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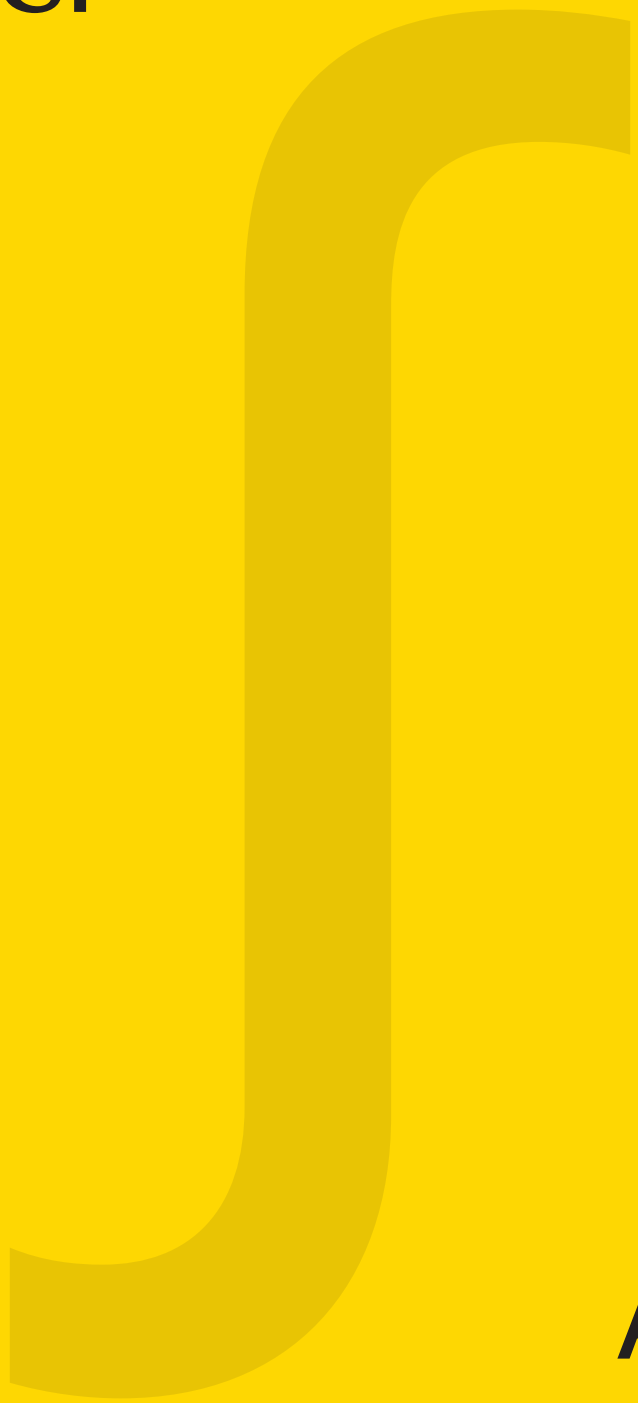

Artistic Research in Practice

Approximating Borders: Artistic Research in Practice

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Judit Böröcz is a cultural worker, creator, producer with a background in International Relations and Theatre Studies. She has worked as a freelancer as well as in institutional contexts. She is a member of the Dutch-Hungarian arts collective SPACE. Her main interests are related to Eastern-European historical narratives and 'postartistic practices'.

John Butler

John Butler is an artist and the CEO of EQ-Arts, a leading independent, international quality assurance and enhancement agency for European higher arts education. He is an Emeritus Professor of Art at Birmingham School of Art, Birmingham City University, where he was the Head of the School of Art & Associate Dean of Research from 2003 to 2016. Butler was President of the European League of Institutes of the Arts (ELIA) from 2000 to 2004 and was responsible for founding two contemporary art galleries, Spacex (1978) and Eastside Projects (2008).

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András Cséfalvay is an artist, musician, writer and associate professor at the Academy of Fine Arts and Design in Bratislava. He creates short films and installations in which the ordinary, the historical and the notion of common sense are altered in order to obtain a sense of distance and a new perspective on what knowledge is, how language works and what remains hidden or inaccessible. He strives to create an alternative history representing all kinds of minorities – animal, cultural, human, things and silence. He believes art has a role in giving a voice to those who seem to have lost it, have no voice, or are silenced by a dominant interpretation of the world.

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Eszter Lázár is Budapest-based curator and associate professor. She holds a PhD in cultural studies. In addition to teaching in the Department of Art Theory & Curatorial Studies at the Hungarian University of Fine Arts, she curates exhibitions and collaborates on projects (e.g. *The Blue Room* with Tehnica Schweiz, 2019; *Waiting Room – Women Healers and Patients at the Periphery of Medicine,* 2021 with Edina Nagy, Eszter Őze and Flóra Gadó). She was a researcher of the international *RomArchive* project. She joined the curatorial team of the *OFF-Biennale Budapest* in 2019, and with the collective, she took part in documenta fifteen in 2022. She has been a senior researcher in EU4ART_*differences*.

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Vytautas Michelkevičius

Vytautas Michelkevičius is a curator, writer and researcher. He served as artistic director of Nida Art Colony (2010–2019). Since 2019, he has been the head of the Photography, Animation and Media Art Department and Doctoral Programme in the Arts at Vilnius Academy of Arts. Among his recent books are *Mapping Artistic Research: Towards Diagrammatic Knowledge* (2018, ENG), *Atlas of Diagrammatic Imagination* (together with Lina Michelkevičė, 2019). His curatorial projects include the Lithuanian Pavilion at the Venice Biennale (Dainius Liškevičius's project titled *Museum*), Ars Electronica Vilnius Garden 2020, and the Campus exhibition at Ars Electronica, Linz, 2022.

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Edina Nagy is a freelance art critic and independent curator based in Budapest. She currently works as a senior lecturer at the Department of Æsthetics at Eötvös Loránd University Budapest, where she completed her PhD in 2016. She is a guest lecturer at the Department of Art Theory at the Hungarian University of Fine Arts. She has curated various exhibitions. She collaborated with Eszter Lázár in two projects for the OFF Biennale 1–2 Budapest, the exhibition *Zeitgeistlos* (curated by, Vienna, 2018) and *Waiting Room – Women Healers and Patients at the Periphery of Medicine* project, 2021 (together with Flóra Gadó and Eszter Őze).

Carsten Nicolai

Carsten Nicolai is a sound and visual artist whose work unfolds in the transitional area between music, art and science. Throughout his career, he has been represented in prestigious art exhibitions and institutions, such as documenta x and the 49th and 50th Venice Biennales. Under the pseudonym Alva Noto, he has performed at the Guggenheim Museum in New York, the Centre Pompidou in Paris and the Tate Modern in London. As a sound artist, he focuses on electronic music and is one of the co-founders of the label 'raster-noton. archiv für ton und nichtton'. In 2015, Nicolai scored Alejandro González Iñárritu's film *The Revenant*, which was nominated for a Golden Globe, BAFTA, Grammy and Critics Choice Award. He is a professor at the Dresden Academy of Fine Arts, specialising in digital and time-based media.

Bence György Pálinkás

Bence György Pálinkás works in collaborative art projects, holds experimental classes in public education, and makes postdramatic theatre. He studied at the Doctoral School of the Hungarian University of Fine Arts, was a guest researcher at the Slade School of Fine Art, UCL, and a recipient of the Peter und Irene Ludwig Stiftung's research grant. His works were shown recently at Wiener Festwochen, Austria (*Singing Youth*), Kunsthalle Bratislava, Slovakia (*Wild Garden Utopia*), Konträr, Stockholm, Sweden (*Hungarian Acacia*).

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Alfredo Pirri lives in Rome, where he teaches painting at the Accademia di Belle Arti di Roma. His artistic practice evolves between painting, sculpture and installations, realising environmental works that create archetypal and habitable places with public function. His works have been exhibited in prestigious venues around the world: Venice Biennale, PS1 in New York, Havana Biennial of Contemporary Art, Walter Gropius Bau in Berlin.

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Grit Ruhland's artistic work is specialised in mining and the nuclear industry. She received her degree in Fine Arts at HfBK Dresden. Her PhD – which she finished at the Bauhaus University Weimar – focused on the impacts of Uranium mining on the landscape of East Germany. She has been teaching at various universities. Currently, she has a lectureship at the University of Dresden, chair for architectural delineation.

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Tünde Varga is an Associate Professor at the Department of Art Theory and Curatorial Studies, The Hungarian University of Fine Art, Budapest. She holds a PhD in Comparative Literature. Her field of research is visual culture, cultural studies, art theory and contemporary documentary. Her recent book is on contemporary art practices, *Crossing Borders: The Cultural and Social Context of Contemporary Art* (2019).

Santiago Reyes Villaveces

Santiago Reyes Villaveces is an artist whose work explores knowledge systems for controlling and colonising nature. His diverse artistic formats, including drawings, installations, moving images and sculptures, serve as tools to engage with contemporary systems of power and their materiality. Recently, his projects have focused on the colonisation of space, examining the limits of extractivism and the survival of life forms on Earth and beyond. Santiago has presented solo exhibitions worldwide and received prestigious awards, including the Matteo Olivero Prize. *Arabidopsis Thaliana* at the Museum of Modern Art in Bogotá (in collaboration with Ilona Jurkonytė), curated by Eugenio Viola, is among his highlighted works. He holds an MA in Sculpture from the Royal College of Art and a BA in Visual Arts and Art History and Theory from Los Andes, Bogotá.

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foreword

ÁDÁM ALBERT, ESZTER LÁZÁR, DÁNIEL MÁTÉ, EDINA NAGY

Approximating Borders: Artistic Research in Practice

FOREWORD

EU4ART_*differences* – in the framework of which this publication was produced – is a project based on the European Universities[1] initiative, organised by the European Union to explore the conceptual and institutional framework of artistic research, along with its functioning and operational mechanisms. The objective of the EU4ART Alliance – led by the Hungarian University of Fine Arts, with the participation of the Hochschule für Bildende Künste Dresden, Accademia di Belle Arti di Roma and Latvijas Mākslas Akadēmija Riga – is to harmonise graduate training programs.

The EU4ART_*differences*[2] project, launched in January 2020, explores the questions and directions of artistic research conducted in these institutions, as well as the concrete forms in which these manifest, i.e. the possibilities and operations of third-cycle (doctoral) programs. These art universities located in four different areas of the European Union are representative of the region's geopolitics, scientific policies, characteristic approaches and status quos.

This book integrates and offers a differentiated presentation of the discourse that has emerged – the knowledge and experience that has been gained – through the research, conferences and encounters that took place during the three-year period (2020–2023) of the EU4ART_*differences* project. The publication meets these objectives by building on the case studies that serve as its backbone: by analysing their chosen artwork and artists – who have consistently applied artistic research in their art practice and convey this through their work in higher art education – offer insight into their methodology.

With the simultaneous presence of both art theory and art practice, the diverse backgrounds of the editorial board members have allowed for a balanced consideration of theoretical and practical perspectives in compiling this volume.[3]

The primary target audience of this publication consists of graduate-level art students and doctoral students of third-cycle art programs.[4] The way the book is structured, with its focus on case studies and on rendering visible the diverse nature of artistic research, emphasises that there is no such thing as "the" method or methodology. Artistic research comprises a diverse multiplicity of possibilities and approaches; the creative adaptation of these is as important as their competent and critical application.

The types of text featured in the book can be classified according to three broad categories. The central group of texts consists of the so-called *artist contributions*: partly based on questions compiled by the editorial board and by taking into consideration the suggestions of partner institutions, invited artists from the European region[5] describe their research process and the different phases of creating their artworks.[6] In each case, an indirect approach is employed, as the given research and creative processes concern already existing works of art.

The second text category, defined as *inserts*, signifies brief summaries, mostly written by art theorists. In these texts, the authors describe the need to adapt to the institutional infrastructure of research and the impact of the directives and guidelines employed in higher education – in some cases from a historical perspective – thus strengthening the link between artistic research and education. The third group of texts, consisting of *interviews*, signifies an area of common intersection between the two previously mentioned text types. Moving away from the self-reflective nature of case studies, texts in the "interview" category explore the interconnections between research and the process of creative practice from more of an external vantage point.

1 https://education.ec.europa.eu/education-levels/higher-education/european-universities-initiative

2 https://differences.EU4ART.eu/

3 The team of editors include art historian and curator Eszter Lázár, æsthete and curator Edina Nagy, graphic designer, visual artist and doctoral student Dániel Máté, and visual artist and historian Ádám Albert.

4 ISCED (International Standard Classification of Education), 6–8. https://uis.unesco.org/sites/default/files/documents/international-standard-classification-of-education-isced-2011-en.pdf.

5 With the exception of one artist from outside the region.

6 See the collaboration of Ilona Jurkonytė and Santiago Reyes, as well as their interview featured in this volume.

THE TEXTUAL POSSIBILITIES OF ARTISTIC RESEARCH

Instead of emphasising the similarities and differences between scientific and artistic research, it is the methodological overlaps between them that mark the latter's boundaries on the map of artistic research. The relationship between creative artistic work and artistic research, and how these can be taught at different levels of education, along with the neoliberal institutional environment and the growing system of academic capitalism, together define – and also complicate – the different practices of research.

As a result, texts written about artistic research differ significantly from texts previously written by artists about their own art practice, in that the former partially enter the domain of science and academia, and, thus, the related historical, institutional and political framework. Texts written by artistic researchers are also influenced by epistemological and structural questions concerning its foundations. Does art practice produce knowledge, and if so, what type of knowledge? What is the position of artistic research in the broader field of science and research, and what is the nature of the institutional framework within which it is created?

This institutional framework – universities, research institutes, residency spaces – within which artistic research is conducted has a significant impact on both the practice of research, as well as the form and style of the text-based dissemination that accompanies it. As per the research guideline document issued by the OECD, known as the *Frascati Manual*,[7] artistic expression is not viewed or accepted as a means of knowledge production.[8] In their interview with John Butler, Manuel Ángel Macía and Dániel Máté discuss in depth the broader institutional context of artistic research. Various institutions and supervisory bodies[9] expect a wide range of criteria to be met regarding research methodology, writing style, and the relationship between text and practice. In his insert presented in this volume, Vytautas Michelkevičius illustrates the diverse modes of dissemination that can be implemented in doctoral education through the unusual metaphor of the development of telecommunication technologies. From this vantage point, the form of textual dissemination can range from stand-alone texts of academic standard to accompanying texts written by artists or to the complete absence of text as such.[10]

7 OECD, *Frascati Manual 2015: Guidelines for Collecting and Reporting Data on Research and Experimental Development,* The Measurement of Scientific, Technological and Innovation Activities (OECD, 2015), https://doi.org/10.1787/9789264239012-en

8 However, it is important to mention the initiatives taken to change this situation by the institutional actors of artistic research. Examples include the *Vienna Declaration* or the *Proposed Changes to the Frascati Manual* document.
Vienna Declaration, 2020, http://www.eq-arts.org/wp-content/uploads/2020/07/Annex-18-Vienna-Declaration.pdf.
Proposed Changes to the Frascati Manual 2022, https://cdn.ymaws.com/elia-artschools.org/resource/resmgr/Cover_Letter_to_OECD_NESTI.pdf.
For more on this, refer to the interview with John Butler.

9 National education regulatory institutions, ministries of education.

10 For more on the institutional framework that underpins them, see Vytautas Michelkevičius's study.

11 Michael Polányi, "Tacit knowing," In *The Tacit Dimension* (Chicago: The University of Chicago Press, 2009).

12 The texts by Manuel Ángel Macía, Ilona Jurkonytė and Santiago Reyes Villaveces discuss knowledge production and scientific hierarchy in the context of the Cold War.

13 Based on Henk Borgdorff's concept. Henk Borgdorff, "The Production of Knowledge in Artistic Research," In *The Conflict of the Faculties: Perspectives on Artistic Research and Academia* (Leiden: Leiden University Press, 2012).

This example leads back to the question of knowledge as produced by artistic research. It can be argued that the knowledge generated during the practices of artistic research and creating art is different from the knowledge produced in other (scientific/academic) fields, as the former arises from the practice itself. This kind of knowledge, which Polányi calls "tacit knowledge,"[11] is based not on language or concept but on the lived experience. This idea sets the stage for a practice of artistic research that cannot be translated into written or spoken language; the arising knowledge can only be understood through practical experience.

Because of its "intangibility," such knowledge is difficult to disseminate in a way that meets scientific/academic standards. This leads to the formation of a hierarchy between disciplines and places pressure on artistic researchers to conform to academic standards in using the language and methodology of the natural and social sciences to describe their research. This, in turn, results in an unsustainable situation where artistic research is forced to use a language and methodology that is unsuitable for its own field, thus reproducing and affirming the existing hierarchy between disciplines.[12]

Artistic research differs from other art-related research primarily in that, rather than studying the practice, theory, history or institutional system of art, it uses artistic practice as its method of research.[13] Accordingly, art practice can simultaneously constitute the subject, means and medium of research.

Santiago Reys Villaveces and Ilona Jurkonytė, in their work entitled *Arabidopsis Thaliana*, discussed in this volume, use their interdisciplinary art practice to illuminate the unique Cold War logic of knowledge-production through themes from history and the natural sciences. The existing neoliberal system of knowledge-production measures research primarily in terms of its short-term utility. In the resulting hierarchy of disciplines, research in the humanities – and especially artistic research – is relegated to the bottom rung of the ladder. Despite the expectations and rules originating from the world of science, academia and art, artistic research – owing to its interdisciplinary approach and the wide range of employed methodologies – can offer a great diversity of text forms and styles, which this volume intends to support.

At one end of the spectrum, we find linearly constructed and conventionally structured texts. These formats are particularly well-suited for presenting the kind of research that employs the methodology and findings of the humanities and social sciences in its practice. When German artist Grit Ruhland talks about her art practice as related to the nuclear industrial complex (*Folgelandschaft*, 2002–), it is essential that she also outlines the broader scientific and socio-historical framework within which it becomes interpretable.

On the other hand, for presenting practices that utilise fiction as a tool for creating art and conducting research, for instance, a more lyrical, less scientifically/academically driven literary style is more appropriate. In his work, András Cséfalvay explores questions relating to the philosophy of science through the inclusion of myth as a means of conveying knowledge.[14] To describe his practice and the scientific background underpinning it, he uses poetic language to outline a fictional journey across historical times and space, as well as literary and scientific references. Another example is Anca Benera and Arnold Estefan's case study (*Portrait of a Sand Grain: Orbiting Between Satellite and Microscope*), in which the communication of facts[15] is coupled with poetic details. While gaining important "information" through this approach, the receiver finds him/herself gaining distance from the everyday mechanisms of reductive, single-viewpoint perception.

Music has the same effect, while also facilitating the (often emotional) involvement of the audience. *Singing Youth* by Bence Pálinkás, Böröcz Judit and Máté Szigeti even goes beyond that. Members of the older generation easily recall the songs of – or at least melodic fragments from – the communist political movement,[16] while young people are attracted to this unique musical world, which has always been the point. This time, the artists utilise the musical and visual tools of classic political propaganda to convey their narrative, which sheds light on certain periods of twentieth-century Hungarian history while juxtaposing them with current Hungarian political events.

Whether it comes to the artistic research-related application of literature, music, architecture (Alfredo Pirri) or modern technologies (which render the experience of the receiver more lived and body-centred, as in the work of Rasa Smite and Raitis Smith), the artistic intention – rather than objective – is to allow the viewers to draw their conclusions about what they see. Instead of formulating a clear, unequivocal stance of artist and receiver, alternative paths can thus emerge. This allows for a more conscious and critical approach to the seemingly unshakable certainty of "scientific findings," which are now almost universally available. This almost indescribable diversity, which is also clearly visible in the case studies, gives artistic research its transgressive character, crossing disciplinary boundaries with ease in both practice and textual representation.

14 One of the important and much-referenced works of the 2022 Berlin Biennale, Tuấn Andrew Nguyễn's video work entitled *My Ailing Beliefs Can Cure Your Wretched Desires*, also placed mythology at the starting point of its narrative. In the film, the threads of the mythological story were mixed with real-life elements. Its narrators (similarly to Cséfalvay's) were once existing mythical animals, now on the verge of extinction.

15 It is a fact, for example, that during the Cold War, the major powers concerned tested the latest experimental nuclear weapons mainly in the sand deserts (including Nevada, the Algerian desert, and the north-eastern region of Kazakhstan). A recent example: in 2014, China began creating artificial islands in the South China Sea using coral sand. The area where the islands were located had previously not been regarded as "territory" under international law. By creating these islands, China is strengthening its territorial claims in the area.

16 The artists selected musical propaganda material mainly from the second half of twentieth-century Hungarian history, the Rákosi and Kádár eras.

17 A relatively recent example: the exhibition entitled *Yoyi! Care, Repair, Heal,* held last autumn at the Gropius Bau (https://www.berlinerfestspiele.de/en/gropius-bau/programm/2022/ausstellungen/yoyi-care-repair-heal), was accompanied by a glossary that was also accessible online. Unfortunately, it is no longer available for viewing.

TEXTS IN THE EXHIBITION SPACE AND THE EXHIBITED TEXT

To learn about the social or natural scientific concepts embedded in the language of art and to understand the theoretical background of artistic research, we have a scientific knowledge base at our disposal that is rhizomatically expanding but selective (as per the given context).[17]

The set of applied concepts can also sometimes serve as a legitimising tool for establishing the "authenticity" and facilitating the acceptance and international success of art projects. In the case of artistic research, however, it is not just a matter of using scholarly/scientific concepts; instead, the emphasis is more on the how. The creative "body of text" presented in artistic research, the text that is closely linked to the artwork (and may even be showcased as an exhibition unit), and the written sources used for artistic research work are not identical.

When it comes to research-based contemporary works of art, the issue of exhibitability constitutes an important and inescapable problem. How and in what form can the research-based work and its process be presented? How, for instance, can the applied methodology be conveyed, which in some cases is as much a part of the artwork – the "final product" – as the act of creating art itself?

Fundamental doubts may arise as to whether and how artistic research can be exhibited and how it should be displayed. Is there an "adequate" way of presenting artistic research? What conclusions can be drawn when taking into account æsthetic and epistemological considerations? Does the inclusion of æsthetics – the sensuous nature of art – "harm" or "help"

learning and understanding? The professional art community and the public are equally critical of the overuse of texts and referentiality in the exhibition space.[18] This is especially so in cases where information floods the walls at the expense of sensuality.

The transformation of the exhibition space into a laboratory or research room is not a novel phenomenon. The exhibition space is overrun with ever newer codes and concepts to be deciphered, leaving less and less space for art – complain those who do not consider data visualisation approaches and/or archival material (as possible tools and presentational forms of artistic research) a permanent part of the artwork. Nevertheless, is it possible to go beyond mere illustrative representation and the sobering, yet visually less exciting, world of photo-documentation, infographics and statistics, without the attention of exhibition goers being "appropriated" by the sensory dimension?

At the same time, the question also arises as to whether contemporary art – which is often treated with reservations and received with mistrust by the public, to begin with – will not distance and alienate itself even more from its receivers by borrowing (in a modified form, of course) the methodology and by examining/incorporating the results of another equally foreign sphere: science (be it economics, medicine or the natural sciences).

The problem is not a new one, of course: the classical forms of presenting conceptual art in the seventies (text documents, utilisation of archival material, widespread use of black and white photographs, inclusion of statistics and diagrams) show many similarities with the visual representation of contemporary artistic research. In many cases, conceptual artists also incorporated findings from other fields (e.g. linguistics, economics, and later psychology, etc.) into their work. They did so, however, mostly to uncover the facts and make them visible.[19] At the same time, however, conceptual art – and especially its currents engaging in institutional critique – unlike artworks based on artistic research, is not necessarily interdisciplinary in nature. These works of art apply the findings of other fields to the art world, with the aim of examining its operating mechanisms, its socio-political context and its socio-economic background.

18 Claire Bishop, "Information Overload: On the Superabundance of Research-based Art," in *Artforum* (April 2023).
In her text, Bishop also points out that, in today's digital world, where all information is available, "[a]rtists no longer undertake their research but download, assemble, and recontextualise existing materials in a desultory updating of appropriation and the readymade."

19 A textbook example of this is Hans Haacke's work titled *Shapolsky et al. Manhattan Real Estate Holdings, a Real-Time Social system, as of May 1, 1971.*

20 To read more on the geopolitical dimensions of knowledge transfer, refer to the conversation between artist duo Ilona Jurkonytė-Santiago Reyes Villaveces and Manuel Ángel Macía.

21 The group describes its practice along the lines of concepts such as generosity, humour, trust, curiosity, regeneration, transparency, contentment and connectivity. Storytelling is one of the pillars of their methodology, adapted to exhibition practice. Since the different set of concepts denotes different social and artistic practices, the question of conveying – and the conveyability – of culture and experience is inescapable. How can these concepts, which define specific artistic and research practices, be adapted to the exhibition spaces of the Global North, and perhaps even the curricula of their art doctoral programs? What happens when cultural translation is met with difficulties or is, in fact, not possible? Is storytelling a scientific method, or can it be viewed as an artistic practice?

22 Although Donna Haraway got her doctorate degree in biology in 1972, she practised her profession in a field other than the natural sciences. Donna Haraway, "Situated Knowledges: The Science Question in Feminism and the Privilege of Partial Perspective," *Feminist Studies,* Vol. 14, No. 3, (Autumn, 1988): 575–99.

23 Oral Storytelling as Artistic Research, https://www.oslomet.no/en/study/tkd/oral-storytelling-artistic-research, Oslo Metropolitan University.

24 For further references, see Tünde Varga's essay in this volume.

Interdisciplinarity, however, is a fundamental starting point of artistic research. Rather than presenting new, convincing and acceptable results through research conducted "for their own purposes," artists seek to generate the kind of reception that is critical of these results. What we have, therefore, is the researching and applying of a critical perspective to research itself.

DEFINITIONS OF SCIENCE AND KNOWLEDGE

One of the most discussed areas of artistic research is how to position artistic knowledge in the scientific field. This can be traced back to the origins of the scientific approach of the Enlightenment, where definitions of science, knowledge and the "traditional" institutions of knowledge production formed the epistemic field in which these positions reinforced one another, rarely questioning the legitimacy of this relationship. The definitions assigned to concepts were assumed to be permanent and unquestionable, even though they are constantly being rewritten and overwritten, just as our views of science and knowledge are not ahistorical either.[20] The contemporary art milieu of the Global North turns a suspicious eye on concepts – and the associated social and artistic practices – that are incompatible with the known (or presumed to be known) scientific language. One well-known example is the work of the Indonesian collective ruangrupa, appointed as curator of documenta fifteen in 2022.[21]

Donna Haraway, one of the key representatives of feminist postmodernism, in her 1988 essay entitled *Situated Knowledges: The Science Question in Feminism and the Privilege of Partial Perspective* (which has been translated into several languages), speaks of feminist objectivity in place of universal objectivity. She defines feminist objectivity as "situated knowledge," of which science, science fiction and science fantasy are relevant manifestations.[22] Why not, for instance, consider storytelling as a scientific method[23] and sci-fi as a situated form of knowledge and an adequate verbal genre of artistic research?

According to Haraway, all knowledge – like all forms of "truth" – is a function of a particular perspective: it is posited by a given group of people in a given context and in given historical, social, cultural and individual circumstances.[24]

It is the positioning of all these that determines what we think about the object of knowledge and the way in which knowledge is acquired. Situated knowledge, in contrast to normative scientific understanding, recognises a more flexible set of knowledges and knowledge productions that can be adapted and adjusted to a given situation. If we position artistic research within this epistemological field and accept the variability of the tools and methods needed to produce knowledge, then, following the selection of the applied systems, the commitment and consistent adherence to those systems must also be acknowledged, as well as the responsibility for the object and subject of the research. The "objectivity metric" of situations that can be localised in space and time is, in fact, the author, agent, creator, who is responsible and can be held accountable.[25]

Although artistic research as such is not discussed by Haraway, in addition to the question of objectivity, she makes another important point that applies to our topic, namely that knowledge is connectible not to individuals, but to the knowledge of communities in relation to each other. The subject of the (artist) researcher (artist) is the knowledges of communities in relation to – and in exchange with – one another.[26] Knowledge does not signify an objective, factual and quantifiable body of knowledge in this case either, but rather an abstract – in some cases even spiritual or esoteric – form of knowledge, which can be brought into parallel with the aforementioned concept of tacit knowledge. The issue of knowledge systems and their accessibility also affects the attainment of research methodologies. In the case of spiritual knowledge, for instance, the question may arise as to what knowledge is transferred and how that transfer can take place.[27]

In the case of artist collectives, the composition of the groups – as well as the form, method and tools of coordinated research – may vary. What collective research has in common, however, is that, in addition to helping harmonise different perspectives, knowledges and experiences, it also offers methods for learning from one another.[28] It is not easy to understand why institutions of art education cannot adapt to the collaboration-based trend of contemporary art, and why they only recognise and value the positions of authorship

25 Haraway, 590.

26 Haraway's statements can be brought into connection with those of poststructuralist thinkers (e.g. Roland Barthes and Michel Foucault) from the second half of the 1960s on the question of authorship, whereby, in contrast to the achievements of individual authorship, they emphasise the importance of the cumulative collective knowledge which underlies it, and makes it possible in the first place. See: Roland Barthes, *The Death of the Author* (1967), Michel Foucault, "What is an Author" (1969).

27 In his doctoral dissertation, "The Philosophy of Art in Ewe Vodu Religion", Sela Adjei researched the beliefs of the Ewe Vodu tribe of West Africa with an auto-ethnographic methodology and within the context of his artistic activity. What is especially interesting about his artistic research is that he employs the African perspective in his approach with respect to his subject matter, methodology and outcome. His research aimed to integrate African art, philosophy and indigenous (ancient) knowledge systems into contemporary art practices. See https://wiredspace.wits.ac.za/server/api/core/bitstreams/4e245b29-fb15-44c1-ae51-09c0372a0987/content.

28 Haraway, ibid.

29 The collectives featured in this volume earned —or are pursuing— their doctorate degree following individual studies.

30 Florian Cramer, Nienke Terpsma, "What Is Wrong with the Vienna Declaration on Artistic Research?", *Open! Academy* (January 21, 2021). https://onlineopen.org/what-is-wrong-with-the-vienna-declaration-on-artistic-research. There are independent art spaces focusing on artistic research, such as Hangar – Artistic Research Center in Lisbon or the Art Laboratory in Berlin.

31 Ibid.

32 https://www.ehea.info/cid102847/third-cycle-doctoral-education-2009.html

33 Jan Verwoert, "Lessons in Modesty: the Open Academy as a Model," *Metropolis M,* 4, (2006): 94–96.

34 This trend is similarly present in the humanities, i.e., where labour market opportunities are almost minimal.

35 In connection to the "scientification" of art, Butt warns of the imminent danger of the "gentrification" of artistic research, artistic methods and artistic imagination. Danny Butt, "The End of the Artistic Research," *RUPC* #7 / *Surpllus* #13.7, (2020). https://arts.unimelb.edu.au/__data/assets/pdf_file/0009/3574098/RUPC7-How-artistic-research-ends.pdf.

that can be attributed to individual artistic work. Why, for instance, can a group, duo or collective of artists not apply for a doctoral program?[29] A similar difficulty is encountered with respect to the "accreditation" of artistic research in so-called "artist-run" practices that take place outside formal institutions because they fall outside the academic-educational institutional framework.[30]

The history of art research can also be traced back not only to the history of the intellectualisation of art and of institutional art education (see Benedek Purkarthofer's and Costanza Barbieri's contributions), but to the process of specialisation in the humanities as well – as could be seen in the increasing proliferation of universities in Germany and Anglo-Saxon areas in the 19th century.[31] The term "artistic research" became widespread in the second half of the 1990s due to the Bologna Process.[32] Today, art universities are no longer regarded only as institutes of education, but as places for viewing/experiencing and collecting art, conducting research, and disseminating knowledge.[33] At the same time, we cannot ignore the market approach emerging in higher education since the 1980s and has been clearly palpable in art education in recent decades. Whether we adapt to the market's demands or reject them, it is important to be aware that those indispensable sources of funding and support also expect art and artistic research to provide accurate indicators.

The popularity of doctorates in art is not necessarily owed to a successful vision of the future fostered in art education. To artists, the doctorate route signifies a possible (short-term) alternative to having to function in an increasingly exacerbating job market and the precarious conditions of life as an artist. Pursuing a doctorate degree is an important career-related factor to freshly graduated young artists not only because of the benefits that come with extending their student status and availing themselves of scholarship opportunities, but also because it entails studio access and connectedness to an active art community or even exhibition opportunities and a chance to participate in international projects.[34] In addition to the above, there is another important critical potential inherent in artistic research that should not be forgotten: a familiarity with and reflection on the institutional framework of research.[35]

Finally, it is also important to reflect on our position. What are the implications of the Euro-Atlantic institutional and referential embeddedness of artistic research? Can we even speak in terms of the geopolitics of knowledge-production? On the one hand, if we look at this process from "inside" Europe, significant differences become apparent even within the Euro-Atlantic zone (regarding funding, doctoral programs, the standardisation of artistic research, and so on). This merits, for instance, an examination of the institutional background of artistic research from an Eastern European perspective, as well as the peripheral or semi-peripheral position of the region in the international network of art research (on this topic, see Vytautas Michelkevičius's essay). On the other hand, if we closely examine our position as part of Europe, it is also worth extending our focus to perspectives from outside the known framework, to non-Western modes of knowledge production. This can be related to specific research topics or the methods of research and knowledge-production as such or even to initiatives outside the academic framework, including, for instance, the means of passing on spiritual knowledge, or the practical application of such concepts as care, generosity or trust adapted to artistic practice.

Purkarthofer

insert ∫ no. 1

BENEDEK PURKARTHOFER

Art and Science in Johann Valentin Andreæ's *Christianopolis*

The European Renaissance, as is widely known, set new standards for being a human being. In fact, it was during this period that the notion of a well-rounded individual, fully versed in all human sciences and arts, first emerged. Despite being firmly rooted in courtly culture and humanistic erudition, this lofty ideal soon spread to other spheres of life, including that of universities. Now, academic circles at the time were not necessarily known for their willingness to embrace innovation, but, defying expectations, they were relatively quick to adapt to the challenges of a changing intellectual climate. New ideas about man translated into a reform in curricula. At Tübingen, for example, "for the first time in the history of universities, a university (established in 1477) had been conceived of as a collection of universal knowledge, rather than as a collection of masters and students, in the way common previously. Although such a concept of a university was new, it was not outside the university tradition…"[1] All-encompassing knowledge came to be associated with a wholesome personality. However, there was still a long way to go before universities caught up with the advancement of learning outside their walls.

Johann Valentin Andreæ (1586–1654), a Lutheran theologian who studied at Tübingen, was acutely aware of the need for reform. According to one of his many admirers, the pioneering Bohemian educationalist Jan Amos Comenius, Andreæ "was outstanding in that 'in his golden writings he had laid bare the diseases not only of the Church and the state, but also of the schools, and had pointed out the remedies.'"[2] He believed that the betterment of man's lot could only be achieved through comprehensive reform, religious, political, as well as scientific, and he did everything in his power as priest and schoolmaster to bring about improvement.

Andreæ was a man of many interests and had an encyclopædic cast of mind. He studied mathematics, spoke at least eight languages, was a gifted engraver, and read and travelled extensively. While still at Tübingen, "he broadened himself through visits to a horologer, a goldsmith, and a carpenter, and through learning to play the lute and the zither."[3] He had a penchant for alchemy, too. His appreciation for music was matched, if not exceeded, by a love of art, and his private collection, destroyed by the ravages of the Thirty Years' War, boasted works by Dürer, Cranach and Holbein. The ongoing hostilities saw him engaged in humanitarian aid efforts: "Andreæ estimated that between 1626 and 1631, he and his helpers fed over 1,000,000 starving people."[4]

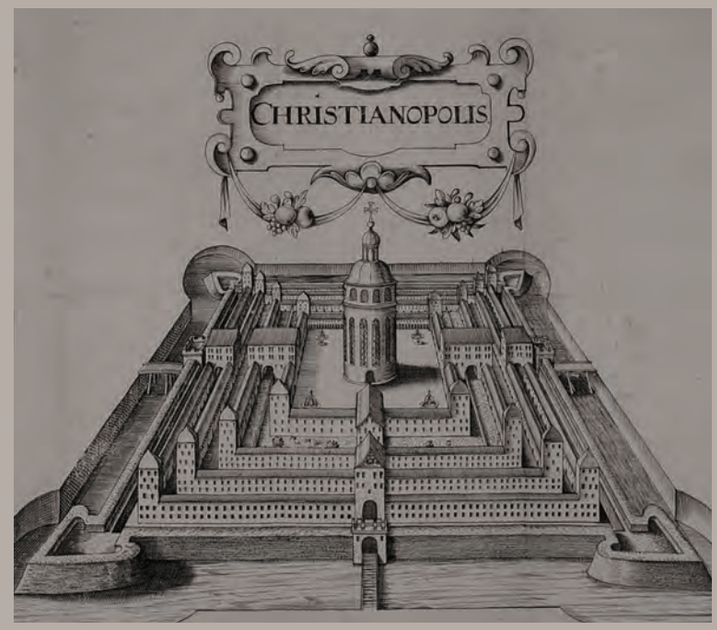
However, "[n]othing," writes Felix Emil Held, "lay so near to his heart or occupied so much of his time and energy as education. [Francis] Bacon, in England, bent his energies on scientific research; Comenius strove to improve the school system.

