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Akeley inside the elephant: Trajectory of a taxidermic image

Keywords

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Abstract

As a process distinct from its poured cousin, sprayed concrete involves using compressed air to propel cement with various chemical admixtures at a surface. Used in tunnelling for rock surface stabilization, and above ground for securing slopes and fabricating fake rockeries, its chimeric character ranges from the polished landscapes of skateparks and swimming pools to mimicking cast concrete in structural repair work. The origins of this industrial process lie with taxidermist Carl E. Akeley (1864–1926), who invented it during his pioneering work in the proto-photographic field of natural habitat dioramas at the Chicago Field Museum in 1907. Further cementing André Bazin's notion of photography as embalmment, Akeley also invented a unique 35mm cine camera during his time at the American Museum of Natural History, New York. The essay explores this historical intersection between photography, taxidermy and architecture, and its wider implications for thinking through photography's material contingency.

Buried deep under the southern tip of the Appenzell Alps in Switzerland, in the labyrinthine network of a vast testing facility for the mining and tunnelling industries, the construction division of the chemical multinational BASF leads an annual workshop on the very latest in robotic applications of sprayed concrete. As a process distinct from its poured cousin, sprayed concrete involves compressed air shooting a high-tech mortar cocktail containing admixtures such as curing accelerators and water-reducing 'superplastizers' at a surface to be covered uniformly in a grey goo that hardens literally within minutes. Its versatility makes it the bread and butter of tunnel construction the world over, and not surprisingly it lines the walls of the newly dug burrow underneath London in Europe's largest construction site, Crossrail. But its ability to provide near-instant ground support, 'freezing' an exposed rock surface in place, means it is ubiquitously applied above ground as well to secure slopes and prevent erosion. Its chimeric formlessness supersedes even the simulacral qualities of good old cast concrete, for sprayed concrete is not only behind the swooshing slickness of in-ground swimming pools and concrete skateparks as well as the craggy outcrops of artificial rockeries from zoos to water parks, it is also used to mimic the raw surface of cast concrete itself in repairs of iconic twentieth-century 'beton brut' structures such as the paleo-brutalist massif of Rudolf Steiner's second *Goetheanum* (1928) near Basel.

I find myself among more or less 80 mostly male delegates at this workshop, ranging from machine operators in the mining industry to civil engineers and government officials in charge of infrastructure works from as far as South East Asia and Sub-Saharan Africa, following a series of presentations in a lecture theatre truly in the spirit of American artist Robert Smithson's *Cinema Cavern* (1971): projected on the screen are images of construction processes that themselves were responsible for the formation of this space, a large grotto hewn out of Alpine rock, its craggy, continuous surface covered, of course, in a seamless layer of sprayed concrete. Our hosts, BASF, introduce us to their range of accelerators and superplasticizers, chemical admixtures that modify the behaviour of concrete for spraying, followed by the Swiss company Meyco demonstrating their robotic applicator machines – together, they are like the software and hardware of what everyone around here simply calls 'shotcrete'. The overall sensation of sitting in this lecture theatre is not unlike being within the prehistoric gut of a fossilized leviathan, and so it makes sense that when one of the presentations touches on the history of this highly technical, yet strangely ahistoric process, it locates its origins in a taxidermist who invented it at the beginning of the twentieth century while supposedly working on a display of 'prehistoric animals' (Anon. 2014).

These Jurassic creatures turn out to be altogether more mammalian and recent, while the taxidermist emerges as larger than life: Carl E. Akeley was a pioneer in natural habitat dioramas and is generally celebrated as the 'father of modern taxidermy', a conservationist who led five expeditions to Africa (including the first by a US Museum) and helped to establish its first nature reserve, the

