in this process of (re)signification of detail that formal (re)emergence is played: detail becomes the generator of architecture as "*construction* and *construing* of architecture are both in the detail. Elusive in a traditional dimensional definition, the architectural detail can be defined as the union of construction, the result of *logos* of *teckné*, with construing, the result of the *teckné* of *logos*. The *teckné* of the *logos* becomes the manner of production of the detailed design and *logos* of the *teckné*, which is the expression of the Venetian craftsmanship, becomes the dialectical counterpart in the physical generation of the details".[13]

The method used for managing of such a complexity perhaps resembles that of the drawings of small objects (certainly mastered by Scarpa given his experience in botteghe and ateliers in the youth years), the use of overturned sections, of different colors, layers of tracing paper, allows him total control — and codification — of the complex spatial dynamics that gradually forms, showing on paper not only what is visible but also what is behind the observer or the represented structure.[14]

We can extract from these tomographies not only a way of representing but a proper way of conceiving the project — therefore the space — in which unity will have once again to be sought in the binder and not in the parts, and its forming in their polarization.

13 M. Frascari, 'The tell-the-tale detail', in P. Behrens, A. Fisher (eds). *VIA 7: The Building of Architecture*, 1984: 23-37.
14 G. Zambonini, 'Process and Theme in the Work of Carlo Scarpa', *Perspecta*, 20, 1983: 24.

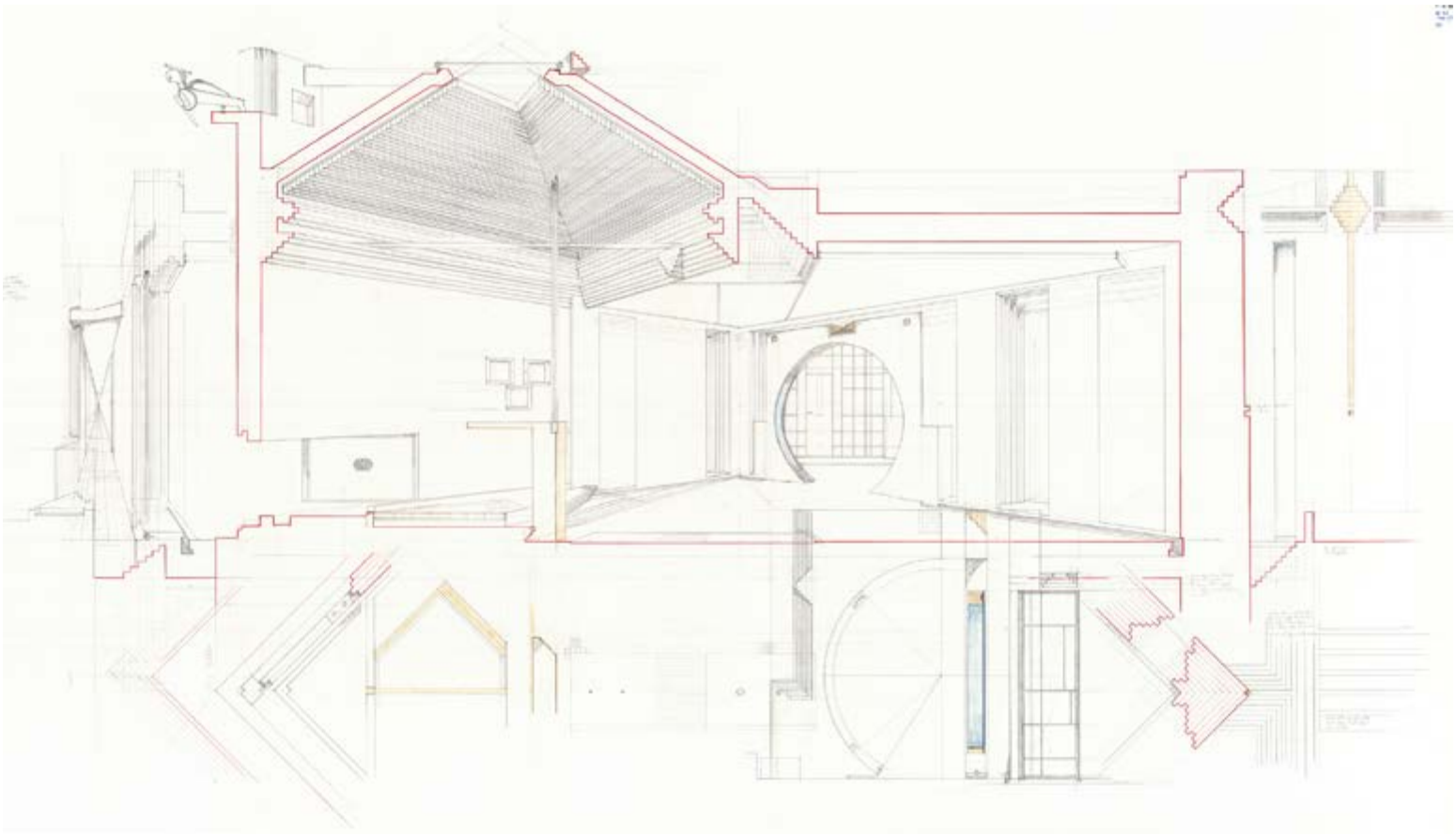

FIGURE 7.

This form of exposition, observed in its various depths, takes on narrative features precisely where the gesture, measured, becomes a sign, therefore meaning.

The drawings seem to be permeated with movement: in the technical plans or sections, pervaded by an incredible number of stratified details, construction notes and human figures scrutinize the process, as a dance of allusions and references in which "thought and design coincide, sensations and figures overlaps".[15] There is no clear final destination but a path made of attempts and uncertainties, an experimentalism where a rationalist and a pictorial-expressionist component seem to

15 F. Dal Co, 'Il corpo e il disegno. Giulio Romano, Scarlo Scarpa, Álvaro Siza', *Casabella*, 856, 2015: 60.

alternate. The joint becomes narrative path, making those Focillonian families of spirits close in harmonious and long-lasting relationship.

We can find in the design process a vector intention that articulates the whole in function of a moving spectator, guided through the paths — albeit with ample freedom of movement — to the contemplation of an open space inserted in the Venetian countryside.[16] The restitution of a path through the context generates experience: among image and reality, it seems to dissolve the relationship between revealing what exists and transcribing a program through the project of use, an action that sets the experience in motion through the various architectural devices by activating original narrative configurations.

Thus, the forms that emerge from the basin of water in which the Chapel is inserted seem to represent the foundations of ancient buildings in dialogue with the reflection of the built, in anachronistic continuity. Precisely through this connection, Piranesian rummaging through the ruins, that *other* City[17] is slowly being built, consisting of stratifications, pieces, paths and references in which the architect has chosen to be buried. The *arché* towards which this archaeology regresses cannot be located chronologically but, precisely through this phase shift — a peculiar relationship with Time — the (personal) stories can finally enter into dialogue with History, thus managing to transform it. For the dweller, the recognition of a personal (and

16 V. Zanchettin, 'Tomba Brion, cimitero di San Vito d'Altivole (Treviso), 1970-78' in G. Beltramini, K.W. Forster, P. Marini (eds). *Carlo Scarpa. Mostre e Musei 1944-1976*, Case e paesaggi 1972-1978, Milano, Electa, 2000: 362.

17 Cf. P. Noever, *The other city / Die Andere Stadt. Carlo Scarpa: The architect working method as shown by the Brion Cemetery in San Vito d'Altivole*, Berlin, Ernst & Sohn, 1989.

collective) spatio-temporal identity in order seems possible: it is the art of exhibiting, of recognizing through the timelessness of what is offered to the eye. [FIG. 8]

FIGURE 8.

The possibility of reading the project, of the space as a place of the gesture, allows its transmission and testimony, precisely starting from its material and its relationship with time, through its overall narration. A succession of figures populates the architect's drawings as if they want to scrutinize the process, try to understand how each part connects to the others by interrogating it in different ways, wanting to verify its premises. In fact, the faces, the figures are "metonymically embodied"[18] in the artifacts: as ghosts they wander within the space using it in a poetic way, in a synchronic exchange in which man measures space, man himself coincides with the idea of space.

The lesson derived from Scarpa's work, from the observation and rereading of his drawing process, is that of a slow way of working, made of overlaps, in which the details lead to proximity and, in fact, are a way to *take care* of its users.[19] [FIG. 9]

In the same way they offer the starting point for a possible definition of a work methodology, which investigates the chronosyntheticity of his designs by comparing it with a series of works by contemporary masters and architects, in order to grasp the connections and, possibly, formulate a systematized work methodology proposal. The same can result in an open, inclusive process that can be used regardless of formal and stylistic choices, in its whole or in parts. A guideline therefore for that "imaginative process of thinking"[20] that can make it

18 M. Frascari, 'A New Corporeality of Architecture', *Journal of Architectural Education*, 40-2, 1987: 23.

19 A. de Curtis, E. Miglietta, 'Muovendo dall'interno. Il lavoro dell'architettura: contenendo, esporre, in Costruire l'abitare contemporaneo. Nuovi temi e metodi del progetto contemporaneo', in G. Cafiero, N. Flora, P. Giardiello, Padova, Il Poligrafo, 2020: 296.

20 J. Van Den Berghe, 'The Imaginative Process of Thinking', in T. Taura, Y. Nagai (eds). DS 66-2: *Proceedings of the 1st International Conference on Design Creativity* (ICDC 2010), 2010: 5.

FIGURE 9.

became a responsible practice, disciplinary foundation that is established right from the tools of the practice to be investigated, a test field for decisions made beyond the single project.

Bjørn Melås

FIGURE 1. Reclaiming space in Havnehagen

Ecologies of urban gardening is an artistic research project that looks at urban gardening through the lenses of the physical, social and mental ecologies of Félix Guattari's ecosophy. Through practical, ongoing projects, I explore how urban gardening might develop crucial knowledge, practices and relations that we need to imagine and create livable futures.

DEAD SOIL

Trucks arrive and unload 50 tons of soil at an empty parking lot. It is the first warm week of the summer. We could have been anywhere. Yet, we are here, shoveling soil into wheelbarrows, filling up planting boxes and preparing a potato patch. It is hard work, but we have a plan and a goal. This summer we will turn this asphalt desert into a productive garden in the middle of the city.

A group of people, all with our individual needs, desires and motivations, has decided to take back (some) democratic control of food production, the production of our surroundings and everyday life. Consciously or unconsciously, we experiment with what Henri Lefebvre refers to as self-management:

> *"Each time a social group...refuses to accept passively its conditions of existence, of life, or of survival, each time such a group forces itself not only to understand but to master its own conditions of existence, self-management is occurring."* [1]

Two months later and it becomes painfully clear that we neither understand nor master these conditions. The plants have withered, we have desperately sown new seeds and plants, but it doesn't seem to help. Not even weeds will grow. We realize that we will not survive the winter on this yield.
We try to find out why we are failing. Among other things, we invite a permaculturist to the garden to help us. Together we look, touch, feel and smell. We learn that the soil is dead. There is not much here to cooperate with — no microbes, no plants to feed the soil, no humans with the knowledge or experience.

MATTER OF CARE

Suddenly soil goes from being a matter, a growth medium for the plants — to what philosopher Maria Puig de la Bellacasa calls a *matter of care*.[2] She develops Joan Tronto and Bernice Fischer's definition of care as an *"activity that includes everything that we do to maintain, continue and repair "our*

1 (Lefebvre, 2009, p. 135)
2 (Puig de La Bellacasa, 2017)

world" so that we can live in it as well as possible. That world includes our bodies, our selves, and our environment, all of which we seek to interweave in a complex, life-sustaining web." [3]

The dead soil expands my world to include soil life. It is one of several experiences in my research journey where it becomes clear that my well-being also depends on the well-being of the critters in the soil. As Puig de la Bellacasa reminds us, care is not limited to humans, it is also what earthworms and microbes do all the time, and this is necessary for all life on earth to go on.

These dependencies and the related way of caring makes the mental division between nature and culture meaningless. Realizing this is the first step away from exploitation towards a care based on co-existence. The practices of urban gardening requires an intimate connection to the soil, to touch the soil with our hands. This contact changes the soil, but the soil also affects us back. It reveals our dependencies and teaches us better ways of caring in more-than-human networks.

Urban gardening is an invitation to care — to relate to soil, to plants, to other humans and our physical surroundings. This way of caring is local and situated. I care about my local environment because this is what I know and where I can act as an entire, human being. This is not a one-time happening — it becomes part of everyday life. Being present in the garden; planting, weeding, composting, watering and caring for the plants and the soil is necessary to succeed. This continual commitment to take care of a certain kind of life also offers a chance

3 (Tronto, 1993, p. 103)

of direct, intimate contact with the life-sustaining systems from which we are normally alienated. Through the practices of urban gardening it is possible not only to *"maintain, continue and repair"* these systems, but also our way of thinking and the social relations with human and non-human life.

ECOLOGIES OF URBAN GARDENING

According to Félix Guattari this is not optional — it is absolutely necessary in order to handle the immense environmental crisis we are living in. Guattari compares the crisis with an iceberg. The warming planet, mass extinction and the degradation of the living world — what we see above the surface — are merely symptoms of a much deeper crisis: an ecological crisis in our minds, in our social relations and institutions. We cannot separate the environmental crisis from the social and mental crisis. Our wellbeing is intimately connected with the health of the society and environment around us. If we destroy nature, we are also destroying ourselves. According to Guattari we need:

> *"new social and aesthetic practices, new practices of the Self in relation to the other, to the foreign, the strange — a whole programme that seems far removed from current concerns. And yet, ultimately, we will only escape from the major crises of our era through the articulation of: a nascent subjectivity, a constantly mutating socius, an environment in the process of being reinvented"* [4]

4 (Guattari, 2000, p. 68)

I explore urban gardening as a transversal practice, able to work across and repair mental, social and physical ecologies. Urban gardening can change the way we think, the way we relate to each other (both human and more-than-human life) and it changes our physical environment, our cities and neighborhoods.