1 Walter J. Ong, *Ramus, Method, and the Decay of Dialogue* (Cambridge, Mass.: Harvard University Press, 1958), 164.

2 Cited in Edward H. Thompson's postscript to Johann Valentin Andreæ (tr. and intr. Edward H. Thompson): *Christianopolis* (Dordrecht: Springer Science+Business Media, 1999), 291–92.

3 John W. Montgomery, *Cross and Crucible. Johann Valentin Andreæ (1586–1654): Phoenix of the Theologians,* Vol. 1. (The Hague: Martinus Nijhoff, 1973), 40.

4 Hugh Powell, "Johann Valentin Andreæ: A Practising Idealist of the Seventeenth Century," *German Life and Letters.* Vol. 41, No. 4 (1988): 367.



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Plan of the city Christianopolis Plate 2
from Johann Valentin Andreæ's
Reipublicæ Christianopolitanæ descriptio
1619

Andreæ had elaborate and perfected plans for *all* phases of instruction, from the primary grades to the highest, for the individual and for the state, including development spiritual, intellectual, moral, and physical."[5]

These ideas found their clearest expression in Andreæ's *Christianopolis*, a description of a utopian republic, written in letter form and published, in 1619, at Strasbourg. While the work is certainly in line with the utopian tradition of Plato, Thomas More and Tommaso Campanella, whose *Civitas Solis* Andreæ intimately knew, its relationship to Bacon's *New Atlantis* is, as far as influences are concerned, harder to pinpoint. The fact remains, however, that both Bacon and Andreæ envisaged an ideal society where the study of nature takes centre stage. Experiments and instruction are conducted in state-of-the-art facilities specifically designed for these purposes, under the supervision of trained specialists. In Christianopolis, the college, "the *primum mobile* of the community,"[6] also doubles as the seat of the leaders of Religion, Justice, and Learning, which goes to show just how important science is for Christianopolitans.

Additionally, a "most extensive library,"[7] both an anatomical and a chemical laboratory ("fully equipped with the most ingenious ovens and devices for combining and separating substances"),[8] museums for natural history and astronomy, and lecture halls are housed within the college. There is even "a very roomy studio for the visual arts, which are," as the narrator tells us, "very greatly appreciated in this community."[9] The sciences and the arts are, then, not an exclusive privilege of the few, but the fabric of everyday life. Butchers and blacksmiths seem to take the same deep-seated interest in the investigation of nature as gardeners[10] or natural philosophers.

"Andreæ's curriculum extends beyond that of even an exalted technical college, however, to include subjects which would give most modern scientists pause, such as Theosophy, Mystic Numbers, Astrology and the Heaven of the Christians, Christian Poverty and Prophecies…"[11] This is because Christianopolis is, unsurprisingly, a Christian, or, rather, a Lutheran community, and a pious one at that. Its citizens, having realised that only "Christians have knowledge, and this comes from God,"[12] greatly value science, but not above religion. Consequently, they prefer ignorance over ungodly curiosity or bookish pedantry.[13]

5 Felix E. Held, *Johann Valentin Andreæ's Christianopolis: An Ideal State of the Seventeenth Century* (New York: Oxford University Press, 1916), 10, note 2.

6 Johann Valentin Andreæ (tr. and intr. Edward H. Thompson), *Christianopolis* (Dordrecht: Springer Science+Business Media, 1999), 186.

7 Ibid, 203.

8 Ibid, 209.

9 Ibid, 214.

10 Cf. Ibid, 166, 168 and 273.

11 Thompson's introduction, Ibid, 127.

12 Ibid, 200.

13 Ibid, 204.

14 Ibid, 214.

15 Ibid, 217.

16 Susanna Berger, *The Art of Philosophy: Visual Thinking in Europe from the Late Renaissance to the Early Enlightenment* (Princeton – Oxford: Princeton University Press, 2017), 3.

17 Wolfgang Braungart, *Die Kunst der Utopie: Vom Späthumanismus zur frühen Aufklärung* (Stuttgart: J. B. Metzlersche Verlagsbuchhandlung, 1989), 62.

18 Ibid, 73.

19 Held, *Andreæ's Christianopolis*, 36.

20 Cf. *Andreæ, Christianopolis*, 214–15.

→
Melchior Kusel:
Johann Valentin Andreae
mit Wappen, 1600–1699,
Landesarchiv Baden-Württemberg

Still, the scientific outlook of this Christian society represents the vanguard of seventeenth-century European thought. Take, for example, the way they apply images to didactic purposes. "For apart from the fact that the whole of Christianopolis is decorated with pictures relating to the movements of the earth, paintings are used as much as possible in the education of the young and as a teaching aid."[14] The walls of both museums, the temple, the council hall and the cemetery are all covered with paintings appropriate to the function of the buildings. Which is to say that Christianopolitans go about their industrious lives against a rich backdrop "of things made memorable"[15] through art.

As Susanna Berger points out, the early modern period marked "a particular moment in European history, when a method of transmitting knowledge aimed at optimising efficiency through the clear presentation of information began to flourish."[16] Like experimental science and anti-Scholasticism, this trend seems to have found its way to Capharsalama, the remote "island of peace" where Christianopolis is situated. The people of the city understand images to be essential tools, not only for learning but also for research. "Through art, nature is made accessible, and prepared for further study."[17]

Never before have the members of a utopian society pursued the secrets of nature in a more felicitous arrangement. In this respect, however, fiction followed in reality's footsteps. Andreæ did little more than mirror the practices of philosophers and artists of his day, who have been working side by side since at least the advent of the printing press when he decided to bring them under one roof. His real contribution was to devise an educational scheme where students, as it were, got the best of both worlds. Where sound humanistic learning would be combined with an artistic training of sorts.[18]

In Christianopolis, young boys and girls, "it is true, use pictures for illustration, but they *make their own* illustrative material, and learn by trial and experiment."[19] Now, this might be a slight exaggeration on Held's part, although the narrator does suggest that painting, that is, learning by doing, constitutes a fundamental part of children's education.[20] This, in fact, would also agree with what Berger has to say about the emphasis laid on visual modes of learning in the sixteenth and seventeenth centuries, a period when "the act

of generating particular concepts materially or mentally – and often with the assistance of visual aids – was valued as a way to analyse those concepts."[21]

Painting has the additional advantage of lending insight into the structure of things. "The divisions of the art of painting are said to be architecture, perspective, fortification, machinery, mechanics, all subjects linked by mathematics. The concentration on mathematics, in all its branches, is the most distinctive feature of the culture of the city."[22] It also left the greatest impression on the minds of some of *Christianopolis*' contemporary readers, such as John Dury and Samuel Hartlib, who played a significant role in the foundation of the Royal Society of London. However, the early ideologists of the Society have as good as ignored Andreæ's holism, making natural science its sole area of operation, a fact that soon attracted the criticism of Comenius.[23]

Andreæ's idea of education encompasses a wide range of human skills and activities, and it aims to produce well-rounded individuals capable of understanding and manipulating the world in multiple ways. There is, of course, a clear distinction between the various professions in Christianopolis, but also a firm belief that each line of work, be it manual or intellectual, requires a complete man or woman.[24] And if Andreæ does not discuss, as one modern commentator of his utopian society has pointed out, how "communication between the different disciplines devoted to investigating nature"[25] takes place, it is because his city is, like his college and like the human individual, a microcosm, a "little world" of harmoniously cooperating parts.

With *Christianopolis*, Andreæ laid out a blueprint not only for the "ideal Christian personality"[26] but also for a universal and artistic brand of science.

21 Berger, *Art of Philosophy,* 173.

22 Frances Yates, *The Rosicrucian Enlightenment* (London – New York: Routledge, 2002), 189–90. Yates' book provides a fascinating study of some of the more occult undercurrents in Andreæ's thought. Although these cannot be explored here, they represent a significant aspect of his attitude towards a "universal and general reformation of the whole wide world."

23 Held, *Andreæ's Christianopolis,* 117.

24 Braungart, *Kunst der Utopie,* 30.

25 Elisabeth Hansot, *Perfection and Progress: Two Modes of Utopian Thought* (Cambridge, Mass. – London: The MIT Press, 1974), 85.

26 Thompson's introduction to Andreæ's *Christianopolis,* 64.

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Cséfalvay

contribution ∫ no. 1

Mythopoesis

optimism at
the encroaching
edge of the chasm,
hope within a paradigm
where realism floats
beyond our ability
to grasp it

p. 38—39

ANDRÁS CSÉFALVAY

"I THINK HUMAN
CONSCIOUSNESS IS A TRAGIC
MISSTEP IN EVOLUTION.
WE BECAME TOO SELF-AWARE.
NATURE CREATED AN ASPECT OF
NATURE SEPARATE FROM ITSELF."

True Detective

←

Higgs boson portrait as creature

András Cséfalvay

THE RIFT AND A PROPOSITION FOR A CURE

There is a certain practice that can function as a reconciliation between disjoint factions of a divided world. A division that delineates not only groups of human mammals or persons but occurs in seemingly irreconcilable activities of the traditionally single consciousness, even within one body. There are parts of me that feel non-human – one may cry out. I seem to be aware of parts within me that resist access. And why shouldn't they? I can use a prodding stick, a scalpel, a protein instrument like the eye, the push-pull organs of a cell at the tip of the finger, or brains, neural networks... Tools that ascertain the data, tools that iron the data spikes and yet still only create a smooth model of the world. This is the duality that I find curious. The realness of the world against its accessible parts. The history of successes these models – built upon the shoulders of previous models – have provided, versus feeling the futility of knowledge remaining just a model. I am unable to measure the breath of that which is still unmeasured. I cannot even guess its scale. I feel comfortable when I am looking back, but my knees falter when I turn my head forwards, and envision what awaits me there. This feeling has a hold on me. With the help of some advanced Newtonian physics, we land a probe on a comet. The amazing precision of the model gives a sense of justification. But can I fall asleep when I hear this ringing in my ear? It sounds solid and lulls me almost. But what if the reality of science is exactly this ringing and I am Pavlov's dog[1]. The diagnosis is the rift between an optimism of knowledge that has full access to the world and the utter realism of a completely socially constructed net hanging over there, somewhere.

I believe there is a certain practice available that can salvage what can be saved from realism but also recognises myth-making devices as equally important tools. To enter the dialogue that mythopoetic worldmaking could be, I would first mention some of the heritage that the diagnosis can be linked to, and then I would like to enter the plane on which my stories are stretched upon. There is an œuvre I am working on; in my notes, I refer to it as *Fundamental Mythopoesis*: a multipart narrative about elementary forces and particles. The work uncovers the scaffoldings and myth-making devices of Western sciences[2] by interfacing with the network that makes worlds appear. There is no disruptive intention or a moment of "I told you so", no subversion. I "mythopoesise" with the entities I meet. After all, even if we made them, they are also within me. Non-human parts of me that I am too.

A WORLD REDUCIBLE TO ITS OPERATING PRINCIPLES?

The traditional division of human models and the world is, of course, a well-studied philosophical problem of nominalism and universalism. Deep historic strings of thought are attached to both arbitrarily compartmentalised systems of code[3], and to a somewhat mystical connection of signified and signifier[4]. The optimism of a world accessible to human investigation is often mentioned in the context of the Enlightenment or the Modern Human Project. The light of the Enlightenment can be seen as a ghost invoked to stand with us and guide us to a better future. Earlier, Galileo Galilei can already be heard speaking the universal language of nature, a nature that can be reduced to triangles and circles ("… measure what is measurable, and make measurable that, which is not so"), and the Elizabethan hermetic tradition also searches for the Enochian angelic language, that has a true connection to the world it denotes. The words that created the world when god floated above the waters. The qabalah is a tradition searching for an underlying true connection of numerical patterns as foundations of the world. Enlightenments' chemistry and physics bear this heritage of a search for a reduction to systems that are accessible to the human mind, models which are not only fit to the world but enable manipulation. And while this optimism is alive today, the past century also revived a lot of scepticism. Post-structuralism considers the link between any projection from the mind into the world to be an arbitrary mapping. *The Principia Mathematica* of Whitehead and Russell, a large project that envisions the construction of a consistency of mathematics through logic, seems to have failed, and even the study of seemingly unproblematic abstractions of knowledge – numbers – has stalled. Viveiros de Castro recollects the alarming retort of a South American cannibal nation leader when asked to admit at least the sanctity of the holy trinity – "For us, the concept of three is a European construction."[5] It's a common anthropological virtue to list the various number systems that certain native nations used. Throughout the past

1 The famous ethologist talks about dogs that drool at the bell's ringing. After getting accustomed to the sounds, it became a sign of the arriving food.

2 To even start addressing this tradition, to begin interfacing with this term, it is perhaps useful to recommend a primer. David C. Lindberg's volume *The Beginnings of Western Science: The European Scientific Tradition in Philosophical, Religious, and Institutional Context, Prehistory to A.D. 1450* was recommended to me by a good medievalist friend of mine.

3 Concepts are randomly assigned to things in the world.

4 There is a deeper connection between concepts and the world.

5 For other interesting anecdotes about missionaries and cannibals, see Eduardo Vivieros de Castro's *The Inconstancy of the Indian Soul: The Encounter of Catholics and Cannibals in Sixteenth-century Brazil.* I remember hearing this anecdote from de Castro in Paris in 2013 at a conference where Bruno Latour presented his AIME book *(An Inquiry into the Modes of Existence).* The Piraha tribe of Amazonia are an example of anumeric people.

century, we received narratives that deconstruct the myth of the scientific method, and from a plain establishment of non-linearly connected scientific paradigms of Thomas S. Kuhn, we must face the ghost of incommensurable planes and the dissolution of the method by K.P. Feyerabend.[6] The mathematical intuitionists bring about a fundamental question in the applicability of set theory in logic and open a serious suspicion, and yet we still cherish a computational paradigm that profits from the success of mathematical formalisms. We are building machines with hopes that those can tap into what it means to be conscious and, at the same time, still adhere to the Turingian computational paradigm[7] that an internal logic of a (computational) model dictates the perception of the world.

6 I encountered Kuhns' writing through my dissertation. Reading someone with a physics background questioning the canon of scientific history and progress was fascinating. It was fascinating to read his ideas of the cyclic evolution of ideas in science, whereby the main scientific thinking is defined by a framework, the paradigm, which is disrupted by revolutions and out-of-the-box thinking. For more, see *The Structure of Scientific Revolutions.* A more radical approach was put forward by Feyerabend. His books *Against Method* and *Farewell to Reason* are perhaps close to what we would call intellectual trolling today. He is getting his points through by providing the most extreme of examples. According to Feyerabend, today's science has become so bound up with its strict rules and inward thinking that a genius such as Galileo would stand less of a chance today than against the Church in the 16th century.

7 The whole idea of an untapped potential in other kinds of computation is something I came across in the writing of AA Cavia. In *Logiciel: Six Seminars on Computational Reason,* we get another perspective of where computation and the thinking of computation consciousness (AI of some sort) might be in the future. Especially if we go back and rethink the law of the excluded middle and restrictions of binary positions. A further way of thinking about a computation being a mind is also possible.

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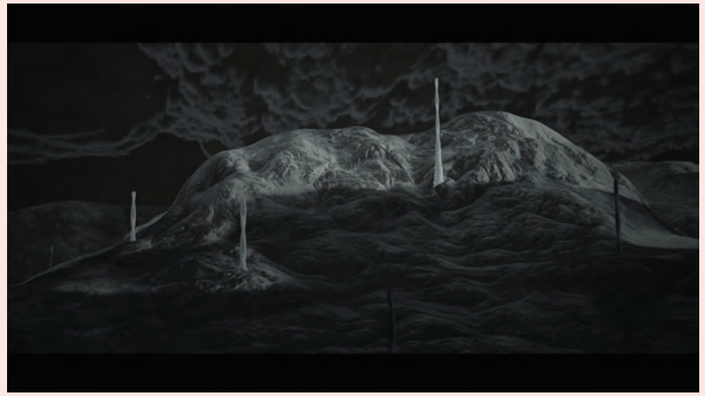
Birds of Paradise, Confrontation

←
Birds of Paradise, Tenrec



Birds of Paradise, Rockets leaving
↓

←
Birds of Paradise, Ichthyornis

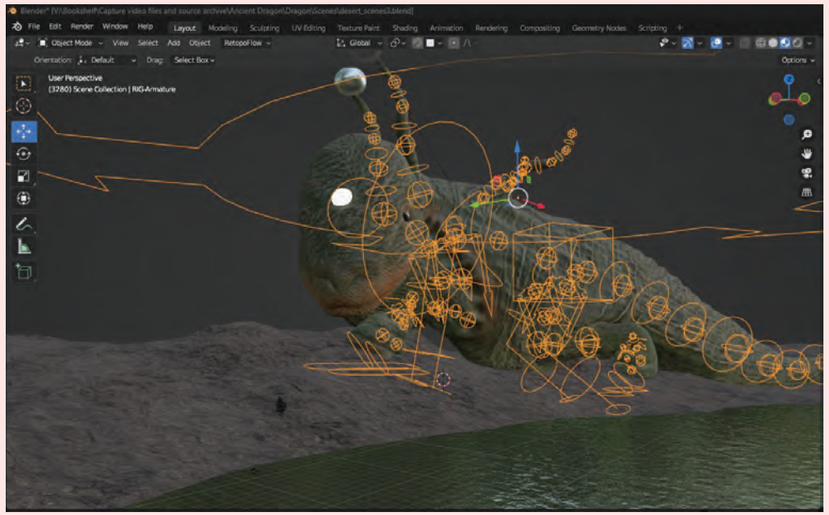
8 I came across *Metaphysical Experiments: Physics and the Invention of the Universe* in the course of the last months, and while I myself have perhaps a less critical and more curiosity-fueled attitude toward the great experiments of constructing the James Webb Space Telescope and the Large Hadron Collider in CERN, it was refreshing to read a science-study analysis of a certain petrification of the current scientific paradigm by vested interest.

9 Haraway writes this in *Staying with the Trouble: Making Kin in the Chthulucene.*

TINY AGENTS, LARGE CREATURES

And thus, on the one hand, we are talking about hadron colliders and space telescopes as worthwhile investments, since, with the guidance of the Ghost of Enlightenment, we can uncover true cogs behind a long-dead gods' gracious plans. On the other hand, we write sociological studies of the power play behind research, the personal gain and pride that is the prime motivation of research, the qabalistic charts, and complex games that obfuscate our vanity with fantastic inner consistency. As B. Ekeberg writes[8], we invest in the Unified Fundamental Theory, an equation for all, but seemingly forget to ask where the idea of a universe accessible in its entirety to one of its parts (the human mind) comes from at all. One is drawn to use the term realism for the first approach and fiction, disconnected from reality for the other. It matters how I interpret the output of the instruments, of my dear homegrown protein instruments and appendages, because ultimately, my interpretation will bring about a future to come. It matters what *worlds world worlds*, to paraphrase Donna Haraway.[9] Let us now try to reconcile the two by softening the tension between fiction and reality itself. On the edge of the gap, all that remains is to step forward and hope that an invisible ledge is within reach. The mind must create one anyways to find its own courage.

Carpathian the Dragon, Blender workflow
↓



"Yet trees are not 'trees', until so named and seen –
and never were so named, till those had been
who speech's involuted breath unfurled,
faint echo and dim picture of the world,
but neither record nor a photograph,
being divination, judgment, and a laugh,
response of chose that felt astir within
by deep monition movements that were kin
to life and death of trees, of beasts, of stars:
free captives undermining shadowy bars,
digging the foreknown from experience
and panning the vein of spirit out of sense."

from J.R.R. Tolkien's Mythopoeia[10]

↑
Carpathian the Dragon

10 Here I am citing a particularly relevant passage from Tolkien's poem *Mythopoeia*.

11 I have had the pleasure of studying the AIME project in greater detail through my dissertation. In 2013, I attended a conference devoted to the publication and critique of this œuvre. Latour started his speech with a South American spear weapon, ready to take on the critics. The evening closed with everyone dancing to a Klezmer band. Bruno Latour has brought me a great deal of clarity and an exciting vocabulary. I may not be a great scholar, but with the help of Latour's tools, I feel I have a grasp. Bruno Latour, you are greatly missed.

Mythopoesis is a term often used by the scholar J.R.R. Tolkien when describing myth-making as a device for sub-creating the world. His essay *On Fairy Stories* addresses the disambiguation of whether characters of myth are generalisations of natural occurrences or whether the phenomena of nature were not first encountered as gods, terrible creatures, and slowly diluted to sensory excitements. Tolkien advocates for a special place for beings of fiction. He argues that they should have similar ontological positions as real objects, however, they fulfil different functions. While beings that smelt and process steel, allow the construction of weapon entities, myth-makers create agents that bring escape from the war, consolation, and hope. We will try to salvage the term escapism for a while. For Tolkien, fiction is another mode of existence, a plane where the rules can be different, nonetheless, not all fiction is equally useful. And inner consistency is the criterion that allows us to inhabit new worlds. The greater the consistency, the greater the experience of the given reality. Fictive agents act upon – what is commonly called – reality, and we hear the ontological ladder creak. If we approach it with the Actor Network Theory (ANT), it slowly falls into itself. The usefulness of the great myths of the past is somewhat tangible, even if obscured by profanity. Prayer works, even if the addressee is a being of fiction. Psychoanalysis came just in time, after the post-secular world let go of its' trusty evening tradition of accounting and secret murmuring of desires, needs and laments by the beginning of the 20th century. The most consistent of the late myths is the numerological advantage of certain models. The Copernican model of the celestial spheres is, first and foremost, computationally effective. The network is dependent on the well-connectedness of its agents. Latour, the creator of the ANT, later revises his theses about ways of being in the world. In his 2013 *Inquiry into the Modes of Existence*, Latour talks about the network forms of being, but also the way of existing as fiction agents.[11] He reserves separate modes of existence for technical objects, religious transformational speeches, proclamations of the law, among other 15 modes of existence. Fiction is the sum of characters we report on the world, establish laws, or convert people to a cause.

Electrons, circuits, cells, humans, societies, gods and galaxies are multiple mutually non-reductive characters with which we tell narratives of diverse motivations. The only commensurability criterion is consistency. Felicity conditions of the given mode.

12 I will venture to give meaning to a somewhat opaque term. A more academic approach can be found, however, in Simon O'Sullivan and David Burrows' *Fictioning, The Myth-Functions of Contemporary Art and Philosophy.*

PROPOSED METHOD: FICTIONING[12]

The way I am fictioning my world is a projection of priorities. Escapist fiction is not the manifestation of cowardice but a taken stance against a dominant interpretation of the world. Being a minority in the world is not about ratios or numbers but about a constant rebellion against the monopoly of a single fiction becoming universal. After the Anthropocene, we should not be allowed to have the confidence that any single fictioning could possibly grant access to reality in its totality. A plurality of fictions can offer a multi-perspective view that can at least enable a balance between what and who is exploiting what and how. *There is something non-human in what is me, and I am unsure what it wants.* The great tension, however, as I understand it is somewhat relieved. On the one hand, science is only a fairytale with an extremely detailed world, precise interaction models and many characters. A useful, computationally adequate model, after all, we can predict a lot of events and land spacecraft on multiple solar system bodies. At the same time, we should not fall into the chasm of fright and weariness. If class wars, nation-states, power games for future capitalisation and colonial exploitations do not become a different order of reality, but parallel, mutually useful narrative devices for re-telling the story of the world, then the word **fiction** is saved. There is no ground truth to return and no ground dust either. The Ghost of Enlightenment is no more real than the Spectres of Marx, the Planet-gods, yet, at the same time, no less real. They are the underlying scaffolding on which we hang our daily experiences.

CASE STUDIES, MY OWN WORK

Tolkien calls this fictioning, *world-bringing-into-being*. A creative act under a single original creator, an act of sub-creation. Based on that, it might seem self-explanatory why I believe sub-creation is an artistic practice that consolidates the rapture one gets from the explanatory force of contemporary science, and yet a thirst remains to marry it with other characters. Thrust the world into the hands of the thousand hybrids, the hybrids we are.

Fundamental mythopoesis is a connection point in my œuvre. Even in my earliest works, a vision of the future merged with remnants of the past, and time freely flowed between events. The character that rises from those stories is the great Apollon, lord of the muses, bleeding out as the Apollo project's moon landing flag pierces his surface. The Dionysians are winning, while an astronaut time traveller watches the camera. In another series of works, I approach the question of deep time and the thing-not-human-in-me through ghosts of dinosaurs that appear before humans. These dinosaur figures talk of human toils from the perspective of a culture that has endured on the face of the earth for centuries. These dinosaur characters are essentially people with a strong emphasis on their non-human ingredients. Tolkien's hope presents a fascinating crossing. What kind of characters could be messengers of hope? The story of the *Birds of Paradise* is the first imprint of hope onto the mammalian brain. After the K-Pg meteorite caused an extinction event, ashes covered the skies for years to come. All living species larger than 20 cm died out from the caloric deficit. Small, hibernating mammalian human ancestors crawled the earth, burrowing into the ground. One of these ancient rats – as I am fictioning this memory block – looks out from his tiny hole and sets eyes on a majestic, though small bird taking to the sky. *Ichtyornis Dispar*, a gull-size, toothed bird, flies up and breaks the shroud of ashes. The clouds open for a while, and the sun, after days, maybe years, hits the mammalian retina. There is hope, hope beyond having access to the device that brings this extinction survival about. The ancient rat itself is fictioning a future in which the earth is covered yet again with lush vegetation. It is always questionable whether the fictional future is deterministic or brought about by imagination.

↑
Apollo project

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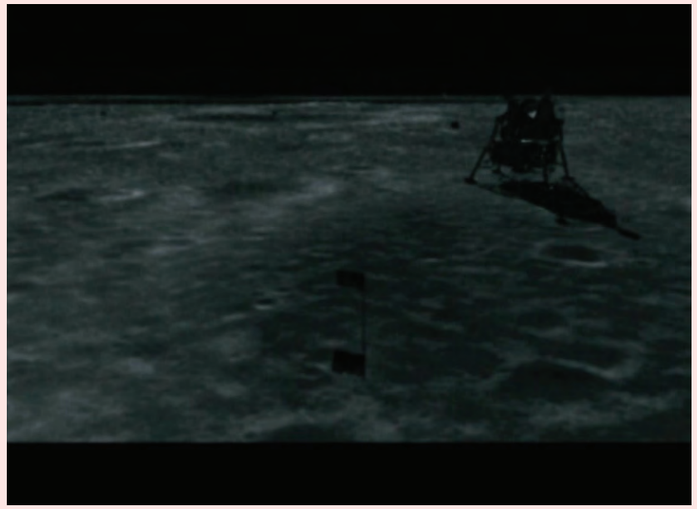
Apollo project, the Birth of Tragedy as a Consequence of Utter Conquest

Apollo project
↓



→

Purgatorius, common ancestor of all living mammals

↓

A VORTEX

Fundamental mythopoesis aims to reconcile the horror, the gaze into the void, when the deeper we look, the more self-made destruction we find. At the same time, there is fire that burns within, that is not human, and in the flames, creatures appear. From a strange world, which is still this one. It is this world I would like to talk/dream about. I would like to fiction about elementary particles. Their interactions are often referred to as collisions, forces, messages and other exchanges. How does a marketplace of these quantum entities populate, and what interactions are born? What is the symmetry of relationships between particle entities and detector entities? Between detector (instrument) and operator (human) entities? Who is practising mythopoetry on whom? "There seems to be something human in me," – said the non-human MRI machine. "It's something I have no opinion of," – said the neutron. Radio telescopes were overheard composing music. Just a bit of extra noise signalled into the cosmic background radiation. An ancient Boson sits wisely from a previous æon in waters above and below. The lights in its eyes radiating more than 14 billion years. And with this myth, just this one, what if, what if this has direct access? Maybe this one? I fly with the time medusa, a large entity not within the borders of time. Neutrina, Queen of the Night, calls an aria piercing the sky. But no one hears its cry, it is so solid, so deep and dark. It is done. There is a world, and there is a future, however dead we are, all that is in me, human and non-human, join in an angelic conversation. When magnitudes of existences, different orders of fictivity, the operator, the instrument and the elemental can stand non-reduced before each other, we can finally shout *xeno-consummatio*. A minority is not numbers but a constant rebellion against domination. Waters below and waters above. Let the vortex commence, for all that was divided shall lie together, and hybrids will populate the face of the earth. Jump into the voids, whisper satan, but the particles halt before crushing me to death, and I rise, wings from horizon to horizon, rise to the sky, magnificently, an ancient dragon. For those "…who deny the existence of dragons are often eaten by dragons. From within."[13]

Compsognation,
or a Dinosaur's View
on the Nationstate
↓

I brought up, that language is the beautiful chance to access

↑
Compsognation,
Addendum

Varga

insert ∫ no. 2

TÜNDE VARGA

Artistic Research at the Doctoral School of the Hungarian University of Fine Arts

When the Doctoral School of the Hungarian University of Fine Arts devised a book to present its research-based artistic output to the general public in 2013, the notion of artistic research was still a novelty in Hungarian academia. It was only in 1992 that art schools gained university status. The Higher Education Act of 1993 introduced a new legal system for scientific degrees. The first doctoral schools providing PhDs were founded in the same year and were accredited in 1994. As a result of these two precedents, it became possible for the first time in Hungary for art institutions to establish doctoral schools. However, in the Hungarian system, doctoral schools were accredited only in 2002 in the field of art. Unlike in most countries, art schools in Hungary issue Doctor of Liberal Arts (DLA) degrees, not practice-based PhDs.[1] Nevertheless, DLA schools' study schemes and research approaches are similar to practice-based PhDs.

Although this date might seem surprising today, as Stephen Scrivener notes, "Before 1992, very few artists had completed doctoral research degrees and most of the small numbers that had done so, had not done so in departments of art"[2]. The discourse on artistic research started after the introduction of practice-based PhDs into the UK and international higher education study schemes, with a similar cultural-political shift that we witnessed across many European institutional structures. James Elkins claims that although doctoral schools existed from the early 1970s in the UK and Japan, the first book-length study on artistic research appeared only in 2004.[3] The explosion of literature on the topic was so huge within a decade that, in Elkins' view, by 2011, it was already impossible to overview all the contributions to the debate and by 2013, it became inaccessibly vast.

The question of artistic research reframed the discussions concerning art education as well. Paul O'Neill and Mick Wilson claimed that art education is, in fact, itself a form of unorthodox research which should be "processual" and open-ended rather than "procedural", repeatable and taxonomical like outcome-based science programmes.[4] The advantage of such experimental schools lies precisely in the possibility of challenging the boundaries of (artistic) knowledge – through creating "common erudition" – as well as the tradition of specialised-disciplinary research, canons and competence.[5]

The problem is primarily embedded in the demand for disciplinary research that privileges STEM Disciplines.[6] Oddly enough, since questions reflecting on hegemonic scientific structures were prominently raised by the poststructuralists in the context of scientific research practice and then elaborated by authors such as Bruno Latour, Donna Haraway and Barbara Stafford, who positioned truth as a product of scientific inquiry. In Latour's view, the validity of science was established by "networks" through the power of the institutions and practices that produced and disseminated their claims.[7]

It is also of significance that the Horizon Grant scheme's Cultural Cluster, or the Vienna Declaration, likewise employ an administrative vocabulary where art as a term is substituted for creative industries or culture for social inclusion, and in which aspects of innovation, utility and third-mission notions reign, written in a "grotesque neoliberal-bureaucratic language"[8]. In Hungary, these demands became pressing with the introduction of the Ministry's Change of Pace in Higher Education.[9]

The recent insistence for a theory of Postresearch Condition – after the so-called Research Decade – is also due to the unresolved and mounting problems artists in academic careers or art institutions face.[10] One of the fundamental questions is why artistic research has to be harmonised with the Frascati

1 Előd Ágnes, Kicsiny Balázs, Peternák Miklós, Szegedy-Maszák Zoltán and Szűcs Réka, eds., *Hungarian University of Fine Arts Doctoral School,* Catalogue (Budapest: Hungarian University of Fine Arts, 2013), 3.

2 Stephen Scrivener, "Where is the Artistic Research Community?," In Előd et al., eds., *Hungarian University of Fine Arts Doctoral School,* Catalogue (Budapest: Hungarian University of Fine Arts, 2013), 105.

3 James Elkins, ed., *Artist with PhDs: On the New Doctoral Degree in Studio Art* (Washington: New Academia Publishing, 2009). See also Elkins (2009) or Smith and Dean (2009).

4 Paul O'Neill and Mick Wilson, "Introduction," In *Curating and the Educational Turn,* eds. et al. (London – Amsterdam: Open Editions, de Appel, 2010).

5 Mick Wilson refers to the ideal learning situation of the research-based "Humboldtian university", which in his view, is not the site of disciplinary compartmentalisation, but that of experimental learning and generating "common erudition" among fellows. Wilson (2010). For a very sharp criticism of artistic research issues, see Claire Bishop's article titled "Information Overload" that was published by *Artforum* (Bishop 2023).

6 The STEM Disciplines according to the Higher Education Research Institute at UCLA: https://www.heri.ucla.edu/PDFs/surveyAdmin/fac/Listing-of-STEM-Disciplines.pdf

7 Bruno Latour, "The Invention of Science Wars," In *Pandora's Hope: Essays on the Reality of Science Studies* (Cambridge – London: Harvard University Press, 1999). Cf. In Haraway's view, the dominant scientific model organised and vouchsafed the entire field of scientific and cultural production: the male master is enabled with the means of the objectifying gaze, which in turn constitutes the truth of the observed and examined world. See, Donna Haraway, "Situated Knowledges," In *Simians, Cyborgs and Women: The Reinvention of Nature* (London – New York: Routledge, 1991), 193.

8 Florian Cramer and Nieke Terpsma, "What's Wrong with the Vienna Declaration on Artistic Research," *Open! Platform for Art, Culture & the Public Domain.* (10. 01. 2021): 2.

9 https://www.oecd-ilibrary.org/industry-and-services/supporting-entrepreneurship-and-innovation-in-higher-education-in-hungary_9789264273344-en

Manual's Research and Development criteria.[11] The fact that artistic PhDs or research are practice-based does not suffice. The research approaches of the arts, in many cases, are more akin to how the Frascati Manual's Glossary defines "basic research": "Pure basic research is basic research carried out for the advancement of knowledge, without seeking long-term economic or social benefits or making any effort to apply the results to practical problems or to transfer the results to sectors responsible for their application".[12]

The binarism of "pure basic research" and "applied research", that is, the binarism of theory and praxis, seems obsolete for most authors. Robin Nelson offers an alternative definition for practice based on Aristotle's term *phronesis.*[13] He conceives *praxis* as "*being-doing-thinking* in the making process" since *being–doing-thinking* "generates new knowledge across a range of intra-disciplinary entanglements."[14]

It is no accident that recent theoretical approaches insist on overcoming this binary through their projects. The *Feral Atlas* is not only an exceptional format of research publication but a collaborative, "praxis-based" work, which juxtaposes video poems, visual mapping, scientific research and poetry.[15] A similar example is the *Postmodern Glossary,* which includes artworks, essays and studies of several disciplines.[16] Both approaches consider "praxis" to be an inherent part of the scientific work: they are only different modes of apprehending the world, not lesser ones. These volumes suspend prioritising one over the other.

It is also significant how exhibitions extend to amalgamate industrial design research and development with social and cultural issues in a non-Western context. The Barbican's exhibition project – titled *Our Time on Earth* (2022) – focuses on divergent art- and research-based approaches, which include environmental studies, virtual reality, art practice, Indigenous Knowledge, experimental design, and so forth, in a network of "forward-thinking creators, innovators, academics and change-makers".[17]

By 2013, the DLA school at the Hungarian University of Fine Arts had plenty of experience with the questions, concerns, advantages and prospects of the doctoral research of artists. The 2013 DLA book aimed to present several facets of the DLA school research history and experiences to create a reference handbook for coming generations as an example and as an impetus for discussions, questions and debates on protocols and methodology. The introductory text lucidly encounters most of the crucial and still unresolved questions of the Artistic Research literature. These are also apparent in the structure of the book. It presents four main entries to artistic research in practice: research-based group exhibition projects which were embedded in the study programs of the DLA school; a selection of individual research-based works of the doctoral students; the written documentation of master courses at the doctoral school; and a selection of research-based *technical innovations* of doctoral students which were deployed in their artistic production.

In the following, I would like to present two research-based group exhibitions of the DLA school to show how "basic research" can meet "praxis" and be made public in the gallery space to enhance the educative effect or social outreach of the research.

One of the research-based DLA group exhibitions presented in the 2013 DLA catalogue was titled *Works Made Through Human Intervention* which took place at Kunsthalle Paks in 2011. The starting point of the exhibition was Walter Benjamin's *The Work of Art in The Age of Mechanical Reproduction* (1935) and Benjamin's notion of the aura, which was read parallel with the WIPO-UNESCO copyright of digital images.[18] The two texts not only served as sources of inspiration but as a loose organising principle for the entire exhibition. The close reading and juxtaposition of the two texts promoted a critical examination of fundamental and traditional questions of art, which emerged as urgent and indispensable problems with the expansion of contemporary digital media. Such questions confronted the relationship between the original and its copy in an age and media landscape where this question is hardly conceivable in the traditional way and pointed at the outdated presumptions behind copyright laws and regulations. The question, in turn, reflected on (and affected) the conceptual tradition (established during the 19th century), which defines the work of art as original.