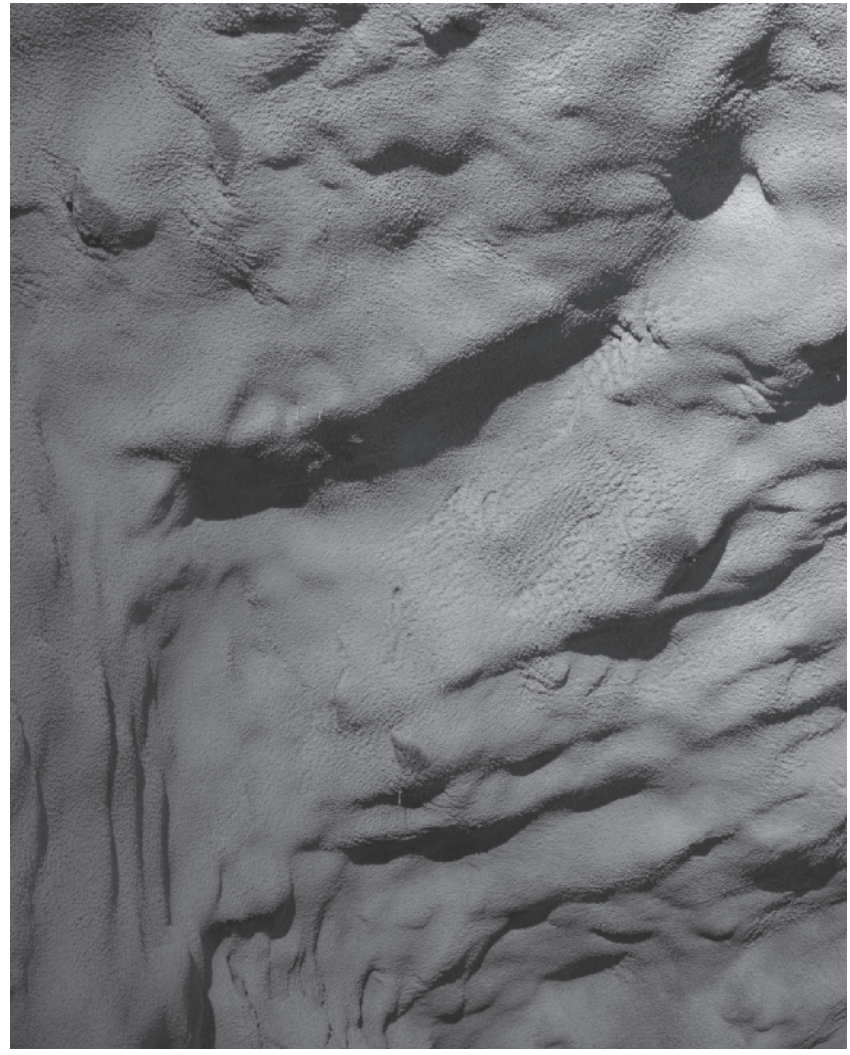

Figure 1: Bernd Behr, from the series Akeley Inside the Elephant*, 2014, silver gelatin print, 245x195mm.*

Virunga National Park in present day Democratic Republic of Congo. As Chief Taxidermist at Chicago's Field Columbian Museum (now Field Museum of Natural History) he returned from his second expedition of 1905–07 to British East Africa with a total of seventeen tonnes of skins and specimens, among which were two large elephants that he proceeded to prepare over the next two years. The dramatic tableau of *Fighting African Elephants* is to this day one of the museum's centrepieces. It was during this time of working on the elephants that Akeley developed a plaster spray pump to create imitation rocks for another of the museum's dioramas, and after it was used to repair the museum's crumbling exterior (then housed in a temporary building left over from the 1893 World's Columbian Exposition) he saw its potential, adapted it for cement, and a patent for this 'cement gun' soon followed in 1909 (Teichert 1979). Its rapid uptake after being introduced to the public at New York's Cement Show in 1910 was due to its ability to free concrete from the limitations imposed by gravity and the time saved by altogether dispensing with the traditional timber formwork needed for pouring it.