We need to understand our society, the environment and ourselves as three scales of ecology. These ecologies are interconnected and affect each other in ecological relationships and feedback loops. Without a change in our thinking, there will be no change in the environment, without modifications in the social and material environment; there will be no change in mentalities.[5] The radical transformation we need is not possible unless we develop the mental, social and environmental ecologies together. This would not just give us a chance of livable futures, it might also offer possibilities to thrive, flourish and find meaning and happiness.

TEMPORALITIES

The aim of urban gardening is not necessarily production, but to be part of an ecosystem that needs our care and take care of us. This practice points towards alternative modes of production, but also different ways of experiencing and understanding time. As Puig de La Bellacasa explains, working intimately with soil makes it both possible and necessary to think in temporalities that breaks with our anthropocentric perception of time. Linear thinking where acceleration, speed, efficiency and progress as the only way forward is challenged. This opens up for other timelines, such as the temporality of

5 (Guattari, 1996, pp. 2-3)

FIGURE 2. Slowly built topsoil is replaced by a "garden city"

potatoes, of plants, of the seasons, of microbes. It becomes harder to ignore that it takes thousands of years of geological processes to make a few centimeters of topsoil. During the last 150 years, we have lost half of this slowly built topsoil on the planet. The rest is destroyed at an accelerating pace, as our growth economy demand ever more space and resources.

These thoughts run through my head as I am standing in a grain field in the outskirts of the city. I am here to take soil probes, to find out if it can be used for a new garden project in the city. I pour a teaspoon of soil in my palm. I am now holding sediments from the last ice age. Rocks have become stones, have become gravel and dirt that have

evolved into a complex ecosystem — an ecology of soil organisms especially fit to this particular place, a fertile area that developed into one of the earliest agricultural settlements in this region.

Since then we have developed advanced technologies and industrialized our agriculture. Animals replaced humans and machines replaced animals. Fewer hands were needed, and people moved from the countryside to the cities. The mechanization of agriculture went hand in hand with a mechanization of the worldview. We started to isolate the things in our world, to view, understand and study them as separate interchangeable parts of a machine. From 1950 there was a clear shift — a great acceleration. One of the drivers of this acceleration[6] was the green revolution with new technologies, like fertilizer, pesticides and specialized plants that made it possible to increase the population from 2,5 to 7,8 billion in just 70 years.

In the same period we developed advanced technologies that let us know that we have entered a new geological era. We have left the stable climatic conditions of the Holocene behind and entered the Anthropocene, the age where humans are the biggest natural force. Humans now move more mass than all the rest of nature — erosions from floods, sediments from glaciers, lava streams of volcanoes and dust clouds of desert storms included.

As I fill my zip-lock bags with samples of the soil I hear the noise of excavators. Soil is dug up and loaded onto trucks. A parking garage for a new apartment complex, a so-called garden city, is constructed and the soil is going to get a new life — as embankments on one of the new main roads into the city.

6 (Steffen et al., 2015)

FIGURE 3. During the last 150 years we have lost half of the topsoil on the planet.

MONOCULTURE

However, it is not just our insatiable demands for space that are threatening soils, it is also our way of feeding ourselves. The practices of industrial farming strangle and exhausts the soil life to such a degree that it needs to be kept artificially alive. Soil is reduced to a growth medium for our mono-cultures, a depleted, dead matter in which we put seeds to grow.

The industrial agriculture, that we think we are dependent on, is based upon a subjugation of eco-systems to an economic logic. It forces our anthropocentric perception of time onto nature. The aim is to produce as much as possible in the

shortest amount of time. Efficiency, rationalization and productivism — without consideration of the consequences for the environment or the people that produce, buy and eat the products. Fossil fuels, pesticides and fertilizers allow us to continue to expand and accelerate in the same disastrous track, while causing ecosystems to collapse and climate to become hostile.

The industrial agricultural system is a homogenizing power which forces nature into monocultures, the exact opposite of what nature "wants". This is an extreme form of domination, seeking to control and modify land and soil, seeds and plants to our own, shortsighted purposes. Nature does not know how to make a monoculture or a plantation, this is a human (western, white, capitalist) phenomenon. Nature strives for diversity, for succession, while industrial agriculture works in the opposite direction, by plowing the field, abusing it with chemicals, disrupting succession and setting it back to zero. Considering that this practice feeds the world today, it is not surprising that "nature" is turning its back on us.

This monoculture is also passed on to our guts. We are intimately connected to the food we eat — we are soil,[7] and by eating food from exhausted and sterile soils we lack the nutrients to stay healthy.[8] This, along with the lack of physical contact with healthy soil depletes the diversity in our microbiome. The diminished culture of symbionts in our stomachs are unable to break down and provide us with crucial nutrients, prevent pathogens or develop our immune system. This diversity is key to our

7 *"In a sense we are unique, moist packages of animated soil"* (Hole, 1988)
8 (Thomas, 2007)

well-being and health and can influence the way we think, feel and act.[9] The human microbiome is also in itself an example of how flawed the nature-culture divide is, as the non-human cells that we depend on for our survial outnumber the human cells in in our body.

Exhausted soils and depleted microbiomes are still just symptoms of our societal system, what Félix Guattari calls *Integrated World Capitalism*. This system depends on and produces monoculture. It is global, in the sense that it already affects and destroys even the most remote outposts of our planet. It sets the Amazon on fire to make room for more soy plantations, clogs up the atmosphere with its debris and fills our oceans, stomachs and blood with microplastics.

However, the reach of capitalism is not only global and physical, it is also integrated — an *"invisible penetration of [our] attitudes, sensibility and minds"*[10] that shapes the way we act and think, all the way down to our unconsciousness. It is not just the biodiversity of the planet that is threatened, we are also cultivated into limited ways of thinking, relating and being with each other, offered only a narrow scope of growths and possibilities, creating a monoculture of the minds.[11]

This results in a lack of ideas of what the future could be. Mark Fisher calls this *Capitalist Realism* — the widespread sense that there is no alternatives creates *an invisible barrier constraining thought an action*[12] In the mental soils of Integrated World Cap-

9 (Pennisi, 2020)
10 (Pindar & Sutton, 2001, p. 6)
11 (Shiva, 1993)
12 (Fisher, 2009, p. 16)

italism only ideas of more and increasingly intensive monocultures can grow.

HETEROGENESIS

Considering this, the creation of diversity becomes a revolutionary act. The antidote to the monocultures of Integrated World Capitalism is what Félix Guattari calls *heterogenesis*. If exhausted soils are a symbol and result of monoculture, the rainforest is an example of heterogenesis — a production of diversity. A rainforest is a healthy system where different lifeforms can develop independently and still co-exist, interact and depend upon each other. Guattari imagined a heterogenic, fluid countermovement to capitalism. An untamed, polyphonic force that was both *"united and increasingly different"*[13] where a myriad of groups and people, each with their own goals and identities managed to work together, sometimes unified, sometimes autonomous, to counter the *"transcendent, universalizing and reductionist homogenization"*[14] that is pushing our society towards extinction and an ever-increasing need to panic. The environmental crisis reveals the cracks and fissures, the real consequences of globalized capitalism, and this makes ecology an especially powerful force for challenging this system.

Guattari argued that we need a new ethico-aesthetic paradigm where *"ethics, aesthetics, social activity and politics are entangled."*[15] This paradigm is based upon a redefinition of our values and mindset and aesthetic experiences are key to this shift:

13 (Guattari, 2000, p. 69)
14 (Guattari, 2000, p. 90)
15 (Fitzgerald, 2018, p. 190)

> *"Only through art, Guattari asserted, could we even hope to face the challenges that would be thrown at us in the twenty-first century. Only the affective power of the aesthetic experience could offer us a way out of the overt scientism that has both caused and prolonged the social and environmental damage of the past 100 years. Contrary to public opinion, Guattari believed in the power of art to reach us deeply. For him it could jolt us out of our acquiescence, it could open up new existential vistas, offering a line of flight from the humdrum of the everyday."* [16]

Guattari refers to art and aesthetics in the widest sense, including all domains that work to make us feel something. To *feel is to rebel*[17] — and this is one of our problems today. We do not have the emotional tools to deal with the environmental crisis around us, and we end up in a *fatalistic passivity*, where we simply accept the negative developments and degradation happening around us. I will argue that this fatalistic passivity comes in (at least) two forms, one before we realize the urgency, which is mainly connected to denial and ignorance, and another type that comes after we acknowledge the urgency: the widespread feeling that there is nothing to be done about it — a feeling closer to apathy. This in turn becomes a self-fulfilling prophecy, what Mark Fisher calls *reflexive impotence*,[18] which supports the status quo and paves the way to the unavoidable catastrophe.

To break out of this fatalistic passivity, Guattari proposes that those of us working with human subjectivities, such as artists, architects, designers, but

16 (Elliott, 2012, p. 126)
17 (Elliott, 2012, p. 73)
18 (Fisher, 2009)

also all others and on all spheres of life, contribute by making openings for what he calls singularisations. A singularisation is a destabilization of established habits that unlocks new potentials for personal transformation. Islands of rainforest emerging in a vast, monocultural field. A disruption of the normal order from which new things can start to grow. Singularisations are break-ups, new directions, new starts or new perspectives, developments across the mental, social and physical ecologies, which can release thoughts, values and attitudes and open up for new lifestyles.

Urban gardening could trigger such singularisations. Like the rest of the city (and the world), urban gardens are naturecultures, processes formed by different species interacting with their environment. In the Anthropocene humans are dominating all other species. The urban garden is a space to experiment with other types of relations and interactions, where humans have to cooperate with more-than-human life, using all our senses — a place to play along and contribute to the production of diversity. This makes urban gardens different from many other spaces in the city.
What is produced in the garden is not just vegetables, but also aesthetic experiences that affects us emotionally, by engaging a multitude of our senses — we smell, touch, taste and see. This might have the power to *"transform and change our subjectivity and identity"*[19] in a way that could disrupt the current paradigm and simultaneously points towards some of the practices we need in order to replace this paradigm and start to repair our material and immaterial world.

19 (Elliott, 2012, p. 32)

The main task for humanity in the years to come will be to repair what we have destroyed. As a society, we need to relearn how to cooperate with nature. Not in order to take care of nature, but because we are nature.

An accessible way of such a collaboration is composting. Composting is one of the arts of urban gardening, a way of returning the surplus, and shortening the flows of the urban metabolism. It is also a possibility to get really close to the regeneration processes we depend on, a way to be a useful part of the ecosystem — and therefore it might be a good place to start to break down the mental division between nature and culture, humans and microbes.

Communities of Compost is the start of such a process, an attempt to regenerate and cooperate with our symbionts — the microbial companion species in the soil. It is an ongoing project initiated for the Oslo Architecture Triennale in 2019. Outside the National Museum of Architecture, we built a Johnson-Su Bioreactor.[20] Inside the reactor we mixed horse manure from a neighboring police horse stable, municipal organic waste and chipped sunflowers from the garden outside the museum. By doing this, we initiated a process where the matter break down and are slowly regenerated and transformed into something new. It is a complex collaboration between bacteria and fungi, our hands and brains, worms and insects, which all intermingle, live and die together, eat, digest and affect one another and depend upon each other.

20 **Project in collaboration with Alexander Rullan. For more info on Johnson-Su composting visit:** https://www.csuchico.edu/regenerativeagriculture/bioreactor/

FIGURE 4. A Johnson-Su bioreactor lets nature do what it knows best — create diversity. Photo by: Istvan Virag, OAT

After one week the reactor is teeming with life and there is so much activity, love and growth that the temperature rises to 70 degrees. After this thermophilic phase, the microbes get help from insects and worms and the regeneration continues for at least a year, while the compost is kept moist. The key feature of this technology are the vertical channels kept open by the fungi population in the reactor. It is a no-turn, static composting, a completely aerobic process that makes the aerobic life thrive. Once you turn a regular compost pile, you disturb these households, throw the communities out in the streets and force them to start from scratch, while this method allows the compost to develop undisturbed.

Johnson-Su composting lets nature do what it does best, heterogenesis — the production of diversity. After about a year the communities in the compost have grown exponentially, both in numbers and species. The fungi with its spores now permeates the reactor. The abundance of microbial life quivers with excitement, ready to give life to exhausted soils. The communities in the compost now demands space. The small bioreactor we built could provide enough microbial life to repair an area of 200 000 square meters of soil in parks, gardens, lawns or fields. These communities are then spread out at selected, damaged places where the microbes find new homes and continue to live and breed. An abundance of life in the soil also creates an abundance of life above the ground. The humans that care for these places are faced with new responsibilities and *response-abilities*.[21] In the process that follows humans might find a proper role in nature, learn how to cooperate with other species, how to repair the land, take care of the life in the soil, plant plants that feed the microorganisms and how to create diversity and fight monoculture. We may learn how to regenerate damaged ecologies, in cities, communities, minds and soils.

The regeneration of soil is an example of a nature-based solution that solves many problems at the same time — without creating new ones. Healthy soil communities capture vast amounts of atmospheric carbon and boost biodiversity — while increasing production five-fold. At the same time this practice develops the mental ecology — how we think about compost, soil and our role in nature and the social ecology, in this case making and maintaining relations between humans and microbes.

21 (Haraway, 2016)

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To be able to imagine a livable future on this planet we need to understand that soil is a living ecosystem that we depend on. We need to acknowledge that the human-soil relations are the very foundations of our existence. Life becomes unthinkable without a healthy microbiology in the soil.[22] The critters in the soil make the air we breathe and the food we eat, and are part of everything around us, including ourselves.

22 **(Puig de la Bellacasa, 2019)**

FIGURE 5. The key feature of this technology are these vertical channels, kept open by the fungal communities in the compost.