The problem indicated by the two texts pointed to the theoretical outdatedness of the 1988 copyright directive. As Zoltán Szegedy-Maszák underlines, if the copyright act of 1988 on digital media is taken by word, it practically means that any

10 https://www.hku.nl/en/study-at-hku/creative-transformation/pre-phd-programme/the-postresearch-condition

11 Research and experimental development (R&D) comprise creative and systematic work undertaken to increase the stock of knowledge – including knowledge of humankind, culture and society – and devise new applications of available knowledge. Frascati Manual, Annex, https://www.oecd.org/sti/inno/Frascati-2015-Glossary.pdf

12 Compare https://www.oecd.org/sti/inno/Frascati-2015-Glossary.pdf; This was also one of the achievements of the hard-fought autonomy of artistic expression, which was not granted to the arts before the 18th century, as most scholars point out.

13 Nelson refers to Aristotle, who distinguished episteme (intellectual knowledge) from techné (practical knowledge). Nelson claims that "Aristotle used Praxis to indicate »doing,« alongside theoria (thinking) and poiesis (making) whilst phronesis (practical wisdom) comes closest to my sense of PaR in its concern with values and orientation to action." See, Robin Nelson, *Practice as in the Arts (and Beyond): Principles, Processes, Contexts, Achievements* (London: Palgrave Macmillan, 2022), 19.

14 Ibid. 19–20.

15 Anna L. Tsing, Jennifer Deger, Alder Keleman Saxena and Feifei Zhou, eds., *Feral Atlas* (Stanford: Stanford University Press, 2021).

16 Rosi Braidotti and Maria Hlavajova, eds., *Posthuman Glossary* (London – New York: Bloomsbury, 2018).

17 Chloe Wood, ed, *Our Time on Earth.* Catalogue (London: Barbican, 2022), 14.

18 Walter Benjamin,"The Work of Art in the Age of Mechanical Reproduction," In *Illuminations. Essays and Reflections,* edited by Hannah Arendt (New York: Schocken Books, 1968).

photograph taken by a human being is determined by the author's intention (thus it has the attribute of originality), except for the ones which deploy already existing photographs. The human intervention present in most of the exhibited works would not count as an act of originality or as original creation in the sense of the copyright directive. The exhibition confronted the visitor with pointed criticism of this regulation on originality. Instead of a detailed legal or æsthetic textual analysis, it examined the question through several experimental works. The exhibition's concept provided a loose framework for re-examining such questions from multiple points of view. Most works reflected on insights present in the Benjamin text and updated them to the current questions raised by the emergence of digital media. At the same time, most works were a form of experimental research, which combined scientific, engineering and artistic knowledge through technical experimentation whose aim was not to create a patent or to develop a function but to show what a certain technology or medium can render possible and how the medium is embedded in the tradition of art.

The second project I will reflect on was based on scholarly research of the HUFA Library's unique photography archive by Miklós Peternák with the help of colleagues from the library. Two exhibitions, *Memories of Forgetting* and *Photo Modell*, were planned to reflect on the changing relationship between the collection and the art institution and the changing role of photography in the history of art and technical images. As Peternák notes, the status of analogue photos has changed with the transformation of photographic technology.[19]

Since knowledge-production has many forms, the historical survey was juxtaposed with new research-based works of the doctoral students. I will select a few that were not only in dialogue with cultural history but also with early image-making technical devices. The archive at the Hungarian University of Fine Arts had several pieces which revealed early 19th-century technical experiments with light and vision. Most of these remained in a subliminal position in art history, like the stereoscope and the cyclorama. The importance, however, of these early experimental devices was rediscovered at the end of the 20th century and placed into a socio-cultural context reflecting on vision and power as well. The doctoral students' approach connected the cultural, political, technological and socio-economic questions involved in technical image engineering.

Anna Barnaföldi (*Go to Hell,* 2018) experimented with Géza Gárdonyi's – a famous Hungarian writer's – concept of the "Hell Cyclorama". The piece was completely lost, but some photographic reproductions of etchings of the original were found in the HUFA archive. The Cyclorama was an imaginary depiction of Dante's Hell by two scenographers, Árpád Molnár and Károly Trill. Gárdonyi also commissioned a song *Go to Hell* from Pista Dankó to enhance the entertainment factor of the Cyclorama, thus creating a 19th-century multimedia device. This merging of popular entertainment and visual experiment can be seen as the precursor of VR technology: Barnaföldi not only reconstructed but also reinterpreted the lost Cyclorama into a VR application.

Bence Pálinkás and Anna Peternák played with the likewise subliminal stereo photos. The device was considered unreliable due to its deceptive play on binocular vision. So, it is no wonder that stereo photographs primarily depicted exotic scenes. Pálinkás' work reflects on both the oriental theme and the labour use of Japanese girls in porcelain production. The piece was inserted into an experimental educational context at the exhibition. The stereo images were made into stereo films for a younger generation to interpret their dense socio-cultural context.

Anna Peternák, on the other hand, revisited stereo cards by a member of a famous artist family, Mrs Alajos Strobl Alojzia Kratochwill. During the exhibition, the stereo photos could be observed through a fabricated stereoscope, while, an audio guide helped visitors, who could also consult the reverse side of the photos for information concerning the photograph's place and date. Both artists reflected on the complexity of the socio-historical and technological questions raised by the medium, shedding light on various aspects from gender-related power relations to orientalist ideology, revisiting these questions by placing the images into the present system of image power.

Thus the cultural history that unfolds in these three works presents an erudite dialogue with the past on several levels and a critical reflection on perception. Sean Cubitt argues that æsthetics is nothing more than the interpretation of the world

19 Peternák Miklós, ed., *Memories of Forgetting, Images Between Art and Nature,* Catalogue (Budapest: Hungarian University of Fine Arts, 2018), 15.

through perception, shaped by the technologies that make that perception possible. The field of æsthetics is, therefore, the struggle for control of human perception and so for the domination of knowledge-production, which governs our culture, our society and our economy.[20]

20 Sean Cubitt, *The Practice of Light: A Genealogy of Visual Technologies from Prints to Pixels* (Cambridge (MA): MIT Press, 2014).

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Case Study of Atmospheric Forest

RASA SMITE & RAITIS SMITS

visualising the interplay between the forest, climate change and the atmosphere

p. 70—71

"I ENTER A PICTORIAL SPACE THAT SEEMS LIGHT AND DARK, ABSTRACT AND REALISTIC, DISSOLVED AND ORGANICALLY COMPACT AT THE SAME TIME. TREE TRUNKS LIE ON THE GROUND, BRANCHES, LEAVES. BUSHES ARE COMING TOWARDS US. WE DRIVE UP A LONG TRUNK TO THE CROWN, WHICH SPRAYS AND FLAMES. THEN WE ARE DOWN AGAIN. ARE WE INSIDE THE TREE? THERE IS NO INSIDE, JUST PARTICLES COMBINING, DANCING, DISSOLVING. IT CRACKLES. THE TREES ARE LIKE SMOKESTACKS THROWING THOUSANDS OF BRIGHTLY SHINING PARTICLES INTO THE BLACKNESS OF THE SURROUNDINGS…"

Yvonne Volkart[1]

1 Yvonne Volkart, "Being Concerned: Sensing a Damaged Forest." In Smite, Rasa, and Raitis Smits, with Jens Hauser and Kristin Bergaust (Eds. / Authors), *Green Revisited. Encountering Emerging Naturecultures in Art and Research. Acoustic Space,* Vol. 19, Renewable Futures, Issue 4. Riga: RIXC & Liepaja: LiepU (2022): 131–67.

Fig. 4b
LiDAR scan from Pfynwald Forest, sketch in Unity environment
↓

2 Ibid.

3 https://ecodata.rixc.org/ ; https://www.fhnw.ch/de/forschung-und-dienstleistungen/gestaltung-kunst/forschung/forschungsprojekte-iagn/ecodata-ecomedia-ecoaesthetics

The above-described is the experience of art theorist Yvonne Volkart, encountering the virtual emitting forest; she points out that with encountering the VR environment of *Atmospheric Forest*, *"we also enter a forest in times of climate heating"*[2]. Yvonne Volkart was the principal investigator of the *Ecodata–Ecomedia–Ecoaesthetics* research project (2017–2020), investigating "new media, technologies and technoscientific methods (registering, collecting and interpreting data) in the arts in view of understanding their role and significance for the perception and awareness of the ecological"[3].

Atmospheric Forest, an immersive data visualisation revealing the complex relations between the forest, climate change and atmosphere, is the outcome of this three-year artistic research project on Pfynwald, an ancient Swiss Alpine coniferous forest suffering from drought due to climate change. The scientists from WSL Research Institute have turned this forest into a "living observatory" to monitor the drought effects and irrigation experiment results on the forest ecosystem (Fig. 1).

Fig. 1
Rasa Smite, Raitis Smits: *Atmospheric Forest,* 2020, The National Art Museum of Latvia, Riga
Photo: Kristine Madjare
↓

4 Volkart, 2022. ibid. 131–67.

5 This collaboration with Swiss scientists took place in the framework of the Swiss National Science Foundation-supported research project Ecodata–Ecomedia–Ecoaesthetics in which Rasa Smite was an artist-researcher (as a part of a research team) between 2017 and 2020.

During our collaboration with Swiss climate and forest scientists, we learned that trees are not only oxygen generators but also breathe and emit large amounts of volatile organic compounds (VOCs) into the air – we recognise this as a habitual scent of the forest. Scientists have long known about the link between a fragrant forest and the warming climate but are still uncertain about the exact impact and scale.

Our research initially focused on a guiding idea to explore this missing or invisible link that should exist to connect terrestrial ecosystems with aerial ecosystems such as forests and the atmosphere. A forest is a structure that is visible, material and solid. How is it connected to the invisible processes that take place in the air? The interest in finding these connections was the starting point of our research. We wanted to use virtual reality as an artistic tool to create a highly immersive meta-experience. We intended to transform sensations about the forest, such as smell, through digital means of expression and to 'transport' this experience from the forest to the city, to the exhibition space. We worked with data to visualise the invisible processes that take place in the forest, such as the biochemical transformations in the tree trunk when resin is produced and the fragrant emissions released into the air.

Our research also focused on using remote sensing technologies to capture the forest environment and interpreting scientific data to reveal the complex relationship between the Pfynwald forest ecosystem and the atmospheric processes.

"Often signals received by machines are transmuted to be perceptible to humans through techniques such as graphic visualisation or acoustic sonification. Ecomedial techniques thus become intermediaries between worlds. They function as apparatuses to enhance human attention to non-human actors or, in turn, address their attention without humans having to perceive it. Moreover, they are the technologies that the natural sciences use."[4]

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Fig. 2

Rasa Smite, Raitis Smits: *Atmospheric Forest,*

2020, The National Art Museum of Latvia, Riga

Photo: Kristine Madjare

LIVING OBSERVATORY

The alpine situation and the unique possibility of taking a longer-term (three-year) research[5] to collaborate with the Swiss Federal Institute for Forest, Snow and Landscape Research WSL, an advanced forest and climate research institution, was our starting point. This unique mountain forest in the south of Switzerland served as a platform for WSL scientists for more than 20 years to monitor and experiment with the forests' ability to adapt to climate heating; their Pfynwald Research Station is one of the world's oldest long-term outdoor laboratories. Pfynwald Forest is located in the mountains near the canal, as seen in the second scene of the *Atmospheric Forest* virtual reality experience (Fig. 2).

Since the trees in this coniferous forest have been suffering from drought for a long time and about 50% of the forest is almost dead, the scientists have set up several areas where the artificial irrigation experiment is being carried out and left the other areas to grow under natural drought conditions. These experiments have been going on for more than two decades, and scientists have interesting results which allow them to model future vegetation changes in Central Europe.[6]

6 The long-term irrigation experiment Pfynwald is part of the Swiss long-term forest ecosystem research program LWF, www.lwf.ch.

←

Fig. 3a

Field Trip to Pfynwald Forest

(scientific observatory in a container)

Photo: Rasa Smite

FIELD TRIPS

We took part in several field trips with WSL scientists and the Ecodata research team, as well as individually conducted investigations, to explore the forest, learn about the complex processes that unfold in this environment and watch how the scientists tag every tiny plant, measuring the shrinkage of the trees as drought increases their stress levels (Fig. 3a and 3b).

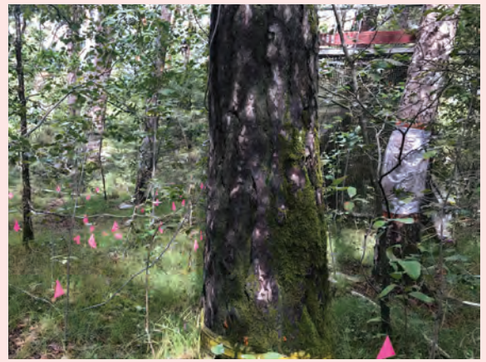

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Fig. 3b

Field Trip to Pfynwald Forest

Photo: Rasa Smite

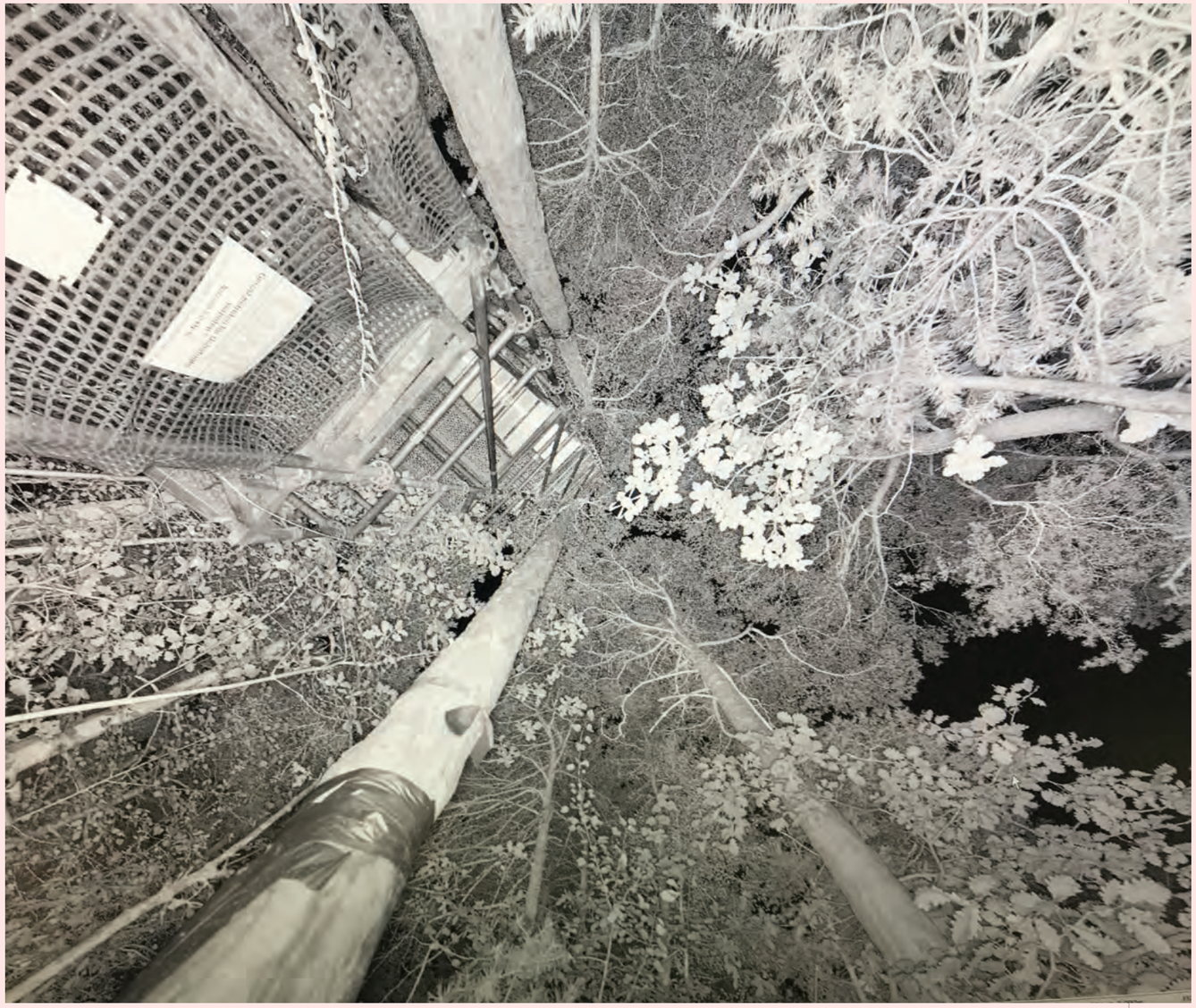

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Fig. 4a
LiDAR scan from Pfynwald Forest,
screenshot

We were searching, above all, for the invisible link between the forest ecosystem and its environment. We could not find this connection for a long time, either in terms of signals or emissions. So Rasa made several trips to the Pfynwald forest, making lots of field recordings and experimenting with remote sensing cameras and LiDAR scanners (kindly lent to us by WSL scientists), trying to sense and experience the invisible processes in the forest, as well as to learn about them from the scientists.

To study the *structure* of the forest, Rasa scanned certain locations to a point-cloud, placing the scanner in both artificially irrigated and drought-affected areas (Fig. 4a and 4b). In an attempt to *sense* the environment acoustically, she used a sound recorder and found that amplifiers, or at least contact microphones, were needed as the soundscape you hear in the midsummer forest is mostly silence. Some days it's just one bee flying by, or you might just hear the distant roar of cars and aeroplanes, or at least the constant breeze of the wind. However, that's about all you can perceive acoustically, so for us, it wasn't enough. We thought there must be some invisible exchange that we can't see, hear or otherwise sense, but which exists between the forest and its environment, the processes happening within the tree trunks, and the invisible subsistence surrounding it, that is, the air or the atmosphere. Reflecting on these exchanges, we realised that potentially the most interesting of the *processes* experienced in the forest was the heat in the middle of the summer and the fragrance of the forest, which we knew very little about.

VOLATILE EMISSIONS

During one of these field trips into the forest, Rasa met Kaisa Risannen, a young Finnish scientist who was a visiting researcher at the WSL Institute. Kaisa was working there, observing and analysing data. During the ensuing conversation she became so enthusiastic that she started explaining her research on so-called volatile emissions, or Volatile Organic Compounds (VOCs) (Fig. 5a, 5b and 5c). So what does this entail? Biochemical transformations, air chemistry, atmospheric processes… this was the missing link we were looking for!

We felt more engaged with the forest and closer to understanding its connections with the air when we finally discovered that forests breathe and trees emit large amounts of volatile gases. The scientists we spoke to, including Arthur Gessler, surprised us by telling us that trees not only produce oxygen but also release CO2 back into the atmosphere, and there is ongoing scientific discussion about exactly why and how this happens.

Fig. 5a
Field Trip to Pfynwald Forest
Photo: Rasa Smite
↓

Furthermore, when trees die, they release all the stored carbon back into the atmosphere. How does this work? And why do we always think trees are merely oxygen producers for humanity? It turns out that they are part of a much more complex system. Some tree species, such as pine trees, emit high levels of VOCs. We can sense these volatile emissions as the scent of the forest, especially on warm and sunny summer days. Within minutes or hours of their release, VOCs react with the ozone and other chemicals in the atmosphere and affect cloud formation. Only recently have scientists become aware of the massive scale of the emitting forest's impact on the warming climate.

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Fig. 5b
Field Trip to Pfynwald Forest
(Mass spectrometers)
Photo: Rasa Smite

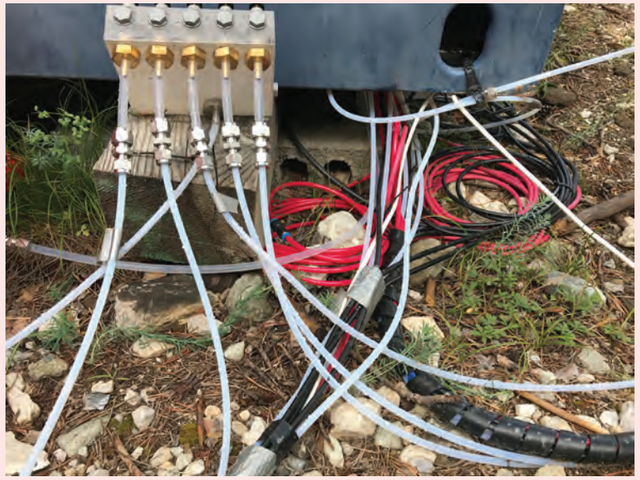

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Fig. 5c
Field Trip to Pfynwald Forest
Photo: Rasa Smite

↑

Fig. 6a

Resin Experiment

Photo: Ieva Viksne

RESIN PERFORMANCE

Why is the forest so fragrant? As scientists explained to us, the scent is caused by volatile emissions. Scientists (like Kaisa) measure monoterpenes (and other volatile gasses) released through the bark of the entire tree trunk, which also produces resin. We were told that resin, rosin and turpentine – all these different substances associated with the smell of pine – share the same molecular structure. However, how can one experience something invisible that can only be represented by relying on chemical formulas?

We wanted a tangible experience by carrying out a more analogue experiment. Rasa collected resin from her field trips to Pfynwald and then did an artistic experiment by distilling the resin, pouring hot water on a hot tube through which steam from the melting resin escaped until she got a few drops of turpentine. She continued to melt the resin until it changed its structure, turning into a number of fragile colophon (rosin) sculptures – showcasing all the artefacts of this forest, including the pine needles (Fig. 6a, 6b, 6c, 6d and 6e).

Fig. 6b

Resin Experiment

(Resin from Pfynwald forest)

Photo: Ieva Viksne

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↑

Fig. 6c

Resin Experiment (Colophon sculpture)

Photo: Ieva Viksne

After we engaged with the physicality of forest processes, we continued with the virtual reality forest, creating an immersive environment from a LIDAR-scanned forest and visualising the data, revealing resin formation in the trees, volatile emissions and their relationship to the weather conditions.

←

Fig. 6d

Resin Experiment (Drops of turpentine)

Photo: Ieva Viksne

Fig. 6e

Rasa Smite, Raitis Smits:

Atmospheric Forest: Resin Experiment

RIXC Gallery

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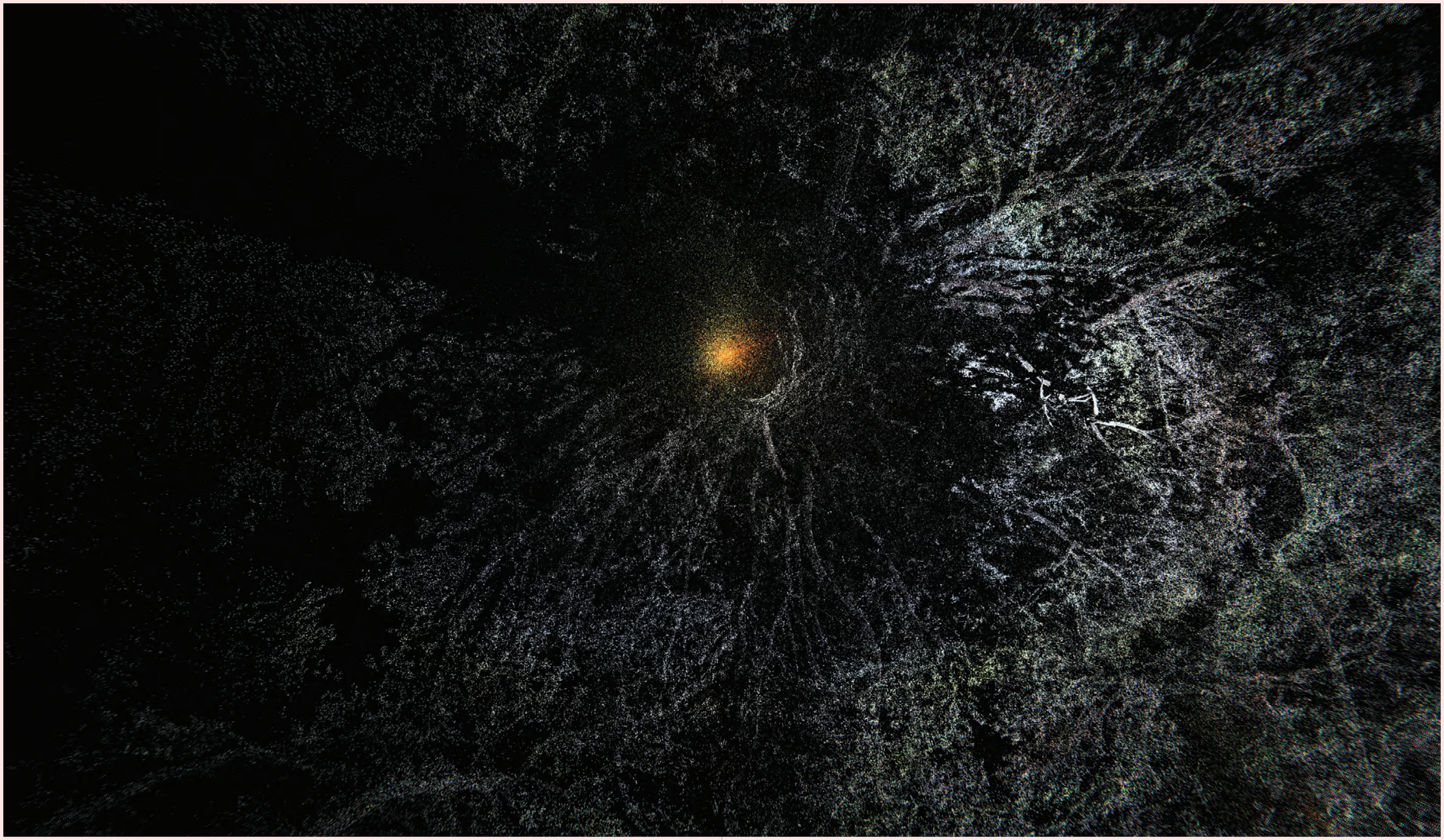

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Fig. 7a

Rasa Smite, Raitis Smits: *Atmospheric Forest,* 2020, screenshot from VR

VIRTUAL REALITY EXPERIENCE

To create the *Atmospheric Forest* virtual reality artwork, we scanned the Pfynwald and created a virtual point cloud environment, visualising the data provided by the scientists. The data sets collected during one growing season included measurements of volatile emissions, resin pressure in pine tree trunks and records of the changing weather conditions. We transformed the data into animated particle flows, revealing the complex interaction between the forest ecosystem and atmospheric processes (Fig. 7a and 7b).

The final artwork altogether presents 16″55″ minutes of VR experience. The invisible path with slight movement leads the viewer through the emitting forest, letting the participant experience five distinct scenes.

The first scene introduces the viewer to the first observation site, where three pine trees grow naturally, emitting VOCs. The viewer can navigate through the emitting trees and virtual forest with the aid of observation towers, pink labels attached to the plants, measuring 'bonds' around the trunks, and further scientific 'artefacts' (Fig. 8a and 8b). The second scene reveals the path to the Pfynwald forest observation site, which runs along the canal and takes the viewer to the actual site of the scientific study conducted on the various impacts of the climate. The third scene shows an irrigated area with three more emitting pine trees. The viewer in this scene can observe the forest from the bottom up and follow the path inside the tree trunk to go far up above the forest, becoming a part

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Fig. 7b

Rasa Smite, Raitis Smits:

Atmospheric Forest, 2020,

Solo Exhibition, RIXC gallery, Riga

Photo: Kristine Madjare

←

Fig. 8a and 8b

Rasa Smite, Raitis Smits:

Atmospheric Forest, 2020,

Purvitis Prize 2021 Final Nominees Exhibition,

The National Art Museum of Latvia, Riga

Photo: Kristine Madjare

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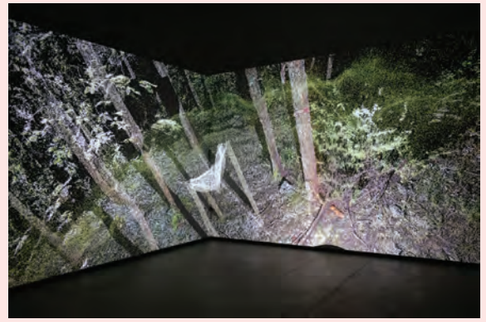

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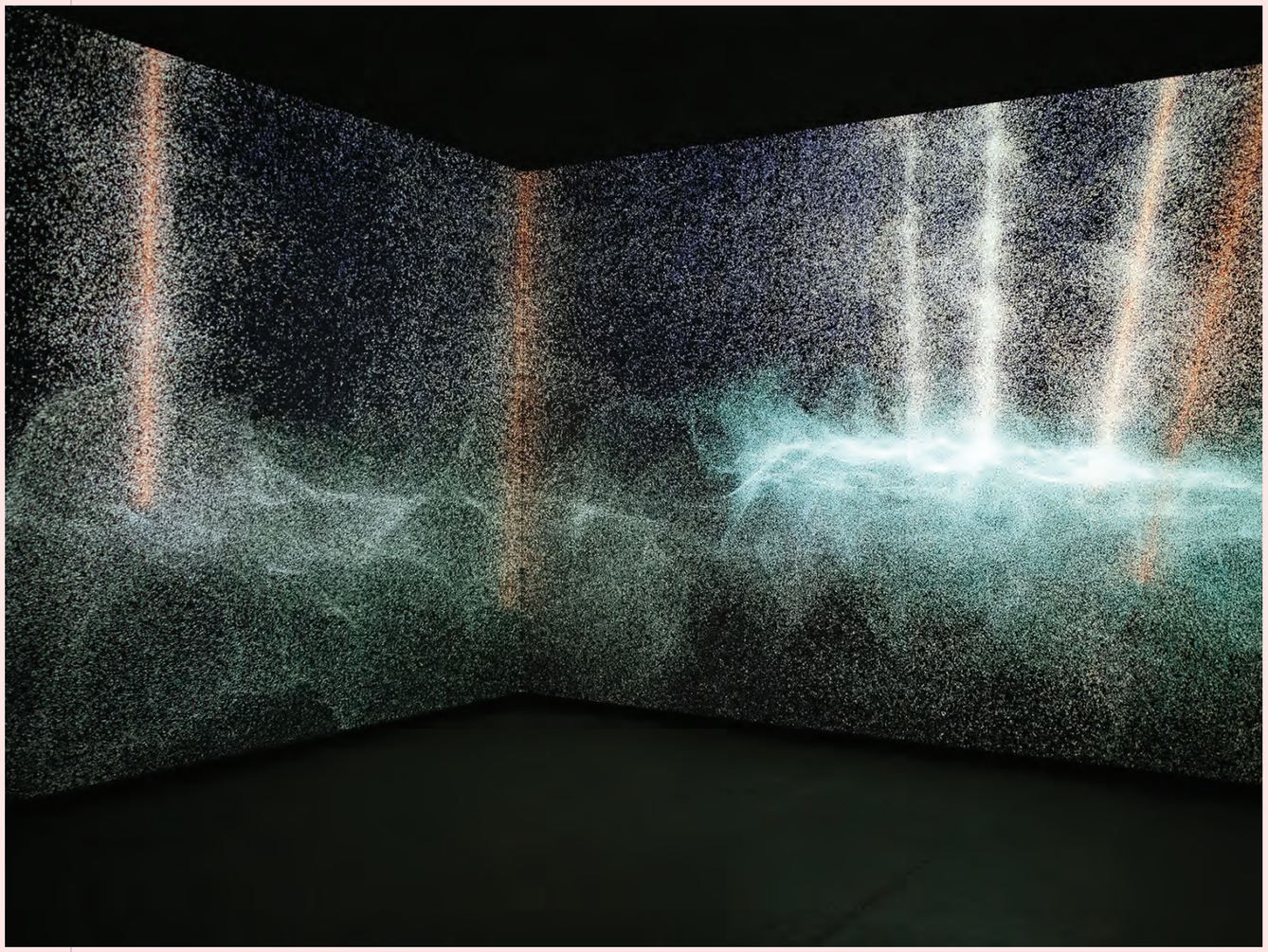
Fig. 10

Rasa Smite, Raitis Smits:
Atmospheric Forest, 2020.
More-Than-Human Exhibition,
curated by Jane Tingleym Onsite Gallery
of OCADU, Toronto, Canada, 2023
Photo: Rasa Smite

of the emitting ecosystem… The fourth scene introduces an unexpected experience, as the viewer becomes immersed in a landscape made up only of visualised data sets. All six trees from which the data were taken are visible, but invisible processes (such as emissions) are made visible only without the structure (without the forest itself). This process of emitting particles is entirely imaginative, based on our artistic vision and the technical solutions developed together with our programmer Kristaps Bitters. However, the dynamics of the animated particles (speed, activity, density, etc.) are determined by the very precise data provided by Kaisa Risannen, which include: soil moisture seen at ground level; air humidity emerging as a cloud or rain; resin formation in trees resembling huge, orange columns of particles, and finally, volatile emissions indicated here as explosive, yellow flames that emerge from the bark of the trees and interact with the weather and the atmosphere (Fig. 9). The final, fifth scene shows the two emitting ecosystems with respective datasets from irrigated and drought-affected areas.



Overall, the *Atmospheric Forest* is a visualisation of a forest affected by climate change, suffering from drought and, as a result, emitting large quantities of odours. The scientists conclude that there are factors of uncertainty that remain in their research about the exact impact of forest emissions on climate change. However, we claim that both resin experiments and the visualised data patterns show that with climate change, we are set for a more fragrant and more "atmospheric forest" in the future (Fig. 10).

↑

Fig. 9

Rasa Smite, Raitis Smits:
Atmospheric Forest, 2020,
Purvitis Prize 2021 Final Nominees Exhibition,
The National Art Museum of Latvia, Riga.
Photo: Kristine Madjare

ACKNOWLEDGEMENTS

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Producers: *Atmospheric Forest* was co-produced by RIXC Riga and ZKM Karlsruhe 2020 and premiered at the exhibition titled *Critical Zones* (2020–2022) curated by Peter Weibel and Bruno Latour.

Awards and nominations: *Atmospheric Forest* was awarded by Falling Walls 2021 (Art and Science – winner) and nominated for Purvitis Prize 2021.

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More info: http://smitesmits.com

Rossi

insert ∫ no. 3

ELENA GIULIA ROSSI

Artistic Research as "Active Æsthetics"

In the still very open field of inquiry, that is Artistic Research (AR), we can identify and capture traces of methodologies that produce knowledge by entering into a realm of AR that oscillates between the boundaries of art, science and technology, such as molecular or nano art, climate art, bio art and ecological art. We like to unfold the process of methodologies by building across disciplines, or in other words, "performing interdisciplinarity" through "Active Æsthetics," a complementary tool that Experience Bryon called into play within an interdisciplinary discourse where performance encounters and collides with the digital, installation art, social geography, pedagogy, cognitive science, psychology, activism, political philosophy, forensics, voice and visibility.[1] "Active Æsthetic" is applied to various domains of artistic research between art, science, biology and technology that are performative in their modes of staging the encounter between science and life and delivering it to the audience.

Selected works by Victoria Vesna, Andrea Polli, Rasa Smite and Raitis Smits, Tissue Culture & Art Project[2] – pioneering artists who developed methodologies and approaches in dialogue with science – will help to support these arguments. In their variegated approaches, they all perform an "act of acknowledging,"[3] while their projects and methodologies move into the realm where everything is interconnected. They embrace the existence of "semi-objects,"[4] hybrid entities that exist as "moving actants"[5]. In AR, objects are hybrid and mutable; they are "boundary objects in methodological discourse."[6] In other words, objects that change their epistemological and ontological nature depending on the given research context, and thus can be used for both tracing and questioning disciplinary borderlines.

Since the early 2000s, Victoria Vesna, artist, Professor at the University of California, Los Angeles and Director of the Art|Sci center at the School of the Arts and California NanoSystems Institute (CNSI) at UCLA, has been diving into the molecular dimension,[7] in dialogue and in collaboration with nanoscientist James K. Gimzewski. *Zero@wavefunction* (2002) – the first in a series of their life-long collaboration – is an immersive, environmental installation. When it was presented at the Los Angeles County Museum in 2003, the shadows of *buckminsterfullerene* molecules, also known as *buckyballs,*[8] were projected on the museum walls on a monumental scale, modified through the interaction of visitors' shadows captured by special sensors. The experience had made it a natural urgency to get in tune with molecular dynamics. It had emerged, in fact, that the transformation of the molecules would only be made possible through slow movements. Through the sonification of cellular vibrations combined with images, the viewer witnessed the caterpillar's metamorphosis into a butterfly in Vesna's *Blue Morph* (2007–). The "sonic tale," obtained by covering the chrysalis (the pupa of the butterfly) with a small sheet of glass and hitting it with a laser, revealed, against all expectations, that the passage takes place simultaneously: a moment corresponding to an absence of sound. In both cases, peculiarities emerged unexpectedly from both sides of science and art.

