



Plastic For Eternity

A project by
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An ULTRASTONE is a new generation gravestone. It is a monument to the deceased that offers a contemporary perspective on remembrance.

Status Quo

What most people don't know is that more than 50% of the gravestones in German cemeteries are stones from Asia. Studies show that these are often mined under a lack of occupational safety and under bad to life-threatening conditions. This does not correspond to the international labor and social standards as laid down in the ILO conventions (International Labor Organization). Child labor was also uncovered in many cases. An attempt has been made to certify well run quarries in India. But judges said there was a lack of general understanding of which of the existing certificates could be trusted. In view of just the size of India and the widespread mining regions, it is very difficult to control across the board. Another issue is the CO2 footprint of these stones. The footprint of stones imported from Asia is 60 times larger than that of stones that come from Germany. But despite the long journey with high transport costs and a poor ecological balance, these stones are extremely cheap. The Asian material is delivered just as cheaply as the labor of the Indian or Chinese workers. The cheap productions distort the market and make

the stones from Asia only half as expensive as those from Europe. Beautiful and valuable natural stones degenerate into cheap products.

The German market for tombstones seems to have recognized the problem and is in a state of upheaval. The value of natural stone as a resource is recognized and more and more serious initiatives for gravestone recycling are slowly developing. In addition to stone, materials such as wood, metal, glass, concrete, ceramics and plastic are also seen as a chance to point a stagnant industry in a new direction.

For my research, I traveled to the "Museum für Sepulkralkultur" in Kassel, where I met the director Dr. Pöschmann with whom I could discuss this topic. He sent me studies that substantiated my research.

Likewise, the conversation with Mr. Rüdiger from Steinmetz Albrecht in Berlin gave me insights into the processing and handling of gravestones.



Exemplary gravestones at „Steinmetz Albrecht“, Berlin



Gravestone at the permanent exhibition at „Museum für Sepulkralkultur“ in Kassel



Reflections

After a period of at least 20 years, the gravestones must be disposed. Since only very few relatives take their stones home with them, almost all gravestones are turned into rubble. This degradation of a monument is contrary to the emotional value it was once imbued with, as well as to the value for material and labor that lies within.

The gravestone as an individual monument also raises questions, because where is the personality of the deceased in its appearance? How did this flat shape that has

become so established around the world come about? The answer is quite simple, it is practical and economical to slice the stone – a mass-produced monument. Shouldn't it be possible to give the bereaved a chance to design a stone that is affordable and yet goes beyond the setting of letters?



Plastic for Eternity



As a creative response and counter-proposal to the problems listed, the idea for a 3D-printed gravestone made of the plastic Ultrason®E from BASF came about.

Ultrason®E is a durable mono-plastic that can be recycled up to 4 times without losing any quality. This corresponds to at least 4 life cycles of a gravestone. The plastic is then recycled further and, with the addition of fresh Ultrason®E, it becomes a high-quality material again. Upon other properties, it is heat-, water- and UV-resistant, which is why it is particularly suitable for outdoor use.

3D printing offers the possibility of customizing the shape, with local production and low costs. It is a sustainable technology because it reduces transport routes, generates almost no production waste from the valuable plastic and generally has low raw material consumption. No additional molds or materials are required for 3D printing, in comparison to other plastics processing technologies.

Translating

In the design process, the focus is laid on organic shapes, as these are more complex and expensive to produce using the traditional stonemason method. They emphasize the qualities and possibilities of 3D printing and point out an alternative design to the ever same flat and angular stones. A rough or uneven surface structure was intended to create a value reminiscent of something handmade.

In addition to the practical thoughts on the gravestone, the symbolic meaning of it as a monument is particularly important. A gravestone symbolizes eternity and radiates calmness. Due to the handcraft with which it is processed love and care lies within. It was a matter of translating these attributes into my design.



inspiration: organic shapes



inspiration: structured surfaces



inspiration: robotic arms can print in any angle

Eternity

Eternity is equated with the property of plastics' long lifespan

Nature

Cemeteries usually have a diverse flora and fauna. Moss or ivy grows on stones. This can be taken into account through the design. For example, the surface can be given a structure on which plants can cling particularly well. A drinking or feeding bowl for birds can be implemented into the design

Tranquility

Figuratively, I see the evenness of the shape that slowly builds up layer by layer in the print as annual rings of life. They give the stone its shape and can have small irregularities, just like in real life.

Hand-made

Choosing a design for a stone is a process that both, the stonemason and the bereaved, can work on together. The implementation is carried out through digital craftsmanship.

Mindfulness

The circular design concept, in which the material is valued, handles the plastic with care. It is recycled and reborn as an object of equal value.

Ultrastone

An ULTRASTONE is a new generation gravestone. It is made of Ultrason®E, a durable mono-plastic that can be recycled at least 4 times without any loss of quality. This would correspond to 4 lifespans as a gravestone. Due to the sustainable 3D printing technology and digital craftsmanship, an individual design of the gravestone can be implemented locally, with almost no production waste of the valuable material.