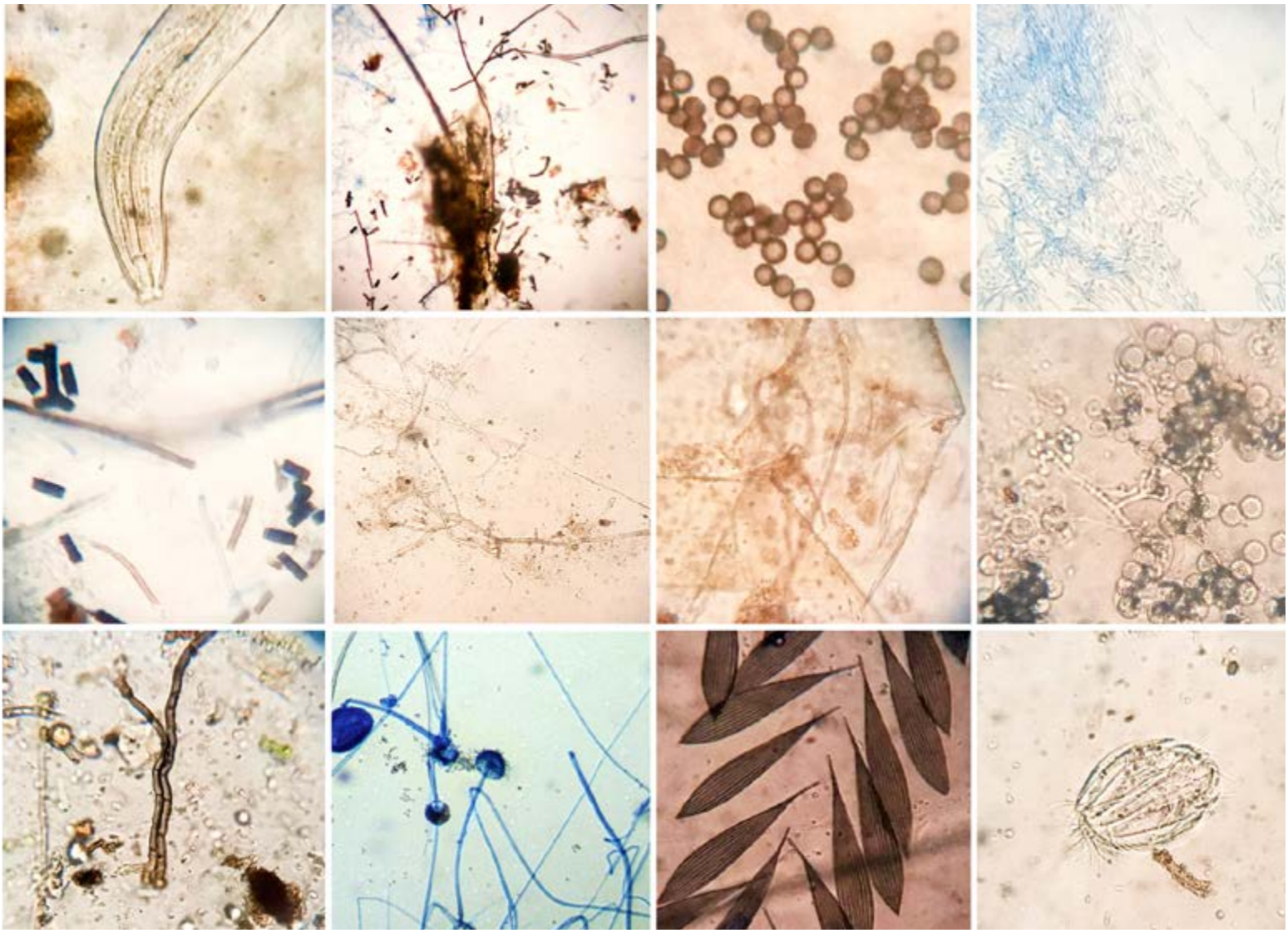

FIGURE . The Communities in the Compost, seen through the microscope of Gert Pienaar in the Johnson-Su Online Community

FRAMEWORKS FOR SPECULATION

The title of our project *"Communities of Compost"* is borrowed from Camille Stories by Donna Haraway. It is a speculative fiction into an alternative future, seen through five generations of Camille — a story of the next 400 years. It is not a story of utopia, not about starting from scratch without problems. It is a tale about people finding meaning through living in and repairing damaged spaces and ecologies — or what Haraway call *Staying with the Trouble.*[23]

23 (Haraway, 2016)

What Haraway opens up are possibilities for the future — there is nothing certain about what is going to come, nothing that determines the need to follow a certain track towards destruction, ecocide, the sixth mass extinction and climate catastrophe. Even though the destruction of the living world will not stop anytime soon we need to make moments, spaces and practices that disrupts and resists the fatalistic passivity — millions of minor cultures countering monoculture.

By setting up this story, this framework for speculation, Haraway invites us to think differently, to be attentive to other species timelines and to view our own human times through new lenses. We are not used to thinking five generations ahead. We are not used to care about what happens 400 years from now. We are not used to thinking in *Soil Times*. [24]

It is our responsibility to inspire and create alternatives that enable other kinds of futures. We have to find meaning in shaping the future in radically different ways. As Haraway argues *"It matters what practices we use to destabilize other practices"*[25] and thereby how we choose to disrupt and resist the pervasive monoculture.

24 The headline for the last chapter in ***Matters of Care*** **(Puig de La Bellacasa, 2017).**
25 **(Haraway, 2014)**

FIGURE 7. Fall in the urban garden — supermarkets become superfluous)

SPACES OF DISRUPTION

It is the middle of September and we can no longer deny that the summer is over in Norway. I am in the garden with my fellow gardeners. The garden is bursting with all sorts of plants and people have proudly prepared and brought their favorite dishes, based on what they have managed to grow this season. We're excited to harvest the first potatoes from our potato patch. You never really know what you will find beneath the surface. It looks like this has been a good year. As we dig, more and more potatoes reveal themselves in the dark soil.

The potatoes go straight from the soil to the grill. We walk around the garden, share stories and experiences, disappointments and dreams. We sit down and share food and recipes. We taste, eat, get full and grateful for everything the garden has given us this season.

Urban gardens can be spaces of disruption. On a night like this, the garden short-circuits the industrial agricultural system, if only for some hours. The supermarket becomes superfluous. We don't need it right now, we are independent, creative producers instead of passive consumers. This singular feeling can follow us through the winter, be a thought that pops up in our heads every time we eat, every time we go to the grocery store or pass the garden. It becomes a *refrain*, a self-reinforcing feedback loop able to develop the three ecologies simultaneously — making new connections to the garden, the neighborhood, to food, to the people and the plants, the soil and the microbes. A transformation that slowly or suddenly could provide glimpses of other ways of perceiving ourselves and our relation to the world. This could also spill onto other spheres of life:

> *"The reconquest of a degree of creative autonomy in one particular domain encourages conquests in other domains — the catalyst for a gradual reforging and renewal of humanity's confidence in itself starting at the most minuscule level."* [26]

As our confidence in ourselves and our ability to cooperate with our life-sustaining systems is strengthened we slowly see the world differently.

26 (Guattari, 2000, p. 69)

One of my fellow gardeners is talking about “doing something” to a small patch of soil that she passes everyday on her way to work. Another wants to start a gardening project in her backyard and has started bokashi composting to make the soil fertile. Yet another has found a large lawn that no one is using and talks about expanding our potato field there, and one is gathering seeds to spread in the neighborhood, starting his guerrilla gardening experience. All these ideas are brought to the table in the garden this autumn night.

What could the exhausted grain fields around the city become? What potential does the regenerated soil in the urban garden possess? The lawns in the vast single home areas surrounding the city? The roofs and parking spots, the parks and fallow lands, the damaged and left over spaces after development? What happens if we infuse them with diversity, with creativity, if we manage to regenerate and cooperate with these spaces and the species living there? How could these spaces and processes affect us? What new relations could form, both in the ground and above? What new communities could emerge and what could happen in these places? What kind of cities and neighborhoods could this become? What kind of naturecultures? What kind of futures? How do we make it through the next 400 years?

Urban gardening will not transform society by itself, but it can challenge the current paradigm and pierce small holes of hope. It can be a part of a movement that seeks other directions, other alternatives for how we want the world to be and it could provide sketches of how we might live together in a future where the way we feed ourselves doesn’t threaten our existence.

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SCIENCE FICTIONING ARCHITECTURAL PEDAGOGY

Joel Letkemann, PhD Fellow

Science fiction (SF) has often been used as a descriptor, sometimes dismissively, of much work in architecture and architectural pedagogy, often as a synonym for a project's novelty or for its aesthetic relationship to works of popular culture, rather than for its more nuanced investigation of futurity. Such banal aestheticization merely reproduces a normative, easily digestible imagination of the future — what futurist Scott Smith calls "flat-pack futures,"[1] rather than opening a discursive space about what we, collectively, might want the future to be like. The qualities which might make an architectural work most like SF are insufficiently established, and as such, the nature of *what architects might learn from SF and how such learning might happen* has been insufficiently explored. SF critics, on the other hand,

1 **Scott Smith, "Beware of Flat-Pack Futures," Lecture, from Media Future Week, Almere, NL. 4. July, 2013. https://vimeo.com/66314529.**

describe SF as a mode of speculation rooted in interwoven technical, socio-political, and affective imaginings whose difference from empirical experience produces a dialectical relation between that imagined future and the readers' present — revealing the present anew through the projection of something that does not yet exist.

This paper describes two experiments in architectural curriculum designed to take advantage of SF storytelling to illuminate what and how prospective architects might learn from SF. The research engages with SF literature directly, and also draws on the field of SF studies to elaborate potential avenues for an SF pedagogy through a perpetual oscillation between projection and critique of students' imaginations for the future. Rather than providing a blueprint for any specific future, SF pedagogy aims at understanding the future as a contested space, a space open to continued definition by those who will live in it.

I did not invent the term 'science fictioning.' Simon O'Sullivan and David Burrows use "fictioning" to describe the "myth functions" emerging in contemporary art, describing "the writing, imagining, performing or other material instantiation of worlds or social bodies that mark out trajectories different to those engendered by the dominant organizations of life currently in existence".[2] They also use the term "science fictioning," although their use of the word seems to rely on a popular understanding of the genre — as the myth-function here are strictly concerned with science, technology, and

2 David J Burrows and Simon O'Sullivan, Fic*tioning: The Myth-Functions of Contemporary Art and Philosophy*, 2019.

a kind of otherworldliness.[3] The potential of this term is perhaps better captured by Jessie Beier. In her excellent essay blending SF storytelling with socio-political critique, she understands SF as it works to change the present through the expression of potentials from strange and unknown futures.[4] These usages of "science fictioning" capture some of its capacity, particularly in the force of the participial ending. As a verb, we can characterize science fiction-ing in its action on an object — that is, attaching or imposing some attribute or quality of SF to another object. I would like to suggest this action as a type of design research. It is impossible to systematize either SF or architectural pedagogy, but "science fictioning" might suggest it is possible to design a confrontation between both interdisciplinary fields. The larger project from which this discussion is derived attempts to unfold the particular valence of this confrontation, both in describing the way in which architectural production is already like SF, and in provoking this existing affinity.

Existing work in developing the particular correspondence between architecture and SF shows an appreciation of the speculative, futurological, and storytelling capacities of both fields,[5] [6] as well as the critical perspectives afforded by SF.[7] I want to build upon this previous work and direct it towards

3 Simon D. O'Sullivan, "From Science Fiction to Science Fictioning: SF's Traction on the Real," Foundation: The International Review Of Science Fiction, December 31, 2017, http://research.gold.ac.uk/19772/.Real," Foundation: The International Review Of Science Fiction, December 31, 2017, http://research.gold.ac.uk/19772/

4 Jessie Beier, "Dispatch from the Future: Science Fictioning (in) the Anthropocene," in Interrogating the Anthropocene, ed. Jan Jagodzinski (Cham, CH: Springer International Publishing, 2018), 359–400, https://doi.org/10.1007/978-3-319-78747-3_16.

5 Nic Clear, "Refreshingly Unconcerned with the Vulgar Exigencies of Veracity and Value Judgement: The Utopian Visions of Iain M. Banks' The Culture and Constant's New Babylon," *Design Ecologies 3*, no. 1 (June 1, 2013): 34–63, https://doi.org/10.1386/des.3.1.34_1.

6 Thandiwe Loewenson, "Fiction as a Form of Combat: Field Manoeuvres in the Realm of the Weird and the Tender" (Lecture, Aarhus, Denmark, May 18, 2018). Lecture, Aarhus School of Architecture, Aarhus, Denmark, 18. May, 2018.

7 Amy Butt, "'Endless Forms, Vistas and Hues': Why Architects Should Read Science Fiction," *Architectural Research Quarterly 22*, no. 2 (June 2018): 151–60, https://doi.org/10.1017/S1359135518000374.

the specific problem of architectural pedagogy, where the challenge presented to the educator is to develop capacities in synthesizing affective, social, environmental, and technical demands in a singular design process — a process never more necessary than in the imbroglio of our present dystopian moment. Contemporary pedagogy also finds itself in a transitional state from a tradition of master tutelage towards a model which aims to empower student subjectivities. In its articulation of futurity, science fictioning does not rely on any specific narrative so much as it encourages students to think the future as a space open to contestation, a space where their own aspirations are instrumental in shaping the collective aims and articulations of an unknown future.

