

**Studio Anne Holtrop**

**ETH Zürich**

**design studio**

**HS19**

**MATERIAL GESTURE:**

**SITE**





**previous page:**

**BATARA, casting of walls for a pavilion, red pigmented concrete,  
Studio Anne Holtrop, 2013**

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**“I think American landscape art is one thing, but my work doesn’t have anything to do with that, it has to do with material. When I bought property in Nevada, I bought it because I had done studies and found sands and gravels that could make concrete, and clay soils that could be used for soil cements, and running water. These were all raw materials. ... If you bought an acre of land in that part of the world you were buying all the material you could use in a lifetime.”**

**Michael Heizer in Sculpture in Reverse (1984)**





## **MATERIAL GESTURE:**

### **SITE**

**For this second semester, HS19, we will focus on SITE, as part of our six-year MATERIAL GESTURE research and design. In accordance with the approach of the studio we believe that when we take all the material aspects of a SITE in consideration: the geology, mining, different physical properties, craftsmanship, the specialized techniques and cultural understanding, we can deploy the full potential of the inherent material qualities of a SITE and our way of working it, in what we call MATERIAL GESTURE.**

**The SITE we will study and travel to is Japan's Southern volcanic island of Kyushu. You will explore the area from a geological, material and cultural perspective. The project that will be developed in this studio will be based on this research and exploration. You will be required to work with the**

**materials and the volcanic processes that are present on the island, and use or transform them to design a space located there: a space that is born from the site in its material consistence and that is constructed on that site, built, in harmony or contrast, to the previous gestures that have formed the geology of the place.**

## **DESIGN STUDIO**

**When we take all aspects of the material into consideration – the geology, the mining, the different properties, the craftsmanship, the specialised techniques, and the cultural significance – we can deploy the full potential of the inherent qualities of the material itself and our way of working it in what we call MATERIAL GESTURE.**

**In this design studio, you will define your gestures of making and working with material(s) through research and experiment, and in response to the topic of the studio. You are required to produce an architecture that results from your specific engagement with the material. The architecture that results from this approach does not reference or represent something, but simply attempts to exist as a physical spatial reality in its own right.**

**Your research should be supported by the knowledge available at the ETH and we strongly recommend that you forge relationships with other departments and specialists, and use the available resources and facilities. Throughout the whole semester, and for your final presentation, we require that you work with physical (fragment) models of your building in the actual material(s). It is important in this design studio, not to make a complete building, but to show and support the found values of the material engagement in a spatial way, based on the full potential of the inherent qualities of the material itself and your way of working it.**

## **ASSIGNMENT**

**In this studio, we will work in a workshop and laboratory-like setting where you will research, design and test the proposed material. The material and the ways of making are not a presentation outcome of the design studio but rather, an integral part of a process of working, researching and designing. You are required to work individually in the design studio.**

**There is no given program for the space. This can be chosen at any time in the development of your project. However, it should not complicate it, but rather support the spatial and material conditions that you have set out.**

**For the final presentation, you are required to make a physical model of your work, or a fragment of it, in a scale of 1:15. The model should show**

**the material and the gestures (the ways of making). This is the key element of your presentation, along with samples of the material research. You are required to display the material gesture research, drawings of the project, and photos of the model alongside your model on portrait A2 sheets.**

**The A2 material will be collected in print and digitally in PDF format for the material gesture archive. A semester result book will be made after the presentation. Of a selection of a maximum of three projects, the models and material research will be crated and archived for future exhibitions.**

## **SCHEDULE**

**Prof. Anne Holtrop will be present at all reviews, the introduction and the final presentation. All reviews are pin up presentations and joined collectively. In between weekly individual discussions are scheduled with the assistants. Main assistant for the design studio is Stephan Lando. Studio location is HIR C11.**

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## **INTRODUCTION**

**17 & 18 Sep, 9–13 h**

**On the first day, we will give an introduction on material gesture and the specific topic of this design studio. An invited professor from the Petrology Department of the ETH will give an introductory lecture on Volcanology. On the second day, you will present preliminary ideas of your chosen topic of research in response to the assignment in 5 minute presentations .**

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## **STUDIO WEEK 2 & 3**

**with assistants**

**24 Sep & 1 Oct, 9–19 h**

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## **FIRST REVIEW: Research and First Experiments**

**8 Oct, 9–19 h**

**You will present the material research and the first experiments with the material and ways of making. A first architectural element or fragment of it (a column, a room, a window, a floor, a roof, an excavation, a wall, etc.) should be made in a scale of 1:15 and should relate to the material engagement. In this review, your material research will be discussed, and you will have to present the sources and the specialists/ETH departments involved that are essential for your research. The material research and experiments are documented through photography, material samples, writing, and drawing.**

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## **STUDIO WEEK 5**

**with assistants**

**15 Oct, 9–19 h**



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## **SEMINAR WEEK**

**19–27 Oct**

**As an integral part of this studio, we will visit Japan's Southern volcanic island of Kyushu. Our guests will be visual artist Carlos Irijalba and Japanese volcanic experts.**

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## **STUDIO WEEK 7**

**with assistants**

**29 Oct, 9–19 h**

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## **SECOND REVIEW: Space and Site**

**5 Nov, 9–19 h**

**You will be required to present an architectural space situated on a site that fully exploits the material gesture in a spatial way. We will discuss the architectural articulation and cultural significance in relationship to the material and ways of making. For this review we invite guest(s) whose expertise is related to the topic. Our guest will be Momoyo Kaijima (Atelier Bow-Wow).**

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## **STUDIO WEEK 9**

**with assistants**

**12 Nov, 9–19 h**

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## **THIRD REVIEW: Structure**

**Wed 20 Nov, 9–19 h**

**We will continue our discussion of the previous reviews and aspects of your work together with the structural aspects and construction techniques. Our guest will be structural engineer Mario Monotti.**

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## **STUDIO WEEK 11**

**with assistants**

**26 Nov, 9–19 h**

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### **FOURTH REVIEW: Full Preview**

**3 Dec, 9–19 h**

**The aim of the fourth review is to have a semi-final presentation of your project. The minimum requirements are: introductory text that explains the concept of the project, drawings of a site plan, floor plan, and technical horizontal or vertical section, (fragment) model of your work with the chosen material(s), material experiments, and photography. It is important to show and support the found values of the material engagement in a spatial way based on the full potential of the inherent qualities of the material itself and your way of working it.**

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## **STUDIO WEEK 13**

**with assistants**

**10 Dec, 9–19 h**

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### **FINAL PRESENTATION**

**17 Dec, 9–19 h**

**Together with the assistants, you will work on the final presentation with an exhibition of the final models, material samples and A2 drawings and photos. Guests for the final presentation will be announced during the semester.**

## **GUESTS**

**CARLOS IRIJALBA** (Pamplona, 1979) resident at the Rijksakademie van beeldende kunsten of Amsterdam (2013-2014), graduated in 2002 at the Fine Arts Basque Country University and studied at UDK Berlin. Awarded the Revelation PhotoEspaña Prize or Generaciones 2009, among others, he also received the Guggenheim Bilbao Photography grant in 2003 or the Marcelino Botín Foundation in 2007/08. Irijalba has exhibited at international museums and venues, including the Guangzhou Triennale, CAB Art Center in Brussels or Muma Museum in Melbourne Australia.