Akeley was born near Clarendon, New York, in 1864 and followed his childhood obsession with taxidermy into an apprenticeship at the Natural Science Establishment of Professor Henry A. Ward in Rochester, New York, in 1883. Ward's establishment supplied prepared animals for a variety of museums and private clientele, and so it was the first port of call when P.T. Barnum's famous circus elephant Jumbo died in a train collision in 1885. Before Akeley's innovations in modern dermoplastics, taxidermy involved stuffing the animal hide with a medium such as straw or hay, inflating the skin until an overall acceptable likeness was achieved. Tasked with Jumbo's preparation, a young Akeley was dissatisfied with having to abide by the prevailing convention of his craft, following his client's wish to stuff Jumbo larger than life, the splitting seams eventually showing for such largesse. His subsequent innovations developed at the Milwaukee Public Museum lay in working inside out, setting up the bones and scaffold into a desired pose, then sculpting the animal in clay down to every sinewy detail, working from memory, drawings and detailed measurements taken in the field, then casting a negative plaster mould into which, in turn, a positive hollow form of papier-mâché and wire mesh is formed, and onto which, finally, the preserved skin would be stretched. Akeley would bring this obsessive attention to detail to the diorama as well, collecting numerous drawings, paintings and later photographs of the particular location where the animal was shot in order to replicate in the background painting and environment surrounding the mounted specimen not a generic, idealized landscape but a precise reproduction of a particular point of view in space–time. From his muskrat group at the Milwaukee museum, sometimes referred to as the first fully formed natural habitat diorama, to the all-out spectacle that is the Akeley Hall of African Mammals, his life's work at New York's American Museum of Natural History (AMNH), Akeley's hyper-real taxidermy and its staging in immersive dioramas embodies a compelling and strangely anachronistic form of proto-photography.

Figure 2: Carl E. Akeley, Armature for Elephant, *Field Museum, Chicago, 1907/08, silver gelatin print, 254x203mm, courtesy American Museum of Natural History, New York.*

Despite predominantly relying on museum artists to record landscapes and details in drawings and paintings, as well as taking wax castings of leaves and other details later to be reproduced, photography was already part of Akeley's arsenal during his first Africa expedition of 1896, but the medium came with the burden of the equipment's prohibitive weight and glass negatives that needed their emulsion painted on and developed in the field. Similarly, an attempt to use a bulky motion film camera, normally used in the static environment of a film studio, to capture a lion hunt by Nandi tribesmen in 1909 failed to follow its fast moving subject, and this finally sealed Akeley's resolve 'to make a naturalist's moving-image camera which would prevent my missing such a chance if ever such a one came my way again' (Akeley 1940). Other accounts narrate how the idea of the camera, one that would be able to freely pan in all directions, came to him while working inside one of the prepared elephants at AMNH (Kirk 2010). Working on various prototypes from 1910 onwards, he found financial backers and managed to patent a working model in 1915 before selling his entire factory output to the US Army Signal Corps in 1917, who saw its potential for aerial reconnaissance as the nation joined World War I (Alvey 2007).

The Akeley camera was ten to fifteen years ahead of comparable cameras of its time, a claim that its sales brochure of 1922 goes on to substantiate, matter-of-factly, in a long list of its unique features, including a floating, parallax-corrected finder that was matched for follow focus, a focal plane shutter with a 230° opening that let in almost a third more light, a film magazine system that could be loaded in daylight in under fifteen seconds, a one-handed operation of its 140° omnidirectional range of tilt for vertical, horizontal and diagonal pan, all housed within a static-free, all-aluminium circular body that would give it its nickname, the Akeley 'pancake'. Additionally, the camera came with an equally innovative tripod featuring an eye-in-socket gimbal tripod head that allowed the camera to be levelled in a matter of seconds (Clark 1922). Its reputation grew to outlandish tales such as the one of a camera surviving a plane crash only to be picked up by someone to film the wreck itself (Rowe 1923).

Paul Strand was another proud owner of the Akeley camera, having bought it in 1922 to initially work as a sport and newsreel cameraman and later using it on some of his own films. This was the machine deity that he hailed in his seminal essay 'Photography and the new god' of the same year, and his own machine aesthetic would fold in on itself in a series of large format photographs of his own Akeley camera, near-abstract close-ups of the camera's interior, silver grains glowing in communion with the spectral sheen of turned metal discs.