Speculation is a broad cultural form expressed in a wide variety of media, and architecture has long supported speculative dimensions, and while mere novelty has become a poor substitute for newness in much architectural production, at its best, the discipline has produced work to challenge not only the built environment, but also to assert the work as an artefact of a new or different world — Lebbeus Woods or Buckminster Fuller are exemplary in this regard. This process has a strong resonance with the process of SF worldbuilding — the authorial process which develops the estranged context of a given story. A paradigmatic example is the ecology, geology, religion, and interstellar politics intrinsic to the narrative development of Frank Herbert's *Dune*.[8] World-building or "worlding," however, has a larger resonance for Donna Haraway. She reminds us that the relationship between imagined futures

8 **Donna J. Haraway,** *Staying with the Trouble: Making Kin in the Chthulucene* **(Durham: Duke University Press Books, 2016), 31.**

and real world is performative; the science fictional exercise of crafting worlds can equally describe our own "patterning of possible worlds" offering radical alternative modalities to reshape the existing world.[9] As Haraway so succinctly writes, given their potential for shaping our imaginations what is possible in the future, "it matters what stories we use to tell other stories with." [10]

While SF transports its readers to different temporal, scientific, social, or biological paradigms, the pleasure of SF is not only in its imagination of diverse possibilities — the difference from the reader's reality — but, to quote Carl Freedman, in "the difference such a difference makes."[11] Darko Suvin defines this difference as "cognitive estrangement" in his seminal text of SF criticism.[12] Referencing Bertold Brecht's "Verfremdungs Effekt," or Alienation Effect, in theatre, Suvin's estrangement describes the imaginative elements of the fiction which mark it as distinct from the experience of author or reader, but which dialectically produce a critical relationship to the present by imagining it otherwise.[13] Such estrangement confers upon the reader's particular historical moment a kind of contingency and openness to intervention and utopian potentiality.[14]

Worldbuilding and estrangement may seem at odds with one another, one shapes the nuances of non-reality, while the other insists that such non-re-

9 Donna J. Haraway, *Staying with the Trouble: Making Kin in the Chthulucene* (Durham: Duke University Press Books, 2016), 31.
10 Haraway, *Staying with the Trouble*, 11.
11 Carl Freedman, "Science Fiction and Critical Theory [1987]," in *Science Fiction Criticism: An Anthology of Essential Writings*, ed. Rob Latham, Reprint edition (London ; New York: Bloomsbury Academic, 2017), 232.
12 Darko Suvin, *Metamorphoses of Science Fiction : On the Poetics and History of a Literary Genre* (New Haven, Mass.: Yale University Press, 1979).
13 Suvin, *Metamorphoses of Science Fiction*, 7.
14 Fredric Jameson, "Progress versus Utopia, or, Can We Imagine the Future? [1982]," in *Archaeologies of the Future: The Desire Called Utopia and Other Science Fictions* (London: Verso, 2007), 281–95.

ality is really about the here and now. In fact, SF is constituted by this perpetual oscillation between these projective and critical modes of operation. This simultaneity echoes one of the central concerns of SF criticism, in a distinction also introduced by Darko Suvin, as to whether SF is extrapolation or analogy, that is, whether its vocation is to imagine the future, or whether it forms a collective document of the pre-occupations and anxieties of the present.[15] Although Suvin finally favours analogy,[16] later critics recognize the oscillation as the productive element, both of SF[17] and of Utopian imagination. Ruth Levitas, for example, argues for a simultinaity of "archeological" and "architectural" modes of interpretation for literary Utopias, a concurrent examination and contextualization of a proposal even as it is brought into the world.[18]

The two experiments described here both introduce this oscillation between a critical engagement with the present and the projective imagination of future possibilities into architectural pedagogy. Both of these experiments work directly from SF literature — either short stories or excerpts from novels — and involve several iterations or 'translations' between various media. 'Translation' becomes one of the more useful analogies for the methods explored in the teaching experiments described here. In both experiments, students proceed through multiple stages, although rather than moving from one language to another, the translation is an act of re-imagination; students were asked to move from text to visual media and back over several phases, at each stage trying to faithfully represent the

15 Suvin, *Metamorphoses of Science Fiction*, 27.
16 Darko Suvin, "Goodbye to Extrapolation," *Science Fiction Studies 22*, no. 2 (1995): 301–3.
17 Istvan Csicsery-Ronay, Jr. "The Seven Beauties of Science Fiction." Science Fiction Studies 23, no. 3 (November 1996). https://www.depauw.edu/sfs/backissues/70/icr70art.htm.
18 See: Ruth Levitas, *Utopia as Method: The Imaginary Reconstruction of Society* (Houndmills, Basingstoke, Hampshire ; New York: Palgrave Macmillan, 2013).

nuance of their interpretation in the new translation. Such an exercise in storytelling echoes a pedagogical process described by Stephanie Liddecoat as multimodal ficto-criticism.[19]

As a style of writing, ficto-criticism — a blending of fiction and criticism — navigates the heterogeneity and complexity of language and theory through narrative synthesis rather than within disciplinary protocols of academic writing.[20] Referring to Bakhtin's discussion of literature's dialogic character, Anna Gibbs writes that ficto-critical writing is inherently multivocal; its heterogeneous voices contain its own challenges, doubts, speculations, its own critique or antithesis. In writing and translating their text as 'ficto-critical' storytelling, students begin to articulate points of view that are radically different from their own experience, writing with a voice not their own, one from inside the original author's text. From this non-authoritative starting point, students began their own domestication or appropriation of the storytelling, a "translation" from the text of the story into a visual storytelling language. This shift in media implicates the student in externalizing their own subjective experience of the text, but also charges them with being intentional with how the nuance of the text is effected by such translation. The multiple translation in each exercise are, in effect, "multi-modal" repetitions of the story becoming, following Liddicoat, heuristic evolutions of the narrative in order to activate the student's subjective investment and understanding of the narrative and their client in progressive steps.[21]

19 Stephanie Liddicoat, "Writing the Client: The Role of Fictocriticism and Prose Fiction in the Architectural Design Studio," *Higher Education Research & Development 38*, no. 1 (January 2, 2019): 77–96, https://doi.org/10.1080/07294360.2018.1539065.

20 Anna Gibbs, "Fictocriticism, Affect, Mimesis: Engendering Differences," Text Vol. 9 No. 1, accessed August 20, 2019, http://www.textjournal.com.au/april05/gibbs.htm.

21 Liddicoat, "Writing the Client"

"Playing Innocent" is a semester-long studio project which translated relational modes from short stories by J.G. Ballard into body-scale architectural devices.[22] Students, working in groups of four, were presented with one of 9 short stories, each of which contained some relational mechanisms that they were to activate. These initial impossible provocations underwent several translations or 'mutations' into a final performative artefact in the public space of the school. The demand for a working material prototype necessitated progressive 'translation' all the way from conceptual ideation to very specific technological demands. The second project, a one week workshop titled "There and Back Again," is an experiment in developing client, program, and a model of "future living" for a master's studio project, directly appropriating the estranged worlding from works of SF.[23]

In "Playing Innocent," the students explored 'relational mechanisms' that were either affective — describing a relation between a subject and their environment — or social — describing the relation between subjects. An example of an affective mechanism is drawn from the short story "The Enormous Space" [1989], which describes the character's gradual withdrawl from social interaction as the literal expansion of space around him. The character's agoraphobia becomes such that he retreats to the smallest closet in his house, eventually watching the grid of tiles expand around him into an infinite space. The group translated this story into an exploration of the subjective experience of

22 This project is subsumed under the title "Playing Innocent: Action, Agency, and Architecture," and is a semester-long project for a second- and third-year students in a Bachelor unit. The project was conceived and conducted by the author and Naina Gupta in the autumn semester of 2017 at the Aarhus School of Architecture.

23 This project was conducted by the author during the autumn 2019 semester in Studio 2B at the Aarhus School of Architecture, as a part of a brief defined by studio tutors Robert B.Trempe, Dagmar Reinhard, and Claudia Carbone. As a consequence, the author was involved in the workshop and in the final critique, although not the intermediate development of the project.

FIGURE 1. Affective exploration of the subjective experience of space and proximity as it is moderated differently though different senses — touch, sound, and sight, derived from a J.G. Ballard's short story "The Enormous Space" [1989]. Students: Sophie Elizabeth Hutchinson, Oleksandra Ianchenko, Nanna Louise Holmberg Nielsen, David Bjelkarøy Westervik

space and proximity as it is moderated differently though different senses — touch, sound, and sight. Their final iteration was a space which was simultaneously social and isolating, with the visual field being shielded inside a womb-like fabric, while the plasticity and porosity of the material allowed the possibility of social experience through sound and touch to the adjacent cell.[fig. 1] The translation eventually was resolved to the level of technical issues demanded by the internal coherence of the structure's story, such as the development and testing of fabric patterns and details.

While the first experiment worked to resituate an estranged position inside contemporary experience, the second asks students to interrogate their own narratives of futurity. Building upon elements of science fictional storytelling, the workshop also integrates multi-modal translation in a cyclical process between text and image. This workshop focused on SF texts as a document describing future living scenarios, but students' analytical skills were deployed not by systemizing these futures, but by extending and building upon these stories. They were given the minimal directive from their studio instructors that they should design a future living scenario for a 'caretaker' for their site, the ruins of the Jarlshof Prehistoric and Viking Settlement, near the southern tip of Mainland in the Shetland Islands. The program developed during the workshop informed their design work for the rest of the semester, and this paper looks at the preliminary results, as well as the final submissions.

Students were individually given one of 9 short stories or extracts from a novel, each describing an individual or group of characters who form the basis

for a new client and program for the studio's site. While diverse, the texts describe a relatively solitary living scenario appropriate to the life of a caretaker, but with diverse environmental qualities, attitudes, responsibilities and relations to a larger community. While the co-implication of character and environment might be found in many types of literary fiction, works of SF explore concepts outside the lived experience of the reader, thus an estranged position from which to stage an investigation in 'future living.' Rather than an unconscious acceptance of the status quo as inevitable or immutable, the framing of the project as 'future living' is an implicit critique of the normative model of housing programs which assume generic requirements for all potential inhabitants, and made it necessary for students to critique their own assumptions of what constitutes a home.

In working not only with literary fiction, but with SF specifically, students were doubly challenged, in engaging first with a subject distinct from their own experience — the character, and second, with an estranged context — future or some alternative present which introduces a different technical, social, or affective milieu. Although describing future modes of living is impossible by definition, the partial, non-authoritative point of view offered by the estranged character and context of the text opened up a range of possibilities to explore, and their own narratives began trace a path through this territory. In such a way the students can understand and situate the future living describe in the text in relation to their own experience of the world as well as looking for potential developments arising from outside dominant cultural expectations of futurity — enacting the dialectic enabled by Suvin's cognitive estrangement.

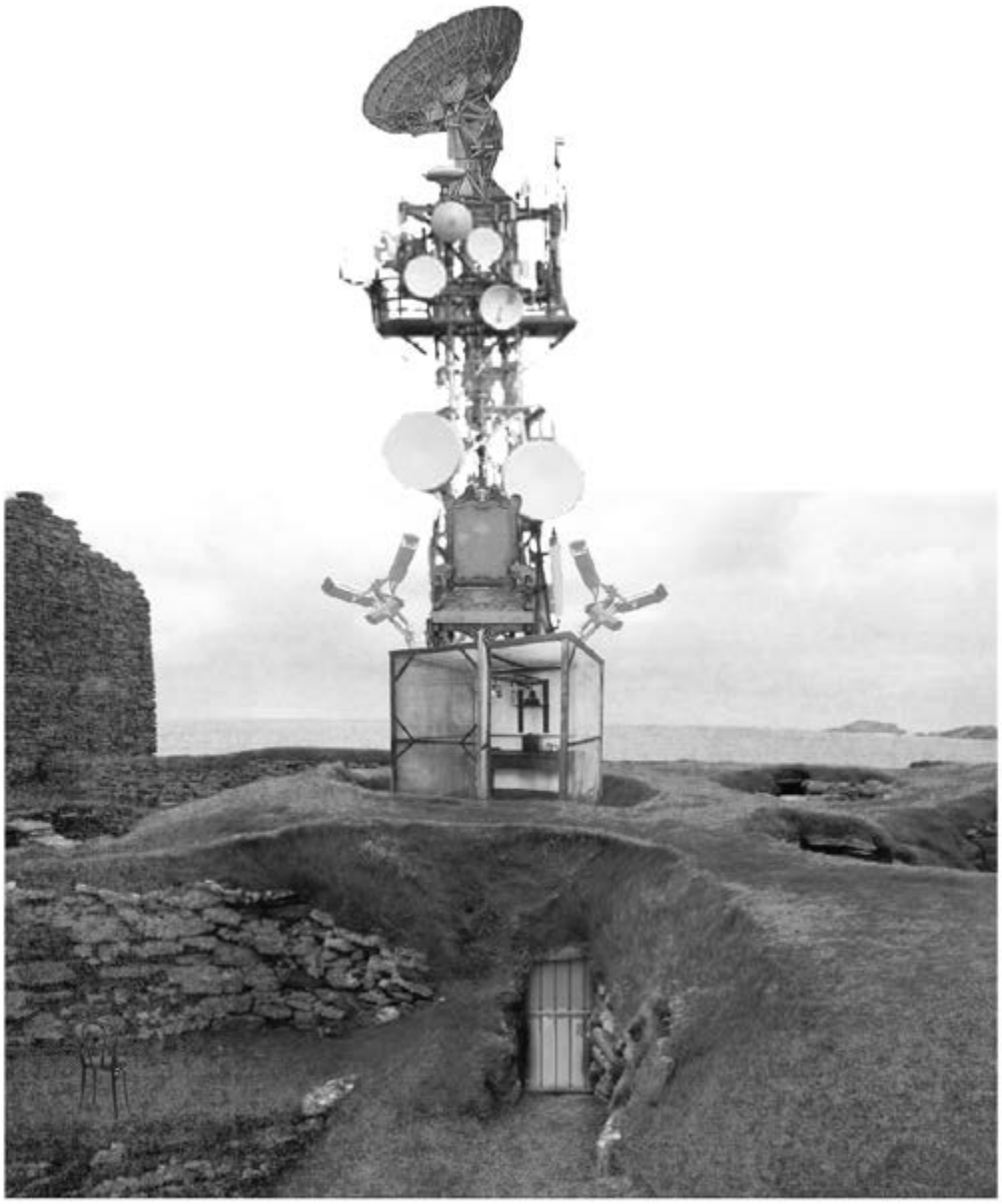
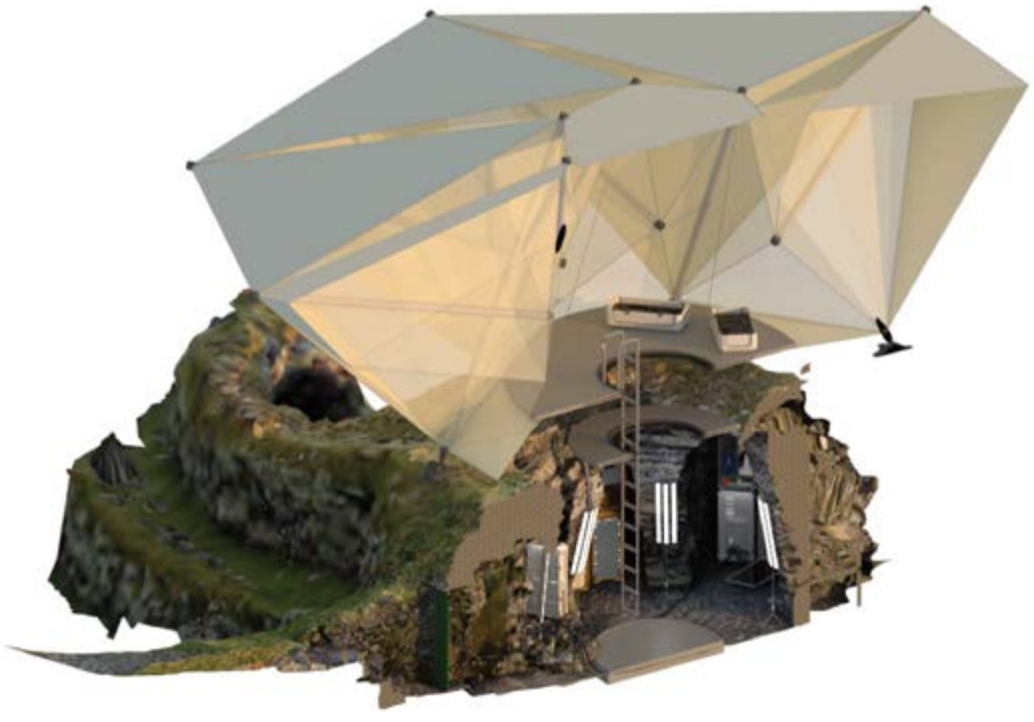