**MOMOYO KAIJIMA** (b. 1969, Tokyo, Japan) graduated from the Faculty of Domestic Science at Japan Women's University in 1991. She founded Atelier Bow-Wow with Yoshiharu Tsukamoto in 1992. In 1994 she received her master degree from the Tokyo Institute of Technology. During 1996–1997 she was a guest student with scholarship from Switzerland at Swiss Federal Institute of Technology, Zurich (ETHZ). In 2000 she completed her post-graduate program at the Tokyo Institute of Technology. She served as an assistant professor at the Art and Design School of the University of Tsukuba since 2000, and as an associate professor since 2009. In 2012 she received the RIBA International Fellowship. From 2017 she has been serving as a Professor of Architectural Behaviorology at ETHZ. She taught at Harvard GSD (2003, 2016), guest professor at ETHZ (2005–07), as well as at the Royal Danish Academy of Fine Arts (2011–12), Rice University (2014–15), Delft University of Technology (2015–16), and Columbia University (2017). While engaging in design projects for houses, public buildings and station plazas, she has conducted numerous investigations of the

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**city through architecture such as Made in Tokyo and Pet Architecture. She was the curator of Japan Pavilion at the 16th International Architecture Exhibition – La Biennale di Venezia.**

**MARIO MONOTTI (Locarno, 1975). He graduated from Zurich Polytechnic with a degree in Civil Engineering and subsequently, earned a PhD in Technical Sciences where he focused his research on the plastic analysis of reinforced concrete slabs. Since 2009, he has held the position of Professor of Structural Design at the Accademia di architettura in Mendrisio, Switzerland. He is also the founder and owner of the Monotti Ingegneri Consulenti SA in Locarno. His company specializes in structural design in architectural contests in the public and private sectors on national and international levels. Mario Monotti works collaboratively with young architects. His name is associated with the school of Leutschenbach of C. Kerez (European steel design award 2011), the House on Two Pillars of C. Scheidegger and J. Keller (Betonpreis 2017), the National Pavilion of the Kingdom of Bahrain for Expo Milano 2015 of Anne Holtrop and many other project and exhibition pavilions.**

**The guest critics of the midterm and final reviews will be announced during the semester.**

## **SOURCES**



Before anything else, there occur ... paper, canvas, pencil, crayon, oil paint. The instrument of painting is not an instrument. It is a fact. Twombly imposes his materials not as something which will serve some purpose but as an absolute substance, manifested in its glory (in the theological vocabulary, God's glory in the manifestation of his Being). The materials are what the Alchemists called MATERIA PRIMA – what exists prior to the division of meaning: a tremendous paradox, since in the human order nothing comes to man that is not immediately accompanied by a meaning, the meaning which other men have given it, and so on, back to infinity. The painter's demiurgic power is that he makes the materials exist as substance; even if meaning emerges from the canvas, pencil and color remain 'things', stubborn substances whose persistence in 'being-there' nothing (no subsequent meaning) can annul.

Twombly's art consists in making things seen—not the things he represents (that is another problem), but those he manipulates: these few pencil strokes, this graph paper, this patch of pink, that brown smudge. This art has its secret, which is in general not to flaunt substance (charcoal, ink, oil paint) but to permit it to linger. We might think that in order to express the pencil's character it would have to be pressed hard, emphasized, made thick, black, intense. Twombly thinks the opposite: by withholding the pressure of substance, by letting it come to rest quite casually, so that its texture is somewhat scattered, matter will reveal its essence, grant us the certainty of its name: this is pencil.

[...]

The task, then, is always, in very circumstance (in any work whatever), to make substance appear as a fact (pragma). To perform it Twombly has, if not methods (and even if he had, in art method is noble), at least habits.

[...]

It is through these gestures, then, that Twombly utters (could we say: spells out?) the substance of what is drawn: (1) scratching: Twombly scratches the canvas with a scribble of lines; the gesture is that of an occasionally intense oscillation of the hand, as if the artist were doodling, like someone bored during an union meeting and blackening a scrap of paper in front of him with apparently meaningless lines; (2) clotting: Twombly controls his clots, shifts them around as if he intervened with his fingers; the body, then, is here, close to the canvas, not by projection but, so to speak, by contact, though always light: nothing is ever ground in; hence, it might be better to speak of maculae rather than 'clots'; for the macula is not just any stain or clot, it is (etymologically) the stain on the skin, but is also the mesh of a net, suggesting the reticulation of certain animals; Twombly's maculae, as a matter of fact, do suggest a network; (3) smearing: my name for the streaks, of color or of pencil, often of indefinable substance, with which Twombly seems to cover up other marks, as if he wanted to erase them, without really wanting to, since these marks remain faintly visible under the layer covering them; this is a subtle dialectic: the artist pretends to have 'spoiled' some piece of his canvas and to have wanted to erase it; but then he spoils this

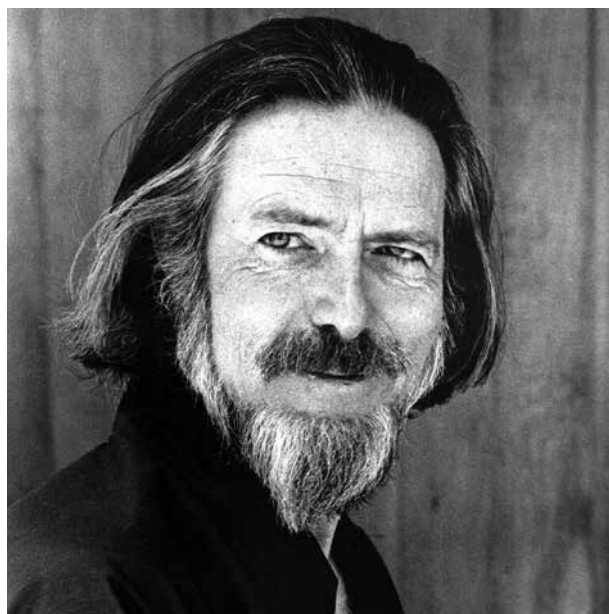
erasure in its turn; and these two superimposed 'failures' produce a kind palimpsest: they give the canvas the depth of a sky in which thin clouds pass in front of each other without canceling each other out.

We might observe that these gestures, which aim to establish substance as a fact, are all related to dirtying. A paradox: the fact, in its purity, is best defined by not being clean. Take an ordinary object: it is not its new, virgin state which best accounts for its essence, but its worn, lopsided, soiled, somewhat forsaken condition: the truth of things is best read in the castoff. The truth of red is in the smear; the pencil's truth is in the wobbly line. Ideas (in the Platonic sense) are not shiny, metallic Figures in conceptual corsets, but somewhat shaky maculations, tenuous blemishes on a vague background.



**A lot of people think that the spontaneous or completely natural life, as it is understood by various philosophers, is to act according to whim - a sudden desire or change of mind. There was, for example, a great Zen monk who lived shortly after 1,000 BC, who had a very peculiar way of thinking. He would get very drunk on rice wine, soak his long hair in ink, and flush it all over a piece of paper. He would then do a Rorschach test on it and decide what kind of landscape it was, and accordingly put in the finishing touches. Suddenly out of this apparent chaos, a great landscape would emerge. However, the true oddity of this practice was the act of putting in the finishing touches.**

**There is more to spontaneity than to place and disorder, and I want to try to explain what that is. Would it not be great if we could live absolutely in the very moment, not making any plans, not worrying if we have made the right decision, if what we do is good or bad, and to not hesitate to do anything?**



