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Excavating Information

IMPRIMER LE MONDE EXHIBITION, CENTRE POMPIDOU, PARIS, FRANCE, JUNE 2017.

A young man is standing right in the middle of an exhibition space, with an architect's sketchbook and a pencil. He is drawing something that one would normally not attempt to draw: there is an utterly un-drawable, gigantic white structure in front of him. Taller than three meters, covered with minuscule details at the scale of millimetres. The articulated, infinite sur-faces feel entirely alien. The eye of the young visitor finds no system of order. Instead, he encounters a multitude of overlapping symmetries. It is hard to tell where the structure begins and impossible to define its contours and boundaries. Even to the trained eye, the categories of the tectonic system are blurred. The whole thing seems to freely branch into the space, with its multiple layers of sponge-like skin. Behind every niche, a new world appears, ready to be discovered.

Is this a baroque structure? Do we see a Renaissance detail here? Rococo? Is it an organism? A man-made artefact?

It is a surface for projection. It irritates him. Disorientation and vertigo. But precisely because of this ambiguity, it questions and destabilises all his manners of reading architecture. It invites interpretation in manifold ways, transcending canonical architectural styles and categories.

DELIVERY ZONE, CENTRE POMPIDOU, MARCH 2017.

Twenty bricks are delivered at the museum, waiting to be assembled as an architectural object. Each of them weighs over 100 kg. But these are no ordinary stone bricks. A stonemason would not be able to carve these details. These details reach the limits of the materiality of a sandstone. It ap-pears as if there was a specific intention behind the placement of every single grain of sand.

Looking closer, one can read the traces of the fabrication process as thin digital sediments: 0.2 mm high 3D printed layers. Not yet assembled into the final structure, the stones reveal their inner life. A 10 mm thin hollow sandstone wall filled with a perpendicular support grid. Structure and ornament, inseparably interwoven.

These heavy stones are now being lifted, using a single attachment point, in perfect balance. The bricks are precise enough to be assembled without mortar, without tolerances. Gravity is enough to hold this structure together. Some stone details are so fine that they break if the brick is not lifted evenly. These parts need to be documented nearly forensically, otherwise it would be impossible to match them to their original position.

One brick was misprinted. A print-data failure caused the machine to 3D print only a crispy skin of 1 mm sandstone, instead of a filled solid. Fortunately, this brick collapsed prior to assembly.

A FOUNDRY IN BERGDIETIKON, SWITZERLAND, FEBRUARY 2017.

A massive print-bed of sand in an industrial hall is waiting to be unpacked. Layer by layer, sand is removed by human hands. The technicians are fully covered and wearing face masks for unpacking. The grains of sand are so small that they could otherwise be inhaled. These grains will be reused for a subsequent sand print. As the sand removal proceeds, first by vacuum cleaner, then with a brush, the first solid parts
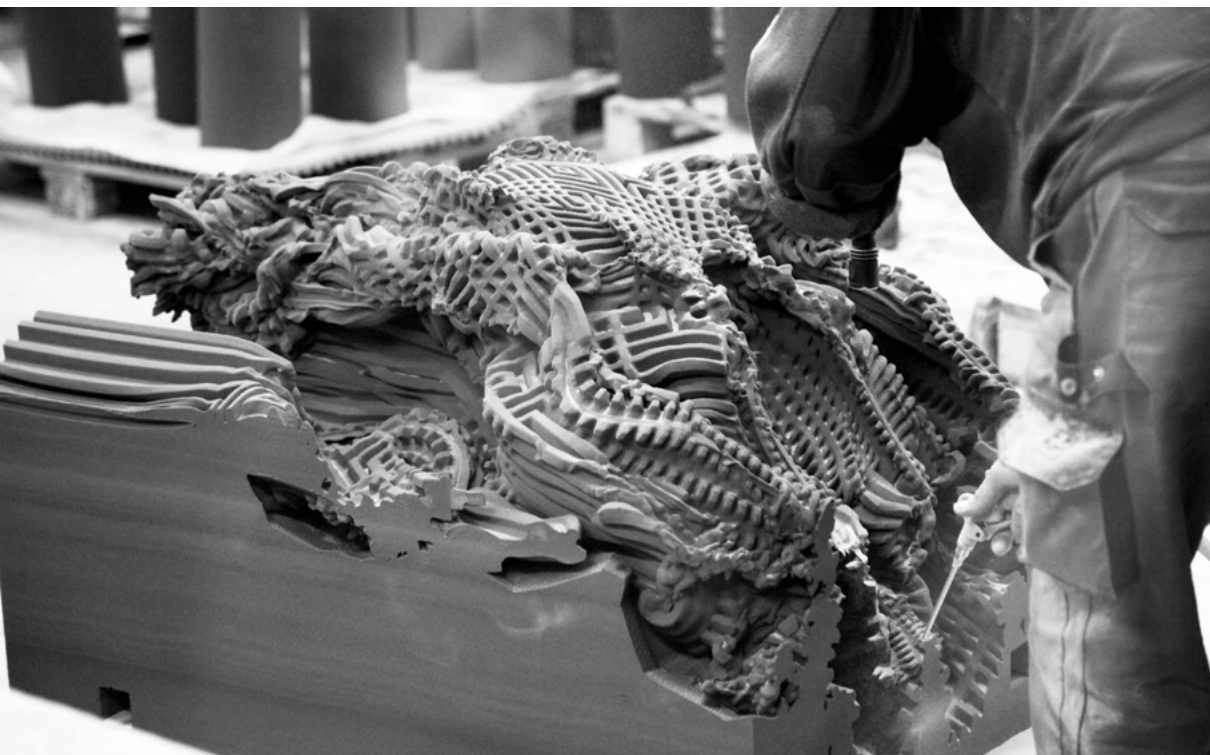
become visible. The scenario resembles an archeological site.

The dark 3D printed body now swims in the sand that perfectly wrapped and supported it. Some details appear, but the overall geometry is still obfuscated. One can hardly predict how this structure continues deeper within the sand bed.

The artefact is still waiting to gain its full body. It is now spray-painted with a very thin coating of white colour. Every detail is finally rendered visible. A play of light and shadow on this landscape of sand begins.

ETH ZÜRICH, SWITZERLAND, JANUARY 2017.

A render job started at the high performance data centre one a week ago. The 3D model is too complex to be loaded at once. It needs to be streamed fragment by fragment in order to be visualised. Hundreds of CPUs shooting light rays, which are then reflected on millions of individual facets, before finally hitting the virtual camera. The stochastic samples of light are excavating a form from the dark. The image becomes more and more clear, revealing the topography of an endless ornament on the screen: the final design variation of *Digital Grotesque*.

Grottos, in old times, were forgotten crypts that were discovered hidden underground. Similarly, *Digital Grotesque* was found inscribed within an unpredictable computational processes. This form grew by an algorithmic process, which can also generate millions of others. A paper-thin virtual surface is folded over and over, resulting in an architecture that is designed without a single manually drawn

detail. This second nature has been evolving, by breeding thousands of offsprings of hundreds of variations.

The final form is represented as billions of spatial data-points before being split into 10,000 tomographic sections, which are then sent as binary black and white images: to define where matter will be and where it will not.