

Petrification Processes

**Report on the McCord Centre Creative Workshop, 27 May 2016, Newcastle University, UK
& Invitation to Session TH1-02 at the 22nd Annual Meeting of the EAA in Vilnius, Lithuania**

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In Vilnius on Thursday 1st September 2016 from 14:00 – 18:30 the [EAA session TH1-02 'Petrification Processes in \(Pre-\)History'](#) will explore the concept of 'petrification' in a similar way as the Creative Workshop – to be presented here – did in May. While in Newcastle the emphasis lay on the transdisciplinary aspect – bringing together science and humanities, architecture and arts, in Vilnius the contributors will come from an archaeological background only, but from across periods and geographical regions: Ancient Egypt will meet megalithic monuments and high Alpine herder's huts will encounter cities of the Mediterranean. Transdisciplinary concepts like 'petrification' create new possibilities to observe processes, understand them as gestures, compare their underlying principles and find new ways to describe them independent of place and time.

What have fossils to do with cement, stone buildings with sedentariness, the pyramids with Scottish brochs, and megalithic tombs with the Hagia Sophia? Seemingly unrelated at first glance, they all can be described as results of petrification processes. 'Petrification' in this case is understood as a process in nature or in culture, in space or in time which makes anything harder, heavier or stronger, more stable, secure, regular, permanent, foreseeable, trans-generational or even eternal. Anything can be transformed: matter, organisms or ideas, landscape, rhythms or structures. The transformation, it can be described, estimated and even measured according to number, mass, volume, material, direction and intensity. But is not important here whether this process is intentional or conceived as ethically good or bad.

In May, the McCord Centre at Newcastle University had invited eight scholars from across disciplines and periods for a whole day to a [Creative Workshop on „Petrification Processes“](#). The participants including some guests encountered on an exercise in – what could be called – 'applied' philosophy or transdisciplinary thinking. The speakers were asked to give examples of 'petrification' processes from their own field of research, describe them in the context of their discipline as a whole, and explore possible connections with parallel phenomena. At the same time the contributions were meant to be short – 10 min, but highly 'illustrative' in order to leave the major part – 20 min – to plenary discussion.

Workshop organiser and archaeologist Sophie Hüglin introduced the topic by giving a practical and theoretical example for the way 'petrification' can be understood: the practical example being a simple everyday object like a cup – the theoretical example looking at the consequences of quantum physics for epistemology. The 'evolution' of a cup as liquid container can be described as a petrification process: drinking water from two hands shaping a cup would be the primordial human gesture pre-empting vessels from organic material like leather and wood for the same purpose. Along with sedentary lifestyle these organic objects were replaced by inorganic, denser and heavier materials like ceramic and glass.

'Petrification' – as Sophie Hüglin explained further – can also be seen as an epistemological concept to study the world. An example for such a 'solid' methodology would be Newton's mechanics with its cause-effect-relations. This corresponds to a creational world view in which „God in the beginning formed matter in solid, massy, hard, impenetrable, movable particles“ as Isaac Newton describes the core of matter, the atom. But the atom has been split and modern physics describes subatomic 'particles' as uniting contrary properties by being wave and particle simultaneously. So to use 'petrification' today as an epistemological concept in order to understand past processes cannot be separated from its opposite, the concept of 'fragmentation' or 'liquification'. For archaeology and society this means to question the paradigm of progress like modern physics questions matter and relativizes time – the reality we used to take for granted.

Linking geology, chemistry and biology, Geoffrey Abbott from Newcastle University presented examples from his work which. In his research, he comes across phenomena of 'petrification' in

multiple ways: he studies fossils of ‘enigmatic’ organisms which have morphological characteristics that do not resemble anything we see in the present day. These organisms appeared on the earth’s surface around 400 million years ago during the process of phytoterrestrialisation, when plants first established themselves on land. Fossilisation itself is a complex process at the molecular level. Studying the carbon cycle and fossilisation in peat, soils and ancient sediments helps us to understand the mechanisms of petrification which have a long term potential for sequestering carbon from the atmosphere during the most recent geological epoch namely the Anthropocene.