**HESITATION AND SPONTANEITY by Alan Watts  
(YouTube, 36:36 min)**

to roll	to curve
to crease	to lift
to fold	to inlay
to store	to impress
to brand	to fire
to shorten	to flood
to twist	to smear
to dapple	to rotate
to crumple	to swirl
to shave	to support
to tear	to hook
to chip	to suspend
to split	to spread
to cut	to hang
to sever	to collect
to drop	of tension
to remove	off gravity
to simplify	of entropy
to differ	of nature
to disarrange	of grouping
to open	of layering
to mix	of felting
to splash	to grasp
to knot	to tighten
to spill	to bundle
to droop	to heap
to flow	to gather

to scatter	to modulate
to arrange	to distill
to repair	of waves
to discard	of electromagnetic
to pair	of inertia
to distribute	of ionization
to surfeit	of polarization
to complement	of refraction
to enclose	of simultaneity
to surround	of tides
to encircle	of reflection
to hide	of equilibrium
to cover	of symmetry
to wrap	of friction
to dig	to stretch
to tile	to bounce
to bind	to erase
to weave	to spray
to join	to systematize
to match	to refer
to laminate	to force
to bond	of mapping
to hinge	of location
to mark	of context
to expand	of time
to dilute	of carbonization
to light	to continue

Richard Serra's VERB list from 1967 is a beautiful rich summary of all manipulations, all gestures, we can apply to matter. He made this list at the same time he made one of his most fascinating works in which he cast the corners of an exhibition space by throwing fluid lead in it - to splash. The final form resulted from a process of making.





**Robert Smithson, ASPHALT RUNDOWN, Rome, 1969**  
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**ROBERT SMITHSON:** O.K. we'll begin with entropy. That's a subject that's pre-occupied me for some time. On the whole I would say entropy contradicts the usual notion of a mechanistic world view. In other words it's a condition that's irreversible, it's condition that's moving towards a gradual equilibrium and it's suggested in many ways. Perhaps a nice succinct definition of entropy would be Humpty Dumpty. Like Humpty Dumpty sat on a wall, Humpty Dumpty had a great fall, all the king's horses and all the king's men couldn't put Humpty Dumpty back together again. There is a tendency to treat closed systems in such a way. One might even say that the current Watergate situation is an example of entropy. You have a closed system which eventually deteriorates and starts to break apart and there's no way that you can really piece it back together again. Another example might be the shattering of Marcel Duchamp Glass, and his attempt to put all the pieces back together again attempting to overcome entropy. Buckminster Fuller also has a notion of entropy as a kind of devil that he must fight against and recycle. ... Now, I would like to get into an area of, let's say, the problems of waste. It seems that when one is talking about preserving the environment or conserving energy or recycling one inevitably gets to the question of waste and I would postulate actually that waste and enjoyment are in a sense coupled. There's a certain kind of pleasure principle that comes out of preoccupation with waste. Like if we want a bigger and better car we are going to have bigger and better waste productions. So there's a kind of equation there between the enjoyment of life and waste. Probably the opposite of waste is luxury. Both waste and luxury tend to be useless. Then other's kind of middle class notion of luxury which is often called "quality." And quality is sort of based on taste and sensibility. Sartre says Genet produces neither spit or diamonds. I guess that's what I'm talking about.

**ALISON SKY:** Isn't entropy actually metamorphosis, or a continual process in which elements are undergoing change, but in an evolutionary sense?

**SMITHSON:** Yes and no. In other words, if we consider the earth in terms of geologic time we end up with what we call fluvial entropy. Geology has its entropy too, where everything is gradually wearing down. Now there may be a point where the earth's surface will collapse and break apart, so that the irreversible process will be in a sense metamorphosed, it is evolutionary, but it's not evolutionary in terms of any idealism. There is still the heat death of the sun. It may be that human beings are just different from dinosaurs rather than better. In other words there just might be a different situation. There's this need to try to transcend one's condition. I'm not a transcendentalist, so I just see things going towards a... well it's very hard to predict anything; anyway all predictions tend to be wrong. I mean even planning. I mean planning and chance almost seem to be the same thing.

## **ENTROPY MADE VISIBLE**

**interview with Robert Smithson by Alison Sky in On Site #4, 1973**

**This interview took place about two months before Smithson's death.**

**Although published posthumously, Smithson and Sky completed the editing of the text together and Smithson provided all the illustrations.**

**SKY:** I with the architectural profession would recognize that. In their grand masterplan schemes for the world, architects seem to find the “final solution” to all possible situations.

**SMITHSON:** They don't take those things into account. Architects tend to be idealists, and not dialecticians. I propose a dialectics of entropic change. ... I'd like to mention another mistake which is essentially an engineering mistake and that's the Salton Sea in southern California, which happens to be California's largest lake. It happened back during Teddy Roosevelt's administration. There was a desperate attempt to try to reroute the Colorado River. The Colorado River was always flooding and destroying the area. There was an attempt to keep the Colorado River from flooding by building a canal, in Mexico, and this was illegally done. This canal was started in the delta of the Colorado and then it was rerouted back toward Mexicali, but what happened was that the river flooded into this canal and the canal overflowed, and fed back into the Imperial Valley which is below sea level. So that this thirty mile lake was created by this engineering mistake, and whole cities were inundated, the railroad also was submerged, and there were great attempts to try to fight back this deluge, but to no avail. Since then, people have come to live with this lake, and recently I was out there I spent some time in Salton City which is a city of about 400 people. And another example of blind planning is this maze of wide boulevards that snake through the desert. Now it was the idea that they would turn this into a huge retirement village or whatever, maybe a new Palm Springs, but the bottom fell out of that so that if you go there now you just see all these boulevards going all through the desert, very wide concrete boulevards and just sign posts naming the different roads and maybe a few trailer encampments near this city. It's impossible to swim in the Salton Sea because barnacles have grown all over the rocks. There is some water skiing and fishing. There's also a plan to try to desalinate the whole Salton Sea. And there's all kinds of strange schemes for doing that. One was to bring down slag from the Kaiser Steel Company, and build a dike system. So that here we have an example of a kind of domino effect where one mistake begets another mistake, yet these mistakes are all curiously exciting to me on a certain kind of level – I don't find them depressing.

[...]

It's like the Anchorage earthquake that was responsible for creating a park. After the earthquake they set aside a portion of earthquake damage and turned that into a park, which strikes me as an interesting way of dealing with the unexpected, and incorporating that into the community. That area's fascinated me quite a bit. Also, the recent eruptions outside of Iceland. At Vestmann Islands an entire community was submerged in black ashes. It created a kind of buried house system. It was quite interesting for a while. You might say that provided a temporary kind of buried architecture which reminds me of my own Partially Buried Woodshed out in Kent State, Ohio where I took 20 cartloads of earth and piled them on this woodshed until the central beam cracked. There was a problem from one of the local papers. They didn't really see that as a very positive gesture, and there was a rather disparaging article that went under the heading “It's a Mud Mud Mud World.”



But basically I think that those preoccupations do escape architects and I'm thinking of another problem that also exists, that of mining reclamation. It seems that when they made up the laws for mining reclamation they wanted to put back the mines the way they were before they mined them. Now that's a real Humpty Dumpty way of doing things. You can imagine the result when they try to deal with the Bingham pit in Utah which is a pit one mile deep and three miles across. Now the idea of the law being so general and not really dealing with a specific site like that seems unfortunate. One person at Kennecott Mining Company told me that they were supposed to fill that pit in; now of course one would wonder where they were going to get the material to fill that pit in.