Earlier in the week, on my way to the underground workshop, I stopped by in Winterthur, where I managed to locate one of Strand's photographs of the camera interior in the archives of Fotostiftung Schweiz, the Swiss Foundation of Photography, as part of an album of prints originally sold by Aperture in the 1970s. Down the road from the archive I then found Meyco's headquarters, where their robotic sprayed concrete machines are assembled. In the entrance lobby, a lonely vintage

Figure 3: Bernd Behr, Machinima 1*, 2014, silver gelatin contact print, 245x195mm.*

model greeted me, Meyco's very first from 1957, which had been used to spray one of the tunnels beneath the Grande Dixence hydroelectric dam, incidentally the same construction site where a young Jean-Luc Godard worked and which became the subject of his first film, *Opération Beton* (1954). In Meyco's warehouse, a number of machine parts hold within their circular motifs distant memories of Akeley's camera.

So much for my own contribution to the workshop. I have overrun my allocated time slot and realize someone else will have to pick up the slack in this tight programme. I had been invited to speak at this workshop to expand on the origins of shotcrete, but personally I prefer the prehistoric myth. The reason why I had agreed to come and furthermore spend the entire four days at this subterranean workshop was to see for myself how Akeley's numerous inventions might somehow coalesce into a solid future trajectory of the image. Of course, much has been written about the proximity between taxidermy and photography, including its particular juncture in the biography of Akeley, one of which lay in the fact that around the same time as he was pursuing his craft of modern dermoplastics at Ward's in Rochester, a slightly older George Eastman was finalizing his Kodak camera and celluloid film in the same town, the two men, however, meeting only later in life, with Eastman sponsoring Akeley's last expedition and subsequently financing part of his Africa Hall at AMNH (Kirk 2010). Most only mention his invention of the 'cement gun' as a peripheral example of his prodigious inventiveness, which amounted to more than 30 patents over his lifetime, and perhaps it comes as no surprise that it is only from within the engineering press that the 'cement gun' should receive equal attention, when already during Akeley's lifetime an article in *Industry Illustrated* should make the fateful connection: 'Shooting Big Game, Pictures, and Cement' (Rowe 1923).

Mark Alvey's 2007 essay 'The cinema as taxidermy' is perhaps the fullest account of reading Akeley's output across taxidermy and cinematography through André Bazin, the French film critic who, in his 1945 essay 'The ontology of the photographic image', famously places photography within a teleology of formal realism, a drive towards every greater mimetic fidelity out of the psychological need to overcome death: embalmment as an insurance against time. The function of art's 'mummy complex', as he coined it, is simply 'the preservation of life by a representation of life'. And through the figure of the death mask, Bazin elaborates on photography's physical link to its referent: 'One might consider photography in this sense as a molding, the taking of an impression, by the manipulation of light' (Bazin 1945). But if the referent can be said to be physically, existentially contiguous with its photographic representation, then only through its outer form, sending its reflection of photons on their umbilical trajectory towards the photographic plate or sensor. Thus, it is only the object's surface, its skin, that we have access to through the image: 'light, though impalpable, is here a carnal medium, a skin I share with anyone who has been photographed' (Barthes [1980] 1981).[1] For Balzac, whose nineteenth-century literary realism was similarly in thrall to the

1. The seemingly penetrative optics of x-ray or multi-spectral imaging only displace this skin to another level.

detailed surface of the world,[2] it was reason enough to refuse being photographed. As Felix Nadar recounts:

> According to Balzac's theory, all physical bodies are made up entirely of layers of ghost-like images, an infinite number of leaflike skins laid one on top of the other. Since Balzac believed man was incapable of making something material from an apparition, from something impalpable – that is, creating something from nothing – he concluded that every time someone had his photograph taken, one of the spectral layers was removed from the body and transferred to the photograph.
>
> ([1900] 1978)