FIGURE 2. Intermediate and final results: Julius Deane's "Safe House," by Jesper Asferg Scheel



These texts presented estranged contexts which presented characters' lifestyles in relation to pressures our facing our own future — climate change, economic change, food insecurity, data privacy, and migration. Skinner and the Girl, from William Gibson's "Skinner's Room,"[24] are living atop the ruins of San Francisco's Bay Bridge after it has been damaged by an earthquake and occupied by that city's dispossessed, while the same author's Julius Deane is a paranoid and debauched criminal. [fig. 2] [25] Economic disparity has hollowed out Toronto in Nalo Hopkinson's *Brown Girl in the Ring*,[26] where the matriarch Mami Gros Jeanne has settled in a park where she grows and prepares folk medicines for her community. As well as external pressures, the texts also introduced provocations from the characters' unique qualities. While both are scientists, Sax from Kim Stanley Robinson's *The Martians* is a unique and moving meditation on aging and memory,[fig. 3] [27] while the same author's Frank Vanderwal is going through a midlife crisis and experimenting with pseudo-"paleolithic" living in a near-contemporary Washington, DC.[fig. 4] [28] Nnedi Okorafor's "Mother of Invention" contemplates and conflates sheltering and motherhood,[29] while Pangborn, from J.G. Ballard's "Motel Architecture" describes the strange psychological condition emerging from the mind-body dissociation resulting from our immersion in communication technology.[30]

24 William Gibson, "Skinner's Room," *Omni,* November 1991.Gibs
25 William Gibson, *Neuromancer* (New York: Ace, 1984).
26 Nalo Hopkinson, *Brown Girl in the Ring* (New York: Warner Books, 1998).
27 Kim Stanley Robinson, *The Martians* (New York; London: Spectra, 2000).
28 Kim Stanley Robinson, *Fifty Degrees Below.* (New York: Spectra, 2007).
29 Nnedi Okorafor, "Mother of Invention," in *A Year without a Winter*, ed. Dehlia Hannah (New York: Columbia Books on Architecture and the City, 2018), 213–31.
30 J. G. Ballard "Motel Architecture" [1978] in *The Complete Stories of J. G. Ballard* (New York: W. W. Norton & Company, 2009).

FIGURE 3. Inspired by Kim Stanley Robinson's The Martians [1999], the 'thickness' of Sax's social relations in the layered structural organization, by Hafdis Bragadottir

This last story was the only one to be included in both experiments, and the results illustrate the diversity of responses. In the story, Pangborn lives intentionally confined to a wheelchair, naked and bathed in artificial light, while endlessly analysing television, especially the shower scene from Alfred Hitchcock's "Psycho" [1960]. Pangborn's total immersion in the space of the screen begins to be

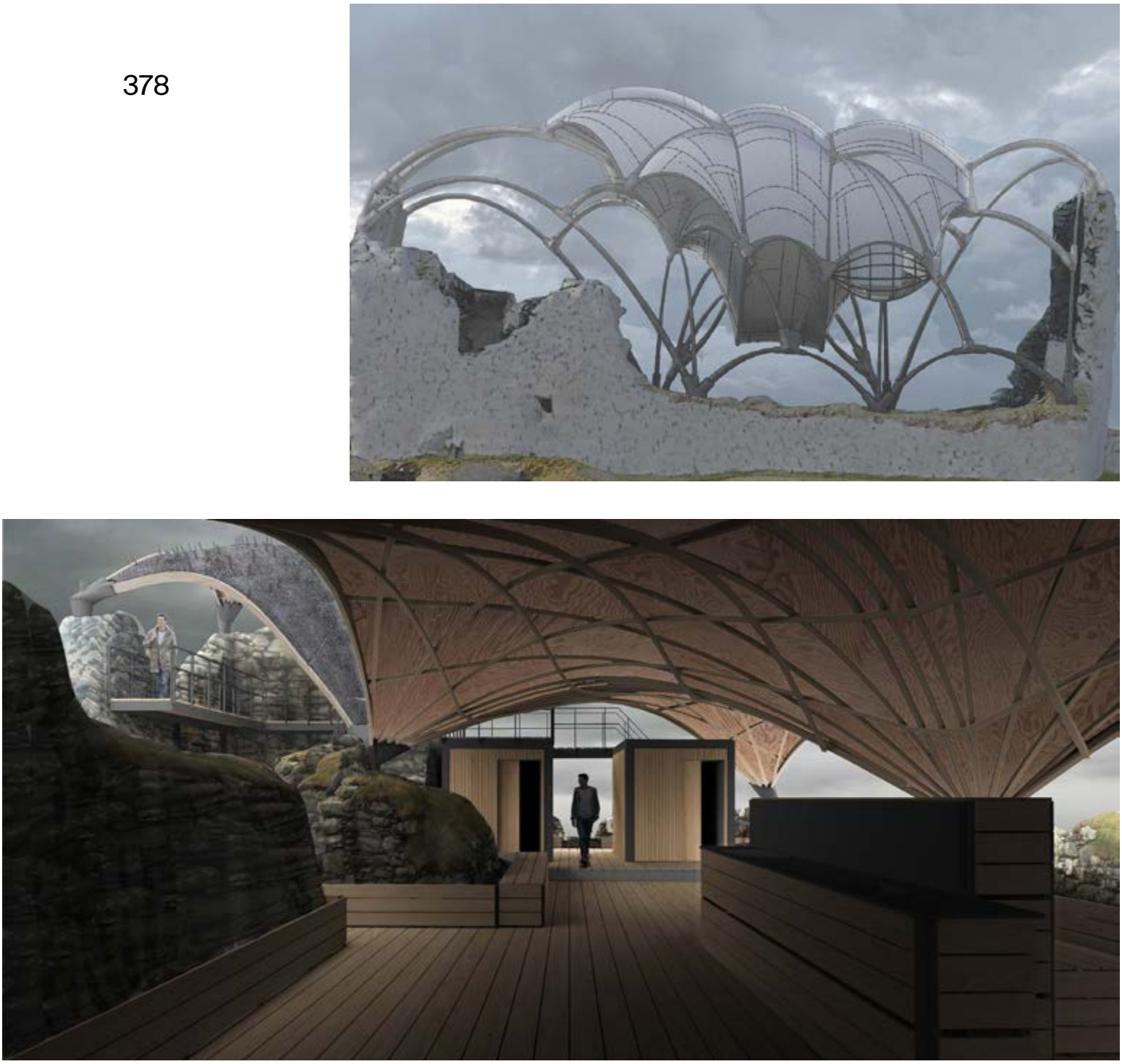


FIGURE 4. Inspired by Kim Stanley Robinson's 50 Degrees Below [2007], Frank Vanderwall's experiments in 'paleolithic' living variously interpreted by Kristoffer Holmgaard Gade (left) and Mathias Klith Harðarson (right)

disturbed by the regular visits of a cleaning woman. During the course of the story, Pangborn begins to feel the presence of an intruder in his space, evinced by physical traces such as body odour, or footprints on the clean floor. This presence so disturbs the character that he kills the cleaning woman before killing the intruder — his own body. Students

in the first project focused on the fragmentation of body, viewed through the screen. What the story describes as the mediated disintegration of the individual is translated by the students into an architectural device which initiated spatial and social connections through the apparatuses of the frame and mirror, but where subtle modulations of angle and pitch fragmented the reflection of the individual, and layered other reflections onto the space [fig. 5]. The disintegration of the body leaves room to invite otherness into the space of the body-image.

Figure 5 — Affective architectural element exploring the disintegration of the body image through optical devices of reflection and framing. Students: Mathilde Møll Helms, Anne Sofie Ravnsbæk Geertsen, Student A, Student B

In the second workshop, the same story activated a discussion with the tutor which situated Ballard's story in a critical relation to architectural proposals exploring the same theme. These include Mike Webb's "Cushicle" and "Suitaloon" [1967] — a living

infrastructure to supply the body with all its needs including media diet, as well as Diller + Scofidio's "Para-site" [1989] and "Slow House" [1991], both of which explored the dissociation of physical and informational experience. Even now, information technology significantly dominates our attention — perhaps to the detriment of our physical bodies. Nevertheless, the object with such a discussion is not to propose a moralizing counter Ballard's story, but instead to see the currency of such a lifestyle, and to look for potentials inside of it. For one student, this discussion resulted in a program for a caretaker which imagines that much of that job might be better accomplished using digital tools. Her proposal for a caretaker's house provokes the physical body, while supporting the digital infrastructure necessary to monitor the site's ruins. The student then developed the possibility that the physical and digital spaces might be co-implicated, with each disrupting and augmenting the experience of the other.[fig. 6]

What these initial experiments in architectural pedagogy show is an emerging affinity between the aims of architectural pedagogy and SF literature and criticism. In the face of an unknown future, we cannot hope to maintain the status quo. Presenting the cultural meditations of futurity found in SF to architectural students articulates the future as a site of active intervention and contestation, of a shared imagination and desire, in which students have the pleasure and responsibility of articulating.

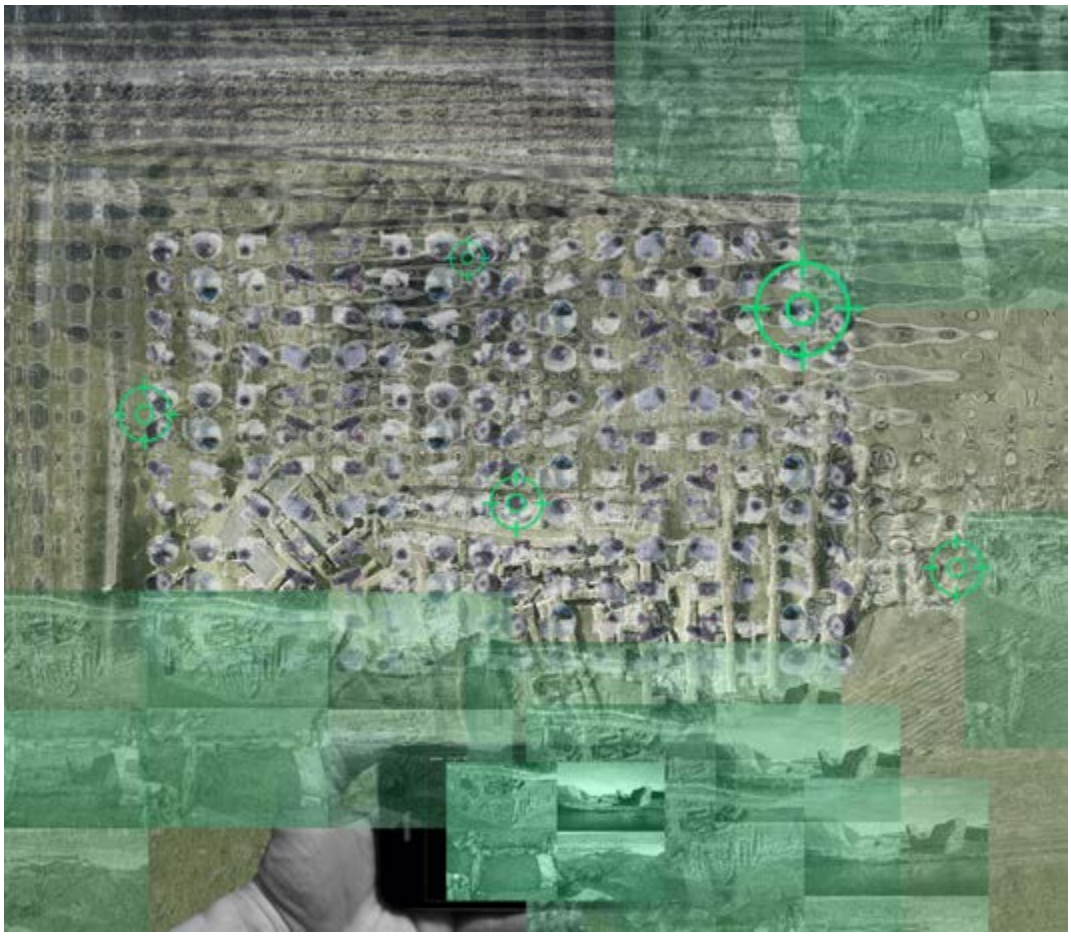


FIGURE 6. Speculation on overlapping physical and digital experiences, inspired by J.G. Ballard's character Pangborn from "Motel Architecture" and image of subsequent design proposal, by Vildana Duzel

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Testimonials Trondheim

Jo Van Den Berghe
Anđelka Bnin-Bninski
Ignacio Borrego
Manuel Bogalheiro
Anke Haarmann
Matthias Ballestrem

TESTIMONIAL

Jo Van Den Berghe, Sint-Lucas / KU Leuven Faculty of Architecture

PLUS

- Candidates appeared to be very motivated in their preparations of their presentations and in the discussions. The candidates did not hesitate to share what they had (i.e., both their hard intellectual work and their uncertainties with regards to their themes, motivations, procedures, methods, modes of presentation, etc.).
- Panel members and colleagues also did their utmost to offer everything they have and share it with all the participants.
- The practical organisation ran very smoothly, with a good team of competent and motivated people.