**SKY:** Did you ask them?

**SMITHSON:** Yes, I mean they said it would take something like 30 years and they'd have to get the dirt from another mountain. It seems that the reclamation laws really don't deal with specific sites, they deal with a general dream or an ideal world long gone. It's an attempt to recover a frontier or a wilderness that no longer exists. Here we have to accept the entropic situation and more or less learn how to reincorporate these things that seem ugly. Actually there's the conflict of interests. On one side you have the idealistic ecologist and on the other side you have the profit desiring miner and you get all kinds of strange twists of landscape consciousness from such people. In fact there's a book that the Sierra Club put out called *Stripping*. Strip mining actually does sort of suggest lewd sex acts and everything, so it seems immoral from that standpoint. It's like a kind of sexual assault on mother earth which brings in the aspect of incest projections as well as illicit behavior and I would say that psychologically there's problem there. There's a discussion of aesthetics in this book *Stripping* from the point of view of the miner and from the point of view of the ecologist. The ecologist says flatly that strip mines are just ugly and the miners says that beauty is in the eye of the beholder. So you have this stalemate and would say that's part of the clashing aspect of the entropic tendency, in other words two irreconcilable situations hopelessly going over the same waterfall. It seems that one would have to recognize this entropic condition rather than try to reverse it. And there's no stopping it; consider the image that Norbert Weiner gives us – Niagara Falls. In fact they even shored up Niagara, speaking of Niagara. They stopped Niagara for a while because it was wearing away. And then they put these steel rods into the rock so that it would maintain its mutual appearance.

**SKY:** Have they been able to stop it?

**SMITHSON:** They did stop it.

**SKY:** From wearing away?

**SMITHSON:** Well, it's still there. It didn't fall apart yet. Niagara looks like a giant open pit quarry. In other words it has high walls which offend people greatly in the strip mining regions. There are defects called "high walls" that exist in the







**VOLCANIC ERUPTION, Heimaey, Vestmann Islands, Iceland**  
(photo courtesy Esquire Magazine)

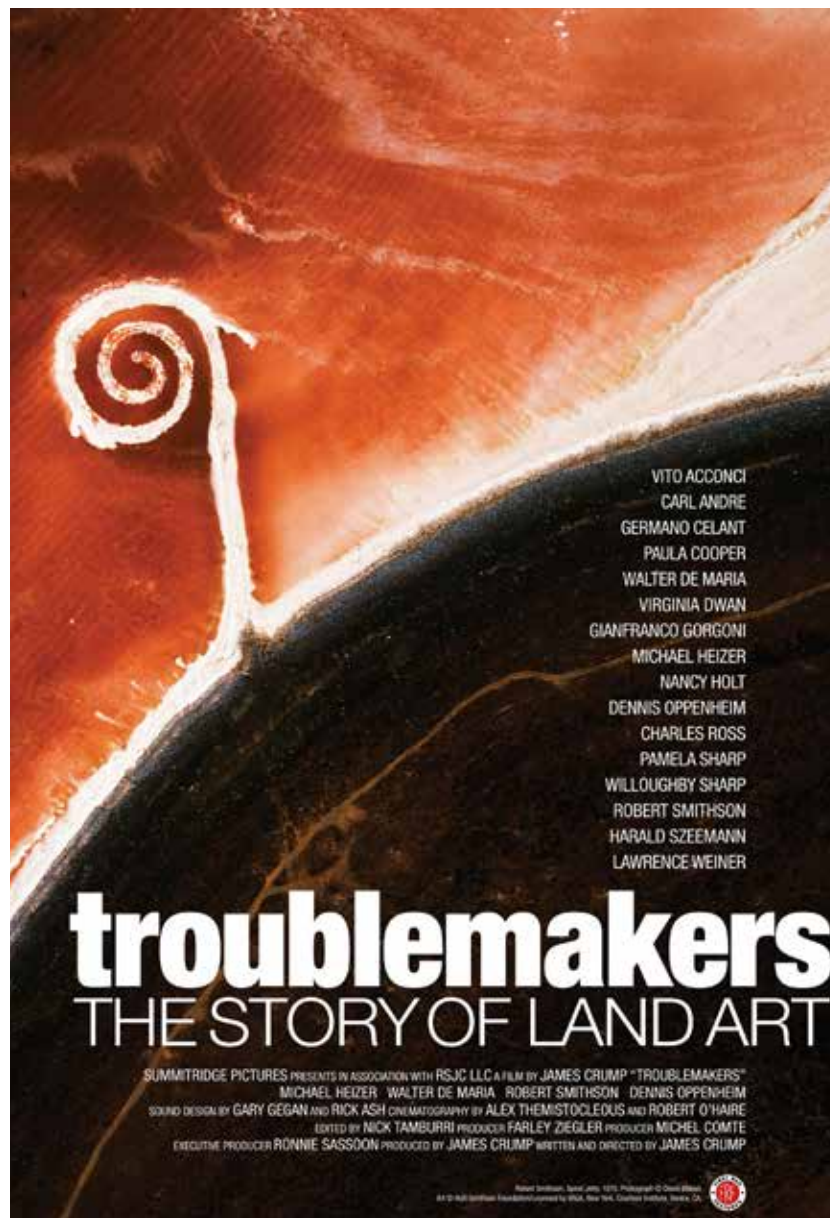
strip mining areas and there's a desire on the part of ecologists to slope these down. The cliffs all around Niagara suggest excavation and mining, but it's just the work of nature. So there's constant confusion between man and nature. Is man a part of nature? Is man not a part of nature? So this causes problems.

**SKY:** There is definitely some sort of perverse fascination attached to the process of inevitable and impending destruction that will occur either in your own environment or be observed vicariously because people persist in living at the bases of volcanos, on earthquake zones such as the fault line which is supposed to destroy all of California, on top of sinking landscapes such as Venice which is a city built entirely on rotting wooden pilings and will eventually fall into the sea.

**SMITHSON:** Well, that may be something that's human – that's human need. It seems that there's almost a hope for disaster you might say. There's that desire for spectacle. I know when I was a kid I used to love to watch the hurricanes come and blow the trees down and rip up the sidewalks. I mean it fascinated me. There's kind of pleasure that one receives on that level. Yet there is this for something more tranquil – like babbling toward mining regions and volcanic conditions – wastelands rather than the usual notion of scenery or quietude, tranquility – though they somehow interact.