Sonification is also a privileged instrument and methodological approach for Andrea Polli, who, since the early 2000s, has been exploring life mirrored through climate events.[9] In the processes of the "sonification" of atmospheric data, the resulting narratives "tell" the story of climatic events and derive an overview where recurring patterns can be identified. The sonic spatialisation of *Atmospheric/Weather Works* (2001–2011), initiated as a video-sound performance, revealed that the winter storm was most intense in the areas closest to the extremity of the atmosphere, while higher wind speed occurred at lower altitudes, according to patterns of variations conveyed

1 Experience Bryon, ed., *Performing Interdisciplinarity: Working Across Disciplinary Boundaries Through an Active Æsthetic* (New York: Routledge, 2018).

2 Their work, as well as SymbioticA, a laboratory at the University of Western Australia that they founded as "a space dedicated to research, learning, critique and hands-on engagement with life sciences", are topics of intense discussion in the field of Artistic Research.

3 Henk Borgdorff, Peter Peters, and Trevor Pinch, eds., *Dialogues between Artistic Research and Science and Technology Studies* (New York: Routledge Advances in Art and Visual Studies, 2020), 1.

4 Bruno Latour, *We Have Never Been Modern,* trans. Catherine Porter (Cambridge, MA: Harvard University Press, 1993).

5 Bruno Latour, "On Actor-Network Theory: A Few Clarifications," *Soziale Welt 47,* no. 4 (1996): 369–81. http://www.jstor.org/stable/40878163.

6 Henk Borgdorff, *The Conflict of the Faculties: Perspectives on Artistic Research and Academia* (Leiden: Leiden University Press, 2012); Retrieved from https://library.oapen.org/bitstream/handle/20.500.12657/32887/595042.pdf?sequence=1&isAllowed=y

7 This area of AR was later recognised in the term "molecular æsthetics" (Weibel 2013).

8 The name of the molecule *buckminsterfullerene* originates from the geodesic dome architecture of Richard Buckminster Fuller, an American system theorist, architect, engineer, designer and inventor, developer of the geodesic dome architectures, extension of geometric principles, sequencing triangles and tetrahedrons, after which the molecule was named when it was discovered in 1985. Fuller's work and his early cross-disciplinary approach strongly influenced the artistic practice of Victoria Vesna and the entire world of research ahead of its time.

9 In recent years, the area of climate research has been recognised in terms such as "meteorological art". See, Janine Randerson, *Weather as Medium. Toward a Meteorological Art* (Cambridge, Massachusetts; London, England: Leonardo book, The MIT Press, 2019).

by the different sound intensities of the compositions. This narrative of data made it possible to analyse, re-examine and compare phenomena as they unfolded.

One can perceive climate change, the entanglement between the forest and the atmosphere in *Atmospheric Forest* (2020) by Rasa Smite and Raitis Smits, a pioneering duo who have been working at the intersection of art, science and emerging technologies since the mid-1990s[10]. The sonification of data collected during the *Ecodata* research project (2017–2020) between the pine-tree emissions in Pfynwald, an ancient Swiss Alpine forest in a valley much affected by drought, is embodied in a VR experience.

We delve even deeper into the encounter between art and life by approaching bio art, a topic widely discussed in the field of Artistic Research, in terms of how it operates directly on life, the one written in the genetic code. "Bio art is a new direction in contemporary art that manipulates the processes of life."[11] Biological material, natural processes, and the methodologies applied to them (biotechnology, genetic and tissue engineering, etc.) are their means of creation. The work is completed when it begins to pulsate, by the "hand" of the artists and scientists, in the life of synthetic genes (Eduardo Kac), plant hybrids (George Gessert) or "semi-living" objects (The Tissue Culture & Art Project). We come closer to the project and research by The Tissue Culture & Art Project (Oron Catt and Ionat Zurr) – perhaps the most extreme example of bio art – that deals with tissue engineering beyond any current definition of how life is formulated. In the duo's early projects, tissue cells (of the epidermis or muscle tissue of mice and rabbits) were grown *in vitro* to make sculptures that they referred to as "semi-living objects", living tissues derived from complex organisms grown in artificial conditions that mimicked the conditions of the body inside bio-reactors.

When their project titled *The Tissue Culture & Art(ificial) Wombs* (1996) was shown at Ars Electronica Festival in 2000, the two artists reconfigured a laboratory that was open to the audience. Their "semi-living objects" took the form of "worry dolls," popular South American dolls used to banish and transfer all kinds of worries onto little fetishes. Visitors were invited to perform the ritual by telling their sorrows and fears to the semi-living dolls. Creating the sculptures in an open laboratory made this a total, immersive experience. Not only was it possible to look at the semi-living objects, but also to feed them through a real ritual, which the artists called the "The Feeding Ritual." The responsibilities of the artist working with biological materials were shared with the viewers.

The methodological approach – that enters the sphere of laboratory practices and decontextualises them to make them visible – becomes a more explicitly political and activist responsibility in Critical Art Ensemble's (CAE) work. Being committed to exploring and modelling activities of resistance within the capitalist system since 1987, starting in 1999, the collective began to draw attention to the discourse revolving around biotechnology, the expectations it created in the marketplace and all the ethical and religious conflicts this entails.

Flesh Machine (1997) emerged in this landscape of ideas as the first biotech project, the start of research aimed at unmasking the power of biotechnology. In this piece, they set up a fictitious company called Biocom to offer assistance for next-generation reproductive practices, a real "flesh trade." Prospective donors were invited to fill out a questionnaire. They were accepted or rejected based on their answers to questions concerning æsthetic issues and the person's adaptability to the technocratic system. The "promoted" candidates would be awarded a certificate of "genetic merit" and a license to proceed further. Some of those who were accepted withdrew in fear of going ahead. The others had their blood taken in a prearranged molecular laboratory, and their DNA was then analysed on-site to reconstruct their genetic profile. Their bodies as material were ready to be placed on the new genetic market, accompanied by the previously completed questionnaire and a photograph of each donor.

Since then, many of CAE's practices have focused on the manipulation of life on a genetic level to raise awareness of the significance of the applications of genetic engineering and modern biotechnology to life, sometimes playing on fear, as in the case of *GenTerra* (2001–2003) where a series of transgenic bacteria – created in collaboration with the spectators – were mixed with normal bacteria and placed in a Russian roulette of sorts activated by the visitors. Whether the transgenic or the normal bacteria were released was left to chance (with the participants becoming complicit in activating the process).

10 Rasa Smite and Raitis Smits are founders of the RIXC Center for New Media Culture in Riga, chief editors of the peer-reviewed journal and book series "Acoustic Space," and authors of several different multidisciplinary practices.

11 Eduardo Kac, ed., *Signs of Life: Bio Art and Beyond* (Cambridge, MA: The MIT Press, 2007).

Language, invisible but always present in all of these processes and as effective as any other agent at stake, emerges as a main tool to initiate any process. The need to confront each way of using language was the starting point for CARE (Creative Artistic Research Ecosystem), the laboratory newly born within EU4ART_*differences* from a partnership between the Accademia di Belle Arti di Roma and the National Institute for Nuclear Physics INFN Roma Tre University. This is the beginning of a new chapter where a research environment is about to be built on a common project based on cross-contamination between the disciplines of art and nuclear physics, enriching each other's perspectives on approaches and methodologies.

Visualising life at the molecular level (Victoria Vesna), narrating climate through climate sonification (Andrea Polli), embodying data through Virtual Reality (Rasa Smite & Raitis Smits), manipulating life through genetic engineering (Tissue & Culture), as well as establishing a hybrid methodology (CARE Lab) are processes that generate new "knowing spaces."[12] The notion of "Active Æsthetics" allows events of knowledge to float in the space between the subject of the discipline and the object of knowledge, temporarily held there to be witnessed as an active, dynamic force before becoming grounded in knowledge, "tangibly," within the vocabularies shared by any one of the discrete disciplines.[13] In their creative approaches, "artistic and scientific methods move within epistemic processes where meaning and knowledge is generated through semantic processes that include heterogeneous stages and interlocutors."[14] Embracing Latour's "semi-objects" and their ontologically and epistemologically ambiguous nature helps us to imagine new, possible methodological models to activate knowledge in a continuous reconfiguration of objects and facts driven by an ever-changing, interrelated system of relations.

12 Borgdorff, *Dialogues,* 16.

13 Bryon, *Performing Interdisciplinarity.*

14 Esa Kirkkopelto, "From Quasi-objects to Artistic Components: Science Studies and Artistic Research," In *Dialogues between Artistic Research and Science and Technology Studies,* Henk Borgdorff, Peter Peters and Trevor Pinch, eds. (New York: Routledge Advances in Art and Visual Studies, 2020), 31.

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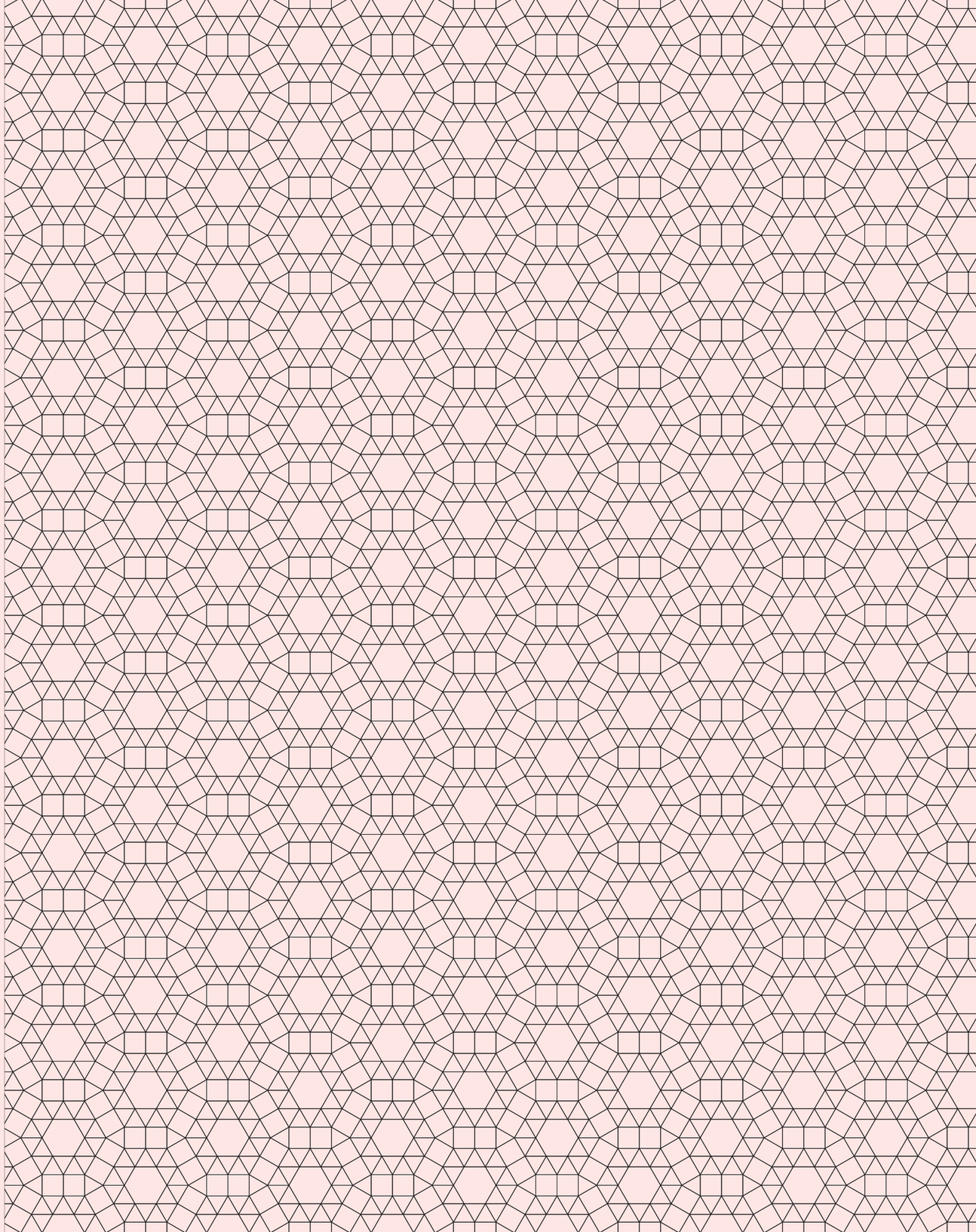
Till Ansgar Baumhauer

...a certain unity, which unites its whole being, its powers and abilities...

an interview with Carsten Nicolai

p. 98—99

CARSTEN NICOLAI



TILL ANSGAR BAUMHAUER: The topic of our current conversation is artistic research, the ways in which artistic processes relate to research questions and the points where these fields merge. I'd also like to discuss your works' scientific background, your artistic practice in general and its aspects concerning the notion of materiality.

CARSTEN NICOLAI: My artistic field is quite difficult to describe. What really interests me is the question of what creativity is. What are creative processes? My references – from which I draw a lot of inspiration and knowledge – are scientific models that visualize how the world works. These scientific models are mere suggestions, not necessarily accurate or fully confirmed, that is, agreements we deal with. Nevertheless, these models are taught in school as if they were fixed laws of nature.

If you deal more intensively with natural sciences, you automatically arrive at mathematics, physics or perception psychology. And that's where my references lie. My art is not necessarily coupled to the reference system of art history. Of course, I am aware of it. But often, my sources of inspiration are more scientific in nature. The process informs my decision concerning the choice of the best-suited material to implement my theme, whether a work develops in the artistic process, unfolds in an installative situation or has something to do with sound, music, sculpture, photography or painting.

A scientific thesis is a form of poetry because every type of thesis, however fundamental, has been updated repeatedly – a thesis evolves, too. This is, of course, a very exciting philosophical topic… Let's take the model of the atom, for example. What we learned in school is only an abstraction of what an atom is. The model is a basis of common understanding so that we can talk to each other about how atoms probably work (because we still don't know exactly), or even what gravity is, or magnetism, and all these very basic forces that act on us daily.

In other words, it's about understanding reality. What is reality and what is not? How do we perceive reality? What part does our brain play in the unfolding of reality around us? We are brought up with a materialistic view of the world, that certain things are always fixed. I'm more concerned with this more fluid mass, so to speak – I don't think of natural laws as laws but as processes in flux.

TAB: I'll hook in on the buzzword of 'philosophical questions'. We also have the entire field of the humanities as a frame of reference for artistic research, be it sociological or political, economic-theoretical questions, etc. As these interfere with each other, does that also play a role for you as a framework in combination with the scientific questions?

CN: It depends. When we talk about æsthetic perceptions, for example, social components are, of course, extremely important: our cultural sphere, how we have been brought up, what our listening and viewing habits are, and, for example, how we understand iconography are all socially determined questions. I am very much aware of that. I've been dealing with the question of coincidence intensely for years now. This is a fundamental question for which there is yet no explanation in mathematics. It is not possible to formulate random processes mathematically. In my work, I rely on actual, real coincidence instead of finding a model of it. That's why, for example, I deal with radioactivity and extraterrestrial radioactive particles that arrive here on Earth by chance. At this point, I am not concerned with radioactivity as a political or ecological subject. For me, it is essentially about this coincidence situation. What is coincidence, and how does it arise?

TAB: That leads us to my next question. How do your artistic concepts emerge, and how do they contextualize into the overall work? You already said that in this doubling or crossing of thematic fields, as with noise, there are inevitabilities in how different aspects come into contact.

CN: I would describe this as a circular movement. I use sketch diaries to make work notes. Funnily enough, I never read through these books again after creating them, but every now and then, one of them comes into my hands again, 10 or 15 years later, and then I realize that the topics I'm working on now already interested me back then. These

are circular, exploratory movements. There is a core around which I circle. But it is difficult to describe – what is this core or the central force around which one circles, like a satellite? Maybe that can't be described, but the circular orbit itself can. Along this circular orbit, new aspects of old work keep coming up, themes return, or one returns to the original question, for example, but answers it differently now.

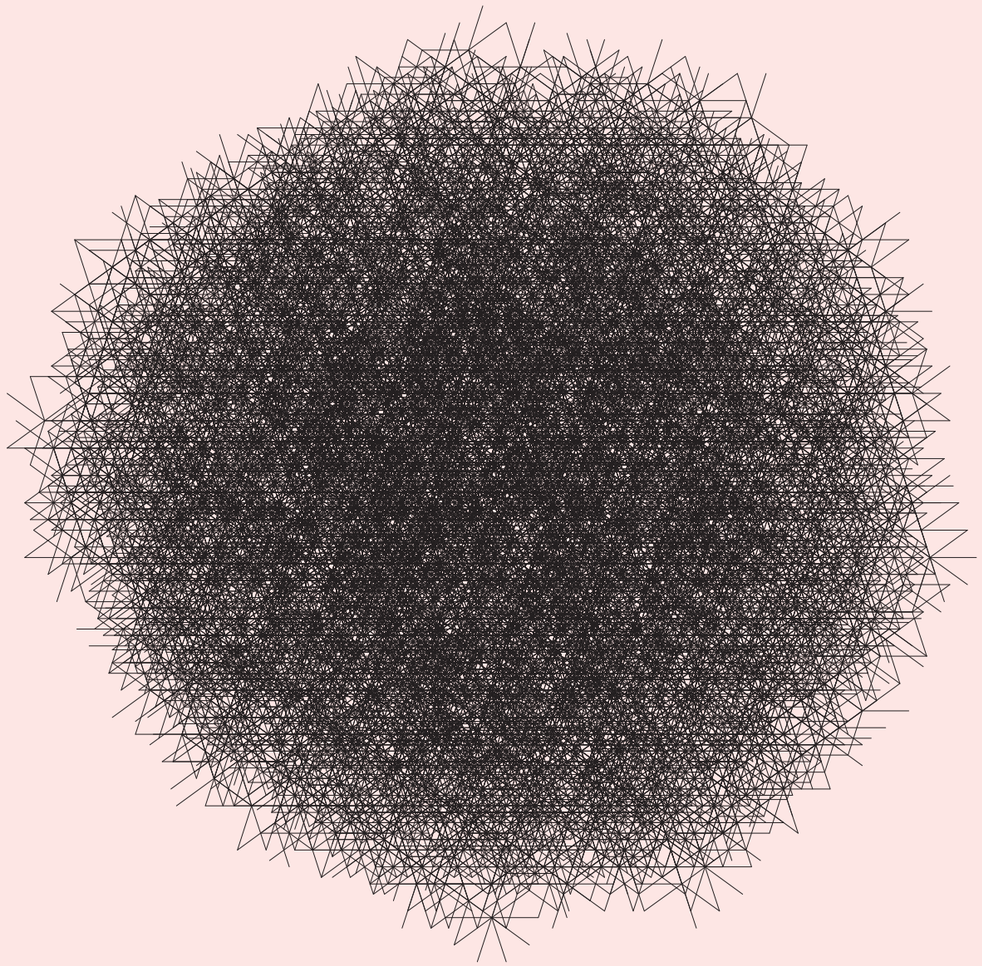
TAB: I always think of the model of the wheel with its spokes, and at the end of the spokes, where the tire is, so to speak, you find the artistic expression of what is at the centre. The more points on the circle or on the tire you can define, visualize or verbalize, the closer you get to the core of the circle or the hub.

CN: I'm not the circle. I'm more the point of the circle, and when a work emerges, it separates from me. It develops its own life. The circular path shifts, but the centre remains. And some themes recur again and again, like this coincidence topic.
The question really is, what is material? That's why I orient myself so heterogeneously: sound, drawing, sculpture, light, radioactivity. If I understand all these as electromagnetic waves, then it is all connected through this concept. In this respect, I build a model for myself. These models give a certain hold; we agree on language as well because it communicates a binding nature. And we would have serious difficulty thinking things further; if this binding didn't exist, we would feel lost.

TAB: Bringing back our focus to the intermediate steps you just mentioned, these notebooks, for example, I'm wondering how important the documentation of the process is to you. Should this research documentation be received theoretically, and how much does the research process communicate through the final artefact?

CN: I've been thinking about that a lot. The philosopher Marsilio Ficino once said, "The body, however, is an indefinite multiplicity of parts and random appearances, subject to movement and divided into substances, moments and points. Our soul looks at all these things. Through them,

Nonperiodic tiling
10-fold symmetry
meyer construction of a quasicrystal
spiky decagon tiling
↓



it descends and rises again. In so far as it emerges from the unity as the source of the universe, it possesses a certain unity, which unites its whole being, its powers and abilities."[1] That is my credo. A fragment simultaneously represents totality – I, therefore, do not need to communicate the whole. I can communicate the fragment.

With this statement, of course, I make it easy for myself. It is impossible to communicate the totality. In this respect, I see every kind of work as a fragment, as part of a larger process. I don't think so much of rehashing artistic works in such a way that they become didactic, completely comprehensible. I see in this a danger of the artwork's power getting lost. This is because the comprehensible processual performance comes to the fore, and the power of the artwork takes the back seat. That is also the great advantage that the artist has over the scientist, that we can publish fragments which can develop their own poetry. They might have a scientific origin or research process behind them. It's an inherent aspect of the work, whether I convey it or not.

TAB: I would question whether it is possible to communicate everything anyway. This is because in reflecting on yourself and your artistic processes, you come to the limits of what you can reflect on. You always have blind spots concerning the perception of what you do.

CN: The search for world formulas has never really succeeded. After all, we had an almost divine conception of what was taking place in nature, whether it was gods or a god controlling it. That there is a kind of creator who creates everything ideally, according to a great master plan, a blueprint. We are gradually understanding that there could be several blueprints instead of one that we have to abide by – if there is one at all –, and that it is probably chaos rather than order that determines us.

This, of course, causes high discontent, calling into question all textbooks. I also find quantum physics very exciting in this context because such important statements are made there. For example, if particles come from the same original material, i.e., have the same origin, and are then separated, they still carry the information of the original material. In particle physics, there is also talk about a certain "telepathic connection": even the smallest particle still carries information about the whole.

This can now be seen scientifically but also as a highly philosophical proposition; that's why this kind of philosophy is very convenient for me, and against this background, I can publish artistic works as fragments.

TAB: Please tell me who your target audience is and who the partners are in this dialogue, in which you first make the setting with the artwork, which, however, is not the endpoint of the exchange but the starting point for a possible dialogue to emerge. Who are the ones you address with your work?

CN: I don't think that art is created for an audience. Art is created only for the artist himself, primarily. Because the questions that the work of art poses can only be answered by the artist himself and only if the work generates relevance for the artist himself. When you say that it is finished and determine the endpoint, it speaks to you and has something to do with you, and only then does it step outside and have the possibility of speaking to others. I don't think anything of this idea to produce a work that is addressed to the audience.

TAB: At the same time, when you work with certain scientific subject areas, scientists from these fields will react differently to your work from someone who encounters and perceives it on a purely æsthetic or perhaps fascination level for what you are also developing regarding the technical possibilities. Does that make a difference to you in thinking about the work?

CN: That's a very exciting topic because in recent years, this idea that art and science belong together, or that connections should be sought, has almost become a buzzword. I once had a small symposium in Japan with a scientist around 15 years ago, where I had exactly these prejudices that you asked me in the form of a question, and I realized that these are prejudices!

The scientist was interested in much more free topics than just the scientific aspects of my work, in fact, in the things I had left undefined, that were not scientific. At that point, we discussed the difference between artistic production

→
Semiregular tiling
variation
union

1 Marsilio Ficino [Marsilius Ficinus], *Über die Liebe oder: Platons Gastmahl* [On the Nature of Love, or: Plato's Symposium], translated to German by Karl Paul Hasse (Leipzig: Felix Meiner, 1914; Reprint: London: Forgotten Books, 2016), 215 (English translation by Till Ansgar Baumhauer).

and scientific research. How do ideas come into being? They are all just ideas or conclusions. Scientific work is not necessarily logically comprehensible. If it were logically comprehensible, only a matter of algorithms, we could have a computer calculate everything. But it is about ideas, and there are many descriptions that scientists came to a certain idea by waking up suddenly in the morning after a dream sequence or having found the solution through deep sleep.

It's often coincidences that lead to scientific knowledge. And that's what I find very exciting because I see many parallels there; when I talked to this scientist back then, Takashi Ikegami, something astonishing happened: He realized the freedom I have as an artist. And I was fascinated by this scientific work and the thesis he published about artificial intelligence. Ikegami, by the way, started making art after that symposium. I had done a music performance in that context. I had one of those EMS modular synthesizers at the time, which is very difficult to predict. What happens when you turn certain modules and reconnect them is trial and error. He was very interested in that aspect. For the scientist, the chaotic, the indeterminate, is much more interesting than the determinate because he already knows that – when we artists try to be particularly mathematical, it's pretty boring for mathematicians.

TAB: Let's discuss all this in the context of your chosen work!

CN: I have published two books that are not works of art in the strictest sense, even though I understand them to be full-fledged works. The first one was called *Grid Index*[2] and is basically an encyclopædia about grid systems. I started drawing different grid systems, first by hand and eventually by computer. I noticed I had already made some of them and used them repeatedly. I thought, how great would it be to build an archive? You wouldn't have to redraw these grids every time but could get the materials from this archive, so I started creating it. With the help of an assistant, we then spent more than three years converting all possible grid systems and additional examples into vector graphics and building an archive from them.

2 Carsten Nicolai, *Grid Index* (Berlin: Die Gestalten Verlag, 2009).

After that, I needed some kind of printout to know which systems I would continue using. In the process of developing this, I realized that this is actually a reference book that could not only be of use to me but also to many others. So, the first book, the *Grid Index*, was published, in which not only the grids themselves were published but also a catalogue and a systematization of them. Based on already existing systems, I had to extend the systematics and include further systems that had not been mentioned in the previously existing systematics. Basically, I had to write a kind of overall directory. That's when it became clear: I'm clearly referring here to scientific publications about how grid systems work, and this publication could also pass for a scientific publication in a way.

TAB: So, the book is also a direct contribution to the scientific discourse and will certainly be received there.

CN: Yes, but the main difference with this book is that it was designed from the beginning as a kind of visual dictionary for different subjects. Beyond that, it's my philosophy to retire my authorship, to pass on my work. People can continue to use it. So, I'm taking a step that's relatively unusual in art, where personalizing the artistic outcome is the normal thing. The connection of the artist's name with the nimbus, the whole mystification of the artist, is, after all, an essential part of the marketing strategies of a work of art. This book thus rejects the classical strategies of the artist. I'm basically the author of this book; I'm its maker, and maybe there are copyrights or something like that, but still, I publish it, share it, multiply the material and make it available as a kind of open source.

My second book, which I find even more exciting, is called *Moiré Index*[3]. It refers to moiré systems. These are, roughly speaking, the superimpositions of very similar visual structures. The term moiré describes a phenomenon occurring when very thin silk fabrics are superimposed. Then, they form a third texture, and this third constellation is called moiré. In science, the moiré is discussed only as a phenomenon. There was a lot of research about it, but mostly about how to avoid the moirés. Here, it was mostly about

3 Carsten Nicolai, *Moiré Index* (Berlin: Die Gestalten Verlag, 2010).

printing processes and publications. Because they are all screened, they have pixel screens. At the latest, when you rescan a printed image and put a second one on top of it, moirés occur because you're putting two grid systems on top of each other, so to speak.

And there have been extensive scientific publications on how to avoid this effect. But I realized that these moirés work like optical lenses. They're magnifying devices that make the differences between these two shapes visible when you superimpose them. If you put them side-by-side, they reveal only very slight differences. But when you put them on top of each other, you immediately see that they are not the same, and so they form a third form that is much more perceptible than the two initial ones. These are magnification mechanisms. This effect of extremely enlarging small structures without using a lens, just with superimpositions, is highly exciting, and it triggered a lot of follow-up work.

In all my work, when I have met with scientists to ask about the nature of certain things, I have found that they are not engaged in research in the exact direction that I am interested in, focusing on the error rather than the benefit.

TAB: That's indeed an exciting difference.

CN: And you really have to find people with a broad focus. Of course, it's also a problem of scientific research that everyone is so highly specialized that your holistic view as an artist and the broad spectrum you deal with is not necessarily given to scientists. And with their extreme specialization, you as an artist have problems with different languages because you can't talk to each other at all, so to speak, because of the high specialization.

That is certainly a challenge. At the same time, I find it exciting that by creating interfaces with artistic practices that not only touch on the focal points of individual scientists but bring things together, you can build potential discursive networks in the discussion. You can also bring scientists into discourse with each other with your practice, who otherwise would have nothing to do with each other.

One of the problems in our schools is that from the very beginning, physics, chemistry, mathematics and music are separate subjects in school. But they are all connected to each other. To regain awareness of that meta-level – of those connections in between – is often very hard when you come out of this classical education system.

One of the reasons it's so easy for me is because I didn't study it. I acquired everything autodidactically, so to speak. There was no one-sided study for me, but I could drift: If I'm interested in sound or music, I'm also interested in the physics of sound; if I am interested in sound physics, I deal with electromagnetic waves; if I deal with electromagnetic waves, I ask myself: What is this, in essence? Are these particles or waves? Certain frequencies pass through materials, others don't – how do they do that? These are questions that diverge. I don't think that when you study composition, you learn the physics of sound simultaneously. But that, it goes together.

The interview was conducted in German.
English translation by Till Ansgar Baumhauer.

Barbieri

insert ∫ no. 4

COSTANZA BARBIERI

Artistic Research, Patents and Innovation at the Dawn of the Modern Era

Has a history of art ever been written as a history of groundbreaking materials and techniques, in search for unexplored, experimental languages? Perhaps, the status of "solitary genius" – a notion associated with the greatest artists – has separated the path of technical and material exploration from a collective heritage of research and innovation in the other fields. The romantic vision of the artist may have contributed to cutting cultural, historical, and scientific ties with society, distancing her/him from the common ground of experimentation and improvement across disciplines.

The debate on artistic research in relation to technological innovations and intellectual property dates back to the 15th and 16th centuries, when the artist acquired a new status in society. Free from the condition of workshop workers and apprentices, artistic training laid the foundations for a theoretical and practical education system that would lead to the foundation of the first Academy, established in Florence in 1563.

From this starting point, artists changed their social status from mere craftsmen to intellectuals, whose theoretical training took place in the Academies and was based, among other things, on studies of classical models, anatomy and mathematics.

These innovations were based on research in the most diverse fields in the previous century. Geometry was necessary for the exact, correct and scientifically measured representation of space, according to the perspective theorized by Leon Battista Alberti based on the innovations introduced by Filippo Brunelleschi and Donatello. Architecture and engineering, to find solutions to complex static problems such as for the dome of Santa Maria del Fiore. A technique that vanished during the Middle Ages, namely lost-wax casting, was reintroduced by Donatello.[1]

Leonardo's work in the scientific field, from anatomical studies to mechanics and engineering, is so vast that it cannot even be listed here; later on, his pupils devoted themselves to innovative techniques such as Giorgione in Venice, who started experimenting with oil on walls, which Sebastiano del Piombo took up and developed in Rome, along with research into new supports such as stone and marble, blackboard and copper.

On the 19th of March 1474, the Senate of the Venetian Republic passed a law establishing an administrative procedure for granting industrial patents. This was the first internationally known example of a patent system. From 1474 until the fall of the Serenissima, more than two thousand patents were granted for new and ingenious inventions in the fields of mills, digging machines, methods for dyeing fabrics, medicines, and, not surprisingly, also in the arts.[2] The large bird's eye view map of Venice was printed by Jacopo de' Barbari 'with privilege' in 1500 – a true copyright. To cite another example, when the great printer Aldo Manuzio created his famous typefaces, precursors of the Italic types, he received a privilege from the Venetian magistrates to protect them from counterfeits.[3]

Engravers, painters, architects and sculptors were reforming the artistic language through new materials and unprecedented techniques. According to Giorgio Vasari, when Marcantonio Raimondi arrived in Venice from Bologna, he was deeply impressed by the magnificence and novelty of the prints by Albrecht Dürer for sale in Piazza San Marco and spent all his savings to purchase them and study every single line and carving; he then reproduced seventy-four scenes from the *Life of the Virgin* not in woodcut, but in burin on copper.[4] Denounced by Dürer to the Serenissima for forgery, he was acquitted of the charge on condition that he did not use the signature of the great Nuremberg painter. For sure, by means of his signature, the German artist firmly anchored his image to his personal artistic genius, and a print without this authentication lost part of its interest in the eyes of the public.[5] In this famous lawsuit against Dürer's accusation of plagiarism, Raimondi could

1 F. Negri Arnoldi, *Il mestiere dell'arte. Introduzione alla storia delle tecniche artistiche,* Napoli 2001. Cfr. S. Rossi, *Dalle botteghe alle Accademie: realtà sociale e teorie artistiche a Firenze dal XIV al XVI secolo* (Milano 1980). A book on artistic research and innovation in the Renaissance does not yet exist and would be very much needed.

2 S. Comino, C. Graziano, *Brevetti e corporazioni nella Repubblica di Venezia,* in https://qui.uniud.it/cultura/brevetti-e-corporazioni-nella-repubblica-di-venezia/

3 G. S. Clemons, H.G. Fletcher, *Aldus Manutius A Legacy More Lasting than Bronze* (New York 2015), 141–46.

4 G. Vasari, *Le vite de' più eccellenti pittori, scultori et architettori nelle redazioni del 1550 e 1568,* ed. by P. Barocchi and R. Bettarini, 8 vols, (Florence 1966–1987), vol. 6, 6–7. On Raimondi see, L. Pon, Raphael, *Dürer and Marcantonio Raimondi. Copying and the Italian Renaissance print* (New Haven and London 2004); *Marcantonio Raimondi, Raphael and the image multiplied,* ed. by E. H Wouk with D. Morris (Manchester 2016).

5 S. Rinaldi, "Marcantonio Raimondi e la firma di Dürer. Alle origini della 'stampa di riproduzione", in *Opera, Nomina, Historia,* I, (2009): 263–306.

certainly boast of the novelty of using the copper plate compared to woodcut and of the expressive novelties that this new technique could bring to engraving practices (Fig. 1).

Ugo da Carpi represents another meaningful example: in Venice and Rome, he used an innovative method for chiaroscuro woodcut, obtaining a ducal and then a papal patent.[6] On the 24th of July 1516, Ugo da Carpi formally petitioned the doge and senate of the Venetian Republic to obtain a printing privilege. In his request, addressed to the Most Serene Prince and the Most Excellent Senate, he declared as follows: "I, Ugo da Carpi, carver of wooden figures... have found a way to print light and dark, something new and never before realized, and useful to many who love drawing... of my labours I ask, request and entreat your most illustrious Lordships that... no one can or dares to counterfeit any of my drawings and carvings... obtained only thanks to my genius... under penalty of losing the figures and paying ten ducats".[7]

Aware of the innovative results of his technical research, Ugo was able to transform the concept of intellectual property into a request for a privilege to be exercised in the territories governed by the Serenissima, and later also in Rome, as shown by the print representing *Æneas and Anchises,* bearing the privilege of the Pope Leo X (Fig. 2).

In his later years in Rome, Ugo went so far as to devise a system for painting without a brush, as he declares in the inscription on the altarpiece of the Holy Face in St. Peter's in Rome, where the colours were probably brought back by printing leather stencils. This unprecedented altarpiece has recently been called a 'prototype of a highly innovative technological experiment for its time... for the serial reproduction to scale of colour images on paper'[8]. For Ugo da Carpi, an expert printer, the Holy Face altarpiece was both a challenge and a highly symbolic and spiritual occasion. The relic of the Holy Face, preserved since time immemorial, was the 'acheropite' image that during the ascent to Calvary, the suffering Jesus had – so to speak – 'printed' on the veil that Veronica had offered to wipe off his sweat. A printed and unpainted altarpiece was thus intended to align itself, at least symbolically, with the most venerated relic of antiquity that bore the holy face 'imprinted' on it. The author of the design for the altarpiece was Parmigianino, another leading figure of experimenter and alchemist, discoverer of modern etching.

6 *The Chiaroscuro Woodcut in Renaissance Italy,* edited by Naoko Takahatake, with contributions by Jonathan Bober, Jamie Gabbarelli, Antony Griffiths, Peter Parshall, Linda Stiber Morenus (Munich–London–New York: Los Angeles County Museum of Art, Delmonico books–Prestel, 2018).

7 Ibidem.

8 *Da San Pietro in Vaticano. La tavola di Ugo da Carpi per l'altare del Volto Santo,* a cura di Simona Turriziani e Pietro Zander (Genova 2022).

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Fig. 1: Marcantonio Raimondi, *The Dream of Raphael,* burin on copper (1509). British Museum/Web Gallery of Art, CC

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Fig. 2: Ugo da Carpi, *Æneas and Anchises,* chiaroscuro woodcut (1518), Wellcome Collection Gallery, CC

9 C. Barbieri, "La Natività della Vergine di Sebastiano del Piombo nel contesto della cappella Chigi", in *Santa Maria del Popolo: storia e restauri* , ed. by I. Miarelli Mariani, M. Richiello (Rome 2009), 479–88.

10 P. Baker-Bates, "A Painting Little Less Than Eternal," in *Michelangelo & Sebastiano,* ed. by Matthias Wivel, Exhibition Catalogue (London: The National Gallery, 2017), 75–85.

11 M. Hirst, "The Chigi Chapel in S. Maria della Pace," in *Journal of the Warburg and Courtauld Institutes* XXIV, 3/4, (July–December 1961): 183–85.

12 For a European common framework, see S. Bennett, B. Brown, J. Butler, *EQ-Arts A framework of good practices for 3rd Cycle doctoral awards in the creative and performing arts and design sector* (Amsterdam 2021).