MINUS

- The workshop needs to be better prepared than it was now (i.e., more focused on the conference theme, in this case, 'Sharing'), with a clearer structure and also with a more comprehensive discussion of the workshop outcomes.
- The absence of the social events, due to the Covid-19 circumstances, needs to be compensated somehow; through an online keynote lecture, online coffee breaks, online drinks, etc. Why not share a good Tarkovsky film and socialise with a drink afterwards, for instance?
- The discussion sessions after each presenta-

tion need to be better structured, starting with and revolving around the conference theme, 'Sharing' (e.g., with two sharp questions for the participant to deal with before the discussions start). Do this systematically for each presenter.

- Each presentation stream needs a reporter who records what is going on, like the two sharp questions (see above) posed to every presenter, with the aim of collecting the information in the database at the end of the conference.
- Create a more comprehensive, strict, and structural approach, instead of the more loose approach that is being applied now. The project and this research community would benefit from it.
- Overall these minuses can be overcome by better preparing for these 'minus components' of the event beforehand.

TESTIMONIAL

Anđelka Bnin-Bninski, PhD, architect and researcher, University of Belgrade

CA²RE+ is a unique educational platform that links the highest level of architectural education with research and practice. The utmost importance of this platform is its cutting-edge, highly critical approach to design driven research that seeks to question and to expand the limits in all three domains of architectural discipline: research, education, and practice. The operative field of CA²RE+ implies intensive and meticulous work in the domain of doctoral research. This work is organised in various innovative and emerging formats (panels, talks, exhibitions, performances, discussions) that enable a precise and profound knowledge exchange on multiple levels: on the PhD student level, on the level of educators/panellists, and on the level of a broader, mixed audience. I was engaged in this event as a reviewer/member of the scientific committee, as a panellist on six sessions, a session chair on two sessions, and as a workshop and discussion participant. As I am currently in my postdoctoral research phase (I defended my PhD in 2018), I had the opportunity to contribute, learn, and share on at least two levels: as an educator in architecture and as a peer researcher with postdoc participants.

I particularly appreciated the CA²RE+ event in Trondheim because of its experimental side, regarding the knowledge-exchange and knowledge-building formats. Even though this experimenting is due to the very inconvenient circumstances of the Covid-19 pandemic and

the impossibility for us to meet on the site, the organisers took the occasion to produce the most from the digital event format. We were able to see and discuss all the advantages and limits of various online working forms: paper and artefact presentations, panel chairing and discussion, poster presentation, round table debate, workshops, and other smaller, linking formats. I would like to underline the value of this experience, beyond its digital side, in the light of the need to reinvent traditional schemes of education practices, research presentations, and organisation of discussions.

The general event theme, 'Sharing' is expertly pointed out as a key issue for knowledge exchange, and even more so in design driven research, because this kind of research can often be considered as subjective, with mostly personal, non-shareable criteria. Furthermore, I found this term quite broad as a principal polygon for debate, so I would suggest a more direct opening of this general event theme, possibly with sub-themes, as various perspectives on the same issue. Perhaps these sub-themes can contribute to more operative outcomes and advance the workshop organisation in the future.

For me, the participation in the CA²RE+ event was a highly valuable and rich professional experience.

TESTIMONIAL

Ignacio Borrego, TU Berlin

The online conference CA²RE+ Trondheim was an event organised after the cancellation of the face-to-face conference due to the coronavirus, that was planned in the Norwegian city between the 26th and 30th of June 2020.

A first alternative was organised on the 27th of March, and there we tested the potential of the online format. The candidates who were not able to present that day were considered for the event in June, and the PhD candidates were able to share their research. Both events were interesting and worth doing, but the quality of the whole event was clearly below other events. The organisation was extraordinary, but the online format was lacking in important aspects.

It is the first time CA²RE faces an online event, and therefore I will focus my testimonial on this circumstance rather than the content itself. There are many advantages of the new meeting method that I would like to point out, and we could learn from it to apply to a face-to-face meeting, if possible:

- Being able to meet without physical contact made the event possible during the pandemic.
- Saving time and costs is an interesting aspect for all participants, and especially for those who live far away and otherwise would not have attended, as in the case of Dr Blaž Križnik, who made his intervention from Seoul.

- It was very easy to change from one room to another according to interests at any time; fast and without disturbing the audience.

Nevertheless, the comparison with a face-to-face event has another level of quality that cannot be compared with it, so an online event can never be an effective substitution. Here are some of the disadvantages that make the presential meeting worthwhile, without any doubt:

- The CA2RE event is not only a collection of presentations with scientific critics, but a very intense event where candidates and panel members share knowledge, not only about the dissertations in the multiple informal meetings after and before the presentations. This does not happen at an online event.
- The event is also a rich network incubator that profits from its potential at a face-to-face event.
- The presentations were too linear and the panel members could not go back to any documents, as happens when there is a presentation plus an exhibition.
- The distance to the documents is unacceptable. Either the resolution or the impossibility to touch objects gives the knowledge interchange a lower quality.
- The sound connection was sometimes not good enough, so following the discourse was not always possible, especially for some panel members with a weak internet connection.
- The audience was not participating at all, in contrast to other conferences.

In my opinion, this conference has been a good test of possibilities for online events that can be implemented in the future, even if there is no health necessity, but it can never be a substitute. I imagine that a hybrid format could profit from both advantages. Face-to-face presentations in combination with video conferences could introduce most of the advantages of both formats.

TESTIMONIAL

Manuel Bogalheiro, Universidade Lusófona do Porto (FCAATI/COFAC)

Although I admit that I initially felt some apprehension for the event's online format, I believe that the main objectives were not compromised and the balance I make of the event is very positive.

At the level of the panels, in which I was most involved, having participated in four as a panel member, I believe that both the presentations and the discussions took place normally, in a productive way, with no technical problems to point out.

I recognise that, naturally, in terms of personal and social contact between the participants, this online format of the event was a remarkable constraint. In any case, and this is the most important thing, I believe it was a minor harm in relation to the possibility that the event did not take place. I believe that the international scope of the project, in what translates into a confrontation of specific approaches and perspectives, remains its greatest asset, and this has not been compromised.

As a professor of Media Arts, the experience, similar to that of the Ghent event in October 2019, was very productive because I could have contact with various types of research approaches from different epistemological and geographical contexts, in addition to, since I work with projects of a more theoretical nature, having witnessed the importance of practical and spatial methodologies in the development of concepts and categories.

In my view, the moments of discussion in the panels, after the presentations, are the most decisive for understanding the research methodologies and the horizons of the problems. Following the experience of Ghent, I withdraw several clues from this event to implement in the doctoral programme in Media Arts at the Universidade Lusófona do Porto, of which I am part of the coordination, as well as additional evaluation/presentation strategies, integrating the spirit and methodologies of DDDr.

I would like to highlight the presentation of the artefact 'Signal processing in the production of architectures of control', by Taufan ter Weel, for being a clear example of a work on how a theoretical theme—with wide horizons in terms of politics, history, and technology—was operationalised through a set of creative production and analysis devices.

TESTIMONIAL
Prof. Dr. Anke Haarmann

The digital version of the conference worked surprisingly well–this in advance. It even produced some exciting moments that might not have been possible in an analogue format. The many rectangular images on the screens of the different participants of each panel equalise the participants, and a debate at eye level seems more likely. Also, the different spatial backgrounds of the respective participants–their different places from which they connect–create a homely atmosphere of privacy. In this setting, presentations and debates as well as questions appear less formal than usual. A real understanding and involvement seems more possible. But what is lost in such a digital format are the informal conversations in coffee breaks and the concentration on the conference through the physical presence in one place.

The three days of the conference were packed with presentations and well organised. The structure where the presentations are flanked by substantive questions from a pre-compiled commentary panel contributes significantly to the quality of the conference.

I was only surprised by the partly classical argumentation towards the method sets of the speakers. The challenge of design-based research, however, is that it first has to develop its method set in the design process of research (i.e., methods are not applied, but elaborated). In the design-based research process, there is no objective distance to the overall set of research

questions, research object, and research practice, but rather an involvement that attains an objectifiable comprehensibility towards the end of the research process.

However, developing this appropriate culture of commenting on design-based research is the outstanding quality of the CA2RE conferences.

TESTIMONIAL
Matthias Ballestrem

Design-Driven?

Most of the presentations I saw in these three days were not showing design driven research, as I understand it. However, I understood more precisely the various understandings of the term ‘design driven’ through the event. Most of the time, the term was used for research in which design tools or medial design practices, like drawing or exhibiting, became part of a research process that was set up to answer research questions that lay outside of the researchers’ design work. In this way, design driven research was applied to research projects about a certain phenomenon in the current architectural field, or aspects of architectural history, etc. In these projects, design tools are used to deliver answers, just like any classical analytical method would (e.g., interviews). The difference is that the tool stems from the realm of design. My doubt about this understanding of design driven research is that it is not radically different from the so-called ‘classical’ research methods. It makes design driven research merely a specific category in analytical or constructive research methods.

In my understanding, the new and radical approach to design driven research aims to understand individual architectural design products as a form of knowledge that is multi-relational and foggy, unprecise and debatable, non-discursive–but nevertheless, or even hence, a valid and relevant contribution to cultural progress.

Of course, it is not the goal of the CA²RE+ project to agree on a definition of design driven research. Therefore, this argument may potentially rather be used as a differentiation between different understandings and traditions. However, it would be helpful for candidates and supervisors, I feel, to make their understanding of the role design plays in a particular research explicit, as it has different consequences. It would also help to channel the comments of panel members in the presentations to support the research set-up.

CA²RE+ Strategies

Claus Peder Pedersen

The CA²RE+ network has concluded the first two conferences dedicated to the concepts ‘observation’ and ‘sharing’. This text aims to identify general outcomes of relevance to the field of design driven research identified during the two first CA²RE+ events in Ghent and Trondheim. The title ‘Strategies’ refers to the intention of identifying implicit and explicit strategies of CA²RE+ that can point to further development of design driven research. The reflections build on the discussions collected at the plenary talks, statements collected from participants, and the feedback provided by participants in questionnaires following each CA²RE+ event. A generous selection of quotes interspersed in the text represent this material. This selection hopefully offers insights into the engaged and multifaceted positions of the members of the CA²RE community. Some quotes are representative of viewpoints expressed by several participants. In contrast, others are individual observations that might not be widely shared by the CA²RE community but add poignant perspectives and breadth to the discussion. The quotes are thematically grouped to identify broader topics of relevance for the development and assessment of design driven research strategies. The text occasionally moves beyond the quotes to expand the debate or reflect on future perspectives for the CA²RE+ community.

The topics fall into two categories and will be discussed in greater detail later in the text. The first category addresses the CA²RE+ conferences as settings for sharing and developing research. It examines the ambience and the physical spaces provided by the conference. The Trondheim CA²RE+ conference adopted a digital format

due to the Covid-19 pandemic. Feedback on the advantages and disadvantages of the digital format is discussed as well. The second category focuses on the definitions and understanding of design driven research and associated methods and techniques.

CA2RING — THE AMBIENCE OF DESIGN DRIVEN RESEARCH

> Generosity and openness, great organisation, high-quality presentations, a wide variety of settings, challenging panels and discussions, the artefact exhibition hall as the centre of the event, the poster wall offering an overview of all the presentations, the engagement of the people involved, the balance between formal and informal settings, the energy of the wholeness, the closeness of the community despite the numerous newcomers.

Ghent Questionnaire

> For me, it is the format and atmosphere CA²RE+ is able to build: there is a commonality of aims that helps to focus and to create a creative and productive environment. Probably, the artefact exhibition was the place where the feeling of the interaction and the participation of the cohort was strongest.

Ghent Questionnaire

> Abundance of time for exposition of research projects, attention given to each PhD candidate.

CA²RE+ **Ghent Questionnaire**

Honesty, intensity, trust.

Trondheim Questionnaire

Rather than being a simple event, the last CA²RE+ conference represented an immersive learning environment, in which relational and behavioural factors counted more than specific content. Both the discussions of presentations and follow-up reflections were very useful for improving my evaluation skills and understanding the roles of design as a research driver. However, it was more due to the interaction with other researchers and scholars than the topics discussed (although these were quite interesting).

Ghent Questionnaire

The experience of the organisers and leaders, which was vast, was sowed not as a tutorial, but an entwined constant that was sensed as a kind of supportive backdrop rather than directive.

Ghent Questionnaire

I found it really interesting to follow the other presentations and the discussion afterwards. It provided a lot of different discussions, with panel members from diverse backgrounds and disciplines that provided many rich discussions that will stick with me when I think about my own work.

Trondheim Questionnaire

I really appreciate the open mindset towards varying types of artistic and architectural research. I am also grateful for the reor-

ganisation of the event under the difficult circumstances with the coronavirus.

Trondheim Questionnaire

The generous time slot allocated to each presenter, and to the event as a whole.

Ghent Questionnaire

Through the multiple discussions of the people surrounding me during the conference, as well as the lectures in the beginning which were very inspiring and some presentations I listened to—mainly those in the very small room, the atmosphere there opened up very informative discussion—I was able to position my own practice and thinking within the topic of the person presenting.

Ghent Questionnaire

Seeing a large variety of work, being in touch with different voices, different thoughts; 'meeting', in as sympathetic a way as possible, given the restrictions of an online interface, new colleagues. The workshops were also very helpful. In a way, there could be more of this element.