**Robert Smithson, PARTIALLY BURIED WOOD SHED**  
**Kent State University, Ohio, 1970**  
**35**



**TROUBLEMAKERS, The Story of Land Art**  
**Michael Heizer, Walter de Maria, Robert Smithson**  
 a film by James Crump, DVD 72 min, 2015  
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**Michael Heizer, DOUBLE NEGATIVE**  
eastern edge of the Mormon Mesa, northwest of Overton, Nevada, 1969–70  
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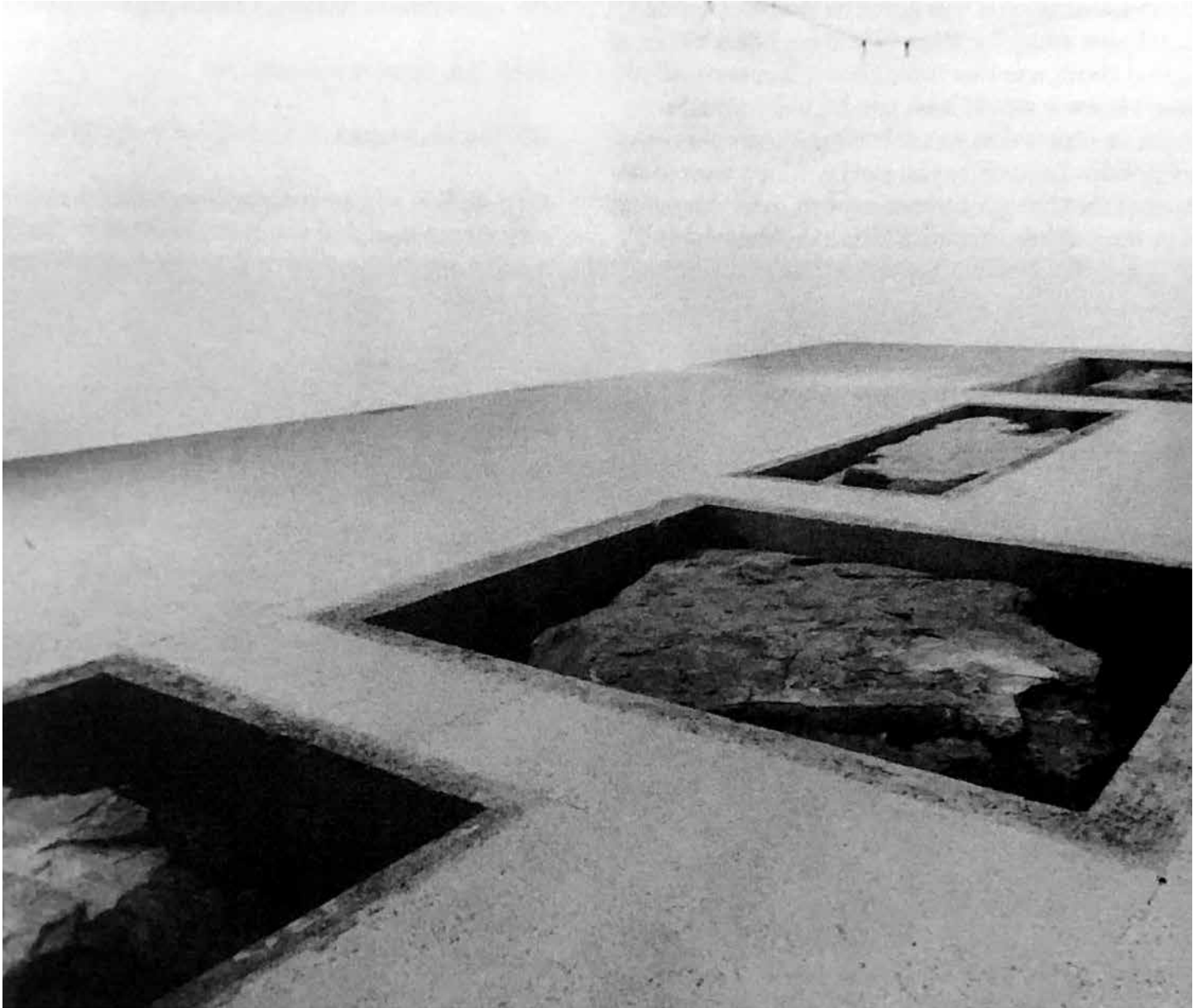










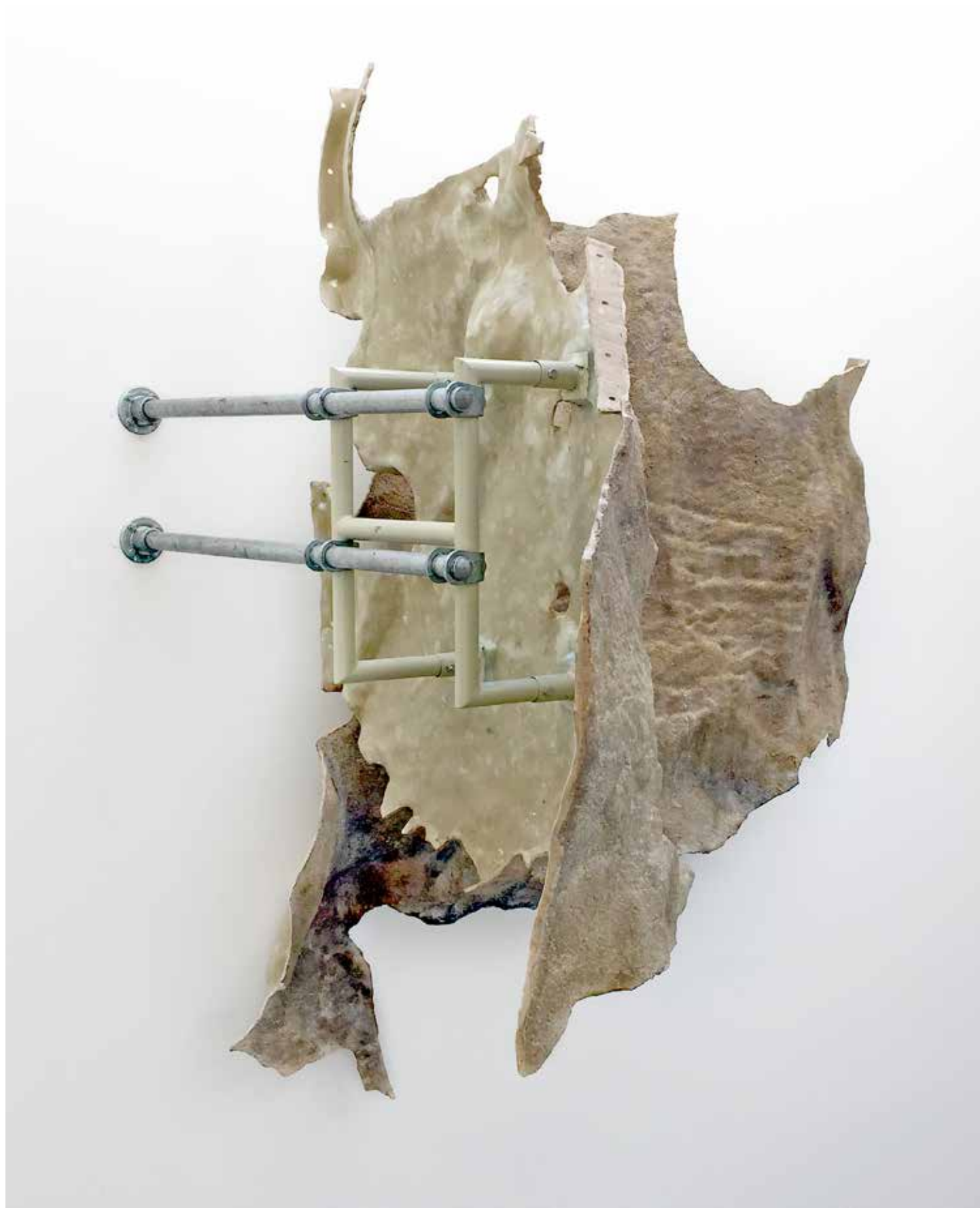


**Michael Heizer, DISPLACED / REPLACED MASS**  
**Venice, California, 1977 and Silver Spring, Nevada, 1969**  
**41**



**I use the sediment and features of geology and the imprint we humans leave on it as a metaphor for our relationship with the world and ourselves as nature. In recent projects, such as High Tides (2013), Skins (2015), and FFWD (2018), I work between the relative experience of time and space through the collective construction of territory.**

**I create a body of work that opens a conversation to the substance of the planet we inhabit. It focuses on natural and artificial (anthropic or human) processes to analyze parallel structures that involve geological and social development, describing that relationship between Earth and human: time and tempo.**



At the height of the Spanish economic crisis in 2010, I visited a company in Madrid that used to produce three dimensional replicas that, in five years, went from appearing in science magazines to making porexpan hearts for fake wedding cakes.

The company had taken part in the fabrication of replicas of several caves on the Cantabrian coast in the late 1990s. During the Spanish economic crisis, the company was engaged in scanning, to the highest quality available at that time, several cave paintings in caves that were soon to be closed to the public.