In place of an interior, then, just a finite epidermis of images: Balzac's fear of being skinned alive by this new medium returns photography to taxidermy, a comparison already implied in 1859 when Oliver Wendell Holmes compared photography to hunting: 'Every conceivable object of Nature and Art will soon scale off its surface for us. Man will hunt all curious, beautiful, grand objects, as they hunt in South America, for their skins and leave the carcasses as of little worth' (1859, cited by Prottas 2012). Nathaniel Prottas uses this quote as part of a sustained exploration of the skin of the prepared animal as a model for photography's index, stating that Holmes 'classifies both practices as empty shells, outer markings of an internal structure, the original of which has been discarded' (2012). If, ultimately, Prottas argues that the photograph affirms its indexical link by precisely the absence of the referent, something taxidermy cannot 'because the specimen is always the object of its own reference' through the continued presence of the animal's actual skin (Prottas 2012), is this not the case for photography as well, what Barthes means when he insists 'the referent adheres'? ([1980] 1981).

Hiroshi Sugimoto's 1994 black and white photograph of Akeley's gorilla diorama at AMNH is an intricately reflexive image that inhabits this particular kinship between taxidermy, diorama and photography. Unlike many of the other dioramas that present an image locatable in a singular time and space, however, this particular one holds within it a delay of five years between figure and ground: While the gorillas were collected during Akeley's 1921–22 expedition, due to lack of artistic staff it was only on the subsequent expedition in 1926 that the landscape was captured, with paintings of the view supplementing detailed sketches and photographs of the nearby trees and shrubs. This was also to be Akeley's last expedition, as he eventually succumbed to fever and exhaustion on 18 November 1926 and was buried in this very scene at the base of Mount Mikeno overlooking the Virunga volcanoes. Mirroring a photograph in the AMNH archives of Akeley beholding a death mask of the central gorilla, viewing this image is to enter a *mise en abyme* of gazing upon Akeley's very own funeral mask.

If Akeley's realism is celebrated for its exacting faithfulness to nature, then the dramatic staging of his dioramas show that realism is also a highly scripted scenario that says more about the culture

2. For the 'doubly mimetic' production of surface and relational appearance in the literary realism of Balzac, see Stowe (1983).

Figure 4: Hiroshi Sugimoto, Gorilla, *1994, silver gelatin print, © Hiroshi Sugimoto, courtesy of Gallery Koyanagi.*

that produced it than the 'natural' subject it depicts: The skin is grafted onto an intended image, the index yields to an ideal. There are, of course, always two sides to a skin, and Donna Haraway's famously damning walk through the Akeley Hall of African Mammals at AMNH shows him as an exemplary of the conflicted ethics of hunting endangered species as voucher specimens for museum collections and problematizes his contributions to realist representation as part of a larger patriarchal symbolic order (Haraway 1989). Indeed, it is hard to consider taxidermy outside a colonial gaze, a gaze that collapses geographical distance with moving back in time and commensurate with an anxiety to fix this past through staging it. The 'naturalism' of the prepared animal goes hand-in-hand with the 'naturalized' power relations underpinning this gaze: the more seemingly realistic the image (whether animal or photographic), the deeper the politics of that gaze slip into the substrate.

After the war, many of the Signal Corps cameramen found work as 'Akeley specialists' for newsreel companies and in Hollywood, and closer to Akeley's own original intentions, his camera became the mainstay of early twentieth-century explorations. Its unencumbered panning movement greatly enhanced the 'naturalism' of Martin and Osa Johnson's feature-length safari films (the poster for their 1928 *Simba: King of the Beasts* features the camera confronting the titular lion) and crucially enabled the ethnographic fiction of Robert Flaherty's genre-inventing *Nanook of the North* (1922). Akeley's twin innovations, in taxidermy and cinematography, both advanced a visual fidelity that, correspondingly, enabled the power relations to only become more deeply enmeshed in its very fabric. The machine is not, as Strand would have it, 'passive and an innocent party' (1922).