Trondheim Questionnaire

The large number of participants, with a very complex and nuanced range of approaches, provides a very challenging condition for discussion. This apparent lack of focus is in my opinion very precious.

Trondheim Questionnaire

As a professor of media arts, the experience was very useful because I had contact with

various types of research approaches, from different epistemological and geographic contexts, in addition to, since I work with projects of a more theoretical nature, having witnessed the importance of practical and spatial methodologies in the development of research concepts and categories.

Trondheim Questionnaire

I think it might be intriguing that, on Friday evening after the keynote lecture, we have very short presentations, an intro of two minutes from all the presenters. That everyone who presents on Saturday or Sunday would actually stand next to his or her poster and give something like an intro, what the presentation is about, would be an interesting device to start the discussion between the presenters; a more fluid interaction.

Ghent Monday Wrap-up

There could be a general presentation of the professors engaged a little before, in order to give everybody the possibility to know the whole network.

Trondheim Questionnaire

I would appreciate more accessible information about supervisors, panel members, presenters, and the content and methods of the presented research. This could be in a Pecha Kucha, a poster exhibition, or a more extensive book of abstracts and schedules.

Ghent Questionnaire

Some suggestions: 1) Turn the roles around: professors present their research and doc-

toral students comment, as an exercise in critical thinking; 2) Objects only: exhibit an object without presentation, and a mixed panel interprets it; the author takes this feedback as point of departure and gives feedback on the interpretations; 3) Drawing/designing as feedback: make the discussions more embodied. Why don't panel members draw, build, and sketch on materials? If design is really a driver of understanding, then maybe it is an idea to give the feedback in the form of design, not just as spoken discourse. Of course, this process is interactive, and commenting can be an integral part of it.

Ghent Questionnaire

Change the feedback structure. I am sure there is another setting where the opinions, knowledges, and expertise inherited by all these amazing professors can be processed in a better and more productive way. If we end up with a far more diverse, characterful, and specific feedback or discussion, it would be amazing. Some ideas could be: 1) Professors can discuss their opinions and what might help the student best in advance, or in a ten-minute break after the presentation; 2) Professors could produce, draw, create things (i.e., models, sketches, pictures, etc.) during the feedback; as it is a design driven research, maybe the way in which feedback is given is design driven as well? 3) Atmosphere of the rooms and the position of table, chairs, and people was crucial for evolving the discussion; as I said before, in the very small room at ground level the discussions were far more interesting than in the

other lecture rooms; 4) Do little workshops together in small groups; 5) For instance, three students in a row should present and be given feedback together, with comparisons, discussions, maybe even drawings.

Ghent Questionnaire

Reading through the comments, it is striking how much focus the ambience and atmosphere of the CA²RE conferences are given. Participants highlight the open and inviting mood of the events. They mention the word 'generosity' more than once, and they view the panels as accessible, curious, and undogmatic. Several comments appreciate the diverse disciplinary and institutional backgrounds of the senior researchers and how they represent a wide range of design driven research positions. This plurality seems to help presenters identify their research position. It also supports a fuller understanding of the research cultures across Europe concerning design driven research. Most participants also appreciate the ample time set aside for the presentation and discussion of each research project and emphasise how this provides opportunities for in-depth comments as well as feedback from all panel members and the audience. A few respondents are, however, less positive in their evaluation of the lavish amount of time set aside. The event would, in their view, be more efficient if it used a more narrowly delimited understanding of design driven research. That would allow for transparent feedback and more instructive methodological suggestions. The feedback shows that the knowledge exchange is not limited to the panel sessions, but also takes place at workshops, informally around the artefact and poster exhi-

bitions, and at the social events. In some cases, the dialogues continue after the CA²RE event through emails. One comment even highlights the informal exchange between presenters as more critical than the formalised feedback of the panels. Some comments criticise the relatively traditional and hierarchical structure, where candidates present to an expert panel of experienced senior researchers. Instead, they suggest experimenting with more open and egalitarian forms of presentation and discussion. Or, to have the panel members present their research and design practice to the participants.

The positive feedback on the ambience of the CA²RE conference and its growing research community suggests that the intentions of the conference organisers are successfully implemented. This organisation has developed gradually since the inaugural CA²RE conference at KU Leuven in Ghent (April 2017). Still, it also builds on previous experiences from the ADAPT-r Marie Curie ITN (2013–2016), which included several of the CA²RE partners. It also continues traditions established even earlier at the RMIT Graduate Research Symposium and the Toon weekends held at the Sint-Lucas School of Architecture in Ghent.

The organisation of the C²2RE conferences reflects this history. The earlier events originate from the intention of using the biannual presentations as an armature for the design driven—and practice embedded—doctoral training. The core concept was to embed the doctoral fellows in an extensive international research community that follows and supports the progression of the study

in a shared supervision model. The CA²RE network partly continues this tradition, but it simultaneously expands the aims to be broader and more inclusive as it, unlike the ADAPT-r, does not only address a fixed cohort of PhD fellows enrolled at the partner institutions. Instead, CA²RE aims to provide a platform that can bring together a wide range of doctoral fellows, researchers, and supervisors across Europe and beyond. It recognises that while design driven research has moved beyond the general epistemological and ontological battles and contestations of yesteryear, there are still substantial national and institutional differences between the recognition, support, or even possibility of conducting design driven research. To accommodate this diversity, CA²RE offers three presentation formats for the presenters: abstracts, papers, and artefacts. An abstract presentation provides an opportunity to share the ongoing explorations and reflections of in-progress research that has not yet fully matured into a coherent research statement that would be expected of a paper. The artefact exhibition supports the display of and engagement with physical objects in an exhibition setting. The three formats allow participants to experiment or contribute through research formats that can fulfil different criteria and expectations of their home institutions. The CA²RE events provide a learning environment for those that seek advice for research in progress. But, it is also an academic conference where research is disseminated and discussed. It is also at once an open and inclusive event that invites participants with very different levels of experience with design driven research and a research network that seeks to advance the state of the art of the field. The feedback suggests

that most participants do not seem to mind this wide span. Still, the criticism of the unsatisfied minority that asks for a more explicit framework might nevertheless be taken as a reminder of the difficulties of qualifying all aspects at once.

THE SPACES OF CA²RE

It would be good to expand the exhibition format further. Even a project that is less artefact-driven would benefit from moving away from the PowerPoint presentations into other more conversation-driven presentation formats.

Ghent Questionnaire

We had an artefact room, meaning, we were allowed to exhibit our works during the whole event, so we could give a private tour between the presentations for the people who were not able to attend ours.

Ghent Questionnaire

Being able to talk about (and around) something which is actually present, instead of only represented, makes a lot of sense in our research community. Experiencing it around my own artefact and witnessing the presentations of others, helped me to think more about how to communicate with and the autonomy of the research production.

Ghent Questionnaire

I really appreciate the 'artefact' presentations, because you felt more close to the research than another mode (PowerPoint presentations) that was also used. The shar-

ing of questions and doubts was explicitly evoked and shared through the exhibited artefacts. It is like the PowerPoint presentations lost their research-driven soul and were/are more formatted. I think even more explorations into the 'artefact' presentations can be done. For example, in which context/room the artefacts are shown (designed space or not/shared with slideshow presentations or not/interviews/keynote speakers, etc.).

Ghent Questionnaire

The atmosphere of the artefact room. It made it possible to discuss the work more interactively, standing around the tables.

Ghent Questionnaire

The CA²RE+ evaluation course is based on the experiential immersion into the personal research worlds of the candidates, that includes touching the artefact, multiple and diverse modes of interactions, which cannot be replaced virtually. To achieve the main aims of the project, the face to face event cannot be simply replaced with its virtual alternative at a selected methodological step of our project.

Trondheim Questionnaire

The comments show a particular interest in the artefact presentations. There is an appreciation for the possibility to engage spatially and materially with the presented material. Some comments point out how the artefact presentations were the most engaging at the conference due to their direct relation with the design driven research processes. They also highlight the liveliness of

these presentations compared to the linearity of PowerPoint presentations, and how the exhibition presentations support rich and diverse interactions between presenter, panel, and audience. The presence of artefacts throughout the conference also provided an opportunity to discuss the material outside of the scheduled presentation.

The comments also address the importance of the conference's spatial organisation and the ability to present and interact with physical objects. The interaction allows for non-verbal dissemination of the insights and knowledge embedded into physical objects and the processes and relations that link them together. This knowledge might, in some cases, be embedded in the spatial, formal, or material characteristic of the presented artefacts, unfolded in the dialogue between presenter and audience. The simultaneous presence of all the material let the audience navigate the presentation more freely. It becomes possible to investigate underexplained elements, or form new and unanticipated connections between different objects. The identification of an overlooked element or the suggestion of alternative trajectories through the presented material can challenge the presenter to explore a new design path or reinterpret the understanding of the already produced material. These forms of interactions are, of course, not exclusive for the artefact presentations but might nevertheless benefit from the spatial presence of all material at once.

The opportunities offered by this presentation do in some ways resemble the design critique known from architectural education, although with a focus on the research outcome instead of

the design outcome. The artefact exhibition may also be used to choreograph interactions with the material. New connections can be explored to engage and include the audience. This interaction has the potential to disrupt the structure and hierarchy of the feedback situation. Presenter, panel, and public might interact in particular ways as they organise themselves around the exhibited artefacts. The feedback of the panel can take new forms if the members interact with artefacts or respond to a performative presentation that challenges the expectations of research presentations.

ONLINE

The shortened conference and digital presentations created fewer opportunities for new insights than previous conferences. It did, however, highlight some of opportunities and pitfalls of digital presentations. The presentations as isolated events worked better than I imagined and points forward to future possibilities of ways to conduct the conferences. They did, however, also make it clear that input from the audience was missing, which raises questions abouthow this can be encouraged digitally. It also highlighted the importance of informal conversations and follow-ups in breaks and at dinners.

Trondheim Questionnaire

Perhaps due to the fact that this conference was online, in this edition I concentrated more on the interventions of the presenter and the other panel members. I guess this

was because there were no other 'visual distractions' (setting, audience). This context made me pay more attention to the content of the comments, and I was struck by the wealth of approaches that occur in the panel members' interventions. I think I was more sensitive to the diversity of evaluation.

Trondheim Questionnaire

The lack of informal time to talk and interact, the lack of body language and facial expression of the candidates, so indispensable in tracing their uncertainties. Their uncertainties are the most useful information, based on which we can have the most fruitful and constructive conversations and with which we can serve the candidates in the best possible way.

Trondheim Questionnaire

It was an interesting experience to see people in their own contexts on the screen, presentations were well organised, critics were clear and not repetitive.

Trondheim Questionnaire

Despite the difficulties of being not physically together, energy and engagement have been remarkable during this conference. In addition, it has been a fantastic way to share with each other the willingness to go further with the sharing of our experiences and break this unfortunate pandemic period.

Trondheim Questionnaire

CA²RE+

It provided new experiences with digital pres-

entations in a conference format that can be further developed. Perhaps especially if they are interweaved with physical conferences.

Trondheim Questionnaire

In many presentations, or those in which I took part, I had the impression that some of the participants were almost present, as if the laptop screen would be a door to this new shared space of the digital environment.

Trondheim Questionnaire

In another online conference I attended, there was a Discord forum for the conference where the projects were discussed in separate channels during and after the project presentations; an online forum that I can go back to now to find references and reread the discussions. This also gave the opportunity for the audience to interact with the candidate and the written discussion in the chat in the days following the conference. I think this was a helpful tool for an online conference.

Trondheim Questionnaire

The Covid-19 pandemic challenged the artefact presentations and spatial interactions. The outbreak cancelled the Trondheim conference in March 2020. Later, it was rescheduled to take place at the beginning of June as an online conference. The feedback reflects quite different experiences of the transition to an online format. A large group of participants are positive about the implementation of online presentations. They point out that the presentation of work and subsequent feedback works well. Some suggest that the online format makes the presenters and the

panels more focused, leading to more precise presentations and short and concise comments. The audience enriches the feedback by sharing written remarks and references in the comment track. A few commenters even find that the digital formats create an egalitarian or intimate atmosphere, as all participants are represented on screen in portrait formats in their home settings. The online set-up also allowed the conference to extend the range of artistic disciplines present in the panels, as travelling and accommodation is no longer needed. While these are positive outcomes, there are also substantial negative consequences. The focal point of the negative comments is the absence of social, spatial, and tactile interactions that was highly valued in the feedback of the physical conferences. The commenters lack the informal conversations between presentations. They miss the social events that help to build networks and expand the understanding of the local conditions and personal motivations that resonate in the presented research. They long for the possibility to interact spatially and experience the tactility of the displayed works.

Looking ahead, CA²RE+ will hopefully soon again be able to organise physical meetings. But until then, the feedback shows that there are options to develop the digital format. The online presentations have, so far, mainly used PowerPoint presentations, resulting in structured but linear expositions. It would be easy to expand the presentations with more diverse media formats that better capture the spatial and tactile richness of the fellows' design works. Presentations could also move to online whiteboards. This technol-

ogy would support inclusive interactions with the audience. Participants can comment and ask questions directly on the whiteboard and leave the presenting fellow a richly annotated document for post-presentation reflections. In the future, it might also be worth exploring hybrid conference formats to hold on to the disciplinary breadth and extend the audience of the conferences.

NOTIONS OF DESIGN DRIVEN RESEARCH

> Is CA²RE+ a design driven conference or a more general conference, open to other points and other methodologies, such as art historical methodology or architectural theory methods? In any case, it would be good to ask people to state their methodology at the beginning of the presentation and also in the abstract.

Ghent Monday Wrap-up

> I thought that this conference is different because of its focus on design, and that my presentation is disconnected because of the separation of the design and theory. What attracted me to CA²RE+ originally was the place to explore; last night I was thinking that if it is still the place to explore this, perhaps I can explore the design part.

Ghent Monday Wrap-up

> The lack of content built up so far and the fact that we stay working in a closed community.

Trondheim Questionnaire

Some presentations highlighted the lack of theoretical foundations and methodologies that make design alone insufficient to develop research. For instance, positioning, weaknesses and strengths, further steps the research has discussed and is currently improving.