The cave walls had sheltered humans from the extreme meteorological conditions of the Upper Palaeolithic Age. Now, 13,000 years after the caves were occupied, conditions have changed. Rising temperatures and mild climatic conditions have allowed 7,000 million humans beings to inhabit every remote corner of the planet.

Nomads turned sedentary, hunting turned into leisure, and magic into spectacle. Humans switched from active to passive lifestyles and masses were driven from one place to another. Visitors come in the thousands to every place that is now a site of perceived historical interest, and their breath carries biological potentials longing for existence as well.

The cave wall was always there, unaware of other temporalities.

Scans have been made to reproduce the cave surfaces and prevent them from being damaged as they had become sensitive to humans. Some of the replicas have become museums, others have ended up in gift shops and restaurants.

Other scanned cave surfaces were not so crucial for the Eurocentric narrative construction and were therefore not reproduced. When the company went bankrupt along with many others in the Spanish economy, the scans entered a standby period, saved as digital data. The scanned 3D files were saved on zip drives, a floppy disc which seemed to have been the ultimate storage format in the 1990s but became outdated in the 2000s. By the 2010s, we could hardly find any readers for them.

So here we are confronted by a scan of an inaccessible wall, recorded in an unreadable format as some kind of digital archaeology. Every translation involves a loss. When our only reference is a low-fi digital interpretation, it seems like we have been subjected to an industrial metabolism of magnifying losses.

## **EXERCISE OF THE UNNECESSARY**

The works in *Skins* address notions of surface, the superficiality of time and constructs of relevance and necessity. They lean physically on the phenomena and technology involved in the replica.

The scanning technology used in the 1990s reproduced the cave in a manner redolent of the technological horizon of that time. It is through technology that the visual is engineered and we only know the visible contingencies of the past through the defined interventions of particular technologies of the present.

Earlier, we mentioned an 'industrial metabolism of magnifying losses.' Here we suggest a constructive use of that loss. We acknowledge that the 3D scanner, unlike human vision, sees no image. It is a selective eye that touches with ultrasound waves, not with light. It merely reads form and volume. The scanner used in those caves read the same naked volume that these prehistoric humans confronted. No colour, no representation, no magic symbolism. Just raw, connotation-free cave skin; but yes, with a delay. The delay of techne, the same one that brought them to the foreground.

The result is a file that has no depth, and no cultural information. An interpretation enslaved by its time, a time of exponential mutations.

After that file was created, what has happened is a production of the cave surfaces by the same procedure, companies, and workers that took part in the production of the Altamira Cave and others. Skins uses the language and imperfections of the replica, not to hide its structure, but to make it transparent and bring the walls to a stage prior to human intervention. They refuse to represent anything but themselves. They are fragments of a larger totality edited by historical chance. It is not a rewind or a fast forward. It is more of a reformatting of that wall information into a reality previous to representation, liberating it from the historical, political and cultural weight acquired through time.

There is no restoration possible, for any restoration is a new object. These pieces deal with that finiteness of the replica by reformatting the wall skins on an exercise of the unnecessary.

They constitute the timeline of a surface in relation to self-reflective anthropocentrism. The contemporary time-cut of the replica, especially its simulated resolution, represents a technological temporality. Entropy and acceleration merge with quantity and overload. We bear witness to a viral dimension of the ontological exercise through which our place in the universe is decentred.





**production of FFWD by Carlos Irijalba**  
**47**



**Carlos Irijalba, FFWD**  
**48**







**The Hawaiian term pahoehoe means smooth lava in its solid state, and it entails the most abstract and visually explicit manifestation of the Earth's core's material reaction in the face of a sudden contrast in temperature. When the recent eruption of the Kilauea Volcano happened in the spring of 2018, I visited the Big Island in Hawaii to experience on a scale of 1:1 the Earth turning inside out. Escorted by the US military along with a group of scientists, we visited Ground Zero of the eruption. This was an experience that was impossible to translate into images. As the lava activity subsided, I spent the following weeks walking through the Kalapana Estate areas to experience the contradiction between flowing lava matter and its crystallisation into solid state.**

**Pahoehoe is matter's most spontaneous expression and the most immediate visualisation of the chemical reactions that comprise it. The characteristic behaviour of lava illustrates, at both micro and macro levels, processes that pertain to fields like meteorology, linguistics, economics, and genetics, where properties that are equally creative and destructive are made visible. When pahoehoe finally cools and crystallises, it displays a strange quality of frozen time. As the philosopher Reza Negarestani says, lava makes evident 'decomposition as a constructive process.'**

**The simultaneous destruction and creation of territory in Hawaii and its repetitive pattern reveal the grammatology of our planet and how the surface of this system that we inhabit is coded.**





**The core of my work is human - time and space - scale and its relation to the world using phenomena that precede it as well as the objects and situations generated by it. For this purpose, I use geological and industrial crafts to unveil our surrounding.**

**This line of work deals with equilibrium and tension from regions with a rich biosphere but also populated and intervened by humans.**

**For Pannotia, I have been studying the relation between landscapes before and after the anthropic in these regions and focused between the Precambrian and the Cambrian periods, 540 million years ago, where the biggest known explosion of life on Earth took place. During that time, most of the Earth was oceanic soil and new land emerged as a type of broom, sweeping millions of species now present on the land as sedimentary and metamorphic rocks. The coast acted as a sort of spatula compressing time and its sediments, as many geological signs show today. It was in that moment that most of taxonomic and vertebrate groups we know today appeared.**

**The next largest transformation has been happening since the first half of twentieth century with the intervention of humans, transformation of landscape, emissions and residue. In my practice, I operate between these parameters of time scale, perspective and recent history to unveil the geological and anthropic layers of each location. In conversation with national geological centres and the local communities, I try to open a dialogue, reading geotechnical drillings to explain the territory and its material legacy. It is vital that, through art, we filter and nourish our relationship with the soil we live on.**

**This turns into a conversation, an exchange of information from the technical to popular knowledge, involving geologists, geographers, philosophers and artists in conjunction with the inhabitants of the area to construct new narratives of stratification and consciousness about our footprint on Earth.**













**BATARA is a collaborative project between architect Anne Holtrop and photographer Bas Princen, which so far consists of a series of models, a full-scale pavilion and photography. The spaces of BATARA are arrangements of sand-cast walls without windows, doors or roofs, only empty openings. The constructions have no apparent function or relation to typology or building style, giving an air of something prehistoric and primitive. It is as if we are looking at a disintegrating ruin bearing witness to some fundamental form of building.**

**The project originated in a visit to the ancient city of Petra in Jordan. The simple settlement of single-story dwellings eventually became a hub for the caravan trade between Persia, the Arab World and the Roman Empire, and a great city was carved out of the desert rock. Princen's photography of Petra display spaces that are moving between states of natural and manmade: the rugged surfaces of the mountains were cut sharply and ornamented to house tombs and temples, while today the details and surfaces are eroding away and gradually blurring the distinction.**

**In a similar manner, the walls of BATARA are created by a process of removing material by digging away from the natural environment. Concrete or plaster is poured directly into pits of earth or sand, giving the walls a smoothness on one side and a rough, uneven surface on the other. The process and the outcome are characterized by the combination of intent/constraint and chance/the undefined, where the architecture is partly formed by the material and the natural mould itself.**