It is a concept that brings a contemporary perspective to funeral culture. It is a circular design that considers the value of the material and uses it within a controlled and closed system. The plastic gets back to the producer, who in this scenario is the stonemason. After an ULTRASTONE has been in use for at least 20 years, it will be recycled and a new gravestone can be

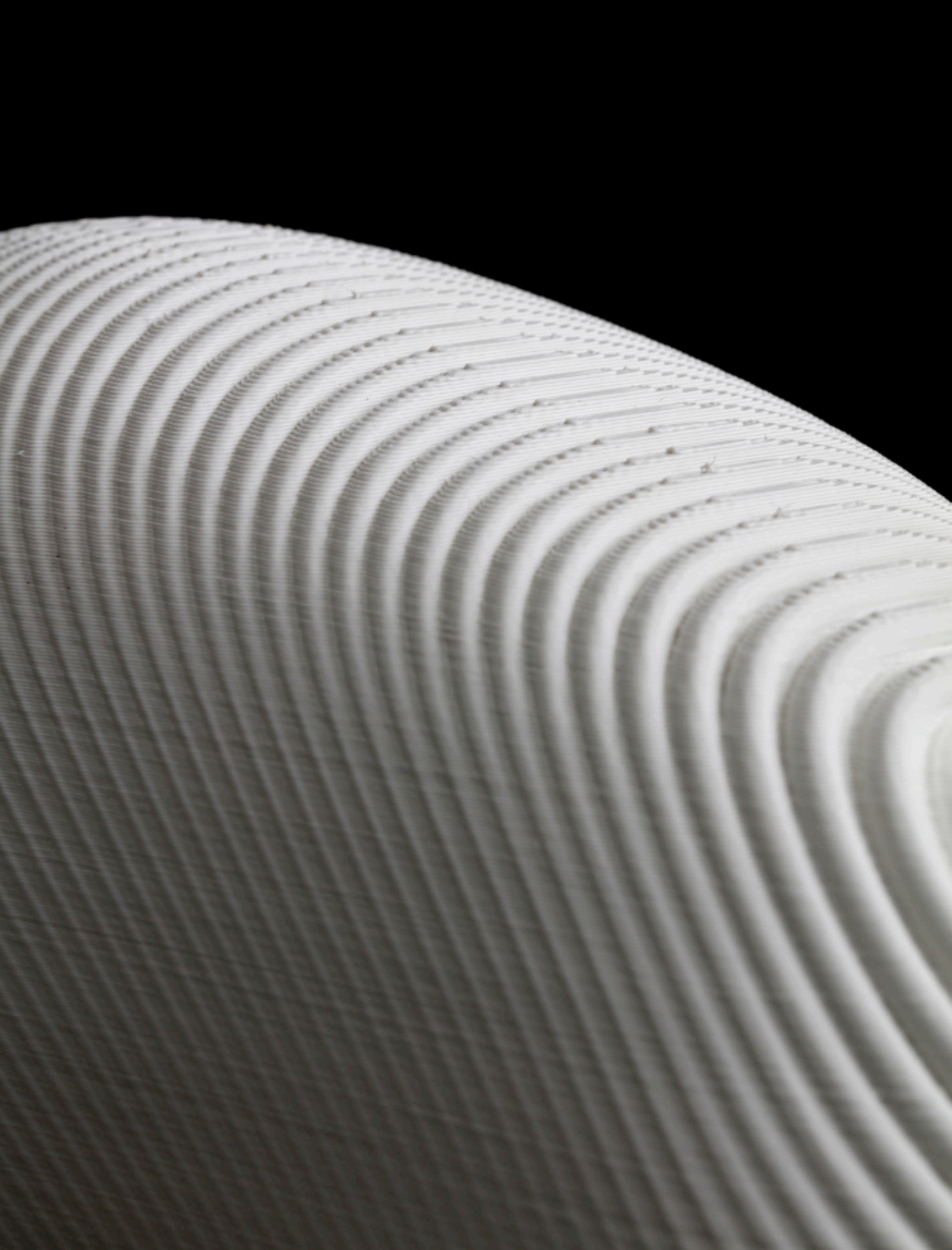
printed. This careful handling of the resource conveys a mindfulness that plays an important role in the context of grief. A gravestone commemorates the deceased. With a monument made of plastic, eternity takes on a complex dimension, since the material can be brought into new shapes again and again. This automatically creates an image of rebirth.

It was important to me to show that a plastic gravestone can also harmonize with nature. My design of an ULTRASTONE has a corrugated, rough surface, which allows climbing plants and moss to adhere well. The stone has an opening that sits in its center, which offers a place for a candle or for some birdseed. Also plants can be implemented here.











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