

Three Cells and Clay

Work Grant and Costs

The project "Three Cells and Clay" involves Photographer Per Maning, Architect Kristoffer Øyen, and Professor of Biology Kamran Shalchian-Tabrizi. The work grant is requested for Photographer Per Maning. In addition, we are applying for operational funds that can assist us in creating a book/exhibition with material costs. The project description has been developed and written collaboratively.

Symbiotic Collaboration: Building a Creative Ecosystem

The collaborative project "Three Cells and Clay" explores the deep connection between art and science by combining perspectives from various fields—photography, architecture, and biology. Just as symbiotic relationships exist in ecosystems, this creative fusion brings together Per Maning, Kristoffer Øyen, and Kamran Shalchian-Tabrizi. Our contributions from art, architecture, and science reflect biological processes, especially those found in the soil. The interplay among us is not rigid but organic, with ideas emerging through shared reflections, open discussions, and spontaneous creativity. The conceptual framework of the project is anchored in the idea of cells and clay. Each participant acts as a "cell" within a larger creative organism, where our unique insights and expertise contribute to collective growth. Maning's work in photography, particularly his exploration of the relationship between humans and nature, as well as the portrayal of animals, conveys depth in the hidden and complex interactions within ecosystems. Øyen's architectural vision helps reshape how we understand space and structure—flexibly, like clay, and in constant evolution in response to external forces. Shalchian-Tabrizi's scientific knowledge of cellular processes and microbial ecosystems binds our collaboration through a profound understanding of life's origins in clay, a material that symbolizes both creation and continuity. Scientifically, clay may have acted as a catalyst for early biochemical reactions, creating an environment where life could develop. Conceptually, the project draws on clay's moldability and ability to retain form, much like it has throughout human history—from bricks to religious figures. Each artistic and scientific interaction in the project, such as working with clay, adds layers of meaning, interpretation, and insight. The creative process is designed to be symbiotic, similar to the earth systems where microbes and minerals evolve together and support one another. At the core of this collaboration lies the concept of symbiosis, where each participant functions as a distinct entity within a larger system, but where individual contributions enrich and nourish the whole.

Visual and Emotional Depth: Exploring the Connection to Nature

Maning's work in photography and video art is essential to the collaboration, critically focusing on the emotional and psychological connections between humans and nature. His long-term exploration of animal dignity, captured through his patient and intimate artistic process, creates a visual language that speaks to the invisible and often overlooked processes in nature. His portrayal of animals as beings with psychological and emotional depth reflects the hidden processes occurring in microbial ecosystems, where the most significant interactions happen beneath the surface. Maning's ability to make these invisible interactions visible fosters a deeper understanding of the connections between life forms. His work will not only visualize the conceptual ideas but also help the audience feel the deep connection between life, nature, and the processes sustaining them.

Artistic and Architectural Vision: Reshaping Space and Meaning

Øyen's role as an architect adds an essential understanding of space, both physically and conceptually, becoming an active part of the project. His ability to challenge conventional structures, whether through innovative design or by reconceptualizing how we relate to built environments, brings dynamism to the collaboration. Just as clay can be shaped and modeled to create form, architecture reshapes space to reflect new interpretations of environment and

interaction. This mirrors how cells or organisms must adapt to their surroundings, constantly reshaping and redefining their roles within the ecosystem. The project's flexibility will also be reflected in its outcomes, which may include redefined spaces or conceptual physical structures that engage the audience.

A New Framework for Understanding: The Role of Clay

In "Three Cells and Clay," clay serves as both a literal and metaphorical foundation, tying together scientific, historical, and environmental themes. These intertwined concepts span the boundaries between the living and the non-living, the ancient and the modern, and between the biological and the cultural. The versatility of clay as a material gives it a central role in exploring the origins of life, evolutionary transitions, human civilization, and modern ecosystems. Shalchian-Tabrizi's insights from biology, particularly his work on the major transitions in the history of life, represent a foundational idea in the project. His scientific background focuses on the complex systems underpinning life, such as how microbes interact with their environment in soil to promote growth and sustain ecosystems. Similarly, this collaboration seeks to foster growth by encouraging interaction among seemingly separate disciplines.

