

FRAGMENTS OF INTUITION

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Research project: The Material Imagination

The research project ‘Material Imagination – reconnecting with the matter of architecture’ has its starting point in the idea that we all hold a personal and collective material imagination. This notion of materiality and its direct association to our everyday lives is, unfortunately, often found missing in the buildings of today. The research project seeks to combine an understanding of the material imagination found through historical and cultural material aspects, as well as hand-on experimentation with digital design and fabrication strategies of tomorrow’s architecture.

The Material Imagination project focuses, through three subprojects, on the materials wood, stone, and concrete. The three materials are well-known in architecture, each with individual cultural and historical aspects and each with different potentials for investigation through digital means of exploration, design, and fabrication. The notion of the material imagination can be the key to open up digital material research anchored in a deep appreciation of the materials and their intimate connection to our experiences.

This paper introduces some of the thoughts and acts developed through the subproject ‘Embedded Wood Properties and Material Informed Fabrication’ - a subproject revolving around the understanding of the nature of wood in a contemporary context.

Material daydreaming

The concept of material imagination was coined by the French chemist-philosopher Gaston Bachelard through his psychoanalysis of material images. The concept was carried forward by philosopher and critic Ivan Illich (Illich, 1985) and connected to architecture by architect and writer Marco Frascari (Frascari, 1983).

Bachelard wrote a series of books on the four elements earth, air, fire and water (Bachelard, 2011a, 2011b, 2006, 2002, 1968), through which his articulation of l’imagination de la matière, the material imagination, was

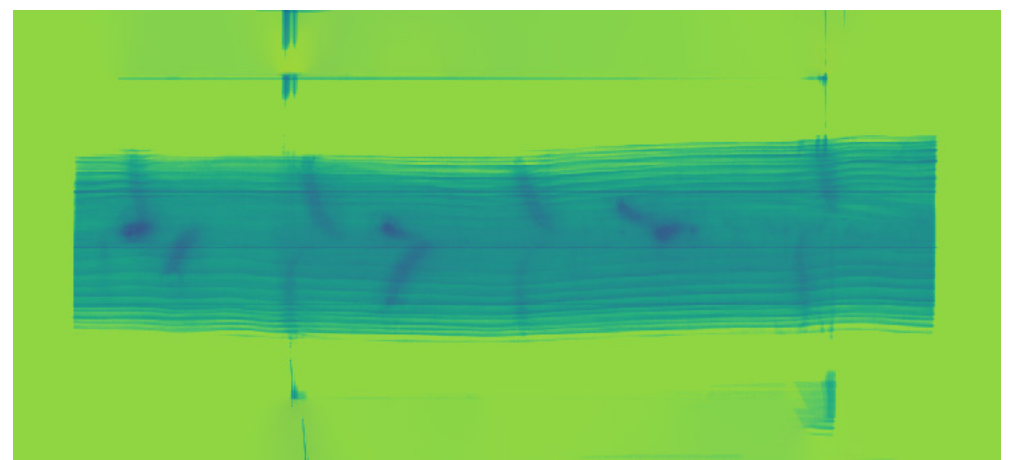
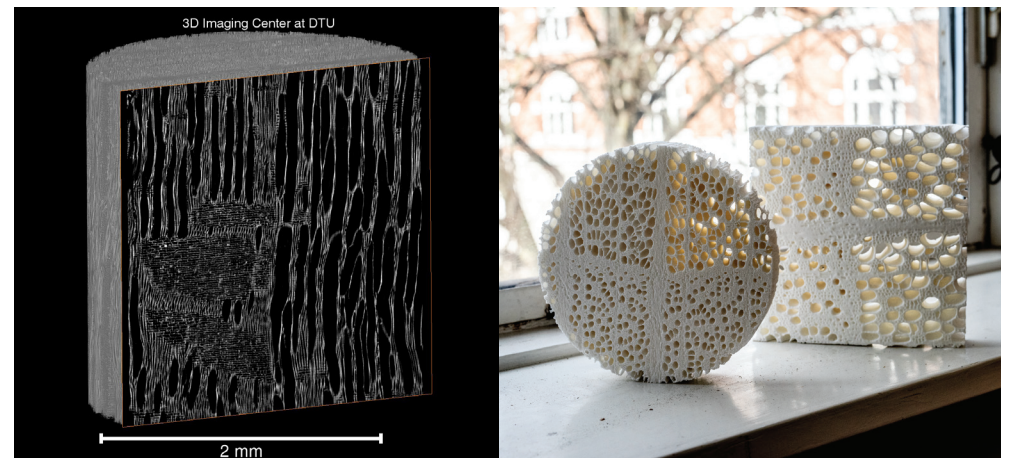


created. In the book 'Water and Dreams — An Essay on the Imagination of Matter', Bachelard formulates and distinguishes the parallel concepts of formal imagination and material imagination. 'One that gives life to the formal cause and one that gives life to the material cause', Bachelard writes and later continues: "[...] besides the images of form, so often evoked by psychologists of the imagination, there are - as I will show - images of matter, images that stem directly from matter. The eye assigns them names, but only the hand truly knows them [...] these images of matter are dreamt substantially and intimately. They have weight; they constitute a heart. (Bachelard, 2006, pp. 1–2)

Bachelard's differentiation of the formal imagination and the material imagination is a differentiation between our acquired knowledge from our physical world and a type of imagination that comes from our individual, immediate associations emerging through the tactile meetings with materials. Bachelard describes the material imagination as material daydreams or reveries.