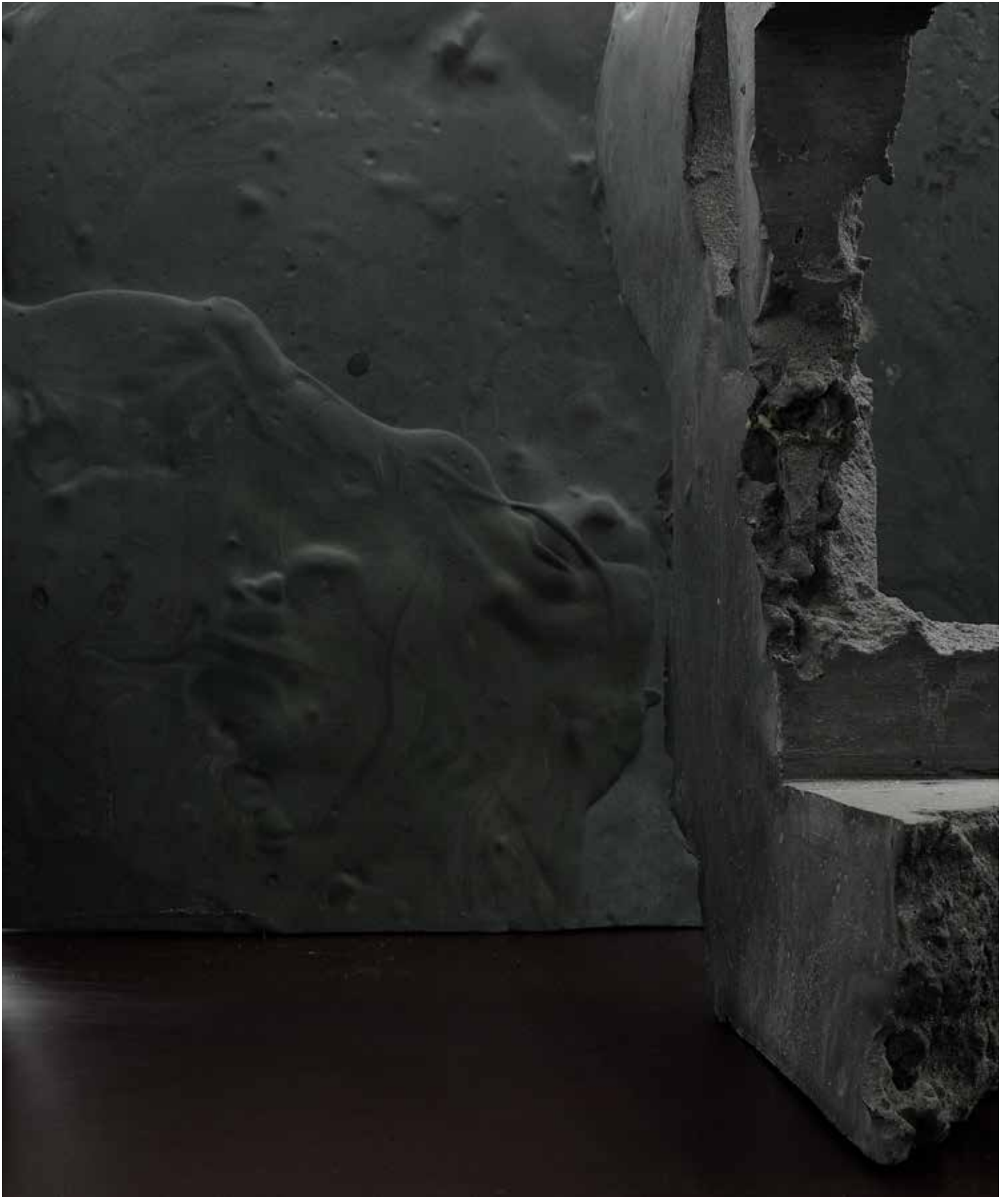
**In his text, MATERIAL GESTURE, Holtrop points to the importance of the material properties and the unintended effect of an action with a material, as a possible new approach to making. Much like Robert Smithson's Asphalt Rundown (1969), Batara explores how the outflowing properties of concrete work together with the earth mould, gravity, and air to level and solidify. And like Smithson, Holtrop points out that the truth of a material is not found in its refined, ideal state, but in the 'impure', worn and lopsided state. In *A Sedimentation of the Mind: Earth Works*, Smithson argues that rust is the fundamental property of steel, and that our fear of inactivity, entropy, erosion and the undefined is removing us from the primary process of making contact with matter, and thereby fully understanding and interacting with the world.**

**In their work, both Holtrop and Princen point to examples in which architecture and the natural environment consist of the same material, making it specific to place and partly undifferentiated from its surroundings. Like many of Holtrop's other projects, BATARA is a mono-material architecture. Using a single material is a way to create a reduced architecture, which feels like a scale-model or seems unfinished. It is an architecture of suggestion and possibility, where the idea is simultaneously clear and open. The structures of BATARA may be undefined in terms of their use or what they are about. Yet the reduced state allows us to focus on what this architecture actually consists of, on the qualities of the material and the interaction with it in the process of making, the sequence of**

## **BATARA by Anne Holtrop and Bas Princen**

**text by Nicola Louise Markhus for Another Space – project space for art and architecture, 2016**





**BATARA, model, various colors pigmented gypsum,  
Studio Anne Holtrop, 2012, photo Bas Princen  
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**spaces, and connections between them. Princen's images of the BATARA models only show us fragments of the space, confusing our sense of scale and placing us inside the model. Yet even without a sense of the whole, the essence is apparent, and we are invited to imagine what this possible architecture could become.**

**This exhibition celebrates volcanoes as figures in the landscape of Java as politically, economically, and culturally charged objects whose ambiguous existence makes them particularly interesting for architectural scrutiny. Volcanoes act and behave in periodic cycles; they are neither urban nor rural; neither alive nor dead; neither past nor present; neither good nor bad. As giant figures in the landscape, they create the land and continuously transform it. Despite their overwhelming potential for destructiveness, they produce fertile grounds to feed one of the world's most densely populated islands.**

**Between 1836 and 1848, the German-Dutch explorer Franz Wilhelm Junghuhn made several expeditions to Java - the geographic, historic, cultural, political and economic centre of Indonesia - in the service of the Dutch colonial authorities. He was among the first to climb the island's many volcanoes, and his books, maps, and lithographs made him the 'Humboldt of Java.' Armin Linke follows in Junghuhn's footsteps, visiting his favourite volcanoes to produce new bodies of work in which the volcanoes form territorial markers, allowing them to interweave historical and contemporary narratives of Indonesia.**

**This exhibition was part of a three-year collaborative research project between the Professorship of Art and Architectural History of Philip Ursprung, and the Assistant Professorship of Architecture and Urban Design of Alex Lehnerer. It is part of the Future Cities Laboratory at the Singapore-ETH Centre. It features photographs and videos by Armin Linke and photographs by Bas Princen.**





**Armin Linke, KAWAH IJEN VOLCANO, Biau (Jawa Timur), Indonesia, 2016**  
**62**



**THE VOLCANO WATCHERS, 1987, episode of PBS Nature featuring the late French Volcanologists Maurice and Katia Krafft. Segments include the Krafft's first research trips to Stromboli and Vulcano, the 1973 eruption of Eldfell on Heimaey, Iceland, and further trips to the Hawaiian Islands, Africa, Indonesia and Japan.**







**INTO THE INFERNO, Werner Herzog, 2016, Netflix 106 min**  
**65**



**Armin Linke, INTERIOR OF THE GEOLOGICAL MUSEUM LABORATORY,  
Bandung, Indonesia, 2016**  
66

The work of Armin Linke follows the traces, wherever he is given access, of a very special kind of human activity. Do not expect pretty pastoral pictures or portraits, or else highly eccentric ones; nor any view of Sirius; nothing that evokes an all-seeing eye; no images, so to speak, “from outside”. Linke, as his name indicates, is an analyst of the concealed places of *connectivity*. A philosopher of interior envelopes and confined spaces, inside which, unbeknownst to us, our destinies are cast. But a philosopher who has at hand, instead of a pen or keyboard, a superb optic and, behind him, an immense digital archive.