In parallel to their [film montage](#), anthropologist Rachel Harkness and art curator Judith Winter presented results from their research initiative at the University of Aberdeen exploring the conjunctions between art, anthropology, architecture, and design. They are enthralled with concrete or ‘Liquid Stone’. It is a material that shifts between states even though it is heavily associated with stasis, stability and permanence in so much of its architectural usage. In their presentation they dwelled on concrete’s other, more liquid-like states and characteristics. Concrete, they mused, this slow-but-ever-changing material has been type-cast, perhaps miscast, as the petrified.

Archaeologist Francesco Carrer and his colleagues study the functional connection between seasonal upland dairying and permanent structures. At high altitudes in the Alps the earliest dry-stone structures occur in the Bronze Age around 2000 BC and seem to be connected with a transformation of resource exploitation. The analysis of prehistoric potsherds from Swiss sites provided the earliest evidence of high-altitude dairy production. Several parallel processes of ‘petrification’ have been going on which seemingly necessitated each other: the erection of permanent buildings, the use of ceramic vessels, and the transformation of milk – also by using salt – into durable cheese. Through this the mountain landscape itself and its perception with regard to the concept of possession must have changed tremendously.

Philosopher and classicist Undine Stabrey from Basel presented Ancient Egypt which since Jan Assmann’s „*Stein und Zeit*“ is known as the paradigm for the cultural separation of the ‘solid’ and the ‘fluid’ or of ‘star time’ and ‘life-time’. Geographically, the fertile shores of the Nile and the desert around it provide the physical base for the principal duality between the ‘liquid’ land of the living, and the ‘dry’ land of the dead. The quarters of the living at the river bank are dominated by perishable structures – even the pharaoh’s ‘palace’ is constructed from mud, while the desert is the eternal place for the dead where they are mummified in megalithic monuments of materialized geometry surrounded by a sandy ‘sea’.

Archaeologist and architect Tanja Romankiewicz from Edinburgh University described with the Iron Age Scottish brochs the opposite concept: strong stone towers for the living contrast with few fragments of the bodies of the dead. Thick stone walls protected the living from wind, weather and attacks as well as visibly marked their claim on the land. Once dead corpses were left to these elements, bones mixed with the body of the earth – or were re-incorporated into dwelling processes. Seemingly presenting a petrified façade, solidified from earlier more dynamic architectures, brochs appear as built expressions of petrified communities. However, porous walls and floor plans on the interior speak of dialogue between spaces and people as well as negotiated social relations. A closer reading suggests more complex petrification processes – for brochs as well as their dead.

Prehistorian Chris Fowler from Newcastle University presented Early Neolithic mortuary architecture from wood. The remains of the dead were placed between the upright posts from the hard trunks of mature oak trees split lengthways. Wooden screens separated this area from the outside. The sites later transformed through decay, burning, the addition of forecourts, and mound construction. Sometimes wooden features were replaced with stone elements. In western Britain equivalent monuments were built using split stone slabs. Building such monuments – in stone or in wood – defined the boundaries between the dead on the inside and the living on the outside, but also created spaces for their performative encounter and opportunities for later transformation. In this case the ‘petrification’ processes was – like in Ancient Egypt – mainly connected with grave monuments, while contemporary dwellings were not built to last.

Archaeologist, art historian and musician Gianluca Foschi called it „petrification of divine sound“ when musical harmony was used as proportion principle in Early Medieval church building. The

effect for example of Hagia Sophia's original cupola – which eventually collapsed and this is why its sound effects now have to be reconstructed virtually – was to transform the voices of the choir into angelic sound from above. Early Christian buildings – apart from being places of assembly and burial – were meant to resemble the entire universe at a human scale. These architectural microcosms allowed the initiated to visually 'listen' to cosmic harmony and experience revelation.

We started with dualisms like 'solid' vs. 'liquid', 'alive' vs. 'dead', inside vs. outside. The last paper demonstrated that there is a third category to consider, but – especially for archaeologists – hard to grasp: the 'airy', the spritual, the idea. From the Big Bang to Einstein or from the cave to heaven and back, the Workshop opened up a window in space and time for transdisciplinary thinking. By transmitting our research to the others, 'digesting' it in discussion we unframed our minds and freed our thinking. We found new ways to look at the familiar as well as guides into unknown territory. And in the moments when we were lost in translation or stuck in petrification we turned to laughter, went for a walk or enjoyed food and drink.