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Fig. 3: Sebastiano del Piombo, *The Conception and the Birth of the Virgin,* oil on stone (peperino), Cappella Chigi, Santa Maria del Popolo, Rome (1530–1547), photo: Peter1936F, CC

At the same time, Sebastiano del Piombo investigated a new system for painting in oil-on-wall or -stone for a painting 'no less than eternal' in order to rival sculptors in asserting the eternity that also painting could achieve, not inferior to Greco-Roman statues. Sebastiano's research culminated in the oil-on-stone altarpiece painted for the Chigi Chapel in Santa Maria del Popolo and representing the *Birth of the Virgin*[9] (Fig. 3). The sensational novelty is recorded by contemporaries who enthusiastically applaud the invention. Thus Cardinal Vittore Soranzo to Pietro Bembo from Rome in a letter of the 8th of June 1530: 'Our Venetian Sebastianello has found a secret for beautiful oil painting in marble, which will be little less than eternal painting. The colours, as soon as they are dry, unite with the marble in such a way that they almost petrify, and he has done every test, and it is durable.'[10].

A few months later, on the 1st of August 1530, Sebastiano signed a contract for the Chigi altarpiece, which emphasized the novelty of 'eternal painting', specifying how the painter "must paint the said panel in the said chapel, which is made of walled peperino stone and is to be painted in oil in that new manner and invention that he has acquired through long effort and experience with all his ingenuity and know how to give it that perfection that is possible for him to achieve and that can be compared with any other panel in Rome and especially with that of Rafaelo da Urbino in San Pietro Montorio"[11].

The technical revolution was accurately recorded by Vasari, who acknowledged Sebastiano's invention of painting on stone, where the support was treated with a "mixture of Greek pitch and mastic and coarse varnish [...] boiled", applied "with a coarse brush" and worked "with a walling trowel that is by fire", that is, red-hot. With the same mixture, keeping the colours intact, Sebastiano was able to treat various materials, in addition to slate and bricks, 'peperigni, marbles, mixtures, porphyries and very hard slabs, in which paintings can last for a very long time', initiating a genre that met with great fortune and challenging the eternity of sculpture.

It is quite surprising that nowadays, the discrimination on research and PhDs in the arts afflicts many European countries, more than other continents: many fine arts students, as well as performers, video artists etc., cannot obtain a PhD and therefore cannot complete the third cycle of education.[12]

This discrimination results from the misunderstanding of the research method as purely rational and scientific, terms apparently unsuitable to the art world. This concept is contradicted by the advances in new technologies leading to patents and copyrights obtained by Renaissance artists, historically documented and which I tried to illustrate as exemplary models. In the 16th century, new and unexplored fields of technique and materials became the key to self-affirmation for those who challenged themselves in the *agon* of artistic research and through innovative artistic practice.

During the crucial transition from workshops to academies, the above examples represent how artistic research and experimentation represented a driving force behind artistic identity, and creations resulting from closely interconnected materials and languages. These were the distinctive foundations of artistic research that in the Academies present – to this very day – the powerful forces behind the ideational and technical process.

Pirri

contribution ∫ no. 4

Veronica Di Geronimo

From Visualization to Materialization

a conversation with Alfredo Pirri on spatiality, materials and working methods

p. 122—123

ALFREDO PIRRI

"EXPERIMENTING IN ART IS LIKE WITH SCIENCE, THERE ARE IDEAS THAT OCCUR. BUT THE RESULT MUST BE A VISIBLE WORK, AND INVENTION IS THE EVIDENCE. [...] PERHAPS EXPERIMENTATION IS THE INFANCY OF THE WORK. AND WE KNOW HOW CHILDHOOD IS THE HAPPIEST MOMENT OF EXISTENCE AND THE MOMENT THAT MOST TORMENTS ADULTS' DREAMS. EXPERIMENTATION IS THE MOVEMENT IN WHICH TENSIONS ARE MOST PUT TO WORK, INVENTION IS AN ACCEPTANCE OF THESE."

Alfredo Pirri,
Sull'arte di comporre in video,
1986[1]

1 Translation by the interviewer from: Alfredo Pirri, "Sull'arte di comporre in video," *Ritratti. Greenaway, Martinis, Pirri, Viola,* ed. Valentini, Valentina (Rome: De Luca Editore, 1986), 50.

The artistic research of Alfredo Pirri is a dynamic chain that evolves through imagination, praxis and technological aid, challenging the traditional assumptions about what materials can and cannot do. In his practice, images and visualization guide the work towards investigating the properties of different materials whose outcomes can be extended to other disciplines, making his research a seminal source for other sectors as well. The artist's studio is conceived as a laboratory where materials are exploited and tested until the needed formula is developed, and disguised by its æsthetic appearance. Indeed, in the development process of the artwork, the research on materials is concealed by displays of the artwork's poetic language that prevails over its materiality. The experimental phase on materials is pursued with the collaboration of experts and research laboratories, making corrections and variations on the matter, forecasting the materials' mutability, and considering the technological equipment required for its elaboration and application in specific architectonic and urbanistic contexts.

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Fig.1: Alfredo Pirri, *Prospettive con Orizzonti*, 2022
2700 square meter, corten steel, burnished copper galvanized steel, coloured concrete, glass, Florence, Maggio Fiorentino Auditorium
Photo by Giorgio Benni. Courtesy of the artist, District of Florence

With the following interview – which retraces the work for *Prospettive con Orizzonti* (2022) and *Sala Cielo* (2021) – it is possible to enter the *modus operandi* of Alfredo Pirri and his research tenets, from the conception to the finalization, from spatiality issues to the organic integration of the artwork in the landscape, with the purpose of understanding the creative process. The words of the artist concerning the two recent works open the path to rethink the interplay Pirri creates between colour, space and light in the framework of his research on materials and for an overall reconsideration of art as a field belonging to material culture that points beyond aspects of visuality.

Fig.2: Alfredo Pirri, *Prospettive con Orizzonti*, 2022
2270 square meter, corten steel, burnished copper galvanized steel, coloured concrete, glass, Florence, Maggio Fiorentino Auditorium
Photo by Giorgio Benni. Courtesy of the artist, District of Florence
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2 Emiliano Cerasi, CEO of SAC Spa, an important construction company, and vice-president of ACER, the Builder's Association of Rome and Province, is an art collector and part of the Elena and Claudio Cerasi Foundation that in 2017 founded Palazzo Merulana, a space for contemporary art in Rome.

3 The literal translation of the work's title is "Perspectives with Horizons".

VERONICA DI GERONIMO: Your artistic practice often assumes architectural value and engages in redefining urban spaces. Your recent work, *Prospettive con orizzonti,* is very emblematic in this regard. Inaugurated in December 2022 in Florence, it marks the spatiality of the entire city since it is at a point of convergence. Could you please explain how the project was initiated?

ALFREDO PIRRI: *Prospettive con orizzonti* was inserted into the final phase of an architectural project designed by the Italian firm ABDR, which was appointed ten years ago to oversee the construction of the Maggio Fiorentino Theatre in Florence. My work was realised through the philanthropic gesture of the Cerasi family, who wanted to donate a piece of art to the citizens and the theatre audience. In 2019, Emiliano Cerasi[2] asked me to conceive a site-specific installation to cover the external part of the Sala Mehta music hall by creating an artwork on the theatre's roof. It covers a large area of approximately 2,270 square meters, marking Florence's aerial view. The formal aspect of *Prospettive con orizzonti* was partially influenced by the previous design made by ABDR studio that had already envisaged a subdivision into two levels: the walking surface and a second level, slightly raised above the planking level, that had to accommodate flowerpots organized according to parallel lines. In my mind, the idea of aligned planters transformed into long projection lines that expand the space in which the theatre is located. Thus, I decided to shape the roof plane with parallelepipeds and cubes to visually connect the theatre to the town through multiple viewpoints. Indeed, Maggio Fiorentino sits perfectly in the centre of three different urbanistic areas (Fig. 3); it is right in the middle of the ancient city, the modern residential area constructed during the last century, and the upcoming district in the northwest, where Parco delle cascine is located. Looking from *Prospettive con orizzonti* toward the Southeast, people can see the cathedral and its dome surrounded by the Medieval and Renaissance city, while on the opposite side new areas of the town will emerge. It is in this context that the title of the artwork must be read,[3] as it refers to a pluralism of perspectives in which past, present and future become vanishing points visible through the skyline.

VDG: The title *Prospettive con orizzonti* is dense with references, particularly because the artwork is situated in the motherland of the Italian Renaissance. It metaphorically embeds a multiple spatiality and symbolically outlines different points of view, evoking the famous essay of Erwin Panofsky. From a bird-eye view, *Prospettive con orizzonti* finds temporal and visual connections across the city's history and within the auditorium, characterized by linear and geometric shapes.

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Fig.3: Alfredo Pirri, *Prospettive con Orizzonti,* 2022, 2270 square meter, corten steel, burnished copper galvanized steel, coloured concrete, glass, Florence, Maggio Fiorentino Auditorium
Series of frames from YouTube video made by Leonardo Conti.
Courtesy of the artist, District of Florence.

Fig.4: Project plant for *Prospettive con Orizzonti*
Courtesy of the artist
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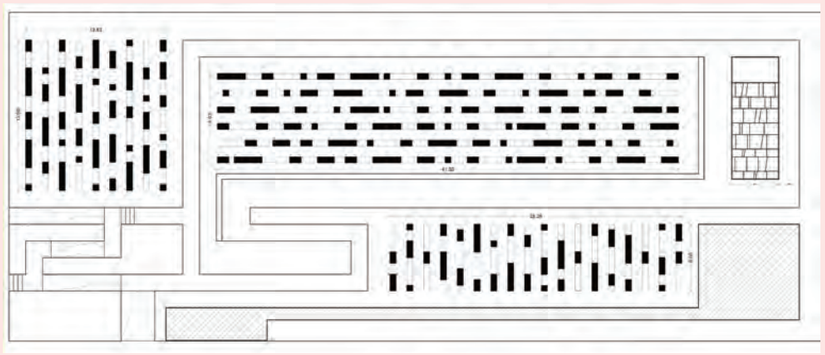

AP: There is a strong resemblance among the units of *Prospettive con orizzonti*, the pre-existing structure of the theatre and the modern houses. These shapes, the cubes and the lines also represent the city's spirit and can be found throughout the urban landscape, from the ancient town to modern architecture. Indeed, the choice of the shapes was also influenced by the typical motifs of Florentine churches, whose chromatic divisions were obtained through the repetition of essential patterns that created a visual rhythm similar to that of Gothic facades. The idea of musical cadence is evoked by the sequence of full and empty forms that alternate as elements of a musical interlude; the serial scheme alludes to treble and bass in the notation scores of musicians (Fig. 4–5).

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Fig.5: Preliminary Sketch for *Prospettive con Orizzonti*,
2022, 100 × 70 cm, watercolour on Arches paper
Photo by Giorgio Benni. Courtesy of the artist
The sketch of the line projections with parallelepipeds made with different measures creates a visual pattern that recall a notation score for music.

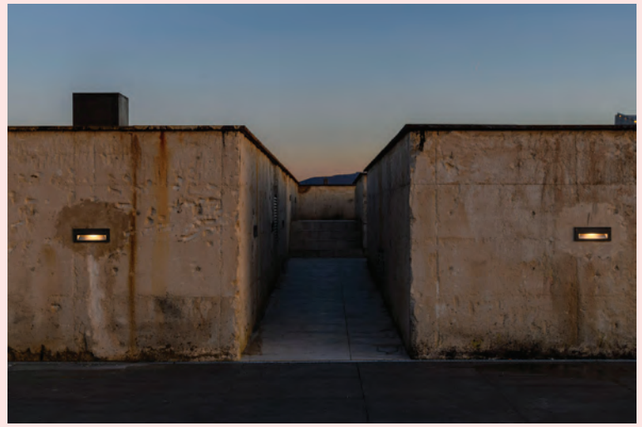

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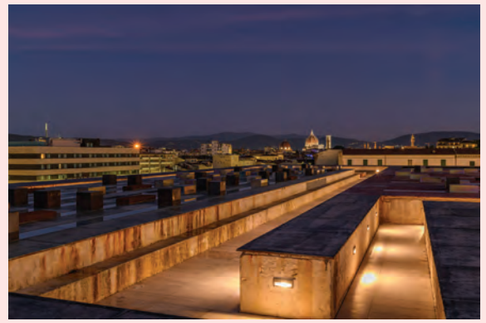
Fig.6: Main walking entrance of *Prospettive con Orizzonti*
Photo by Giorgio Benni. Courtesy of the artist, District of Florence



The Florence train station Santa Maria Novella by Giovanni Michelucci also impacted the formalization of my project. The way in which the architect treated geometry, which exalts not so much the massive structure but its slight balance and the transparent, luminous quality, was one of my goals, too, in conjunction with the adoption of the straight-line tendency as a trope.

VDG: What about the spatial articulation of *Prospettive con orizzonti*?

AP: There are four distinct zones and a water tank with a hydro-system. There are two entrances (Fig. 6) that introduce visitors to a kind of metaphysical labyrinth whose walls correspond to the "chevalier perspective", which means that the walls' hight conforms to the viewpoint of a horseback rider. The labyrinth (Fig. 7) intends to create a dynamic and essential space rather than a fixed one. The parallelepipeds contribute to the vitality of the space because they are emerging and immersive structures: the solids rise from the ground while the sky plunges into mirroring glass lying on the floor.

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Fig.7: *Prospettive con Orizzonti* with "chevalier perspective"
Photo by Giorgio Benni. Courtesy of the artist, District of Florence

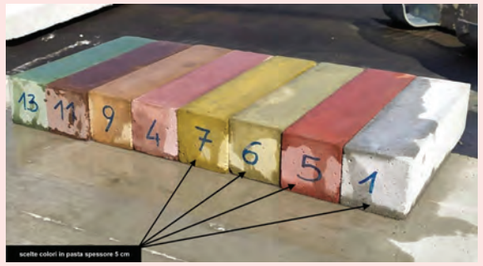

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Fig.8: Samples for the choice of colored concrete.
Photo by Alfredo Pirri, Courtesy of the artist
The choice of the colors for the concrete was very long and achieved after several attempts. Buzzi Unicem research laboratory followed the work from the beginning, when it was not clear the range of the tints to use and the relevant saturation point. During the workflow, some options were considered and discarded due to technical reasons concerning adhesive and inert elements of the matter.

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Fig. 9: Yellow and red concrete in *Prospettive con Orizzonti*.
Photo by Giorgio Benni. Courtesy of the artist, District of Florence
The work on the concrete also involved the cooperation of the architect that supervise the building site because the thickness of concrete layers might have provoked statical issues (128.000 kg of colored concrete have been used).

VDG: The materials used in *Prospettive con orizzonti* required several studies conducted with the collaboration of different companies and their research laboratories, making a common effort to find a compromise between artistic expression and industrial-engineeristic logic. I would like to know more about the research on materials and the relevant workflow.

AP: In *Prospettive con orizzonti,* I used glass, cement and steel. The study of these materials was very extensive and complex. It wouldn't have been possible without the support of research laboratories. For instance, Buzzi Unicem, a company dedicated to producing and selling cement, concrete and natural aggregates, was directly involved in constructing my artwork. The different colours of the concrete are the visible outcome of several attempts. I also relied on the Unicem research centre, whose modern laboratory tests materials, fuels and product quality, routinely conducting chemical and mineralogical analyses. The head researcher responsible for the scientific support for *Prospettive con orizzonti* helped me achieve the maximum level of colour saturation beyond which material splitting would have occurred, resulting in visible cracks (Fig. 8). Indeed, colouring building materials that have a corrosive impact, such as concrete and cement, is a hard task.

In addition to the difficulties concerning the creation of the formula, we had also to consider how the weather and the sun might affect the artwork's materials during the following years. To maintain the chromatic aspect, I used a fixative resin that created a protective layer without being visible; we tried dozens of various resins until we found an adhesive blend that did not reveal its presence (Fig. 9).

The Iannini Group also played a key role in developing the materials. It followed the project for the realization of parallelepipeds made with three types of metal: Corten steel, burnished copper and iridescently galvanized steel (Fig. 10). We chose a steel that preserves a deep reddish aspect, and we artificially sped up the natural process provoking the oxidation to achieve the tone I was looking for. The visual chromatic mutability of some cubes was obtained with an electroplating procedure that results in an iridescent surface and amplifies the chance element.

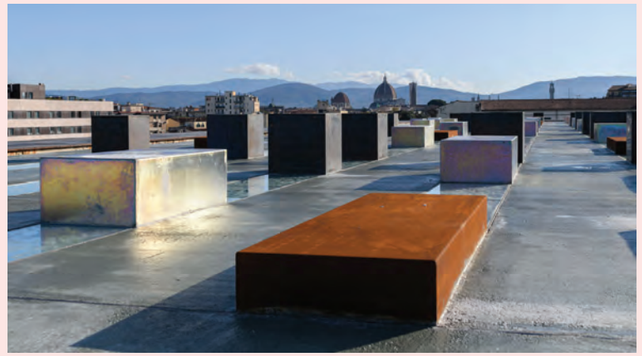

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Fig.10: Parallelepipeds alternated with the laminated glass in rectangular shapes.
Photo by Giorgio Benni. Courtesy of the artist, District of Florence

In the case of the glass, I collaborated with Vetreria Preneste in Rome. The company realized a series of laminated glasses constituted of five layers, one prepared as a mirror to reflect the inserted feathers. The glass between the mirror and the feathers is thicker to emphasise the reflective visual effects of the plumage. Moreover, in one of the sectors of *Prospettive con orizzonti*, we inserted glass made with a thermal shock process (Fig. 11).

VDG: This research phase on materials took a huge amount of work, human resources and a deep mutual acquaintance with the companies.

AP: It is not easy to find a company willing to halt their productive activity and devote time to creative research processes, and when we talk about artistic research, we must consider all aspects involved, also the human relationships. Trust among collaborators is a paramount component of accomplishing

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Fig.11: Alfredo Pirri, *Piazza-Prospettive con Orizzonti,* 2022, Florence, Maggio Fiorentino Auditorium
Photo by Giorgio Benni. Courtesy of the artist, District of Florence
One of the areas of Prospettive con Orizzonti is called "piazza" to recall the assembling function of this space. Conceived as an observatory for people, Piazza is constituted by a rectangular tank made of Corten steel in which topsoil and glass are combined in a grid order, making possible to see ground and sky simultaneously. In this sector, Vetreria Preneste worked for making a thermal shock on the glass.

tasks in a working team. When I take measurements, glass makers must trust me, and at the same time, I have to delegate certain aspects to my collaborators. The foreman is a fiduciary for the construction site thanks to his ability to find solutions and assign tasks to workers according to their own skills. The foreman appointed to supervise *Prospettive con orizzonti* turned out to be a master, who is able to modify and adapt tools to the artwork and the space.

VDG: How does the realisation of your work unfold?

AP: It is useful to approach methodological issues from aspects of praxis to theory, not vice versa. Let me make an account of how artistic research works for me! Everything starts with the visualization of an idea. That's because an idea in art doesn't necessarily correspond to its relevant philosophical notion. In art, an idea is multi-faceted, probably closer to the concept of an 'image'. Sketching is essential to catch the main idea and to give a preliminary formalization to the imaginative act. The first drafts I make are blurred conceptions, sometimes highly ambiguous (Fig. 12–13). Then, there is the operative phase in which I am open to accept limits and mistakes provoked by the practice. I take advantage of unexpected findings and accidental discoveries – since they often enrich my experiments – until I arrive at something completely different than the original idea. That is exactly when I go back to the first plan. As soon as the art project is well-defined in my mind, I start to talk with architects, craftsmen, engineers and workers; their support influenced the project in many ways.

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Fig.12: Project sketches of *Prospettive con Orizzonti,* 2022, 50 × 35 cm, watercolour on Arches paper
Photo by Giorgio Benni. Courtesy of the artist

VDG: When you say, "everything starts with the visualization of an idea," you open to a broad range of possibilities concerning the role played by images in the materialization of a project and their primary function in the genesis of creative processes – especially when artworks still have to take shape and imagination isn't yet mediated towards the practical phase.

AP: Images have synthetic qualities that, in the experimental phase, may trigger new ideas and even considerations on further images. Indeed, images are full of ideas. In my artistic practice, images are a pivotal element, and preliminary sketches cover the mediating role you mentioned, even if mine can't really be considered as sketches in the conventional sense. Indeed, my preliminary drawings lack projectuality. They are the outcomes of ideation and conception rather than a form of practice codification. The first sketches I make are abstract reflections that come from ideas. This aspect is very important because it drives all the subsequent steps of my work in which I try to bend technique to imaginative needs. Conversely, if I started from constructive ideas, these would heavily condition the poetics and the æsthetics.

VDG: *Prospettive con orizzonti* reveals the recent address of your artistic research focused on materials. Looking backwards to the 80s and later decades, what were you interested in?

AP: My artistic praxis has always been marked by experimentation with materials. Also, when I used a more pictorial approach at the beginning of my career, I was interested in extra-pictorial materials that simulate painting, with the critical intent to revise the tradition of painting. Indeed, I never had a naive understanding of painting. I do not regard painting as an art technique to represent ideas but as if it was a practice at the core of images' issues.
Although I know art supply stores and their items, I am not satisfied with these products. I do not undervalue the intrinsic potentiality of materials, which often remains unexpressed or expressed traditionally and rather simply.

VDG: Most of the time, the work on materials is not the primary aspect the audience considers because it is only visible in terms of its visual effects. Broadly speaking, your artistic research has been categorized as focused on light, colours and space, but it seems that these are the outcomes of your research instead of the core.

AP: I seek the visual impact and transformation of materials. I am interested in offering different perspectives on the materials I use. During exhibitions, I have often observed people being surprised to see things and materials with unusual aspects. The end goal of my research is to create an artwork that is based on materials to such an extent, that – paradoxically – the materials don't become the primary element that the audience notices. I pursue a profound integration of materials so that it doesn't become the predominant factor in the relationship between the artwork and the viewer.

VDG: There is reticence to speak about artistic research that inevitably leads to misconception and non-recognition with political and cultural consequences. What do you think about the reasons behind the gap in recognition regarding artistic and scientific research?

AP: Though it would be enough to say "art" to talk about research, you are right, there are some difficulties in acknowledging artistic research. It is partially due to the lack of proper parameters and there is also a subsequent lexical problem. Reticence is caused by the obligation to adopt notions and linguistic formulas emerging from areas outside the reach of artistic research; artistic research misses its own words or uses inappropriate ones that derive from other disciplines. In addition, there are also political and economic factors: scientific research is considered more useful.
Artistic research is free from the immediate utilitarian goal. For instance, industrial research must produce significant economic benefits. Also, the temporality of industrial research is very different from my research time for example. In my practice, time is endless and without costs. Moreover, in artistic research, there is no direct connection between the original idea and the result; in art, the outcome may originate from a deviation or the waste product.

VDG: Generating from mistakes and waste is a significant approach for reinventing materials and triggering new projects. I am thinking of *Quello che avanza*, your exhibition of cyanotypes in 2017 at Nomas Foundation in Rome that exalted the residual elements of the artistic process, and *Sala Cielo* in Bari, where you transformed the space maintaining, and probably enhancing what was "left over" from previous projects. How did the conception and the realization of *Sala Cielo* unfold (Fig. 14)?

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Fig.13: Project sketches of *Concert for Cement mixer,* 2022, 50 × 35 cm, watercolour on Arches paper
Photo by Giorgio Benni. Courtesy of the artist
Four or five cement mixers containing colored concrete in different shades run on parallel lines releasing their content, which amalgamate like watercolors. At the end, the cement mixers rotate producing an orchestra of sounds.

Fig.14: Alfredo Pirri, *Sala Cielo,* 2021, 450 square meters, glass, polymer, steel, Bari, Sala Cielo, Teatro Kursaal
Photo by Ruggiero De Benedetto. Courtesy of the artist

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4 *Passi* is an ongoing series of site-specific installations that Alfredo Pirri has carried out since the beginning of the 2000s. The series always brings the same title, "Passi," followed by the year and the place where the work is realized. The work consists of superimposing the floor with a mirror layer that shatters under visitors' footsteps. In this case, the mirrors were previously broken in the glass laboratory using the thermal shock method and then were permanently welded together. The first time Alfredo Pirri used the thermal shock in *Passi* was at the National Gallery of Rome in 2011.

AP: My work at the Kursaal Santalucia Theatre in Bari – a construction from the early 20th century, whose roof was never planned by the architect for unknown reasons – was born from the unfinished remains of the first project. The uncompleted space of the last floor went through the hands of other designers until I finally received the commission from the Puglia Region to realize *Passi*[4] (Fig. 15). I wanted to maintain the original equivocation of a building without a roof, thus, I conceived a ceiling that symbolically might be an extension of the sky. The ceiling, indeed, creates a direct dialogue between the indoors and the outdoors thanks to a set of printed cloths made of a new kind of polymer that determines the perception of the space according to the weather and the external space (Fig. 16). Thus, with mirrored floor and the material of the ceiling I created an optical system in which people have the perception of vaulting rather than walking (Fig. 17).

VDG: The design for the beam structure for the ceiling is perfectly coherent with the theme "Roots–Wing", proposed for the overall restoration of the building, and with the Liberty Style of the theatre. Does it come from a study of the Art Nouveau style that you conducted before approaching the *Sala Cielo* project?

AP: It doesn't. It came to me in a flash (Fig. 18)! Preliminary research is very important to get to know and understand a space and its history. Still, most of the time, my sketches are not mediated by theoretical studies. Artists are laboratories that absorb what they see and experience around them.

Fig.15: Alfredo Pirri, *Passi, Castello Maniace,* 2021,
1000 square meters, glass and plexiglass, Sicily, Siracusa
Photo by Iole Carollo. Courtesy of the artist
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Fig.16: Watercolors for ceiling design of *Sala Cielo*
Photo by Giorgio Benni. Courtesy of the artist
To realize the ceiling design for Sala Cielo the artist made big watercolors of approximately 3 meters. These watercolors were photographed and later printed on EFTE, a polymer used in architecture that assure unchangeability to light's effects. Due to the size, each watercolor was conceived for shooting the graphic in different sections maintaining the design coherence and uniformity.

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Fig.17: Preliminary Sketch for *Sala Cielo*, 2020,
35 × 50 cm, acrylic and oil pastel on Arches paper
Photo by Giorgio Benni. Courtesy of the artist

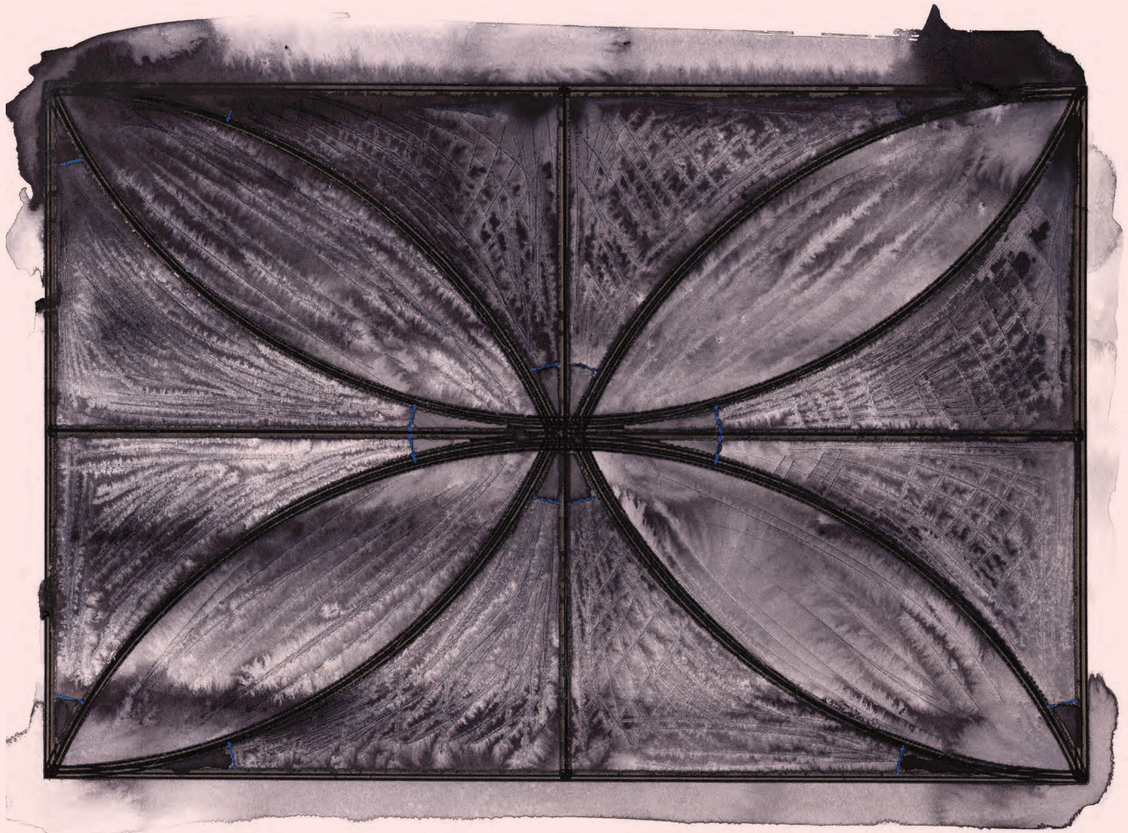

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Fig.18: Preliminary Sketch of Sala Cielo's ceiling, 2019,
35 × 50 cm, ink and watercolour on Arches paper
Photo by Giorgio Benni, Courtesy of the artist

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Singing Youth

JUDIT BÖRÖCZ
BENCE GYÖRGY PÁLINKÁS
MÁTÉ SZIGETI

text collage and
original music for a
choir theatre piece

p. 142—143

"THE TASK THAT LIES BEFORE US
NOW IS TO EMBED
THE POLITICAL SYSTEM INTO
A CULTURAL ERA."

Viktor Orbán, 2018

In front of Singing Youth by Memos Makris;
(left to right) Máté Szigeti, Judit Böröcz, Bence György Pálinkás;
photo by Sári Ember
↓

THE CONCEPT

We are a trio of theatre-makers coming from different backgrounds: a cultural worker-theatrologist, a visual artist and a composer. The starting point of our project was an invitation from Trafó House of Contemporary Arts in Budapest within the framework of the international LIBERTY EU Programme[1]. The main local topic of which was the wave of Greek asylum seekers after the Second World War in Hungary and, implicitly, the response to the more recent wave of refugees due to the Syrian civil war. For us, the proposal prompted a documentary approach that we understand as a tool to address and make issues that concern us visible. In this case, we wanted to focus on Hungarian cultural politics. The creative process itself represents our approach and ideals just as much as the finished work. Throughout the different phases of writing the text and the music and in the ways of communication within the whole team, we aimed at dismantling the hierarchical relations of the theatre. The three of us discussed the progress of the work in regular online meetings, wrote the text in shared documents, and made decisions concerning the music collectively.

We chose a sculpture by Memos (Agamemnon) Makris (1913–1993) as the project's focal point. Makris was active in the Greek resistance during the Second World War and after being expelled from France in 1949.[2] He was invited by Hungary – then a Soviet satellite state – where he built a successful career as a sculptor creating monuments and other statues in public spaces. He also became an active and respected, politically well-connected figure in the art scene.

The double life-size sculpture *Singing Youth* (1953) was erected as part of the *Path of Youth*[3], leading to the People's Stadium, a building labelled by the regime as the greatest achievement of the Hungarian planned economy at the time of its completion in 1953. Most of the statues erected in the socialist era were destroyed or moved to Memento Park in Budapest after the system change in 1989.[4]

This made public discourse and recontextualisation of artworks in public spaces impossible. However, this particular statue remained in its original place while the stadium, representing the same political system and ideology, was "dealt with" only much later in 2016 when it was demolished and replaced by a new one, the Puskás Arena. This new stadium (inaugurated in 2019) is celebrated as the greatest achievement of the current populist political system ('System of National Cooperation' or 'Nemzeti Együttműködés Rendszere' in Hungarian, commenly referred to as 'NER'[5]), a claim analogous to the one about its predecessor from 1953. In our interpretation, not only do these arenas have similar roles in the self-representation/communication of the two political systems, but they embody similar power mechanisms. The *Singing Youth* statue is the vantage point from which we explore the two eras focusing on cultural politics, art – namely popular music – and propaganda.

Juxtaposing references from the post-war socialist era (1945–56) and the NER (2010–) has great relevance in the contemporary political discourse since the current regime vilifies the former. We investigated whether we could find further similarities between the two political systems apart from the analogy in their respective attitudes towards representative architecture. Since we work in the cultural sphere, we found our agency in focusing on the cultural policy of the two eras. We looked at the role of popular music in shaping attitudes and identity (i.e. its propagandistic potential) and its ability to capture the imagination and create community in the context of the socio-political system, often through othering. Through the lyrics of the collected songs, we also gave an insight into sports and body politics and examined how the two systems identified and labelled society: as 'nép' that corresponds to people and is focused on citizenship and as 'nemzet,' best translated as nation with a more ethnicist connotation. We also included verbatim personal accounts by Makris and members of the Greek refugee community in Hungary to represent their lived experiences.[6] We decided on this form early on in the process. We aimed to exploit the most basic feature of theatre as an art form, shared time, as well as using the very effective method of political propaganda, delivering the message through music using its potential to provoke emotions. "The chorus is capable of appearing as a collective body attached to social fantasies and social desires of fusion", writes Hans-Thies Lehmann in *Postdramatic Theatre*[7]. We decided that a choir of two times three vocalists is an adequate form to represent the collective "we" of the two political systems and a potential means to engage the listener with the content. "The choir is capable

1 Supported by Creative Europe, http://liberty-eu.com/.

2 Makris was a veteran of the Greek resistance during the Second World War and an active member of the illegal Greek Communist Party. He became an elected member of the Soviet initiative, the World Peace Council (The World Congress of Partisans for Peace), during his time staying in France on a scholarship. This led to his immediate expulsion from France in 1949.

3 A monumental path was planned to serve as a parade route leading up to the stadium. It was and is today lined on two sides by two times eight group sculptures depicting sports and other activities associated with the ideal of socialist youth.

4 A statue park, a thematic open-air museum of artworks originating between 1945–1989 and removed from public space after the fall of socialism.

5 According to Prime Minister Viktor Orbán and his government, a new social contract was signed at the 2010 parliamentary elections, which decided to establish a new system. This system is called the National Cooperation System, or NER for short.

6 Fokasz Nikosz, *…és jövőre Görögországban* [...Next Year in Greece] (Budapest: ELTE Eötvös Kiadó, 2018).

7 Hans-Thies Lehmann, *Posztdramatikus színház* [Postdramatic Theatre] (Budapest: Balassi Kiadó, 2009), 153. Translation by the authors.

8 Ibid.

9 Fidesz – Hungarian Civic Alliance, governing party of the NER led by Viktor Orbán.

10 Sociologist, art historian and assistant lecturer. His main focus is state infrastructure and professional culture and the interrelations of culture and the commons.

11 Visual artist, sculptor, daughter of Memos Makris and French-Serbian visual artist/textile artist Zizi Makris.

12 Sociologist, university professor and a prominent and active member of the Greek community in Hungary.

of acting as a partner and mirror of the audience," Lehmann continues.[8] We wanted to create a text to serve as the script of *Singing Youth* that represents the ideas (or ideology) expressed in the propaganda and popular music of the two eras and arrange these thematically, compress and amplify them, and give them an emotional range (a familiarity). So even if the listener does not personally identify with some or all of these ideas, the performance points out their presence on a collective level in the 'we'.

GATHERING MATERIALS AND CREATING THE SCRIPT

We mostly worked with primary sources, particularly with lyrics. First, we had to identify the music that we wanted to use for the creation of the script and the music. We defined a simple set of rules to classify songs as being connected to the two political systems respectively. We selected movement and mass songs from between 1945 and 1956, and popular music associated with the NER. The propaganda music of the socialist era has been widely researched, we could rely on music history studies to identify the types of songs we wanted to work with. It was crucial for us to filter out those ideas from the lyrics that are accepted by a large part of society. For the Fidesz era,[9] we were looking at, for example, data on national awards recipients and artists openly promoting the ruling party's ideology or performing at events of political figures. We also added excerpts from newspaper articles, studies, political speeches and online commentaries to contextualise the deployed lyrics. These texts reveal certain aspects of the political systems or explain their actions and are less symbolic, making our script more exact.

We also found it important to involve professionals from different fields to discuss our ideas in a political-historical context so we interviewed Kristóf Nagy[10], Clio Makris[11], Nikosz Fokasz[12] whose contribution to the final form of the text was invaluable. These consultations were important in understanding how the narrative we were constructing related to the present scientific consensus. Besides clarifying the context, excerpts from the interviews were incorporated into the script.

The two musical corpora we were dealing with clearly displayed a value system, a highly politicised worldview, which determined their themes and their representation of reality. The intention of indoctrinating is present in a more or less direct way. Their interpretative framework is provided by the socio-political systems in the contexts of which they were born. We arranged these politicised messages addressed to people / the nation into a collage along recurring themes.[13] We built our own structure and used expressions, sentence fragments and longer text materials to construct our (own) narrative. We recalled our personal experiences regarding music and wondered how many ideologically charged songs live in our memories completely outside the space of reflection and analysis. Our approach to the subject was just as agitational as some of the songs we worked with, however, we wanted to expose rather than replicate the political propaganda.