For about twenty years, he has put together an impressive database of enclosed spaces within which, from the early twentieth century, most human activity has taken place, at least in what we hardly dare to call “developed countries”: research centers, laboratories, scale models, trading rooms, banks, courts of law, parliaments – in short, places that have, in and of themselves, no aesthetic value, no sparkle to catch the eye, so many spaces of bureaucracy, administration, and expertise, of which Armin, almost on his own, manages to grasp the banal and irreplaceable originality.

More remarkable still is the fact that Armin records these usually invisible locations, with a sure eye, while following no pre-conceived plan. This is no social science research project, nor an ethnography of techniques and sciences. Never has he set out to systematically document the locations of concealed power, which rest on the establishment of intellectual technologies. He is an artist through and through. And yet, over the ten years that I have been engrossed in this archive, I can't help but think that this artist has been secretly directed by a kind of zombie researcher, who has pointed him toward everything that needed to be captured to provide an accurate portrait of modern institutions. The result is an archeology of accumulated sediments which gradually delineate the nodes and networks of contemporary infrastructures – which the concept of “fields” (economic, legal, scientific, political, etc.) fails to capture.

One would have to spend a long time wandering this labyrinth to reconstitute the underground research project that Armin's sites have tirelessly pursued: there is a whole expanse on the ruins of socialist modernity, from Russia to North Korea; a vast survey of the way the Alps are made visible in locations that are always enclosed (the remarkable film *Alp*); a long exploration of deserted islands in the Mediterranean; an inventory of parliamentary and legal architectures; an infectious obsession with “oligoptics” – those sites of surveillance, analysis, observation, and processing that revolve around computer screens and more or less alert technicians; and more recently, and again through film as much as photography, investigative work on the Anthropocene, a concept that seems to have been developed by geologists with Armin in mind! In this out-sized project, the photographer becomes a stratigrapher.

Who other than Armin would think of filming, in order to document what we know of the Anthropocene, a building in Hamburg which houses the computers that produce climate simulations; and not just the computers, but the cooling systems as well? And who else would, for good measure, take us to the roof to have a good look at the fans that provide for their ventilation? All that Armin is about is in that impulse: if the art of photography has any purpose, it

**ARMIN LINKE, OR CAPTURING/RECORDING THE INSIDE by Bruno Latour**

is to prevent the notions we may have about the world from dissipating into the thin air of ideas. You are talking about modeling climate change? Then tell us where such work is being carried out, at what address, in what office, what does it take in terms of staff, computing power, and refrigeration? Show us, and even though it may be trivial, show it to us in all its magnificence (and, as an extra telling detail, is it not irresistibly ironic to learn that the building that models global warming is the most energyintensive of the whole city?).

And Armin is off again, camera on his back, to investigate, with no preconceived plan, anything that *localizes* and therefore *focalizes* attention. I find myself looking for a word to describe the consistently amused, emotional, and precise tone of his voice-over commentary of the images he has gathered: “mocky” might be right. Yes. That’s it, Armin, the mocky photographer.

What I find most fascinating in the multifaceted work of this photographer is how he teaches us to localize what usually hovers without ties or links. The economy is paralyzing and intimidating – but if we could only analyze a trading room in detail, then we could, literally, put our finger on what had until then escaped us. This is the purpose of one of the works commissioned by the Sciences Po Library. A fine example of collaboration, midway between artistic exploration and sociological examination – since the analysis of the economy in-the-making is also part of the research agenda of this institution. This is where the work of art focuses the often-distracted attention of the researcher.

How is one to talk about the Alps “as a whole”? Seemingly impossible, at first. Unless we follow Armin’s solution: to reconstitute the series of originally disconnected locations, from which “the Alps” are made visible. You are not likely to see the Alps from above, from the outside; no chance of breathing the mountain air or of being treated to postcards of Heidi’s countryside. Rather, you are going to visit the laboratories, the tourist board meetings, the military checkpoints, the national weather stations, and even the museums where paintings of snow-capped summits are on display; in short, all the *insides* into which the ever elusive *outsides* are absorbed. With Armin, it is as though actor-network theory had been invented only to provide his work with a guiding thread. “Localizing the global” could serve as a description of both the field of science studies and the archive of this photographer of connection.

But there is much more to the artist’s exploration than the researcher’s meager means of inquiry. Indeed, the question of the right *distance* must be resolved. The aesthetic developed by Armin is intriguing in that it manages to avoid ever grasping things from the outside, and yet never appears to add anything personal or subjective to them either. Yet, at first glance, if I were to tell you that we are going to photograph bureaucrats, civil servants, lawyers, court bailiffs, secretaries, as well as their cabinets, files, computers, and desks, you would either start yawning or look for some sort of hidden irony. Is it not, after all, the role of art to criticize, deconstruct, or at least transform? No, not at all. No critique. Yes, there is transformation, but it is that of a remarkably distinctive gaze, which seizes insides from the inside, without objectifying, embellishing, or dimming them.

One would need to be a photographer oneself to provide a detailed account of the technical solution Armin has found, but the result –the only

aspect a mere amateur such as myself can appreciate – is that the places inside which he transports us are, every time, splendid. No aestheticization, no value judgment, no derision. There are very few characters – interior landscapes, rather – but entirely devoid of reverie. Armin manages – through a process of extraction, intensification, and distillation – to render magnificent a trader's computer terminal and a hydrologist's scale model. How does he do it?

It is precisely because he restores beauty to these invisible sites – a beauty that resembles no other – that we can begin to reconstruct, little by little, and thanks to the multifaceted archive he assembles, the workings of the contemporary world. In the face of his works, we realize to our amazement: “Yes, it's true, he's right, it is *here* that it all happens.”

If any recent work of art deserves to be featured at the heart of an institution devoted to academic research, it is that of Armin Linke. And here again, the point is not to adorn or amuse! No, the work or art says to budding researchers, slaving away in the library: “*Look*, and now follow the path I have shown you and try to understand what you can!”





**The movie *Over Your Cities Grass Will Grow* is a portrait of the artist at work, though one that says as much about its British director, Sophie Fiennes, as about its stated subject, the German-born artist Anselm Kiefer. Perhaps the most celebrated and divisive artist of his generation, Kiefer was born in 1945 shortly before the end of World War II. In 1993, he moved to a swathe of land outside Barjac, a town in the South of France. He and his assistants then began creating installations on the property that, at least to judge from this movie, are a monument to the human will to self-annihilation and a rehearsal for the apocalypse.**

**On this parcel of land that takes up more than 85 acres and was once the site of an old silk factory, Kiefer and his team burrowed into the earth, dug tunnels, constructed an amphitheatre, painted and threw dust and broken glass on canvases and kiln-fired lead sculptures that look like books, turning the sprawl into a massive atelier that Kiefer called La Ribaute.**

**Fiennes, whose movies include the nonfiction romp *The Pervert's Guide to Cinema* featuring the loquacious philosopher and cinephile Slavoj Žižek, arrived in La Ribaute shortly before Kiefer moved to Paris, where he now lives and works. The movie offers the only chance that most of us will probably have to visit what he left behind, this strange, eerie Kieferland.**

**ANSELM KIEFER: OVER YOUR CITIES GRASS WILL GROW  
film by Sophie Fiennes, DVD 100 min, 2010**

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