Trondheim Questionnaire

In the overview it became more clear that the presenters as well as the panellists stem from different research backgrounds. The research methodology ranged from classical discursive methods to very subjective and narrative observations. It ranged from philosophical to structural. As a result, by comparing, I better understand my own position within this field. For the researchers themselves, it is sometimes necessary to choose the comments from panellists that critically support their work and dismiss others that are demanding methodological changes.

Ghent Questionnaire

The event exceeded my expectations in terms of the variation of (qualitative) research trajectories it hosted. That needs to be further acknowledged in my home institution, where the technical aspects of design are much emphasised.

Ghent Questionnaire

The scope of the discussed approached is very broad. The balancing act between artistic practice and scientific approach runs the risk of blocking each other with different standards of evaluation and work objectives.

Ghent Questionnaire

The feedback does not only address CA²RE+ events. There is also an interest in the content and positioning of design driven research in a broader research community. Some comments express concerns with the presenters' lack of methodological awareness. They find that the fellows are unable to contextualise their research. They are unable to articulate their methodological position and approach. Or, that they miss criticality towards their subjects. Some comments link these shortcomings to insufficient academic skills. A couple of comments question whether it is possible to base research on designing alone and argue for the need for a theoretical framework to guide the design. Other statements address the lack of interaction with the research of other disciplines as a missed opportunity to learn from the creativity and ingenuity found there.

These critical comments are not representative for the majority of the feedback, but should not be rejected. They may rightly question whether all fellows have the necessary competencies and skill set to conduct research. But, it might also indicate the commenters' different opinions about what constitutes proper research. The difference could reflect a perceived divide between design as a creative, intuitive, tacit knowledge and research as a theoretically informed, structured, and rational endeavour. But it might more likely be characterised by different opinions about how to integrate design activities into research. Is the design, for instance, delimited and contextualised by a theoretical investigation that identifies well-defined research questions that the design driven research explore? Or does the design activity form a more open-ended explora-

tion that gradually qualifies the research process through documentation and reflection on the design process?

These questions also reflect different opinions about research traditions. How closely should design driven research adhere to the norms, structures, and ways of argumentation found in other fields of study? Some might consider the close alignment with these norms to be a prerequisite to gain research credibility in the wider academic community. Others might be in favour of developing design driven research methodologies and criteria specifically adapted to the design field, with a potential risk of not getting recognised by other areas. The excessive concern with epistemological questions and the methodological uncertainty of the research is far from new within the field of design driven research. It is still relevant, as shown by the comments, and probably not likely to disappear anytime soon.

INCLUSIVITY OR STATE OF THE ARTS?

I was a bit cautious. As a practitioner, I tend to tread lightly in academia, not sure how things work. But I do realise that coming from the same profession we speak the same 'language'. I'll bring home the excellent feedback, and I am really looking forward to receiving the recording of my presentation, so I can listen and continue working!

Trondheim Questionnaire

There were bad and good examples of scientific approaches to artistic processes. A

good example I saw in the works opening up rather than closing to a special existing field of knowledge. Nevertheless, the question remains what design driven means and how to differentiate it from an approach to architecture as an art discipline.

Ghent Questionnaire

In general the organisational constructs of CA²RE+ and its systemic reference through (and within) the Ghent conference 'stimulated' a wide range of ideas that in turn offered multifarious impacts on the conventional nature of research—at once engaging traditional research modalities while simultaneously challenging them via the very nature of design driven processes in manifold areas of endeavour. Although this seems a natural course of sequencing for those—of us—in the field, the hierarchical intersection of convention and non-convention was consistently interwoven, critiqued, and reviewed; this allowed the participant a dual lens of observation and engagement and, as such, within the traditional model of the 'jury' there was an established path for self-criticism—a simultaneous, non-linear means to 'deconstruct' stated biases. This embedded, self-critical web was perhaps the most overt aspect—for this observer—of the conference.

Ghent Questionnaire

The first presentation/workshop (Jo Van Den Berghe) clarified the notion of 'concentric circles of observation' as applied to DDDr. This summarised explanation,

with a recurring interplay between actions, observations, and evaluation, introduced for me a new and clear perspective/shed a new light on what we are dealing with. It gave me insights in the bigger picture of my own doctoral research.

Ghent Questionnaire

There was a difficult equilibrium here in Ghent, between the artefact and other kinds of presentation. Artefact is not my preferred way to express my research, but this richness of diversity is very special and something you cannot find in other programmes. I really think we have to enrich this diversity.

Ghent Monday Wrap-up

Is this a conference about design driven research; is it a conference about practice based research? We have to say, we cannot define design driven research for the whole group right now, we cannot define practice based, and that is what it is all about, but if you use design in order to create questions or to answer questions, or it becomes methodology or it becomes pure and only a driver of research; that's actually why we are gathering here and what we are trying to find out and filter out from the process of coming together, again and again.

Ghent Monday Wrap-up

In the workshop it became clear that at the Polimi, design driven is mainly understood as driven by drawing (design as 'disgeno').

Trondheim Questionnaire

The quality of the way some panels and/or panel members deal with presentations 'too loosely'. We need a stricter way/structure for the discussions after each presentation (e.g., by asking every participant the same set of structural questions). This set of questions (let's say, three questions) should revolve around the conference theme (this time, 'sharing') and the meta-level of this Erasmus+ project (let's say, two questions). Now, these things occur, but not systematically enough. Also, for each CA²RE+ event, we need to install two reporters who gather material for the reporting of the project and for the books that will be produced through this project.

Trondheim Questionnaire

The conference missed a clearer framing in terms of keynotes and introduction of the theme of the conference (this is not a criticism of Markus Schwai's warm and humorous welcome at the opening of the conference). This impacted the final workshop that, despite interesting and personal accounts of the participants' understanding of sharing, hardly managed to develop an overview or shared understanding of what role the concept can play in design driven research. The digital format obviously hindered the interaction with the physical and material production of the presenters, which was a strength of the Ghent CA²RE+ event. It also hindered the informal encounters and discussions that are such an important part of a conference.

I expected a more deep discussion about design driven research and a greater insight in relevant projects, but lack of information beforehand made it difficult (and some of the presentations were too unstructured and only targeted people that had seen them present once before at CA²RE). I will bring home some principles from the workshops (the levels of participation) and the comments on my own presentation.

Ghent Questionnaire

The CA²RE+ network has in the network application agreed to build on the 'observation and sharing of the diverse local and regional research cultures from a transnational perspective. This includes the different conditions for doctoral students, with the aim of identifying both the diverse and common approaches and methods that can point towards DDDr "Strategies"'. The feedback shows that it can at times be a challenge to address specific local research interests and common approaches at once. The inclusive approach to local research cultures demonstrates a diversity of research approaches that can be enriching. But the respect for diversity can also make it challenging to identify the commonality between approaches with sufficient poignancy to advance design driven research as a field.

The dilemma between inclusivity and directedness shows in the fellows' feedback. Some find the diversity of research approaches to be a strength, which seems to thrive in the exchange of different viewpoints and suggestions. These fellows embrace the opportunity to direct their research by navigating different positions and

making use of methods they find relevant. The CA²RE network provides opportunities to expand or even adopt alternative research paradigms to those present at a local research environment. Other fellows are more critical of the diversity, expressing disappointment with the lack of a precisely defined epistemology of design driven research and missing instructions for appropriate methods. These participants appear to be searching for a research approach that provides instructive steps to design driven research as well as justification in a broader research perspective.

A somewhat related divide is visible among the supervisors and experts who have different opinions about how to promote design driven research. Some comments support an inclusive approach to design driven research that gives equal space to the various research approaches across the European continent, independent of the local level of expertise and experience with conducting design driven research. One can understand this position as an argument for a considered and careful development of a shared understanding of design driven research. This argument may imply that the shared knowledge will be general and open-ended, but it could provide steps towards building European policies for the field.

Other comments favour more narrowly defined notions of design driven research. The argument for this position is to push the understanding and methods of design driven research into new territories to advance the field's state of the arts from an academic perspective. The proponents of this more narrowly defined notion emphasise the act

of designing as the primary driver of the research and perhaps especially how design in professional practise can become part of research processes. The different approaches to the field of design driven research exist respectfully and peacefully in the network. Still, it might help the development of CA²RE's goals to more clearly identify what activities support inclusivity and what activities support a particular notion of design driven research.

INTIMACY AND SUBJECTIVITY

> Tomas Ooms's performance on the piano was something that made a significant 'experiential break' in the flow of the conference. He was probably one of the first ones who opened up, exposing his emotions and vulnerability without speaking a word. It made me think about my own fear in presenting, and it reminded me of the urgent need to get rid of it as thoroughly as possible. It encouraged the self-opening in my presentation, and also in the drawing performance with my partner.

Ghent Questionnaire

> The overall idea that it is perfectly possible to expose your research, which may be about very personal matters, and to share your uncertainties about it within a highly trusting environment that makes the possibility to expose uncertainties a keystone of the whole event and environment.

Trondheim Questionnaire

> I noticed a tendency towards distanced presentations of the design process and personal motivations in the presentations from doctorates at my home university and want to challenge them to engage more deeply with these questions.

Ghent Questionnaire

> Is it just the stage where you zoom in, that you need to explain how zooming in works for you? Before such a round table in Aarhus, I'd been thinking that the transferability of knowledge comes with the right level of abstraction. But at that round table somebody said, 'No, I can invite you to my personal world'. But, how to do that? It is much easier through distancing. But you don't get everything that way. You can get much more if you feel invited; more difficult than when you want to do that through distancing.

Ghent Monday Wrap-up

Tadeja Zupančič's introductory text reflects on the importance of providing space for vulnerability and subjectivity in design driven research. She has discovered the relevance of close-up and personal explorations of design driven research through her ongoing attendance at CA²RE conferences. This viewpoint resonates with several comments. Opening up to the individual or even private concerns as part of the research project can be challenging. The mapping out of the unforeseen events and idiosyncratic choices that often happens in—or even drives forward—a design project can be at odds with the experi-

enced designer's self-understanding and public image. The exposure of uncertainties and failures can be frightening for recently graduated fellows, who are still struggling to prove the relevance of their research in an academic context. The fellows can also fear that the focus on the singular and specific conflicts with established research virtues, such as relevance and transferability. While it can be challenging to direct the study at the subjective and singular, it may be necessary to deepen the research fellows' understanding of the motivations and ambitions that drive the design. It can provide insights into the specific nature of a particular design project embedded in a distinct context of spaces, collaborators, and conditions.

The CA²RE network's inclusive ambience aims to inspire trust, so presenters dare to experiment and expose personal concerns. This can happen in many ways, from analytic reflections to performative actions, but the point is that the presenters endeavour to do this without fearing premature professional or academic judgement. The workshops at the conferences also play a role in this. The Trondheim workshop investigated 'sharing'. The organisers invited participants to reflect on their understanding of sharing and submit representative images of their position. An online whiteboard with the images formed the backdrop for research-related, personal, and sometimes touching accounts on sharing. The workshop helped expand the participants' shared notion of sharing, and partly did so through intimacy.

Zupančič introduces the notion of 'zooming' in her intro text. This concept suggests that it is possible

to deliberately shift position to engage in design driven research at different distances to the act of designing, to produce distinct insights that the research outcome combines. Thierry Lagrange and Jo Van Den Berghe unfolded a related idea in their workshop at CA²RE+ Ghent. The Ghent workshop explored 'observation' through a particular lens that views doctoral supervision as a series of concentrically nested circles of observers, from the fellow to the broader academic community, with different roles and relations. Observation becomes a tool to identify these constellations and instrumentalise the resulting insights in the research. The workshop proposes a meta-level approach that concentrates on a relational and networked contextualisation of the research project. It does not operate from one definition of design driven research and is open to different research methods. In this way, it demonstrates how the CA²RE network can develop distinct intellectual frameworks that recognise individual and local research traditions within a shared discussion.

LOOKING AHEAD

The feedback and experiences from the first two CA²RE+ events show the importance of creating the right ambience. Frequent events, undogmatic attitudes, and ample time for discussion contribute to this. Recurring presenters and panel members provide an ongoing conversation that allows common ideas to unfold and support the progression of individual research projects. At the same time, newcomers from a growing field of creative disciplines bring in new perspectives. The artefact sessions bring spatial and tactile dimensions to the presentations and could play an even

more critical role in future events. The comments also suggest experimenting with the feedback to challenge and engage the panels in alternative ways and include the audience more actively.

The online presentation formats forced upon the CA²RE+ events by Covid-19 have challenged the crucial social and spatial ambience. But, while we are eagerly awaiting the return of physical meetings, there are unexplored potentials for implementing collaborative software solutions to reintroduce immersive social and intellectual interactions. The online events have made it easier to attract panel members from other creative research fields, and hybrid events might help continue this unexpected opportunity in the future.

The feedback underlines that there is—still—no shared conception of design driven research among the participants, particularly with regards to the applied methods and the alignment of the research with the standards of other academic fields. These differences validate the CA²RE+ network's double ambition of advancing the epistemologies and methodologies of design driven research while offering an inclusive network open for different local research traditions. Still, the feedback points to the need to distinguish more clearly between activities aimed at advancing the state of the arts and increasing inclusivity to avoid leaving the participants with unfulfilled expectations.

The unfolding of the intricate mechanisms of design processes requires a close and often personal engagement of the researcher. The feedback from the first two CA²RE+ events shows the

importance of providing a space for sharing and discussing the uncertainties and not yet directed experiments of research in progress. Maybe it is more important to instil a sense of trust that supports the fellows' explorations than to provide a methodological framework for conducting the research. This trust could set fellows free to apply their design skills at crafting a particular research method which fits their project. The CA²RE+ network could still contribute to the meta-level structure of the research. Zupančič's concept of zooming, or Lagrange and van den Berghe's concentric circles of observation, connects the close-up, rigorous observations of the particular design driven research project with other and more distanced positions. They suggest that the weaving together of these shifting positions makes the researcher able to contextualise and unfold the research to a broader community.

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CA²RE+

1 STRATEGIES OF DESIGN-DRIVEN RESEARCH