We refer to *Singing Youth* as a research-based project. It relies on documentary methods and draws inspiration from the genre of lecture performance. We used some elements of scientific

13 Common past, belonging together, the enemy, defence, praising heroes, youth, societal goals and vision of the future.

Scene from the performance; (left to right) Máté Szilvay, Maxim Jurin, Katalin Mezei, Benjámin Bozi, Péter Fehérváry, Eszter Sokhegyi; photo by Zsófia Sivák

research methods like exploratory research, comparative analysis and discourse analysis. Still, our methods do not meet the criteria for scientific research because our aim was not to contribute to knowledge production but to present existing knowledge in the form of a theatre piece. Consequently, we choose not to use the term research when describing our process of collecting and arranging materials. We approach this question from a methodological angle, taking our present socio-political context: the post-truth era into account.

For example, we relied on some form of discourse analysis to show how the "enemy" is identified in the music affiliated with the NER . We examined lyrics that, based on our set of rules, were connected to this era. We listed the recurring terms and expressions used to describe the "enemy" and included these in our script, but we did not aim at a full analysis or at collecting all possible data.

foreigners
driven by foreign interests
sinning against their homeland
pagans
those who don't belong here

We also collected what the 'enemy' does to harm the community, the 'we',

they bare their teeth at us
they humiliate us
they bathe in our blood

and what the 'we' does or wants to do to the 'enemy'.

many thousands of our kind band together
the wrongs we have stifled swell to rage rightful hatred
let's sort things out!
put them where they belong!
white people are dying out, foreigners are coming
If needed, we'll be a purifying fire!

The motivation in this instance was to represent our experience of the 'normalisation' of violence in popular culture.

COMPOSING THE MUSIC

Although it would have been an obvious choice to compose a series of arrangements of popular songs for six voices representing the two eras in question, we decided at the very beginning of the creative process to compose original music for the text collages, not only to satisfy personal curiosity but also to avoid difficult negotiations over copyright issues around the existing resources. It does not mean, however, that the music lacks references to certain composers, movements, idioms or even to particular pieces. Several stylistic layers are utilised to express ideological content, and these layers are often presented in a confrontational manner. What connects them strongly throughout is the general presence of modal structures. One could rightfully say that the changes in emotional qualities and the intellectual content coming through the textual fragments are all accompanied and highlighted by the changes in musical modes. The first stylistic layer that is introduced in the opening and re-appears in later parts of the piece draws from the idiom of the movement songs and pioneer songs representative of the socialist era in Hungary. In a non-theatrical setting, most of these passages would be suitable for any singers with average abilities, the melodic lines are easy to remember and are set to the text simply and naturally, exactly like in the case of the movement songs or the vocal works for pedagogical purposes by such composers as Zoltán Kodály or Lajos Bárdos. The voicing of these parts is also much simpler than the majority of the piece: two-part writing doubled in octaves that makes it convenient to sing for both male and female participants, and thus also has some kind of unifying power. What creates a rather strange atmosphere around these passages is either the non-conventional pieces of text used (fragmented quotations of pioneer songs, watchwords loaded with ideological content) or, indeed, the new melodies replacing the old ones that are well-known by members of the audience who lived during the Kádár-era (1956–1989) when many of the songs representative of the early 50s remained prominent.[14]

The second layer stems from the religious music tradition, more closely from Renaissance vocal polyphony. It may seem a bold comparison, but between the style of the 16th-century

14 Juhász Frigyes, *111 dal úttörőknek* [111 Songs for Pioneers] (Budapest: Zeneműkiadó, 1959).

↑

With the building of Puskás Aréna; (left to right) Maxim Jurin, Péter Fehérváry, Bence György Pálinkás, Máté Szilvay, Katalin Mezei, Judit Böröcz, Benjámin Bozi, Máté Szigeti, Eszter Sokhegyi; photo by Dániel Pék

15 Böröcz, Pálinkás, Szigeti, *Singing Youth* script.

16 The leading voices of both sections are derived from the adaptations of Loys Bourgeois' Calvinist hymn tunes in the Hungarian song book of the Reformed Church.

European vocal polyphony and that of the pioneer songs, it is common that the uniformed language and the strict structural framework that the composers were supposed to adhere to overrode the importance of the authorship. Furthermore, the political speeches and the mass singing that accompanied the major events of the Party replaced many elements of the religious ceremonies that were suppressed for decades. The structure and rhetoric of these speeches carried the remnants of a more religious culture, exemplified by some lines of the second part of the piece and highlighted by the chosen reference material. The music of the section beginning with the following lines,

Dear Comrades and Fellow Sportsmen!
The People's Stadium proclaims that we can build
on the word of our party and our government as on a rock.
[…] Hungarian sport requires a stadium.
The people-persecuting Fascist governments,
Had better things to do, however […]
– Gyula Hegyi, People's Stadium opening, 1953[15]

is based on the melody of Psalm 18 ("The Lord is my rock, my fortress and my deliverer"), meanwhile, the section that is concerned with the emblematic constructions of the current political system and is introduced by the words,

The People's Stadium conceived in sin
We bid farewell to the People's Stadium
and everything associated with it, including
our memories of Rákosi, and we enter a new era.
– Lads of Pest, 2019

is paired with the pillar notes of Psalm 32, also known as *The Second Penitential Psalm*.[16]

Another recurring layer is the rhythmic chanting or recitation of a text, either as spoken word or melodic patterns around a central pitch or pitches of a more complex chord. This layer is introduced in the first section, where Makris' name appears for the first time. It is given a special emphasis through the rhythmic character (a combination of a spondee and a minor ionic appropriate to the pronunciation of the name), the mechanical repetitions, and the drastic and unexpected change of the modality after the simple, primarily diatonic melodic lines. The function of the contrasting material within this context is to express the presence of something alien among the familiar with a sense of novelty, excitement and threat simultaneously. This is further developed in the sections focusing on Makris, the Greek refugees, and the concept of the enemy, in which part of a transition occurs from the melodic recitation to spoken words articulated in a raised voice. This unfolds parallel with losing the ability to form thoughts intelligibly due to anger and the fuelled hatred, and what remains is the unfiltered chanting of catchphrases of hate speech culminating into a joint cry of the mass. This is also understood as the loss of control over the body, a liberation that has devastating consequences, the ultimate weapon in the hands of authority.

Singing Youth includes two consecutive parts based on specific found material relevant to the textual context. The female voice parts of the above-mentioned section about the refugees are derived from the Greek folk song *Θαλασσάκι μου (Thalassaki Mou*, roughly translated as "*My Little Sea")* that originally was a prayer to the sea, in which a sailor and his family are praying for the waves to be gentle so they could see each other again. The recitatives that use fragments of recollections from interviews we did with Clio Makris and Nikosz Fokasz use the pillar notes of the original Greek tune, however, the melodic turns at the end of the phrases become more and more reminiscent of the ending of certain Hungarian folksong lines throughout the section, though we make a reference to the gradual change of identities and the process of assimilation. These lines are accompanied by spoken texts edited from recollections of Greek immigrants who settled in Hungary from the 50s onwards.[17] In the subsequent section, lines from the early 19th-century poem *To the Hungarians* by the remarkable figure of romantic nationalism Dániel Berzsenyi are juxtaposed with fragments of Viktor Orbán's public speech he gave on the 62nd anniversary of the 1956 Revolution.[18] Both textual resources are built on a very similar rhetoric, furthermore, their symbols and poetic images are undoubtedly parallel. A proto version of this section was a remake of Zoltán Kodály's

17 Fokasz, 2018. ibid.

18 The script of the speech that Viktor Orbán gave on the 62nd anniversary of the 1956 Revolution is available in English at: https://2015-2022.miniszterelnok.hu/prime-minister-viktor-orbans-speech-on-the-62nd-anniversary-of-the-1956-revolution-and-freedom-fight/ (Accessed: 19. 04. 2023).

well-known setting on Berzsenyi's poem that, due to its general message, remained relevant to the political agenda of all the political regimes from the late 30s until today. In the imitative structure of the first version, the leading line quoted Kodály's phrases on Berzsenyi's words, and the further voices of the counterpoint added a commentary to these featuring the corresponding lines by Orbán. Although the version adapted in *Singing Youth* carries the same concept, the quotations by Kodály had to be omitted due to copyright issues. These are present in forms of "hints" that elude the breach of copyright: silent parts with hand signs only suggesting the rhythm and solmisation of the principal theme, spoken lines that exclude the original pitches, and imitations of the original lines that are not included in Kodály's piece, yet are still reminiscent of that.

The only literal quotation in *Singing Youth* is a short piece of folk poetry found in a collection of "election rhymes" from 1953[19] and is sung by the two female singers at the end of the section *Belonging Together*. The words in two versions, with a very subtle difference referring to both eras, are set to the folksong widely known as "Béres legény" [Hired lad].

Other than the named examples, all the musical references, whether idioms or reminiscences of existing music, were arbitrarily chosen. We did not intend to present a "musical tableau" of the two eras that would feature the most relevant and symbolic examples to describe them through sounds. Instead, we chose styles and material based on personal preferences to find an adequate way to express what the textual fragments mean to us. This kind of language game mirrors our own associations and emotions provoked by the experience of reading historical documents and living under the impact of the current political regime, which makes the work equally subjective and politically engaged.

CONCLUSION

We describe *Singing Youth* as a documentary-based choir theatre piece in which a collage of verbatim textual fragments from two distinct chapters of Hungarian history is paired with a wide range of musical idioms. Creating text and music was preceded by gathering and reviewing materials and discussing these with professionals from relevant fields. In this regard, *Singing* Youth is a research-based work. The way we juxtaposed text and music and created the theatrical environment to these reflects how we see our present. Because of this, we regard creating *Singing Youth* as a political act. Our ultimate objective was to get the audience involved in reflecting on the past and present, identifying how we become affected by the propaganda by being exposed to songs and slogans that might not even appear as carriers of political messages at first sight.

19 Hetesy Károly, ed., "Dalok, rigmusok üzemi kultúrcsoportok számára" ["Songs and Rhymes for Factory Culture Groups] *Népszava* (1953).

Written and directed by	**Judit Böröcz, Bence György Pálinkás, Máté Szigeti**
Music by	**Máté Szigeti**
Choir director	**Péter Fehérváry**
Choreographer	**Zsófia Tamara Vadas**
Vocalists	**Benjamin Bozi, Péter Fehérváry, György Juhász, Maxim Jurin, Katalin Mezei, Eszter Sokhegyi, Máté Szilvay**
Light technician	**Balázs Szabon**
Video	**Sári Ember**
Photography	**Sári Ember, Dániel Pék**
Documentation	**László Dinea, András Szőnyi**
Translation	**Anna Bentley (EN), Sophia Matteikat (DE)**

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↑

Scene from the performance;
(left to right) Benjámin Bozi, Maxim Jurin,
Katalin Mezei, Eszter Sokhegyi,
Péter Fehérváry, Máté Szilvay;
photo by Zsófia Sivák

Michelkevičius

insert ∫ no. 5

VYTAUTAS MICHELKEVIČIUS

5G in the Global East

CHALLENGES OF DOCTORAL PROGRAMMES IN THE ARTS

Once upon a time, there was an artist who was not only telling fabulous stories but also inscribing them on paper. These stories were copied and spread all around the world. However, knowledgeable and experienced wizards and witches from the West started to be worried (and sceptical). How could this young, brave artist from the wild European East be so popular that the good old Temples of Knowledge started to shake? This fearless artist even began to claim that s/he produced knowledge equal to all the other kinds of scientific knowledge. The tensions and fights started, and the Concilium of the Elderly was summoned to discuss what was happening and how they were to react to these radical shifts. Was this new artist a sorcerer of wisdom or only an amateur shaman? – this was the main question they kept circling around.

I am writing this text while being on the periphery of Europe, although well-connected globally. I am sitting in the Vilnius Academy of Arts, which has been running since 1793 and has experienced several collapses of various empires and their respective systems of knowledge. Vilnius, on the map (especially on the spheric globe) seems to be part of Russia or Belarus. And this is not far from the truth. Vilnius is located only 30 kilometres from the border of Belarus and, through centuries, was the friendly host of – and home for – many notable Belarussian and Russian people. However, since the 1990s, the authoritarian regimes separated the neighbouring countries more and more, and now it is almost impossible to cross borders. Therefore, we can look only West or North and define our position as the Global East.

1 Martin Müller, "In Search of the Global East: Thinking between North and South," In *Geopolitics,* 25:3 (2020): 734–55.

2 https://elia-artschools.org/page/Florence-Principles-On-the-Doctorate-of-the-Arts

3 https://cdn.ymaws.com/elia-artschools.org/resource/resmgr/files/vienna-declaration-on-ar24-j.pdf

4 Creator Doctus network, https://creatordoctus.eu/results/intellectual-output-4-book/

WHAT IS THE EAST, AND WHAT MAKES IT GLOBAL?

As Martin Müller indicated, the demise of the Second World's political project – i.e. Communism – wiped the East off the global map, alongside any sense of distinctiveness that was erased by the more than 70 years of communist rule. The East is too rich to be a proper part of the South but too poor to be a part of the North. It is too powerful to be on the periphery but too weak to be at the centre. Power relationships run every which way. The East includes both colonisers and colonies, aggressors and victims; some countries were both at the same time (Tlostanova 2008).[1]

POST-SOVIET, POST-SOCIALIST, POST-COLONIAL LANDSCAPE OF KNOWLEDGE?

The collapse of the Socialist and Soviet infrastructures in Higher education and research sectors in Central and Eastern Europe left a lot of cracks and gaps. Some of them were almost instantly filled with new regulations coming from Bologna, Florence[2], Vienna[3] and Amsterdam[4], however, some of them are still not yet defined and developed, giving many opportunities to transform education and research infrastructures. One such transformation was the relatively smooth introduction of the second and third cycles in arts education. In some countries, it happened earlier (Lithuania, Estonia), and in some only later (Latvia). In some countries, doctor of arts programmes were built on the already existing doctoral programmes in the humanities (art history), in some, they were created practically from scratch.

While in many Global North countries (e.g., Germany, Denmark, Italy), artists are still fighting to be recognised as legitimate producers of knowledge, in most Global (European) East countries, artists can enter 3rd cycle education and defend doctoral theses based on their practice.

Artists are the ones who claim that they have been producing silent, tacit, embodied, visual and other types of non-conceptual knowledge for ages, but it is only recently that academies, universities and research institutions started recognising them. Does this indicate certain kinds of shifts or even crises in the research methodologies and sciences in general? Next, all other non-academic and traditional knowledge systems start to be rehabilitated and re-evaluated.

For example, the traditional use of herbs for medicinal and well-being purposes, techniques of mindfulness and fitness, food growing and preservation, etc.

Let's compare the European East with the West! We will see that there is a wide array of local traditions: ecological and community-driven agriculture, food preserving, medicine, well-being (for example, sauna), folk arts (singing and dancing as well as crafts). These were held better here than in Western Europe which was more 'civilised', 'urbanised' and constructed according to 'modern scientific beliefs'. That's why artists' knowledge might be more welcomed here in the East since it is also tacit and practice-based. In an academic context, artistic knowledge is still undervalued in relation to scientific knowledge but slowly regaining its power as other types of knowledge do in contemporary societies. While various courses of fermentation, log house building, etc., pop up in the West, in the East, these traditions are quite natural and practised to this day. These traditions were also better preserved due to slower industrialisation and urbanisation, as well as the late arrival of solutions based on scientific knowledge detached from everyday practices.

Therefore, in the East probably, artistic research is capable of integrating into the existing knowledge-production systems easier. After a complete shutdown or restarting from zero in the 1990s, these systems are still very flexible and easily host innovations. In constantly reformed educational and research environments, artistic research is seen as a "Messiah" both for humanities in crisis and education policymakers in search of novelties. However, in some countries, 3rd cycle programmes were based on a long tradition of post-graduate education in the arts called "aspirantura"[5] in the Soviet Union and Eastern Europe from the 1960s – the concept of artistic development, thus, was not entirely new. Of course, "aspirantura" (art licentiate degree) had a slightly different goal. Still, some of them overlap with contemporary doctoral programmes: to advance artistic skills and gain teaching competencies which mean articulation, contextualisation and dissemination of both practice and theory. From Lviv to Budapest, Zagreb to Tallinn, and Wroclaw to Vilnius, new programmes pop up, overcome constant reformation and upgrade.

5 Juozas Antanavičius, Ieva Pleikienė et al., *Meno aspirantūros (meno doktorantūros) organizavimo ir finansavimo modeliai* (Vilnius: Studija, 2008). https://smsm.lrv.lt/uploads/smsm/documents/files/kiti/Meno%20aspiranturos%20(meno%20doktoranturos)%20organizavimo%20ir%20finansavimo%20modeliai.pdf

6 Müller, 2020. ibid. 734–55.

A MULTITUDE OF LANGUAGES: THE 5G OF PRESENTING YOUR ART PRACTICE AS RESEARCH

Nevertheless, the troubles in the East continue: "In the global circulation of signs, the East is not nearly as legible as the Global South, where colonialism has created shared languages, institutions, knowledge systems and social bonds"[6].

Most dissertations are still written in more than a dozen native languages, for example, Estonian, Latvian, Lithuanian, Polish, Czech, Slovak, Hungarian or Romanian. For these national progammes, it isn't easy to share research outcomes in global networks. Also, international defence procedures are limited due to very short summaries in the lingua franca (mostly English).

How to decolonise knowledge? Firstly, from foreign languages and finally, from other discourses which put power (or pressure) on artistic practices from their point of view, and frame it according to their methodologies. What formats of research outcomes are validated and legitimised? In most traditions, research is expected to culminate in a text written in an academic manner. In humanities, the goal is defined as a coherent text which meets some requirements set by the field. In Social sciences, the requirements are more rigid. You must present a well-defined hypothesis and statements for defence and reveal replicable methodology.

I am proposing an exercise to discuss the various cultures and presentation modes of research outcomes and the development of various doctoral cultures through the lense of 5G.

5G – 4G – 3G – 2G – G

It is commonly agreed that in most Western and partly non-Western academic traditions, knowledge is presented via language, mostly through written text. In most doctoral programmes, the fundamental problem emerges instantly: artists used to communicate via their mediums (sound, image, body, etc.) need to present their constructed or discovered "new knowledge" using a completely new medium – academic text. New media in which they are not (yet) necessarily fluent because they have yet to be taught to write in this way in art schools. Therefore, the main question is when can artists defend their theses in their mastered language? To cut the discussion short, when and under what conditions will you be able to defend your artwork as research and find epistemic claims in various media beyond text?

We know that the introduction of 5G networks in mobile telecommunication has triggered a lot of discussions about safety, impact, effect and other influences that technology can have on human bodies. The same was and is still happening with the "5G mode of artistic research", however, the issue is entangled with minds and not bodies in this case. Different epistemic communities are creating and spreading fake news and rumours about its unhealthiness compared to other traditional modes of research or even as a threat to academia. Let's quickly compare the Gs in mobile communication with the Gs in artistic research!

As you might know from mobile (cellular) communication technology, the letter G stands for generation and the width and speed of the network. The higher the number, the wider the channel, making it possible to transmit 'richer' media (as outcomes of your research).

In the following analysis you can observe how the doctoral protocols for artists have opened up since the mid-1980s:

1G – when artists (with M(F)A degrees) were allowed to enter academia and defend a doctoral thesis (PhD). However, their practice was thrown overboard, and they needed to write a full-size textual thesis. Sorry, but what is the difference here from the thesis-writing process in Humanities?

2G – Artists were allowed to write theses partly based on their practice, however, during the final defence (Viva Voce), it was mainly the textual outcome that was discussed and defended, with only a few images (they occupied quite a marginal position). In this case, research leads primarily to new understandings about practice.

3G – Finally, as mobile bandwidth became friendly to richer media (images and sounds), artists could present their artwork as a legitimate part of their thesis, however, a supporting document – written text – was still demanded. Nevertheless, a practice-based dissertation is highly regulated, meaning that artists must prepare and defend two theses. In 3G mode, more problems have occurred: how to evaluate non-textual media as research and discover, extract or excavate knowledge from it?

4G – or 'practice-in-the-front' theses emerge when artworks are defended together with a reflection of any form. Yes, 4G can transmit HD videos too! The reflection should be on the doctorate process, the artwork, the research question, or considering all of them, but of course, it should present the candidate's contribution to the field.

Finally, 5G is at work! – Welcome to the futuristic, academic world where art is research and research is art. In the arts, we are now very close to the stage where the artwork can be defended as a thesis without additional supplements or commentary. Knowledge is an inherent quality of the artwork, and the ability to see and read it depends on the readiness of the spectator, reader or evaluator. Practically speaking, the defence itself is a reflection on the artwork and can be documented and shared with peers and future generations. Some schools have witnessed such defences, so we should believe them and dream about total freedom and epistemic feast in the arts.

This short genealogy shows the scope of the discussion about the outputs of artistic research and how important it is to use relevant languages of presentation and have epistemological-ready evaluators.

Some countries and schools still struggle to allow artists to enter 3rd cycle programmes. In contrast, others have a wide array of models and do not adjust their practice to the traditional academic protocols but vice versa. And last but not least, the existence of these Gs does not mean that the new ones supersede the old one. They could co-exist peacefully even in one programme. However, the artist should have the right to choose which G might be the most appropriate for their specific doctoral project. Let's have a look at some recent examples from defended doctoral dissertations.

DOCTORAL DISSERTATIONS BY ARTISTS IN VILNIUS ACADEMY OF ARTS

The doctoral programme in the arts at Vilnius Academy of Arts has developed in 2010 from the Art Licentiate programme, which was running since 2002. One of the first 4G dissertations, challenging the existing doctoral protocols, was defended by mid-career artist Darius Žiūra. His thesis "SWIM, Monument for Utopia, Gustoniai, Metatext"[7] was written as a collection of personal and ficto-critical essays reflecting the context of his art production and how he became the artist.

A second interesting case was Vitalij Červiakov's thesis "Walking as a Pretext and Space in Contemporaneity," which presented a series of walks conceived and implemented by the artist,

7 All the theses can be found here: https://vb.vda.lt.

as well as essays following them. Each essay discusses the particular walk as a research method for specific questions. The defence procedure itself was implemented as a performative walk. At each stop, the five committee members – experienced artists and researchers – discussed and reviewed the specific research aspects. Therefore, knowledge came into practice while everybody witnessed it through means of the body – 4G was definitely unfolding.

Finally, the thesis of Arnas Anskaitis, "Knowledge That Artist Has at Their Disposal: Seven Trace-Maps," might prove to be useful in understanding how artists produce knowledge. While he was discussing his own artworks and treated them as epistemic objects, at the same time he revealed how intrinsically knowledge is created. This effort was also basic research on artistic research done by artist since he was discussing the essential regulations of doctoral studies trying to define from artist' position when artwork becomes knowledge. Therefore, this work advanced the very understanding what is artistic research and how can be treated as independent field from other types of research. And finally, the same thesis could also be treated as both 1G and 4G types of theses in one piece.

EXIT FROM THE EAST TO THE GLOBAL

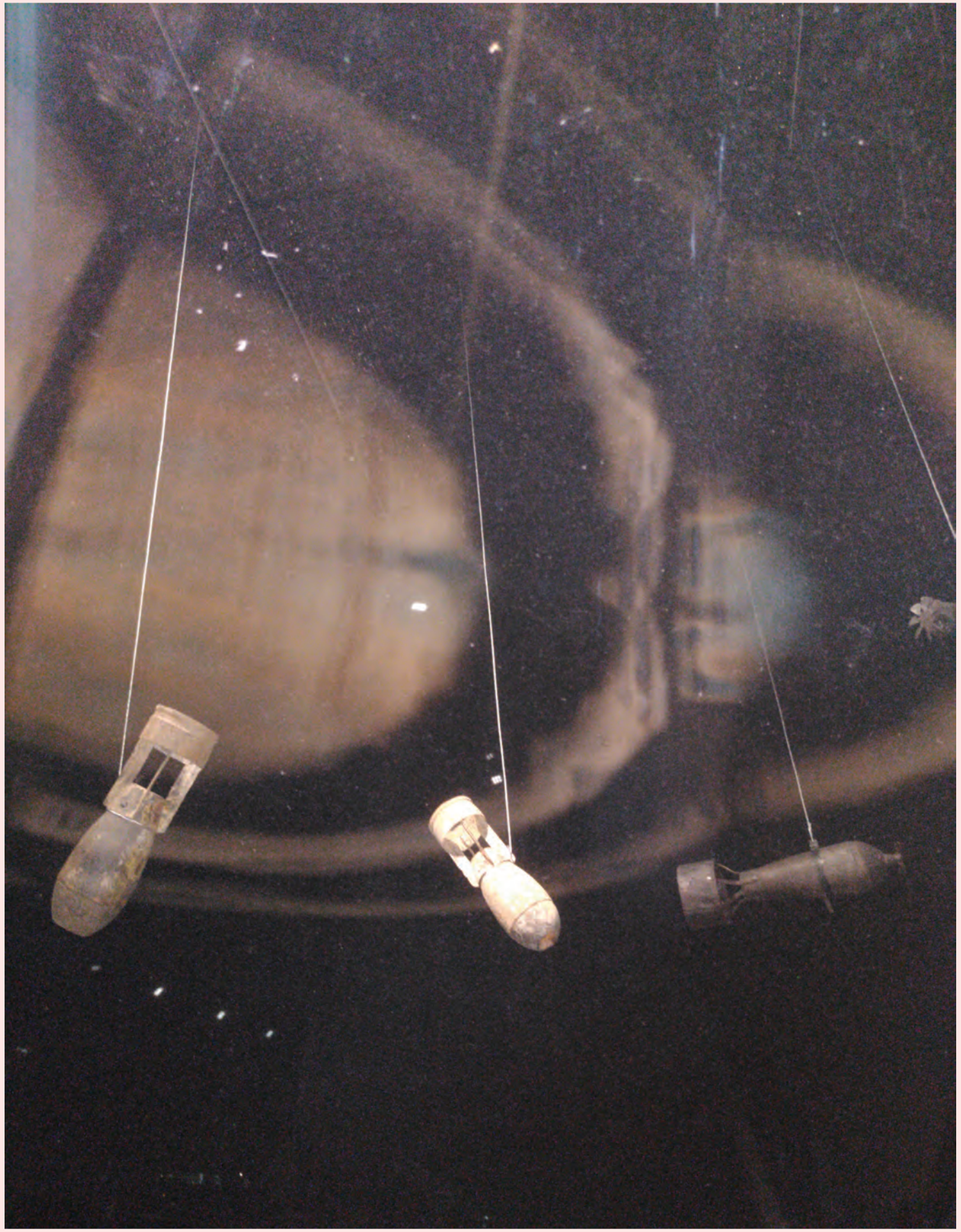
The East has remained unknowable because it is outside the circuits and conduits of Western knowledge architecture,[8] however, in the recent decade, some programmes have built international recognition and are attracting students from Global centres. Moreover, people from the Global East are involved in Global networks, and they even advise institutions in the Global North how to introduce artistic research in Art Schools' curriculums. To conclude, it is obvious that the reformation of both scientific and artistic doctoral studies arises at very different speeds both in Eastern and Western European countries. The 5G model can help you with understanding the level of G in your school or programme, or at least help you find arguments for your peers and governors about where to move further.

8 Müller, 2020. ibid. 734–55.

Nuclear Portals

an artistic research
project in motivation,
methods and
other insights

GRIT RUHLAND



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Ammunition exhibited at the Estonian National Museum, found on site at the Raadi-Airport area in Tartu

NUCLEAR CHAIN, NUCLEAR INDUSTRY AND *ZEITENWENDE*

The nuclear age appeared at the doorstep of the 20th century and hasn't left ever since. After the end of the Cold War, many had forgotten that they were living in it. Those who (critically) studied the subject pointed out that the nuclear complex had not lost any of its danger, but that these concerns were ignored or even dismissed as "scaremongering" – until the February of 2022 came, and the reawakening awareness of the military threat was called a "Zeitenwende" (a turn of an era)[1].

It is far too often ignored that nuclear power – i.e. the operation of a reactor in a controlled transformative process to generate electricity) – was **only the by-product of military use** from the very beginning. Another fact that is also too often forgotten: the beginning of the nuclear arms race was not USA versus USSR – it was Nazi Germany versus the Western Allies. What began at the University of Leipzig in the 1920s and 30s, where Werner Heisenberg used to engage his research team in playing ping-pong, ended up in a global nuclear race and industry. In the spring of 1939, the "Uranverein" was founded to build "Hitler's bomb", and Heisenberg was the scientific leader. He solicited funds from the Reich Research Council, which found direct resonance with Joseph Goebbels, who hoped to influence the course of the war. He fantasised "about the immense destructive effects" and went on to write in his diary in 1942: "Modern technology provides man with means of destruction that are unimaginable. German science is on the cutting edge here, and it is also necessary that we should be the first in this field."[2]

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Garden at the municipal museum of Sillamäe, a former closed city (because of the local uranium factory processing ore from GDR and CSSR during the socialist era)

1 Olaf Scholz, 'Regierungserklärung von Bundeskanzler Olaf Scholz am 27. Februar 2022', Regierungserklärung (February 27, 2022); https://www.bundesregierung.de/resource/blob/992814/2131062/78d39dda6647d7f835bbe76713d30c31/bundeskanzler-olaf-scholz-reden-zur-zeitenwende-download-bpa-data.pdf.

2 Mark Walker, *Die Uranmaschine. Mythos Und Wirklichkeit Der Deutschen Atombombe,* Berlin: Siedler, 1990, 76–77. (All translations of the German quotations are mine - G. R.)

What follows is well known: only a few months after the foundation of the *Uranverein*, the emigrated scientists caught wind of the efforts of German physicists in the service of the National Socialists. Therefore Albert Einstein and Leó Szilárd wrote a letter to President Franklin D. Roosevelt to persuade him to establish a US nuclear weapons programme and to get ahead of the Nazis. They succeeded on all counts – the first atomic bomb, "Trinity", was detonated in New Mexico in 1945. Einstein regretted this letter all his life because he could not prevent the first nuclear weapons from being dropped on Hiroshima and Nagasaki, resulting in hundreds of thousands of civilian victims. The philosopher Günter Anders writes: "This is the change that has shifted history into its new 'Zeitalter' (era). The titles that belong to the individual ages should therefore be:

"All humans are mortal."

"All humans can be killed."

"Mankind itself can be killed."[3]

Like the rest of the world, Josef Stalin took note of this military operation and understood it as a signal. The hitherto marginal Soviet nuclear weapons programme headed by, e.g. Abram Fedorovich Joffe and Igor Vasilyevich Kurchatov had to be developed into a powerful arsenal. In Sinop at the Black Sea, German physicists from the occupied territories, including e.g. Manfred von Ardenne helped to build up the programme at breakneck speed. As early as 1949, the first Soviet atomic bomb was detonated in Semipalatinsk. Most of the uranium needed for this came from German stocks. As a war reparation, more than 200,000 tonnes of uranium from the territories of the GDR would follow in the next 40 years, mined by the (German-)Soviet State-owned stock company *Wismut*.
In the following decades, the "doomsday clock" "uses the imagery of apocalypse (midnight) and the contemporary idiom of nuclear explosion (countdown to zero) to convey threats to humanity and the planet"[4] was reset 24 times. In 1953, according to the Atomic Scientists (including Einstein), it was

3 Günther Anders, *Die Antiquiertheit des Menschen* Bd. I, 7th ed., vol. 1, Beck'sche Reihe. (Munich: C.H. Beck, 1994), 256.

4 'Current Time – 2023', Bulletin of the Atomic Scientists (blog), accessed 2 April 2023, https://thebulletin.org/doomsday-clock/current-time/.

5 ‘Doomsday Clock’, Bulletin of the Atomic Scientists (blog), accessed 6 December 2022, https://thebulletin.org/doomsday-clock/.

6 Anders, *Die Antiquiertheit des Menschen* Bd. I, 1:256.

7 This is an excerpt from my dissertation, defended in 2020 and published in 2021: Grit Ruhland, FOLGELANDSCHAFT: Eine Untersuchung Der Auswirkungen Des Uranbergbaus Auf Die Landschaft Um Gera/Ronneburg (Weimar, 2021, 2021), http://www.gbv.de/dms/weimar/toc/1771280263_toc.pdf.

↑
Installation view of the exhibition *Rückstand Zeichen Rand* at Galerie Intershop, Leipzig; photo by Tom Dachs

only 2 minutes, until midnight – followed by relaxations until the 80s, when it was 3 minutes “before”. In 1991, extinction was dated a full 17 minutes away – the greatest distance since the counting began in 1947.[5] This relief has obviously led to the interpretation that everything is “done” on mankind’s to-do list. However, the distance to doom has been rapidly shrinking. Since 2020, measurements have switched from minutes to seconds: 100 sec. In 2023, the alarm arrived at a sad climax; the number reached double digits with only 90 seconds left.

Given the current nuclear threat, the words of the above-mentioned philosopher Günter Anders ring with gloom. For him, already in the middle of the last century, “the mere existence”, the presence of the “bomb”, of nuclear technology, was “extortion turned into a thing” for all hands that possessed it – and from this arises the apocalyptic: “For the bomb [...] is constantly being deployed.”[6,7]. That sounds very plausible now, but it probably seemed quite far-fetched to some people at that time. Then, it was an effort to write that. Now it sounds almost obvious since it is clear that the mere mention of nuclear weapons is part of military tactics, as is the shelling of nuclear power plants, e.g. Zaporizhia. Military expert Marcus Keupp even calls it a **“psychological weapon”**[8].

THE ABSENCE OF SENSORY PERCEPTION, BLINDNESS AND NUMBNESS AS CHALLENGES

So why am I dealing with this issue? What, in the face of this overwhelmingness, can art contribute? In the following, I will show why it might be important that artists also participate in the project of culturally processing the nuclear complex.

First, back to Anders. He spoke of “**apocalypse blindness**” (Apokalypseblindheit), i.e. of the inability to “want to be aware of the threat”. He stated that the ears “[...] become deaf the moment one even mentions the subject matter.”[9]. There is certainly much that could be said about the reasons. In the arts, the end-time mood, the apocalypse, is a recurring theme. Not least, it also deals with the post-apocalypse. At the same time, the question is also about decoding and possibly deconstructing the narrative of these myths.

8 Thomas Zaugg, ‘Marcus Keupp: «Deswegen sage ich: Russland verliert den Krieg»’, Neue Zürcher Zeitung, 27 March 2023, sec. Feuilleton, https://www.nzz.ch/feuilleton/marcus-keupp-deswegen-sage-ich-russland-wird-den-krieg-im-oktober-verloren-haben-ld.1731488.

9 Anders, *Die Antiquiertheit des Menschen* Bd. I, 1:38.

Rusty barbed wire at Raadi, former important baltic military airport in Tartu
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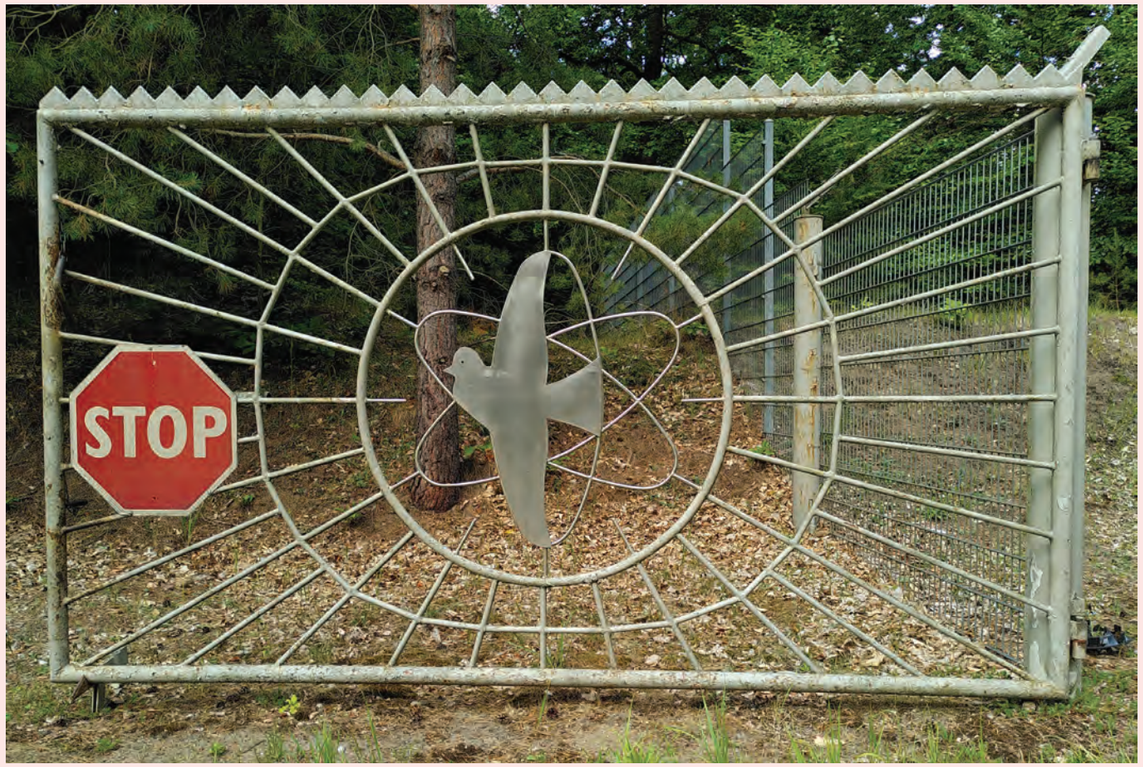
10 Joseph Masco, *The Nuclear Borderlands: The Manhattan Project in Post-Cold War New Mexico,* (Princeton University Press, 2006), 14. https://muse.jhu.edu/chapter/1705066.