For the architect, Bachelard's notion of material imagination becomes a way to establish or push forward intimate relations to materials that are anchored in our individual experiences and collective culture of material. For the architecture, this means a material situation that is not limited to the names or specification to the material of construction but includes and conveys a deeper, more poetic, reasoning for material choices. The images we have of materials can be allowed to dominate architectural reasoning in a more clarified sense.

When creating, or dreaming about, architecture, the material imagination calls for a perspective that does not regard materials as just the matter of forms. The elements of which architecture is composed is likely to bear the names of functions or forms, and tend not to include the association and reveries of materials that we all hold in our experiences. As such, an elaboration of the material imagination can help dream up and create an architecture where the role of materials are rethought and thereby an architecture that might be primarily informed by a material thinking that comes much closer to our actual relation to materials.



Fragments of Intuition

“At the microscopic level, understanding cell structure is the key to appreciating what happens when wood is sanded across the grain, why stain penetrates unevenly, and why adhesives bleed through some veneers but not others. But to understand where feather grain is to be found, to visualize a knot’s internal structure based on its surface appearance, and to anticipate which boards are susceptible to decay, it is necessary to examine the structure of the entire tree as a living organism.”

R. Bruce Hoadley, *Understanding Wood, A Craftsman’s Guide to Wood Technology*, (2000)

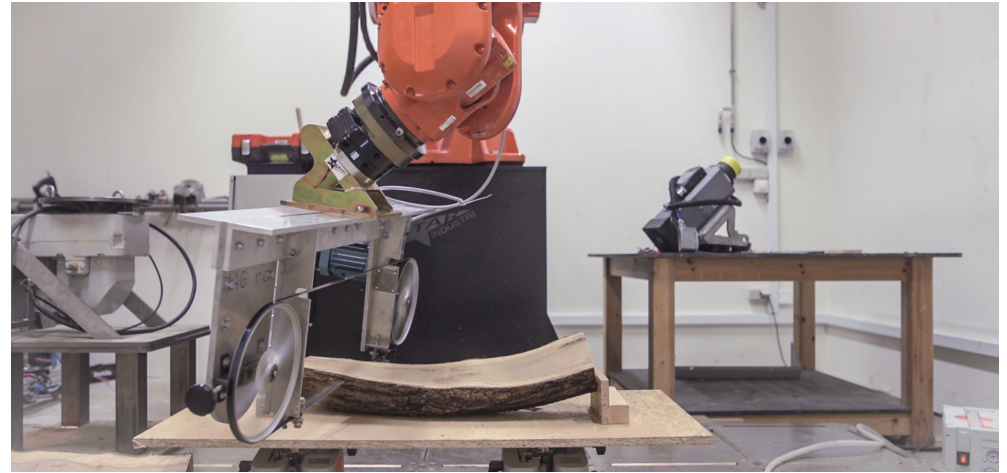
Wood has several general characteristics but, eventually, every tree and every piece of wood is unique. ‘Fragments of Intuition’ is a series of intuition-driven material experiments that discusses wood through the idea of the super-object (Bachelard, 2002). (rephrased from French *sur-chose*) - a manipulation that explores and transforms the material into new beings and yields substantial knowledge in the process

“This block of wood which leaves me indifferent is only a thing, not much more, in fact, than the concept of a thing. But if my knife begins to carve it, this same woodblock suddenly becomes greater than itself, a super-object, taking on all the power of provocation in the resistant world, and admitting, naturally, all the metaphors of aggression ... the super-object incite me and constitute me as an ensemble of aggressive desires through a veritable hypnotism of force.”

Gaston Bachelard, *Earth and Reveries of Will*, 1948 (2002)

The super-object is a concept unfolded through Bachelard’s notion of material imagination and describes something greater than the object or thing itself. Bachelard’s super-object is an abstract description of energy, or capacities, (in the widest understanding of the word) of the material in question. The tactile relation between material understanding and potentials of material work constitutes the super-objects both as an idea and a physical manifestation.

‘Fragments of Intuition’ takes Bachelard’s idea of material imagination and the concept of super-object as an abstract reference framework for a series of experiments. The aim of this work is to investigate the interiority of the material, to look inside the wood, using our immediate associations with the material at hand. The use of tools and machinery for studying the materiality



of wood becomes a way of contemplation, but for us also establishes a relation to Bachelard's descriptions of the carving into the wood. Consequently, 'Fragments of Intuition' investigates wood properties and capacities (Delanda, 2007) through manual experimentation, digital machining methods, metrology, and scanning techniques; The length, directionality, strength, and elasticity of the grains are particular to each species. By cutting, splitting, bending, sawing, milling, scanning, and tomography, each experiment pays attention to the wood and the processing in a different way. Collectively, they form a broad understanding of wood and an accumulation of informing artefacts. With the experimental series as the starting point, the current and ongoing research seeks to unfold alternative methods for engaging wood in architectural design and construction. Through the use of contemporary manufacturing technologies, the project seeks to integrate material properties with architectural design tools, revealing new possibilities for the use of wood in architecture.



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