1. **Clay and the Origin of Life:** From a scientific perspective, clay has been proposed as a crucial element in the origin of life. Studies suggest that clay minerals may have acted as a natural system for the formation of life's building blocks, such as RNA, DNA, and proteins. This theory implies that the microscopic spaces in clay—similar to a sponge—could trap biomolecules and facilitate the complex biochemical reactions that eventually led to living cells. The physical structure of clay protected early molecules from harsh environmental conditions, while its surface acted as a catalyst, promoting chemical reactions essential for life. Clay's ability to concentrate and organize organic molecules is a key factor that may have driven the formation of complex compounds like RNA, which is believed to be one of the earliest biomolecules. The catalytic properties of certain clay minerals, such as montmorillonite, have been shown to promote the polymerization of RNA nucleotides. These processes are analogous to many reactions in living cells, where catalytic surfaces (such as enzymes) play a central role in organizing and driving biochemical activity. This hypothesis highlights clay as a possible bridge between the non-living and the living.
2. **Clay in the History of Civilization:** Beyond its biological significance, clay has played a foundational role in shaping human civilization. Since prehistoric times, clay has been used to create building materials, tools, and art—from ceramics and bricks to religious figures and the earliest forms of writing. Clay tablets served as the first medium for written communication, linking the material to the beginnings of documented human history. In this way, clay has always been closely associated with human knowledge, culture, and technological innovation.
3. **Clay in Modern Ecosystems: A Stabilizer for Organic Material and Climate:** In modern ecosystems, clay plays a crucial role as a stabilizer for organic material, especially in relation to carbon capture. Clay binds to organic compounds in the soil produced by soil-dwelling microbes, preventing the release of carbon dioxide into the atmosphere. This function is vital for mitigating climate change, as clay in soil acts as a natural carbon reservoir that helps regulate the Earth's climate. The metaphorical significance of clay as a stabilizer also extends to the project's collaborative structure. By highlighting clay's role in both natural and human-made systems, "Three Cells and Clay" engages with today's pressing environmental challenges. The project demonstrates how the material world, through processes such as carbon capture, can contribute to ecological sustainability. Clay becomes a symbol of environmental responsibility, reminding us that the materials we utilize—whether in art, architecture, or science—have profound consequences for the world around us.

Building Together

Ultimately, "Three Cells and Clay" is about building something transformative through a synergy of ideas from art, architecture, and science. Just as early life developed through interactions between simple molecules in primordial clay, our collaboration will grow organically, driven by exploration, dialogue, and interdisciplinary experiments. Whether the final outcome takes the form of art installations, innovative architectural designs, scientific breakthroughs, or a harmonious blend of all three, it will be built upon a foundation of mutual respect, curiosity, and a shared drive to challenge boundaries. The collaboration will be characterized by ongoing meetings, including at Per Maning's home, which will serve as our creative laboratory. Here, as in clay where molecules interact and evolve, our ideas will have the time and space to grow and mature. Kristoffer's architectural insights will be crucial in how we approach space and structure, while Kamran's biological understanding of symbiosis and adaptation will ensure that the scientific concepts are integrated at the core of the project. Just as microbial communities interact to sustain life, our collaboration will be a dynamic and interdependent system.

Although the outcome of the project is yet to be determined, there are many exciting possibilities for what "Three Cells and Clay" may result in. A natural direction is to create a book combining text and images. Per Maning's photography and video will visualize the project's journey, while the scientific and architectural perspectives will be conveyed through text and conceptual reflections. The book will not only serve as documentation but also as a profound expression of the interdisciplinary exchanges that have occurred. Another possibility is to create physical elements or architectural installations inspired by the nature of clay. Kristoffer Øyen's insights may lead to innovative structures that explore the relationship between natural and man-made forms, reflecting the project's focus on symbiosis and adaptation. Buildings that combine the artistic, scientific, and architectural principles from the collaboration could become functional works with symbolic content. Regardless of the final form that the outcome takes, it will be a product of the creative dynamics of the project. Art, architecture, and science converge here to challenge and expand our understanding of both the physical and conceptual realm. "Three Cells and Clay" therefore represents not only an interdisciplinary exploration but also a process where ideas merge and transform into something greater than the sum of its parts—just like the organic processes that create life.