11 Masco, 12.

12 Ibid.

Similarly, Joseph Masco noted that the atomic bomb was always presented as "the unthinkable"[10] colonising the psychic space. Referring to Walter Benjamin's hypothesis of the numbing of the senses through the overstimulation of perception in a metropolitan environment, he argues that above a certain level of stress, the "state of emergency" becomes the norm and a process sets in which the affected become "anaesthetized"[11]. Masco transfers this observation of Benjamin's impaired perception of the city symbolically to the constant possibility of nuclear extinction – this **anesthetisation** would, therefore, exist for the city noise and the nuclear threat. He, therefore, demands to "**regain our senses**" in order to be able to think at all about the expansions of the nuclear complex, its entire production cycle "from uranium mining, to plutonium production, to weapons testing, to nuclear waste storage" and not least about the proliferation of "nuclear materials"[12], without it became diluted.

Entrance gate of former NPP Rheinsberg,
in decommission since 1995
↓



The concept of "risk society" and the 1986 book *World at Risk* by sociologist Ulrich Beck was strongly influenced by the Chernobyl accident, which affected both the Soviet Union and the European region. In another article, Beck describes the increased radioactivity civil society is confronted with as a process of "**expropriation of the senses**" (*Enteignung der Sinne*)[13]. The new risk is no longer perceptible to the human senses, which means that the average citizen is deprived of the competence to judge a life risk. State organisations and experts are mandated to define what is dangerous and what is not. Beck observed that only a few months after the disaster, a tendency of repression arose concerning these risks – when facing unimaginable danger, reactions ranged from deep disturbance (*radikale Beunruhigung*) to aggressive ease (*aggressive Ruhe*). Both are two sides of the same coin.

Furthermore, Beck notes that "with the size and proximity of the danger grew the resistance to insight into the danger" – the latter was often denied "in order to be able to continue living at all"[14].

Hans-Jürgen Wirth vividly describes: "Atomic radiation has such an **uncanny** effect on us because it is invisible, imperceptible to the senses, and comes upon us in secret [...]"[15]. Uncanny, for example, is something that does not make itself recognisable because it is secretly present. There is a relationship that I have often encountered: radioactivity and magical thinking maintain an intense connection: "The feeling of the uncanny goes hand in hand with superstition and magical thinking"[16]. Wirth agrees with the very different reactions to the presence of radioactive radiation and a possible danger described above: there are "either unrealistic ideas of one's own invulnerability and immortality or violent attacks of fear"[17].

In these analyses, there are many approaches to an artistic exploration of the subject. I claim that – in many ways – uranium has now turned from a chemical element into a **cultural element**. A substance similar to other materials must be culturally digested, even more so because it is, among many other qualities, toxic. This process requires a multitude of artistic approaches and artworks that deal with all stages of the nuclear chain: uranium mining, uranium processing, nuclear power plants, nuclear weapons, uranium ammunition and nuclear waste disposal, in order to be able to work on them beyond pro and con arguments (which have often already

13 Ulrich Beck, *Der Anthropologische Schock. Tschernobyl und die Konturen einer Risikogesellschaft* (Bern: Der schwarze Kahn, 1988).

14 Ulrich Beck, ed., *Politik in der Risikogesellschaft: Essays und Analysen* (Frankfurt am Main: Suhrkamp, 1991), 11.

15 Hans-Jürgen Wirth, ed., 'Tschernobyl' – eine "normale" Katastrophe?,' in Nach Tschernobyl (Frankfurt am Main: Fischer 1989), 53–54.

16 Ibid.

17 Ibid.

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Missiles exhibited at -944096183 Museum Ralsko showing ammunition -944096183 excavated at Ralsko military training area

been made superfluous by facts), to answer the numbness, the paralysis, the ignorance, the uncanny with something substantial or accompanying rehabilitation processes. I learned and appreciated this exchange at various "Nuclear Roundtable Discussions" – led and curated by Dr Ele Carpenter, who initiated the "**Nuclear Culture Project**" with the London Arts Catalyst in cooperation in Goldsmiths College in 2016.

PRINCIPLES, APPROACH, PROCEDURES, METHODS, PROJECT EXAMPLES

I first outline a research topic and area, a practice comparable to further areas of other academic research. This often arises from the fact that I finance my research through grants, for which I have to formulate applications for the respective funders. Strictly speaking, the preparation and application are already the first step. However, I formulate a research intention rather than a concrete question. In this respect, artistic research often differs from other forms of research. I know many people who do artistic research, but hardly any person who actually asks themselves a written-out question. This implicit knowledge and research in the pre-linguistic realm is, at least according to my empirical observation, a unique feature of the arts. I have observed that this procedure, which is customary in the arts, to have a clear idea without using language, arouses great scepticism and evokes the suspicion of arbitrariness, which, however, I believe is based on a lack of understanding.

During the next step, I inform myself about the state of the research in the field. For this purpose, I gather literature and talk to experts. As indicated in the methods described, I first create a library concerning the various topics. Simultaneously or afterwards, I compare my ideas with the encountered reality and go to the respective place and generate photos, videos, texts, interviews, drawings – a collection of material is created. I extend my view beyond human activities and practice looking beyond humans to non-humans and the "supernatural". In the arts, magic also has its traditional place, so it gets a role to play in my research.

Out of this material collection, I compose audio collages or build spatial installations. However, I also write articles and conference papers and present my work in lectures that could be described as multidisciplinary in artistic and scientific settings.

18 Grit Ruhland, "How I Learned to Start Worrying and Live with the Apocalypse", *Kalypso. Journal for Doomandgloomhermeneutics.* 1, no. 1 (2023).

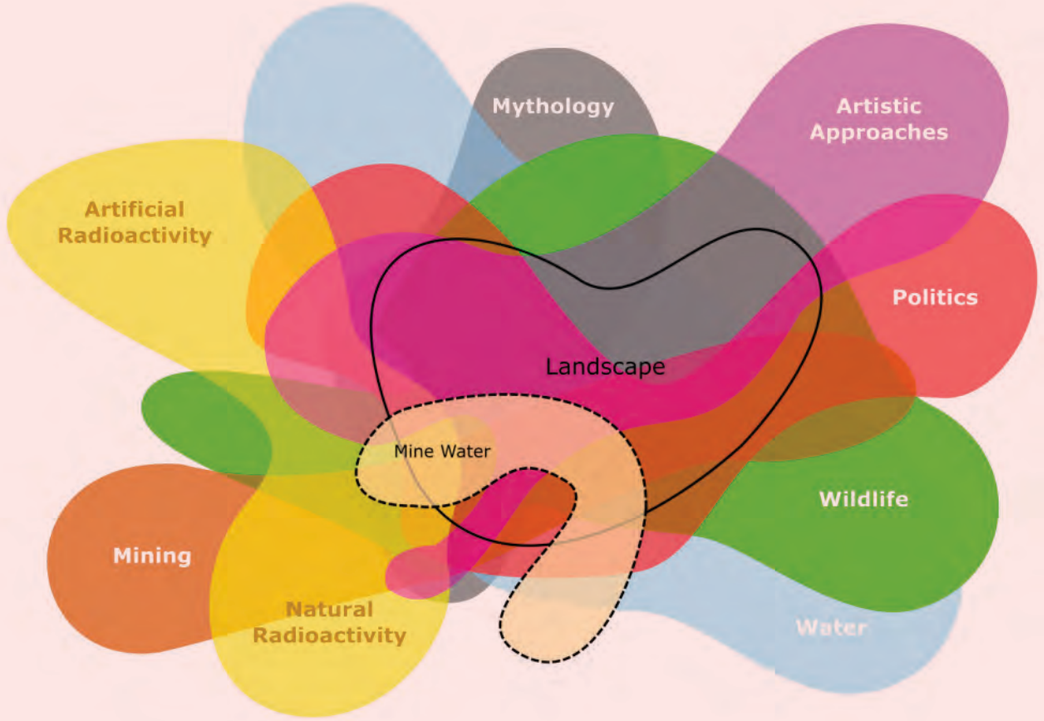
19 John Dewey, *Art as Experience,* 1. Perigee print, A Perigee Book (New York: Perigee Books, 1980), 12.

20 Ibid.

Often I develop a work further after contact with the audience. This dialogue is very important to me because it gives new impulses so that I can deepen and improve my approaches. This continuous process of evolution may not be very art market-friendly, but it corresponds to the responsibility that the subject entails. In this respect, I do not participate in the hunt for new themes, though this is not, in fact, unusual. My subject horizon is expanding successively. While it was a completely niche topic when I started, it has become more and more up-to-date and relevant, which confirms the concept, but also concerns me very much.

My work deals with so-called "natural" radioactivity, especially low-level radioactive radiation. On the one hand, I am interested in understanding and knowledge on the matter; on the other hand, I also have a personal history as a person affected and part of the "local population". I encountered the nuclear industry as a child because I partly grew up only a stone's throw away from a uranium mining site, and it has been part of my life ever since[18]. This conceptual path brought me to the related topics of radioactivity, nuclear industry, mining and nuclear heritage.

I started to deal with the "**Uran-bergbau-folge-landschaft**" (post-uranium mining landscape) through drawings in 2006, and I continue to expand my knowledge from a concrete point in the landscape. According to Dewey, I am continuously researching to develop insight into my subject matter and understand the "conditions and factors"[19] that constitute it. In order to do justice to the subject matter, I enter a repeated dialogue of information and perception, avoiding not to fall into stereotypes. In my opinion, the severity of the subject also brings great responsibility and requires conscientiousness, empathy and critical examination: a "second" exploitation, so to speak, for "sheer personal enjoyment"[20], which can also consist of distant horror, is morally questionable. Particularly, the social implications of the issue are often underestimated. The field is, therefore, very politically charged – carelessness and imprudence can have negative consequences. Which, in turn, does not mean that the topic should not be dealt with. However, in my work, I hope to facilitate real experiences that come as close as possible to "reality" – by respectfully mapping the landscape as a physical, historical, biological, political, cultural and æsthetic space.



The landscape is also a dynamic object that is constantly changing. From the abundance of impressions and appearances, I distil an informed portrait based on my perception and the resulting observations using the above-mentioned thematic fields such as historical facts, biological contexts, social encounters and cultural artefacts. As usual in classical portraiture, this is only one of many possibilities of representation – but it will try to depict something essential or something of the essence. The aim is to keep the openness of "perception" and not to fall into mere recognition because "recognition is perception arrested."[21]. Especially in a field as culturally under-researched as radioactivity, where even hard sciences still have many unanswered questions, it would be fatal to fall back "upon a stereotype, upon some previously formed scheme"[22]. The emphasis on "perception"-based on sensory experience is an important aspect. In every respect, I attempt to distinguish myself substantially from the superficial approaches to which the subject has often fallen prey.

21 Dewey, 52.

22 Ibid.

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Diagram of shaping factors
for the post uranium mining landscape

23 https://www.imwa.info/docs/imwa_2018/IMWA2018_Ruhland_1117.pdf

In the context of East German uranium mining, in particular, it is primarily a heritage issue. Especially in an area of low-level radiation and, not to forget, a comparatively transparent democratic society, it is possible to investigate things that would not be possible or morally questionable in other places. The rehabilitation company Wismut GmbH, which emerged from the Soviet-German AG Wismut, is accountable for reporting to the German Bundestag. This is globally unique and provides a chance for artistic representation. Not least because the company, like many others in socialist societies, has an (although somewhat problematic) tradition of working with artists, e.g. in commissioning artworks: about 4000 works of art are in the company's collection commissioned by the officials.[23]

Drain of NPP Rheinsberg
into the famous Lake Stechlin
↓

A special method I have developed myself is what I call RSLO (random-structured landscape observations), which consists of using random processes (based on the Monte Carlo method) that either employ radioactivity itself or are based on it, in order to discover randomly selected exploration areas and, as a result, to encounter them without prejudice.[24] Within a defined research area, times and places were determined in this process, to which I then went between 1–6 hours and wrote observation protocols in automatic writing.

The range of documentation methods goes from Geiger counter measurements to interviews. In addition, I often write a research diary, which I also partly evaluate later, i.e. encode. Furthermore, I make memory drawings, which, like the research diaries, mediate between conscious and unconscious memory. These methods show that remembering is not a linear process and that any documentation can only ever be an excerpt.

Since 2021, I have been pursuing a new series of works that deal with historical nuclear sites. I began to explore the site of the first nuclear accident in history ("Prototype Leipzig: the First Accident")[25]: On the 23rd of June 1942, the accident occurred in the research laboratory led by Werner Heisenberg at the Physics Institute of the University of Leipzig – in the heart of the city. The "Uranium Machine" exploded and burned for two days; the local fire brigade was called to extinguish the fire without further protective measures.

Followed by this "prototype", the project "Nuclear Portals"[26] unfolded: on the basis of conceptual considerations, I selected other places which had also written nuclear history and were not widely known so far. Within half a year, I went on field trips to seven locations in three countries (Germany, the Czech Republic and Estonia). I used the methods described above to sketch what I found on-site at the time. The result was a large collection of material.

This series was followed by "Nuclear Portal: Leinawald" – the former Nobitz bomb storage near Airport Altenburg in a large forest area – in cooperation with and funded by the Kunsthof Niederarnsdorf, which is in development nearby.

24 Ruhland, FOLGELANDSCHAFT, 267–71.

25 This project was funded by a 3-month grant from Stadt Leipzig 2021.

26 This project was funded by a grant awarded by the Cultural Foundation of the Federal State of Saxony (KdFS) 2022.

p. 180—181

↑

Waste (rock) pile behind "Schacht Marie", part of the (socialist) repository Morsleben (in operation since the 1980s)

Nuclear Gates

Tartu, Airport Raadi (Estonia)
Medium- range bombers Tu-16 and Tu-22M

Sillamäe (Estonia)
Uranium treatment plant

Maramaa (Estonia)
Bomb storage

Berlin-Dahlem (Germany)
former Kaiser-Wilhelm-Institut

Rheinsberg (East-Germany)
First German Nuclear Power Plant since 1991 in decomission

Ralsko (Czech Republic)
Uranium mining and military place

Morsleben (East-Germany)
Final repository of German Democratic Republic

Altenburg-Nobitz (Germany)
Military airport for various MiG fighter aircrafts and nuclear weapons

DIFFICULTIES

For one thing, it is not easy to do justice to the subject matter. I want to avoid being politically instrumentalised on the one hand or being too uncritical towards the other. As soon as "radioactivity" comes up as a topic, it is a matter of psychological stress, loss of property value and potential dynamite, figuratively speaking, of course. Between pros and cons, there is often a little space. Sometimes it is difficult to define what information should be made public and in what way. Protection of the right to personal confidentiality is often a challenge. In case of doubt, I would rather abstain from publication to avoid exposing the interviewee unwanted. But this, of course, hinders knowledge sharing.

Last but not least, a structural note: artistic research is, at least in Germany, still a young discipline – which means that it is almost nonexistent in the academic world and has by no means the same status as established research fields. Unfortunately, this is also true in monetary terms. To date, it has only been supported by the classical arts funding with its typical structures, e.g. grants, which do not include production or travel costs and often only include short project durations with little preparation time (sometimes just a few weeks) and a fraction of the academic remuneration which is usual in the academic field.

In this regard, it is significant whether artistic research is regarded "only" as a sub-area of art or whether it goes beyond the arts and covers new fields. My interpretation tends towards the latter, although this would depend on further definitions of more terms. I hope it became clear from this article that the combination of an artistic approach with research matters to me rather than the question to which discipline my work might belong – even more so because I generally consider multidisciplinary approaches to be the future of research, including the arts.

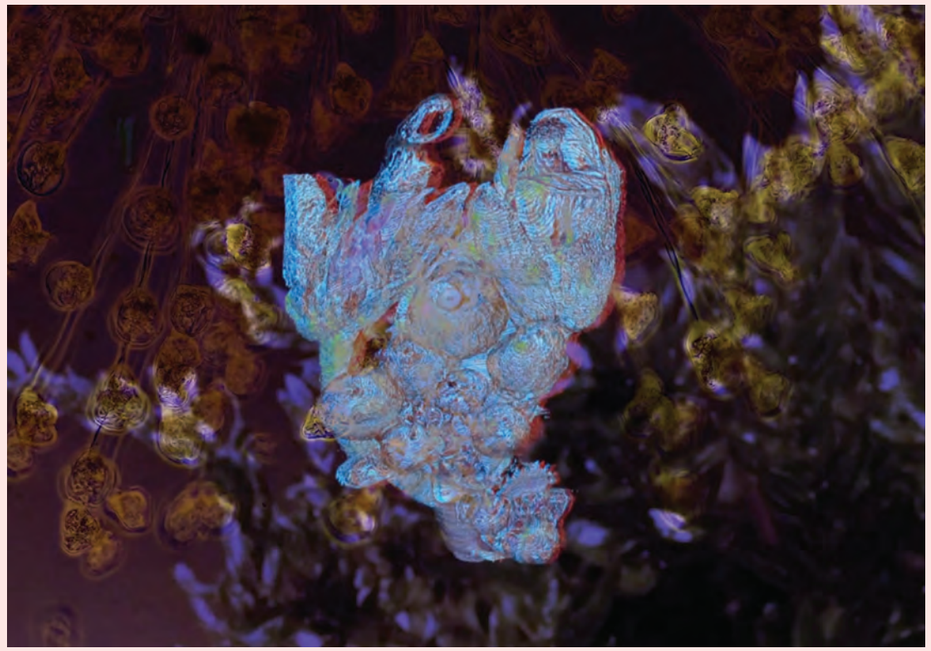
Regimes of Knowledge Production

MANUEL ÁNGEL MACÍA
ILONA JURKONYTĖ
SANTIAGO REYES VILLAVECES

a conversation
on the predicaments
of artistic research

p. 186—187

Arabidopsis Thaliana installation
Ilona Jurkonytė and Santiago Reyes Villaveces
Five-channel video installation.
Duration: 30min 14sec
Museum of Modern Art Bogota, Colombia, 2021
↓



ILONA JURKONYTĖ: We have decided that this conversation will be about the conditions under which we come together to discuss artistic research. In this sense, the first methodological premise of our conversation is that we cannot take for granted what artistic research is as a consolidated category or a given.

MANUEL ÁNGEL MACÍA: Let's start by mentioning our shared interest in the potential of the contemporary interaction between research and the arts. Namely, we see the emergence of a field in which practices and practitioners are able to articulate new modalities of knowledge production while at the same time repurposing and challenging traditional definitions of what research[1] is or can be (however contested the field may be). This is our first common meeting point. The second meeting point is perhaps broader but, in my view, entirely related: our shared interest in the Cold War and its bearings upon the present.

Ilona and Santiago, in addition to various artistic and curatorial engagements, you have both worked together on artistic research projects that traverse complex entanglements of colonial and post-Soviet articulations. I am interested in a phrase you have often used in your projects: that the Cold War is a regime of knowledge production and not simply a historical period or a mere military confrontation.

IJ: Santiago and I worked together on the project *Arabidopsis Thaliana* (2021), that engaged with the Cold War Space Race.[2] It focused on the internationally overlooked circumstances of the emergence of the discipline of space botany, the study of plants in space environments. We wanted to draw attention to the invisibility of places and histories that are subsumed into discourses dominated by superpowers. Lithuania's engagement with space botany experiments in the late 1970s and early 1980s serves as an example of the extent to which a very visible aspect of the Space Race is not internationally recognised because of the way in which competing ideations/ideologies constrain the processes of knowledge circulation.

1 On the one hand, we take the signifier 'research' here as historically entangled with the strictures of scientific knowledge production. This historicity is important because we are making a point about the emergence of new models of rationality that developed parallel to what has been termed the Cold War. On the other hand, this double aspect of practice research is indebted to Ellen Waterman and Peter Dickinson's theorisation.

2 The first iteration of this project was the exhibition *Arabidopsis Thaliana,* Museum of Modern Art, Bogota. Landscape, Nature and Territory MAMBO 2021 Exhibition cycle. The resilient quality of life under extreme circumstances. Curated by Eugenio Viola.

SANTIAGO REYES VILLAVECES: *Arabidopsis Thaliana* engages with fiction and multimodal installation practices to reanimate the imaginaries of these Lithuanian astrobotanical experiments, in which botanists attempted to grow a plant from seed to seed in zero-gravity conditions. The exhibition dossier framed the project as an immersive invitation to unlearn the habitual ways we think about the environment and economics. We took the early 1980s as a key moment in planetary history when a group of Lithuanian botanists, in collaboration with scientists from other Soviet Republics, succeeded in growing the full cycle of a plant specimen in zero-gravity conditions. With this in mind, we embarked on a speculative journey that evolved around the idea of life beyond Earth and the potentials of the newly-expanded field of ecological thought. The plant species, *Arabidopsis Thaliana*, gives our project its title.

IJ: In this project, we decided to approach the old Space Race conversation from a more personal angle. We shifted the perspective on events that have been heavily mediated and

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Arabidopsis Thaliana installation
Ilona Jurkonytė and Santiago Reyes Villaveces
Five-channel video installation.
Duration: 30min 14sec
Museum of Modern Art Bogota, Colombia, 2021

Arabidopsis Thaliana installation
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Five-channel video installation.
Duration: 30min 14sec
Museum of Modern Art Bogota, Colombia, 2021
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co-opted by the tellers of grand narratives – such as the Cold War and/or nationalist frameworks. The complexity of such a personalised gesture became a worthy challenge for us because in our collaboration, the personal position of the 'I' had to be articulated as 'we'. The position of the 'we' can never be taken for granted and is most often exploited by those in power. So, in the *Arabidopsis Thaliana* project, we sought to create an intersection of multivalent tensions across national, personal and geographical senses of belonging. We did this by appropriating and inhabiting the media forms in search of a different articulation of the 'we,' opposing the 'rational, universal human,' coined as part of the Enlightenment story.

In doing so, we weave this moment into a speculative yet sincere and truthful narrative that brings together a series of historical processes that took place in the early 1980s: the Cold War nuclear disarmament negotiations, the Colombian writer Gabriel García Márquez winning the Nobel Prize for Literature and the Soviet Union team (comprising Lithuanian, Ukrainian, Latvian, Estonian, Kartvelian and Russian players) winning the World Basketball Championship in Cali, Colombia. We chose to use the media language of the time, such as video images from global satellite broadcasts and radio transmissions, as well as a combination of audio and audiovisual genres: from essay film, educational film and sports commentary to radio broadcast and even an audiobook. We wanted to explore the moment in time when our planet's ecosystem is being extended into space. Our premise is that we need to question how we habitually understand the environment and the economy. Moreover, mediation plays an increasingly important role in this. So at this level, we return to the question of knowledge under planetary extractive militarisation and what has been termed the Cold War.

SRV: On a more affective level, the premise of these collaborations has been driven by the exploration of survival strategies that formulate non-extractive modes of relating to other beings. Our project uses fiction to interrogate and reposition the epistemic and material legacies of the Cold War, looking specifically at the shared histories of South America and the Baltics – two geographies that, while integral to the confrontation, are often omitted from participation in the global singular 'history'. Having studied in Colombia in the early 2000s, I did not have access to sources that dealt with the cultural production of the Baltic region. However, in 2019, I received an unexpected invitation from Lithuanian curator Justė Jonutytė to participate in the Rupert residency in Vilnius. This opportunity has been a catalyst for my recognition of a number of shared histories between the regions. I was fortunate to meet Ilona, with whom I discovered commonalities in our independent research processes. We both realised, early on, that our research interests would converge into a unique and highly productive investigative effort.

MÁM: This affective register is significant. I want to emphasise how much I have learned from conversations with my colleagues in Riga, where there is a rich ongoing debate about the uneasy intersections between decolonial, postcolonial, post-Soviet and post-socialist framings.[3] Coming from

3 I am referring to the ongoing curatorial programmes of the Latvian Centre for Contemporary Art (LCCA), Communicating Difficult Pasts (2019–2022) and Decolonial Ecologies: Understanding the Postcolonial After Socialism (2022). See https://lcca.lv/. I am indebted to conversations with Antra Priede, Māra Traumane, Zane Zajančauska and Kitija Vasiljeva, Austris Mailitis and Niklavs Paegle, Mick Wilson, Paul O'Neill and Andris Brinkmanis, as well as Ieva Astahovska and Solvita Krese at the Latvian Centre for Contemporary Art (LCCA) in Riga – and my brilliant students in the MA in Curatorial Studies at the Art Academy of Latvia (LMA).

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Arabidopsis Thaliana installation
Ilona Jurkonytė and Santiago Reyes Villaveces
Five-channel video installation.
Duration: 30min 14sec
Museum of Modern Art Bogota, Colombia, 2021

South America and working in Latvia, these exchanges have enriched and positively problematised my reading of the neoliberal present. In these discussions, we have often mapped unexpected affinities between the Baltics and South America as starting points for more complex discussions about the post-Cold War regimes of knowledge production that you mentioned earlier. However, you both seem to have taken this unexpected affinity or kinship to a new level, producing a new and complex discursive configuration. *Arabidopsis Thaliana* allows us to critically engage with the extended geographies of the Cold War and its regimes of knowledge production.

IJ: We want to foster ongoing efforts to articulate and defend spaces of self-determination as they are being challenged in the so called Eastern Europe / Central Asia and South America. I often joke that our conceptual apparatus in this work is multidimensional, as we deal with 'flat' (transcontinental) and 'vertical' (outer space) geographies and their mediations across temporal markers (from the 1980s to contemporary media technologies and genres). As we enter a moment of renewed global military tensions, this kind of practice of search for new connections is more important than ever.

My experience of pursuing PhD in North America did shape my sense of urgency to address questions of method. To me, really formative were seminars with Masha Salazkina who introduced to us Kuan-Hsing Chen's *Asia as Method: Toward Deimperialization* (2010) and her own by now really important essay "Film Theory in the Age of Neoliberal Globalization" (2015).

MÁM: Let's unpack the question of the geo-politics of knowledge production. I am often troubled by certain assumptions circulating in mainstream discourses around artistic research. A prevalent understanding of artistic research takes it as a transhistorical category that allows science and art to coexist in a smooth, homogeneous and universalist way. Usually, such an account assumes science and art as taken-for-granted concepts devoid of historical density. With this comes a glassy, ethereal, ahistorical and essentialist definition of both art and science that repeats the rhetoric of humanistic reason. When I say 'reason,' I mean it as a historical category emerging from the Western Enlightenment. In the context of our conversation, this ideology informs both the idea that scientific research produces knowledge in a neutral, disinterested way; and the conception of art as a separate sphere of knowledge rooted in modernist autonomy. We know how this works – these ideologies thoroughly shape our institutions of knowledge production. However, I don't want to get too distracted by that debate, which is more complex than we can fit here. It is the very notion of 'research' – post-Cold War – that I want to focus on.

The work of the transdisciplinary thinker Orit Halpern is useful here. Halpern argues for a distinction between what the Enlightenment understood as *reason* and *Cold War rationality* (they are two drastically different historical epistemes).[4] Western Enlightenment thinkers understood mindfulness as an inherent part of the human capacity for reasoning, i.e. understanding, remembering, judging, expressing, etc.[5]

4 Orit Halpern, "The Future Will Not Be Calculated: Neural Nets, Neoliberalism, and Reactionary Politics," *Critical Inquiry* 48, no. 2 (1 January 2022): 334–59.

5 Paul Erickson et al., *How Reason Almost Lost Its Mind: The Strange Career of Cold War Rationality* (Chicago: University of Chicago Press, 2013) 8–, online, February 7, 2023.

In other words, the scientific research programmes of the Enlightenment were grounded in the tenets of a discerning reasoning subject. In contrast, what Halpern calls *Cold War rationality* involves a critique of human decision-making and a deep-seated distrust of human reason (fitting into the apt formula: reason ≠ rationality).

A key outcome of the Cold War's regime of knowledge production is the imposition of a new calculative episteme that seeks to replace human decision-making.[6] Think of the new disciplines that emerged after the Second World War: cybernetics, neoliberal economics (and its account of the technology of the market), ecology, computer technologies, automated weapons systems, etc. – all of which share a focus on self-governing systems that do not depend on human reason. According to Halpern, this Cold War regime of rationality is distributed and obeys networked processes governed by operational logic that transcends human decision-making. Nevertheless, to better understand how Cold War rationality marks a shift from Enlightenment reason, we need only look at today's enthusiasm for 'artificial intelligence' or machine learning (which are directly related). This faith in self-governing systems that can be defined by the interaction between logical gates crystallises Cold War rationality. Especially its desire to go beyond planetary-scale nuclear destruction by designing algorithmic models for automated decision-making processes that are not based on the erratic passions of human reason.

IJ: When we talk about the Cold War, I prefer that we do not take the concept for granted. I believe we should indicate how we understand this category. Please remember that the concept of the Cold War was introduced by the British writer George Orwell in 1945,[7] after the US had employed nuclear weapons for the first time. In the Soviet Union, the phrase "cold war" only slowly came into use after the announcement of Perestroika, which began in 1986.[8] Lately, I have focused on this very moment when the notion of the Cold War was introduced in the mid-1940s.[9] I analysed how cinematic productions and their archiving practices participate in establishing the notion of the Cold War. By questioning the archival practices of the joint productive

6 Furthermore, it can either avoid human errors that may unleash nuclear catastrophe or automate a scenario of Mutually Assured Destruction (MAD), eliminating the political and psychological trauma of the Second World War; and producing autonomously thinking machines.

7 George Orwell, "You and the Atom Bomb," *Tribune,* (October 19, 1945), The Orwell Foundation, https://www.orwellfoundation.com/the-orwell-foundation/orwell/essays-and-other-works/you-and-the-atom-bomb/.

8 Sundhya Pahuja, "Letters from Bandung: Encounters with Another International Law," *Bandung, Global History, and International Law: Critical Pasts and Pending Futures,* edited by Luis Eslava, Michael Fakhri and Vasuki Nesiah, 552–73. (Cambridge: Cambridge University Press, 2017).

9 Ilona Jurkonytė, "Bomb Archive: The Marshall Islands as Cold War Film Set," *Global Storytelling: Journal of Digital and Moving Images 2*, no. 2 (26 January 2023).

Antena
Ilona Jurkonytė and Santiago Reyes Villaveces
Arabidopsis thaliana plant, security cammera, found satellite antenna and TV screen.
150 × 120 × 130 cm, 2021
↓

Antena
Ilona Jurkonytė and Santiago Reyes Villaveces
Arabidopsis thaliana plant, security cammera, found satellite antenna and TV screen.
150 × 120 × 130 cm, 2021
↓

efforts of the cinematic, military and scientific apparatuses, I sought to demonstrate how injustices that started in 1946 with Operation Crossroads (in the Marshall Islands) extend to mediascapes. Thus, the question surrounding research and methodologies must transcend the literal understanding of art or visual cultures as procedures of 'representation'. Instead, we recognise that these procedures and visual technologies are material interventions entangled in systems of power – in this case, the coloniality of the Cold War. Thus, far from being neutral or illustrative, artistic engagements are part of the materiality of this broader historical and epistemic regime. In working on what I termed the 'bomb archive' it was crucial for me to break out of the usual descriptive and passive mode of talking about the atrocities and injustices suffered by the peoples of the Pacific. I wanted to propose a decolonial gesture through an analysis of media production and offer insight into how a decolonial gesture could be implemented.

SRV: My recent artistic work has consistently explored this direction by addressing extractivist cartographies of space and linking them to the legacies of colonial knowledge systems designed to produce and control 'nature'. Here I draw a connection between extractivism in space and the history of colonial science in the Americas. As part of this work, I have explored a scattered history of lunar fragments gifted by US President Richard Nixon to his Cold War allies and rivals. Nixon called these fragments the Goodwill Moon Rocks.[10] These rocks are paradigmatic of the Cold War competition to colonise the Moon and how the Cold War instrumentalises science to serve a planetary war machine.

MÁM: These interests lead back to the central tenet of our conversation: our shared understanding of the Cold War as a broader regime of knowledge production that provides us with – let's follow Foucault and call it – a shared 'ontology of the present'. Ilona's argument perfectly captures what happens when we use this perspective to shift taken-for-granted categories of 'art' and 'research.' Art is not a marginal practice – it is entangled in the operative materiality of Cold War logistics. This brings us back to a more contemporary understanding of 'art [as] not merely representative but in fact constitutive, of contemporary forms of attention, distraction and experience' and of 'politics [as] the organisation of the sensible.'[11]

Within this ontology of the present, my work has explored the broader colonial connectives of the War on Drugs – which, interestingly, was also declared by US President Nixon in 1971. The emerging pharmaco-political market fuels the psychotropic Cold War economy and trips Western understandings of selfhood, control, attention, perception and legality. To bring the geo-politics of knowledge production back into our discussion, we need to articulate how the Global South is entangled in this broader planetary logistics of war without assuming that the logic of the Western world is universally applicable. The assumption of a supposedly 'neutral' notion of research from the Global North brings with it a whole baggage of power relations and epistemic presuppositions.

IJ: In our work, we are also interested in highlighting another key set of aspects: the uneven geographies and certain disappearances encoded in the normalisation of extractive geographical concepts, such as the 'Cold War' or 'Eastern Europe'. These encodings of the Global Cold War lurk within the epistemic categories we use all the time. Think of such notions as the Global South and the Global North, post-USSR or post-socialist spaces, the centre, periphery and semi-periphery, the First, Second or Third world, etc.

An interesting case is that of post-socialist geographies based on the older epistemic construct of Eastern Europe, which appears as both Europe and non-Europe – a gesture that Larry Wolff calls 'demi-orientalisation'.[12] Based on an analysis of the travel journals and letters of Spanish explorers in South America as well as English and French travellers to Eastern Europe, Gražna Bielousova demonstrates how 'the Western European Orientalist imaginaries remain persistent throughout the ages despite the geographical explorations and geo-political changes. Instead of disappearing, these imaginaries get imported to create new orients as the realms of European otherness'.[13] Bielousova's investigation into 'how the regions that the European explorers have

10 In 1973, Richard Nixon distributed Moon rocks brought to Earth by the Apollo 11 and Apollo 17 missions among the 50 USA states and 135 countries, including Belgium, Spain, Colombia, UK, Brazil, USA, France, Germany and the USSR. Nixon framed these gifts as a symbol of 'goodwill'. This Moon rock dispersion generated multiple narratives about imperial expansion, the conquest of space and the consolidation of power through diplomatic seduction.

11 Orit Halpern, Review of Psychedelic Vision, by Christoph Grunenberg, Jonathan Harris, Ken Johnson and David Rubin. *BioSocieties* 8, no. 2 (June 2013): 238–42.

12 Larry Wolff, *Inventing Eastern Europe: The Map of Civilization on the Mind of the Enlightenment.* Nachdr. (Stanford, California: Stanford University Press, 2000).

13 Gražina Bielousova, "Western Disorientations: The Vanishing East of South America and Eastern Europe: Acta Academia Artium Vilnensis," *Acta Academiae Artium Vilnensis* 105, no. 105 (January 18 2022): 12.

14 Ibid.

15 Eve Tuck and K Wayne Yang, "Decolonisation Is Not a Metaphor," 1, no. 1 (8 September 2012).

mistakenly or negligently identified in their imaginaries as "the East" is brought into the colonial order through an a priori assumption of their inferiority to the West.'[14] Indirectly, this is an elaborate explanation of how exactly this category of 'the East' and its connotations of inferiority becomes the basis for our work with Santiago. We both recognise this framing of inferiority as a power relationship. At the same time, this recognition ignites our desire for a decolonial gesture (not as a metaphor, to refer to Tuck and Yang's contribution on decolonial practices).[15] Our interest, therefore, lies in a productive engagement with this legacy of the universalist category of the Cold War. We tackle it by defamiliarising it from the habitual usage proposed by centres of power.

MÁM: Historicising Cold War categories – as you mention with the artificial notion of 'Eastern Europe' – is key to extracting them from a supposedly neutral ground. I would add that such epistemic categories are also zonal biopolitical divisions because they define the threshold between worthy and expendable life forms. In the Global South, this has had rather destructive effects. For example, I think about how 'South American' geographies become playgrounds for testing new forms of Cold War knowledges and practices, which are operationalised through a mix of neoliberal economic policies and fascist military dictatorship. Chile is the most prominent case that comes to mind, but the process is almost homogeneous across the sub-continent. Recall that Cold War rationality is defined by the abolition of human reason, the privileging of discrete, interactive, algorithmic operations and the non-linear technology of the market as the site of truth. As long as the conditions set by the technology of the market are met, death can be rationalised by understanding it as an economic trade-off that maintains stability and growth.

SRV: We also share a preoccupation with the materialities of the Cold War as a broader system of knowledge production. In particular, I think of the display strategies of museums as institutions that seek to produce, institutionalise, preserve, archive and guard memories. It is important to unravel the neocolonial perspectives of museumification by considering how outer space is integrated into contemporary museum cultures. From my perspective, I locate this process in the distribution of the Goodwill Moon Rocks. The gesture of the Moonrock distribution is the moment when exoplanetary materials enter the taxonomy of terrestrial museums.

In another collaborative project with Ilona, an illustrated essay called *Negative Gravity* (currently in progress), we expand on this theme of museumification. Namely, how outer space has been incorporated into the museographic regime and how this infrastructural gesture extends the neo-colonial logic that emerged after the Second World War. I am interested in looking at how the Moon Rock heritage regime contributes to and accelerates the ways in which the US has accumulated a pervasive power since the Second World War, derived from its domination of communities around the globe.

IJ: To return to the question of artistic research, one of the conditions for thinking about artistic research is the operationalisation of rationality. Operationalising rationality refers to the process of transforming abstract concepts, such as rational procedures, into measurable and actionable practices. In the context of the Cold War, rationality becomes a key calculative criterion for evaluating the success of research and scientific endeavour. This emphasis on rationality is driven by the need for technological superiority in the arms race and the desire to win a discursive battle.

By operationalising rationality, the Cold War shift brought about an epistemic reorientation of what constitutes research – and what research 'does'. This Cold War shift, therefore, has profound implications for how we define research and its purpose. Research is no longer just about advancing knowledge but also about producing practical results that can be applied. This leads to a reorientation of how we approach research, emphasising applied research that can be operationalised to achieve specific goals. It is important to always check the ethical disposition of any artistic research: what purpose does it serve – neocolonial or decolonial?

According to this new paradigm, the role of research is not only to generate knowledge but also to 'do' something (the concept of performativity is interesting here). This means

that research is evaluated based on its ability to solve real-world problems and contribute to national or institutional objectives. This focus on the practical application of research also leads to a shift in the types of research prioritised, with applied research becoming more important than theoretical research (artistic research does not necessarily do either, so it is often not even seen as research in many Western contexts). However, artistic research is still subject to this significant epistemic reorientation and its renewed emphasis on the practical application required to achieve quantitative goals – a decolonial gesture framed outside the standard calculable definitions of success.

MÁM: In a different context, but along these lines, I argue that this validation of research is premised on an imperative of statistical measurement that obeys modern colonial narratives of development that posit knowledges as being in economic competition with one another. This entails a grading of validity based on an ideology that ranks people according to the measurable outputs of their accumulated cognitive capital. There has been a significant shift in the way we think about research, but we still have some catching up to do. In our conversation, we argue that discourses of 'artistic research' may still be defined and bound by outdated and pre-Cold War notions of what research is. These are ultimately based on a notion of reason that is no longer (or never was) operational. Perhaps this is the condition under which we have come together to discuss artistic research.

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Goodwill Moon Rock Colombia,
Santiago Reyes Villaveces,
graphite on paper and metal plates,
95 × 95 cm, 2023

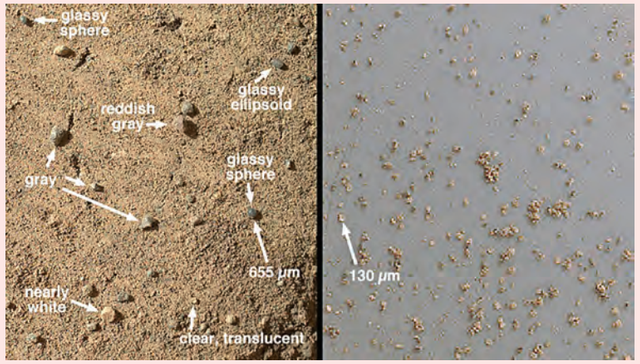
Portrait of a Sand Grain

orbiting between satellite and microscope

p. 204—205

ANCA BENERA & ARNOLD ESTEFÁN

This is the portrait of a sand grain. Much like soil, sand comes in different forms. Families of sand particles from the same geographical regions tend to inherit the same features – a shared *geo-genetic* history. Every sand grain is an individual: orange, olive, black, white, lunar, any colour of the spectrum. This is a picture of Martian sand lit by the Sun (among debris from landing vehicles).



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The Mars Hand Lens Imager (MAHLI) on NASA's Mars rover Curiosity acquired close-up views of sands in the "Rocknest" wind drift to document the nature of the rover-scooped material. Image credit: NASA/JPL-Caltech/MSSS.

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Chinese development at the newly reclaimed Fiery Cross Reef, which lies on the west side of Spratly Island. China's island-building boom is widely seen as an attempt to tighten its control over the South China Sea. Photo credit: CSIS Asia Maritime Transparency Initiative / DigitalGlobe.

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Trucks carry sand at the land reclamation area overlooking Singapore's Tuas industrial area in the Country Gardens' Forest City development in Johor Bahru, Malaysia. Photograph: Edgar Su/Reuters.

Sand is minuscule and infinite at the same time. Both plural and singular. Unscalable. Neither liquid nor solid. Granular. Malleable, or rather, uniquely volatile. Sand constantly migrates in a never-ending performance. By virtue of its size, it is transported by gravity, wind, waves and rivers, shape-shifting into ever-changing landscapes. As the wind carries sand away, each process imprints a different record, a texture on the surface of the grains. Every grain tells a story of its origins and travels.

Sand is a fossil resource. Over millions of years, sands are often buried under younger layers of sediment, uplifted into new mountains, then eroded and transported once again. Each deposition, burial, uplift and erosion cycle renews the sand grains and rounds each grain a little more. The average timespan for this cycle is 200 million years. Sand extends shorelines, grain by grain. And thus, it becomes a territory – re-drawing maps and memories.

After water, sand is the second most used matter by humankind. Sand, like water, is both a resource and a proxy. Blended into chemical spills. Turned into rocks, asphalt and concrete; glass, walls and silicon chips. However, sand is not what you think it is. Like a wizard, it travels on the back of the wind over great distances, turning the sky and snow in the Alps bright orange. Camouflages itself in the most unpredictable ways. Sinks. Dissolves. Mingles. Infiltrates. Hangs out with the sand mafia, peacekeepers, security councils and general assemblies. Some might call it a foreign agent.

Sand flows and conflicts. Pumped under high pressure with water and chemicals into oil and gas wells, it fractures the Earth and breaks geographies apart. For sand, there is nothing out of reach. It is an agent in hydraulic mining. It moves, cracks and swallows. Right until the land is gone. The Earth's orbit changed. And rains rearranged. Creating a vast desert scene. Nothing at all, just sand.

Deserts comprise approximately one-third of the Earth's land surface. Even though they host human and non-human lives, animal, vegetal and mineral forms of existence, deserts are perceived as empty and devoid of life. The common distortion of the desert as "empty space" has repeatedly motivated the justifications for turning deserts (their overground and underground) into radioactive sites. Those living in occupied deserts have been forcibly displaced and, in some cases, exterminated – immediately or gradually. All because of the common wisdom that there is nothing in the desert, just sand.

By splitting the atom, the Earth became a space of experimentation or, rather, a test site. The Cold War programmes have destroyed and contaminated not only hundreds of thousands of square kilometres of terrestrial desert-like zones but also the atmosphere. In this process, deserts have been used to "test" nuclear arsenals: Nevada Desert, Algerian Sahara and Northeast Kazakhstan.

This site is known as the Polygon: it was home to nuclear testing in the Cold War period. Today, artificial lakes formed by nuclear bomb explosions pockmark a once-flat terrain, now and then broken up by the empty shells of buildings. The nuclear zone was selected for being a "desert", uninhabited land, though several small agricultural villages dot its perimeter.

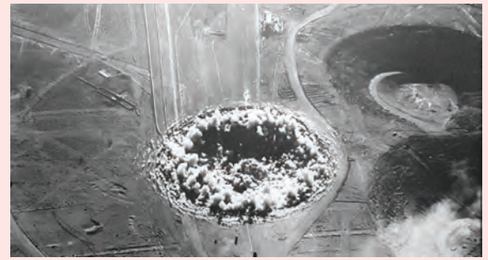
From 1949 until 1989, over 450 nuclear bombs were detonated on Kazakh land. It is estimated that over 1.5 million people have been exposed to nuclear radiation over these years. The crucial effects on the population were long hidden by the Soviet state and only came to light after years of radioactive pollution.[1]

"The white ocean sands of Western Australia's Montebello Islands may appear inviting, but 70 years ago, they were the site of Britain's first nuclear tests, carried out as part of a secretive deal between Britain and Australia."[2]

Between 1956 and 1963, the British detonated seven atomic bombs at the site; one was twice the size of the bomb dropped on Hiroshima. On top of this, there were the so-called "minor trials" in which officials deliberately set fire to plutonium or blew it up with TNT – simply to see what would happen.[3]

One location called "Kuli" is still off-limits today because cleaning it up has proven impossible. Even after over 60 years, a perfect circle with a one-kilometre radius remains stripped of vegetation. The soil underneath is still sterile today, so when the roots of plants reach a certain depth, they die. The steel and concrete towers used to detonate the bombs were instantly vaporized, causing the red desert sand to melt into a green glass, so-called trinitite, that still litters the site.[4]

"During the era of weapons testing, Nevada embraced its role almost as a patriotic duty. There seemed to be no better use for an empty desert."[5] One of four major nuclear test regions in Nevada's hidden ocean of radiation, Yucca Flat is a closed desert drainage basin. Over 41 years, 921 nuclear



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Last Underground Explosion at an Abandoned Semipalatinsk Nuclear Test Site, Kazakhstan. 14 May 1964.

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Nevada test Site Area, USA.
Image: CNES / Airbus, Landsat / Copernicus, Maxar Technologies, USDA/FPAC/ GEO, Map data © 2023.

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The Mexican Hat Disposal Cell, Utah, USA, is the location for radioactive material from a uranium mill located nearby, which operated from 1957 to 1965, near Monument Valley. Photo: CLUI.

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Green River Uranium Disposal Cell, Utah, USA. A disposal mound for radioactive tailings located at the site of a former uranium mill. It contains tailings and contaminated material from 17 other properties in the area. Photo: CLUI.

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Tuba City Uranium Disposal Cell, Arizona. Photo: CLUI.

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Gunnison Disposal Cell, Colorado, USA. Photo: CLUI.

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A defaced danger sign in Arabic and French stands next to a fence at the entrance of the former French nuclear bomb test site of Tena Fila mountain at Ain Ekra in Tamanrasset, 2,000 kilometres (1,242 miles) south of Algiers, Algeria, 25 February 2010. Image: AFP Photo.

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French nuclear bomb test site of Tena Fila mountain at Ain Ekra in Tamanrasset, 2,000 kilometres (1,242 miles) south of Algiers, Algeria, 25 February 2010. Image: AFP Photo.

bombs were detonated underground at the Nevada Test Site northeast of Las Vegas. Each explosion deposited a toxic load of radioactivity into the ground and, in some cases, directly into aquifers. When testing ended in 1992, the Energy Department estimated that more than 300 million curies of radiation had been left behind, making the site one of the most radioactively contaminated places in the U.S.[6]

More than 30 uranium disposal cells have been constructed over the last 25 years in the United States, primarily to contain radioactive contamination from decommissioned uranium mills and processing sites. They are time capsules of sorts, "Perpetual Architecture" designed to take their toxic contents, undisturbed, as far into the future as possible.[7] This is the location of the Mexican Hat Disposal Cell. Radioactive material from a uranium mill located nearby is hidden in plain sight. Million tons of tailings and waste were brought from the mill site by truck in the early 1990s. It was combined with demolished buildings and tailings from the Mexican Hat mill site, along with 11 buildings in the area that were constructed with contaminated tailings material, including a school.[8]

This disposal cell is in a former sandstone quarry on land above the former townsite of Uravan, which was evacuated and demolished due to contamination following uranium mining there. Radioactive soil and building debris from a uranium mill site are carefully arranged in a clean geometry. The mill operated from the 1930s to 1963. In 1942, the mill became one of two in the USA used to produce uranium for the Manhattan Project.

1st of May 1962, Ekker: A silent cataclysm. Buried underground. Out of sight, out of mind – and INTO THE SAND. A flash of light tears space and time apart. Nothing left, just one hole. In these depths, one could have listened to the Earth's heartbeat.

More than half a century ago, France tested its first atomic bombs in the Algerian desert. The bombs spread radioactive fallout across Algeria, Central, West Africa, the Mediterranean and Southern Europe, causing irreversible contamination.

The Sahara Desert has featured strongly in the Western imagination as a periphery to be conquered, exploited and disciplined.[9] This took shape during the French colonial period when the colonial administration reduced the Saharan nomadic lands to "wild" and vacant territories, "dead lands" in need of "development" – a wasteland.

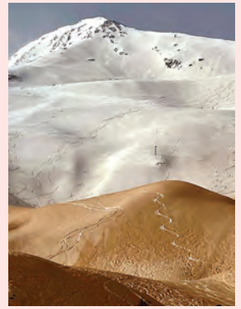
One morning in February 2021, France wakes up under a thin layer of orange sand. Overnight, the wind has meticulously stained the French capital's roofs, cars and streets with a bright orange veil.[10] A whisper rises from the streets and the press: this time, the annual springtime occurrence for the Mediterranean coastline (the Sirocco wind) is exceptional.

The Spanish sky is turning crimson, and the snows of the Alps are "stained" with a strange yellowish-orange tint. The colourful sandy wind is reaching as far north as Luxembourg.

A rumour follows: the Saharan sands, carried all this way by the Sirocco winds, are said to be radioactive. Such news comes with some scientific reassurance: unusual levels of the radioactive substance Cesium-137 are detected in the sand particles. In a return to sender, the irradiated colourful wind whirls across Europe. Nothing can hold back the wind swirling the sands that whisper the stories that need to be told.

Sand miraculously ties together the desert and the jungle. A single breath of wind can transport phosphorus dust from Lake Chad to the Amazonian rainforest. It carries away the dust and allows the miracle to happen: the driest desert in the world nourishes the green mass of a humid jungle.

On the Canary Islands, everybody knows Calima. It comes about three times a year. It is hot and dusty. Sometimes it stays for a few days but lingers for a week. It occasionally spreads out to affect the whole Mediterranean coast. Temperature increases, creating a suffocating apocalyptic environment. You can't see anything but sand. Calima is never alone. The sand brings alien, volatile waste. Sands carry microscopic waste and particles from bacteria, pollen and fungi, but mostly debris and pollutants from nearby industries in Morocco, Algeria, Tunisia and the Western Sahara region.



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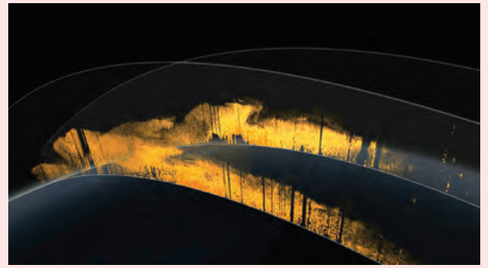
Dust from the Sahara Desert settles on the Pyrenees. Photo: Borja Delgado / CFP.



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The lidar scan images of the Sahara Desert sand above the Atlantic Ocean. NASA satellite has quantified in three dimensions how much dust makes the trans-Atlantic journey from the Sahara Desert to the Amazon rainforest. Among this dust is phosphorus, an essential nutrient that acts like a fertilizer, which the Amazon depends on to flourish. Credits: NASA Goddard's Scientific Visualization Studio, 22 February 2015. The data show that wind and weather pick up, on average, 182 million tons of dust each year and carry it past the western edge of the Sahara at longitude 15W. This volume is the equivalent of 689,290 semi-trucks filled with dust. The dust then travels 1,600 miles across the Atlantic Ocean, though some drops to the surface or is flushed from the sky by rain.

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Calima over the Canary Islands, March. 2020. Image: SeaWiFS Project, NASA/Goddard Space Flight Center, and ORBIMAGE

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On the 2nd of December 2019, maintenance work on the Mogán beach began. Mogán is a town and municipality on the southern tip of the Gran Canary Island, Spain.
Image: www.wsrw.org.

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Controversially, the municipality had ordered tonnes of sand from occupied Western Sahara to renovate the tourist spot. The purchase contributes to financing the illegal Moroccan occupation of the former Spanish colony.
Source: Western Sahara Resource Watch (www.wsrw.org).

Sand can be blown in by the wind but also extracted by it. Sand is irreplaceable in construction but also vital in keeping tourism going. However, the Canary Islands have sourced their sand from the Western Sahara region since its time as a former Spanish territory.

Today, Western Sahara is largely occupied by Morocco. Over the past 20 years, millions of tonnes of sand have been exported, leaving behind eroded shorelines and wasted ecologies. It is estimated that in 5 years, over seven hundred fifty thousand tonnes were illegally extracted from occupied Western Sahara and transported to the Canary Islands.[11]

In this solid fluidity of conflict sands, shifting and eroded geopolitics, how can one map the travelling and disfigured shorelines of Western Sahara? Can Western Sahara claim back its lost sand?

In large enough quantities, sand can be engineered into the most fundamental of all infrastructures: land itself. Singapore is absorbing the surrounding neighbouring territories to feed its geo-body and thus keep the state alive. The solid fluidity of sand allows it to drift off as it pleases, leaving only the most fragmentary of facets. It is quickly drained of historical and geographical traces. Fluid. Like money, sand must remain liquid for the economy to keep moving until there is no more land, only sand.

A series of sand-made artificial territories suddenly emerged in the past six years. They don't appear on most world maps. Most of them are military bases. The Great Wall of Sand drastically tipped the power balance in the South China Sea, turning the region into the stage for a future conflict.

In 2014, China began using coral sand to create artificial islands in the South China Sea. The islands' space was not previously considered "territory" under International Law. Several Asian countries have claims over the same areas in the South China Sea. However, China claims the islands as its territory and is using them to further its claim over the region.[12]

But sand can also act as a storage box for historical and territorial conflict. Seventy years before China's engineering efforts to gain a foothold on contested marine territory, the Allied troops began the assault on Normandy, northwest France. It became a turning point in the Second World War and the largest invasion armada in history. Thousands of ships and aeroplanes supported the soldiers on the ground in a long-planned operation known as Overlord.

Omaha Beach was the largest of the 5 D-Day landing sites. It is a gently sloping tidal area, about 300 metres between the low and high-water marks, with the beach-bound at each end by rocky cliffs. No part of the beach was left untouched by soldiers and their weapons. But things went differently than originally planned by the Allies. Clouds obscured the beach. Most of the landing craft missed their targets; many never reached the shore. The German defences were unexpectedly strong. Engineers struggled to remove obstacles. The waters offshore and the beaches were heavily mined.

Landing ships putting cargo ashore on Omaha Beach at low tide during the early days of the Allied invasion, mid-June 1944.
Image source: Wikimedia Commons.
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A photo provided by the Philippines in 2015 shows construction by China at a reef in the disputed Spratley Islands in the South China Sea in February.
Photo: Armed Forces Of The Philippines/European Pressphoto Agency.

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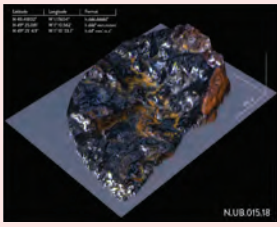
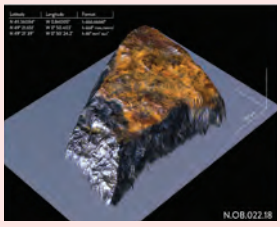
Fiery Cross, artificial "island" in South China Sea. Since 2014, China has attracted tremendous regional and international attention through its land reclamation activities in some features of the Spratlys, which it controls, namely Gaven Reef, Cuarteron Reef, Johnson South Reef and Fiery Cross. While many have criticisms and concerns, China feels this reclamation is necessary to keep up with others in the Spratlys who have earlier occupied features in the disputed Spratlys and built up military and civil facilities since.
Source: CSIS Asia Maritime Transparency Initiative and Digital Globe.





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Microscopic images (3D scan) of "magnetic sand" from Omaha and Utah beaches, Normandy, France. Corroding fragments of shrapnel and metal thrown out by explosions, remnants of the Second World War, D-Day battle, Normandy, 1944.
Produced with the support of Frac des Pays de la Loire in collaboration with Arc'Antique Laboratoire, Nantes.

Image credits: Anca Benera & Arnold Estefán, The Last Particles, 2018 (details)

Today, about 4% of all the sand at the Normandy beaches still consists of military leftover particles from bombs and other metallic remains used during this military operation. When seen up close, tiny pieces of shrapnel and microscopic iron beads survive here as "magnetic sand". To this date, samples of war debris are inscribed into sand particles.[13] When analyzed closely, under the microscope, the war debris particles seem like landscapes of their own – micro-monuments, invisible to the naked eye. Shrapnel and bomb debris from the Normandy landings have survived in the sands of Omaha Beach for 80-plus years now. It is uncertain how long these particles will remain, but sand is a good memory keeper.

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2 Narelle Towie. "Radiation 'hotspots': legacy of British nuclear tests lingers on idyllic islands in Western Australia," *The Guardian* (October 8, 2022), see https://www.theguardian.com/australia-news/2022/oct/08/radiation-hotspots-legacy-of-british-nuclear-tests-lingers-on-idyllic-islands-in-western-australia.

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6 "Origins of the Nevada Test Site," see https://www.nnss.gov/docs/docs_LibraryPublications/DOE_MA0518.pdf.

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10 Maïa Tellit Hawad. "Sahara Mining: The Wounded Breath of Tuareg Lands". *The Funambulist Magazine,* (October 2022, Issue 44).

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12 Leszek Buszynski, Do Thanh Hai, eds., *The South China Sea: From a Regional Maritime Dispute to Geo-Strategic Competition.* Abingdon: Routledge, 2020.

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Butler

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DÁNIEL MÁTÉ – MANUEL ÁNGEL MACÍA

On the Situation of Institutional Artistic Research

AN INTERVIEW WITH JOHN BUTLER

In this conversation with Professor John Butler, we discuss the challenges, developments and general situation in institutional arts research. Prof Butler is the founder and CEO of EQ-Arts, a leading, independent and international enhancement-led quality assurance foundation that focuses on higher education in the arts and the role of third-cycle education in artistic research.

DÁNIEL MÁTÉ: First of all, I would like to discuss a number of aspects related to the current situation of artistic research in Europe, reflecting in particular on the *Bologna Declaration*[1] and its follow-up, the *Berlin Communiqué*, which emphasises "[the necessity] to go beyond the present focus on two main cycles of higher education to include the doctoral level as the third cycle in the *Bologna Process*"[2]. In light of this statement, how do you see the current situation of the third cycle in artistic research? How does artistic research fit into this broader effort to promote a third cycle of higher education across the EHEA?

JOHN BUTLER: The first part of your question is very important because the actual Bologna Declaration was published in 1999. One has to remember that it was a ministerial declaration, not an EC policy paper. It is an agreement between ministers of education and ministers of culture (because in some countries these ministries are interlinked). Basically, the agreement was defined around a common standard for the three cycles of higher education. The agreement clearly defined the differences between Bachelor's and Master's levels, which was a move away from most institutional arrangements where they had the diploma, which was really a combination of Bachelor's and Master's levels. The *Berlin Communiqué*, published in 2003, looked at the third cycle and realised that the doctoral level was not clearly defined. Then came the *Salzburg Seminar*[3] in 2005 and its follow-up in 2010, which developed ten principles for doctoral studies, looking at things like training, diversity, doctoral studies, early-stage careers, funding and various other aspects. However, we are talking about 2005, which was almost 18 years ago. So, it is amazing that we are still having the debates we had back then.

DM: Considering the time that has passed since the *Bologna Declaration*, what do you consider to be the most important contemporary developments? How has the field developed? What has changed, and what still needs to be addressed?

JB: An important step was the work around the Florence Principles, which were developed by the European League of Institutes of the Arts (ELIA) in 2016. The *Florence Principles*[4] emphasised the importance of doctoral-level studies in the mission of a university. Another important area of focus was on the wider community and the production of original knowledge at a higher level of education in the arts. The *Florence Principles* gave rise to the *SHARE* Handbook,[5] which dealt with the development of doctoral studies. And then came the *Creator Doctus* programme,[6] an EU Erasmus+ programme around the development of the doctorate and the third-cycle framework for creative and performing arts and design, led by the Gerrit Rietveld Academie, with EQ-Arts responsible for the quality assurance and development of the standards of the framework.

Research is the key to higher education in terms of producing new knowledge. The European Commission recognises this, as evidenced by its push for a knowledge-based society. And yet we still find that higher education in the arts is not fully recognised as being able to deliver this. In many European countries, including within the EU, there is still a binary divide

1 Bologna Seminar on 'Doctoral Programmes for the European Knowledge Society', 2005.

2 *Realising the European Higher Education Area,* Communiqué of the Conference of Ministers Responsible for Higher Education (2003), http://www.ehea.info/Upload/document/ministerial_declarations/2003_Berlin_Communique_English_577284.pdf.

3 Salzburg II Recommendations, European Universities' Achievements since 2005 in Implementing the Salzburg Principles European University Association, 2010, https://eua.eu/downloads/publications/salzburg%20ii%20recommendations%202010.pdf.

4 ELIA, *The 'Florence Principles' on the Doctorate in the Arts,* (ELIA, 2016).

5 Schelte van Ruiten, Mick Wilson, and Henk Borgdorff, eds., *SHARE: Handbook for Artistic Research Education* (Amsterdam: ELIA, 2013).

6 *Creator Doctus,* accessed June 8 2022, https://creatordoctus.eu/.

between the traditional 'scientific' and 'technical' universities. Technical universities cannot deliver third-cycle doctoral degrees, and unfortunately, the arts are largely located in this category. This has a major impact on students because they are not receiving elements of study that impact research within the curriculum, as well as learning and teaching strategies. I think this contradicts the core principles of *Bologna*, as it results in unequal opportunities for the students. It also means that teachers do not have the same level of support and opportunities for their academic and professional development as they would in the other disciplines. This situation creates a very uneven playing field for the arts. At the same time, the *Bologna* Process – which continues to evolve through meetings and communiqués every two years – talks about the importance of a student-centred approach. If this is the case, Bologna Group should look at what this means for arts students and how they could be better supported. The real commitment – and really all the key developments – have come from European universities and the European Research Area (ERA). However, we must go further. The Commission wants more mobility for students and teachers. If so, they must recognise that we already have *Bologna* and now have the same levels and standards in all programmes across all disciplines. The Commission and the institutions must trust this as a basis for students' participation. We need the Commission and the National Education Ministries to recognise that the arts deliver at the same level as the STEM disciplines. That is why we have set up EQ-Arts as an international accreditation agency, and not a national one. In this sense, EQ-Arts is able to recognise joint programmes between universities, which gives us a lot to work with. That is why statements such as the *Vienna Declaration*[7] came about, and why actions like ELIA has carried out through the SHARE project and The Européenne Association des Conservatoires (AEC) has created through *MusiQuE*, etc. There are good models out there, but there is still room for improvement.

DM: The Bologna Declaration deals primarily with the first two cycles. How do you see the situation of artistic research in bachelor's and master's programmes?

7 *Vienna Declaration,* 2020, http://www.eq-arts.org/wp-content/uploads/2020/07/Annex-18-Vienna-Declaration.pdf.

JB: What I am talking about is largely focused on artistic research at the doctoral level of the third cycle. However, in addition to the doctoral level, research practices must be developed at the level of bachelor and master's programmes as well. Research cannot suddenly be introduced at the doctoral level without preambles – which is not an uncommon scenario. It should be an inherent part of the learning process for undergraduates as well. Quite a few prestigious, leading universities have developed masters' degree programmes that focus on research. They want students to have stepping-off points. This means, in practical terms, that students can go out and get a job or move on in another way. It also means introducing elements for students to move on to the next academic level – which is the level of doctoral studies. It helps them decide whether or not they want to pursue that path. Students must be empowered to make the right decisions: this is also part of the learning process.

DM: How does this play out, institutionally speaking?

JB: As institutions evolve, they must develop their strategy and outline their unique attributes. Institutions need to define how to align their specific priorities with their new role as institutes engaged in research / research institutes. Many claim that this should be one of the main priorities. But I am also referring to areas of research in which institutions are already interested and have begun to invest in. These areas could grow out of the institution's traditional structuring of its bachelor's or master's degree in fine art, for example. The conversation is currently more focused on what kind of master's degree in fine art an institution would like to develop rather than just having a generic programme. So, programmes are developing curricula that reflect the research they are engaged in, for example, the environment, socio-political questions, social engagement, well-being, and others. So, we see the development of programmes with specialisations in these areas at the master's level. The advantage is that it attracts students interested in these specific fields. So, you can start to build a culture and a field of interest. It also attracts teachers whose research practice engages with these spheres. They start to see institutions as places to research, and the institution

starts fostering its culture. This makes it easier to develop a research centre and cluster, which also helps develop a research culture and attract funding. All these steps are linked together in a natural progress. When you run an art school, it is important to have a clear vision of what the institution's mission / vision is and what is distinctive about it.

There has been a radical shift in the modes of art practice. Atelier-based art practice is no longer the only notion of what it might entail. You only have to look at *Documenta* or any of the big biennials to see this. This also means that learning and teaching must adapt to this strategy, which can lead, support and develop how students deal with these new notions of art practice.

It is interesting to note that in many countries there is still a strong emphasis on the relationship between master and student. It is common practice that a student registers with a professor. This is a tradition that ought to be questioned. Students will always learn better if they get input from differing voices. Conflicting viewpoints are enriching as long as they are presented clearly and coherently. Students must understand and decide what is appropriate for them, what works for them. It is crucial to engage with a variety of voices and a variety of ideas, positions and philosophies. So, in a sense, you also have to adapt your learning and teaching strategies. All these factors are interrelated, and this is really important to understand how education can change and move forward. This also fits into the question of how to develop an institution. Most traditional universities identify themselves with clearly defined areas of research. We can learn from their practices.

DM: Regarding the institutional position of artistic research, the most recent development is probably the *Vienna Declaration*. I know you were part of this process. Could you talk about its relevance?

JB: The *Vienna Declaration* was published in 2019 by a broad network of organisations.[8] They are all major networks of higher arts education and the cultural sector. The network met regularly to discuss the field of artistic research and how the arts were being largely ignored. If you look at funding in the European Higher Education Area now, the biggest growth area is research. This is where the European Commission and European countries invest a large part of their capital. They see the value of the knowledge economy and all aspects of how it supports and generates income.

We have seen that many countries – and this is interesting for the former Eastern and Central European states – have taken their guidance from the *Frascati Manual* of the *OECD* (Organisation for Economic Co-operation and Development).[9] This manual is largely acknowledged worldwide as the standard for collecting and reporting internationally comparable statistics on the financial and human resources devoted to research and experimental development. Many governments have adopted its definitions.

In our experience, when EQ-Arts carries out third-cycle programme reviews, many of these programmes refer to the categories in the Frascati Manual, adopt their definitions and work according to them.

When the Frascati Manual was revised in 2015, the OECD first responded to the documentation and publications mentioned earlier by introducing the arts as a category. In the previous version of the 2007 manual, artistic research was classified under the category of the humanities. However, if you read the current edition of the manual, you will see that artistic research is still not identified as a unique area for developing research. This network of associations that wrote the *Vienna Declaration* met to define what we thought was critically important and what was necessary. Nevertheless, we wanted to go further.

In May 2022, this group wrote a paper and sent it to the OECD NESTI (Working Party of National Experts on Science and Technology Indicators) Bureau, asking them to reconsider, rewrite or change certain areas of the Frascati Manual and have the arts clearly identified. We are proposing that there should be a seventh category on top of the existing six categories. At the moment, the sixth category combines the arts with the humanities. We are asking for the humanities to be number six and the arts to be the new number seven.[10]

We have sent a concise description of what this means regarding research. Moreover, the OECD has agreed to take it to the NESTI Bureau when they meet later this year. We will just have to wait and see if they adopt our proposals, which would benefit the arts and the European Research Area.

8 Including the AEC (The Association Européenne des Conservatoires), the CILECT (The International Association of Film and Television Schools) for film, Cumulus for design, ELIA, which covers all the arts, EAAE (The European Association Architectural Education), SAR (Society for Artistic Research), and the Culture Action Europe.

9 OECD, *Frascati Manual 2015: Guidelines for Collecting and Reporting Data on Research and Experimental Development,* The Measurement of Scientific, Technological and Innovation Activities, *OECD,* 2015, https://doi.org/10.1787/9789264239012-en.

10 *Proposed Changes to the Frascati Manual,* 2022, https://cdn.ymaws.com/elia-artschools.org/resource/resmgr/Cover_Letter_to_OECD_NESTI.pdf.

MANUEL ÁNGEL MACÍA: I wanted to refer to the *Frascati Manual*, particularly the section where it distinguishes between 'artistic expression' and 'research'. The *Frascati Manual* mentions that artistic expression is normally excluded from research and development and that artistic expression fails the novelty test of research and development. This means that the arts do not produce anything new because, according to the *Frascati Manual*, the arts seek new expressions rather than new knowledges. In this strict definition, art simply does not produce knowledge. This distinction is codified in the Manual itself.

I would like to elaborate on a recurring motif that John mentioned earlier. I want to frame this as a structural inequality – a structural epistemic inequality, to be more precise – that we deal with all the time. Let's go back to the *Bologna Declaration*, which says that the forthcoming reforms of European higher education should prepare everyone for jobs in a new knowledge economy! This is a purely neo-liberal imperative. We have to constantly face this so-called knowledge economy, which we are not even prepared to deal with (especially in our field).

Why do we need to prepare? Because epistemic inequity means that our field is not seen as capable of producing new knowledge. So, we cannot embed research processes that are unique to our field into our educational structures, and therefore we have to find a way to mimic scientific protocols, which is extremely biased, simplistic and problematic. I do not see this as an intentional exclusion but as a kind of bias that affects the structures of our institutions. So, by policing and maintaining these hierarchies of knowledge in European universities and art institutions, such reforms structure our field in a way that impoverishes and precludes us.

The problem is that once we enter this conversation, we are forced to not even talk about artistic research as such but to use the languages of the hard sciences to legitimise our field. That does not make sense for either the sciences or the arts. What is surprising is that the Manual preserves old-school disciplinary formation inherited from the Renaissance / modernity / coloniality – whichever genealogy of knowledge you choose to follow. Following these formations without questioning them is problematic because the only valid perspective for the arts is one in which they must exclude themselves as capable of producing knowledge. We are left with an untenable position.

JB: I fully agree with you, Manuel, however, rather ironically, several countries do not highly esteem the Frascati Manual. For example, it does not feature highly in the UK or Ireland – they do not reference it. I doubt if they do in the Scandinavian countries. The manual is used and adopted to a greater extent in countries where institutional research has developed later. And I am not saying either position is right, but developing a shared, common evaluation process is highly problematic. It has to start with the institutions themselves, which must consider their need to include these procedures. Because the problem is that so many institutions you visit do not see the value or the need to have this notion of research as part of their practice.

MÁM: I also think about the backlash against the idea of research being embedded in the curriculum. You mentioned this earlier.

JB: The documents we sent to the *OECD NESTI* Bureau address almost all your points. We talk about the five core criteria of research and development activity, and artistic research includes all these aspects. So not only do we want to add a seventh category, but we are also questioning the whole terminology. The problem is that the *Frascati* team is not taking big enough steps. They have responded to what has come out of these various ministerial meetings we mentioned earlier. In 2015, they introduced the classification of artistic research, which is now partly incorporated. That was in 2015. However, not much has happened in the last eight years. If you look at what has changed in learning and teaching during this period, there are huge shifts in what we do. There are huge areas of development that impact how people perceive research and how they fund it.

MÁM: I agree with your characterisation of the problem. Yes, we need to change the definitions, and we also need to change how evaluations are carried out in these committees. When I talked about evaluation panels, I was referring to

the decision-making bodies that end up making decisions without even doing much research into the areas they are judging (in our case, artistic research). Whenever I meet these panels, I remind them that our field has a rich history of experimenting with evaluation systems. We have interesting peer review and engagement models with other disciplines and practices. It is not as if we always have to reinvent the wheel. We have unique forms of knowledge-production that need to be considered. But the positivism of many institutional structures makes it quite difficult to navigate and negotiate these terms because, by default – as the *Frascati Manual* shows –, we are seen as incapable of producing knowledge once we enter the room.

A worrying symptom is the unwillingness of traditional universities or structures to adapt to the contemporary world. John, you rightly mentioned how we have more and more kinds of practice that become part of research processes across the board – including the scientific disciplines. And yet the institutions themselves insist on using these old-school, 19th-century divisions of what knowledge is at a moment when that is untenable. So, in the face of this, what has to come out of this is definitely a huge overhaul of the curriculum and the structure of academia itself. How ready are we to adapt to that? I think this is a key question for our field. It is a question for the structures – the power structures – and the hierarchies of knowledge, but it is also a question for ourselves. How do we want to operate here? We are in the middle of a complex conundrum.

JB: The crucial thing is to get artistic research recognised as being of the same value and level as the other disciplines. We should not say we are different. We should say that we are working with the best of everybody, and that we are not afraid or ashamed to proclaim our contribution to original thinking and knowledge, utilising our own and existing methodologies without relying on traditional methodologies and practices. This is something I feel very strongly about.

I think we were a bit late to the party. Nevertheless, I am confident that we can demonstrate the value of what we are doing and what we have done. Clear examples of this are, how we impact society and how we play an important cultural, financial and political role.