But who speaks for the other, from the other side of the skin? For Haraway, it is in the science fiction of Alice Sheldon, who, as a 6-year-old, accompanies her parents on Akeley's 1921–22 expedition to Africa (which they helped to finance). It is her father who shoots the large silverback that is the central figure in Akeley's gorilla diorama. During World War II she joins the Women's Army Corps and seeks work in the photo intelligence unit of the Air Force, interpreting aerial photographs and compiling manuals such as *Photo Industrial Study No.2: The Petroleum Industry*, and later helps to set up a photo intelligence section at the nascent CIA. After resuming graduate studies in the psychology of perception, during which she writes a paper titled *Introduction to the Psychophysics of Form*, Sheldon reinvents herself again, using techniques learnt at the CIA to adopt a new identity as her male alter-ego James Tiptree, Jr and pursue a life in writing. As a self-declared 'xenophile' she finds refuge in science fiction, writing mostly short stories about otherworldly encounters that often upend normative gender roles (Phillips 2006). But throughout her narratives, a misanthropic melancholy pervades that even Haraway's optimism cannot lift, as many of her alien meetings remain unfulfilled and do not help to free its human subjects from their internalized social paradigms.

I had bought up all of Tiptree's books and had them sent in advance to the workshop, and as the presentations on stage progress into increasingly technical territory my eyes wander across the pile of books in front of me. I pick up a bright yellow hardback, Tiptree's first novel published in 1978,

Figure 5: Bernd Behr, from the series Akeley Inside the Elephant*, 2014, silver gelatin print, 245x195mm.*

for its title seems to resonate with the interminable grey landscape we have all been entombed in, or so it feels on what is now the fourth and final day of the workshop: *Up the Walls of the World*. Reviews at the time of publication were critical of its use of the present tense (unconventional for science fiction then) and other stylistic flourishes, but I am immediately taken by the opening chapter, written entirely in capitals, describing a sentient form of antimatter the size of a solar system, a negative 'cloud' composed of a swarm of interconnected nodes, as it roams the universe engulfing everything in its path. Then there is an alien community attempting to telepathically hijack the minds of a rogue US Navy unit dedicated to exploring the potential for weaponized ESP. I think I've got the hang of this. Yet I continue reading for a nagging sense of familiarity starts to envelop me. As I turn another page, my body suddenly flinches before I register what I see; a second later I stop breathing and the surrounding walls close in on me. There, on page 23, in clear black ink on faded pulp, is written my name: Margaret Omali.

Loud clapping bouncing off the walls wakes me from my stupor; the delegates around me are applauding the last presentation and the end of the workshop; they start packing their belongings and make their way to the buses waiting outside in the distant daylight. I watch my quivering hands in front of me; they seem to belong to the book they are holding rather than to my own body. I take both with me as I quietly slip out of the lecture theatre and start walking in the opposite direction as everyone else, down into the network of dimly lit passages of this vast subterranean architecture. It is warm and damp down here, unlike the blistering winter outside. Tunnel after tunnel, intersections leading to other intersections, opening out to enormous cathedrals of cavernous spaces, with further tunnels leading me deeper into this hollow carcass. I continue reading, resigned to the fact that I share a name with a character in the novel, and much else, for I too suffer from the same debilitating migraine attacks as she does. I am that character and the book has written me into this cave. The chapters on the antimatter cloud continue, dispersed throughout the book, slowly unveiling how it is struggling to come to terms with the presence of a foreign node, an intruding consciousness amidst its networked vacuum, a disturbance in its neural field: 'CAREFULLY THE ALL-POWERFUL TRANSMITTERS ARE TUNED DOWN TOWARD THE LITTLE SOURCE, AND IN WHAT IS NOT SPEECH, AN INTERROGATIVE IS FRAMED' (Tiptree Jr 1978).

I don't know how long I have now been cowering in an enclave in the wall near a work light that illuminates the pages I am reading. Enveloped by the seamless skin of sprayed concrete, I am starting to lose a sense of the world beyond this endless interior. A skin has two sides to it, yes, but I am not sure which side I am looking at. I am both inside this vast cloud and yet feel external to it as my own skin grazes this pachyderm around me. The endless variety of surface undulations begin to coalesce into recognizable shapes and faces, bringing to mind the sentient atmosphere of Stanislav Lem's planet *Solaris* (1961). In his essay 'Photography and liquid intelligence', Jeff Wall seizes on the parallels between Solaris' oceanic surface forming and recombining images from the minds of its

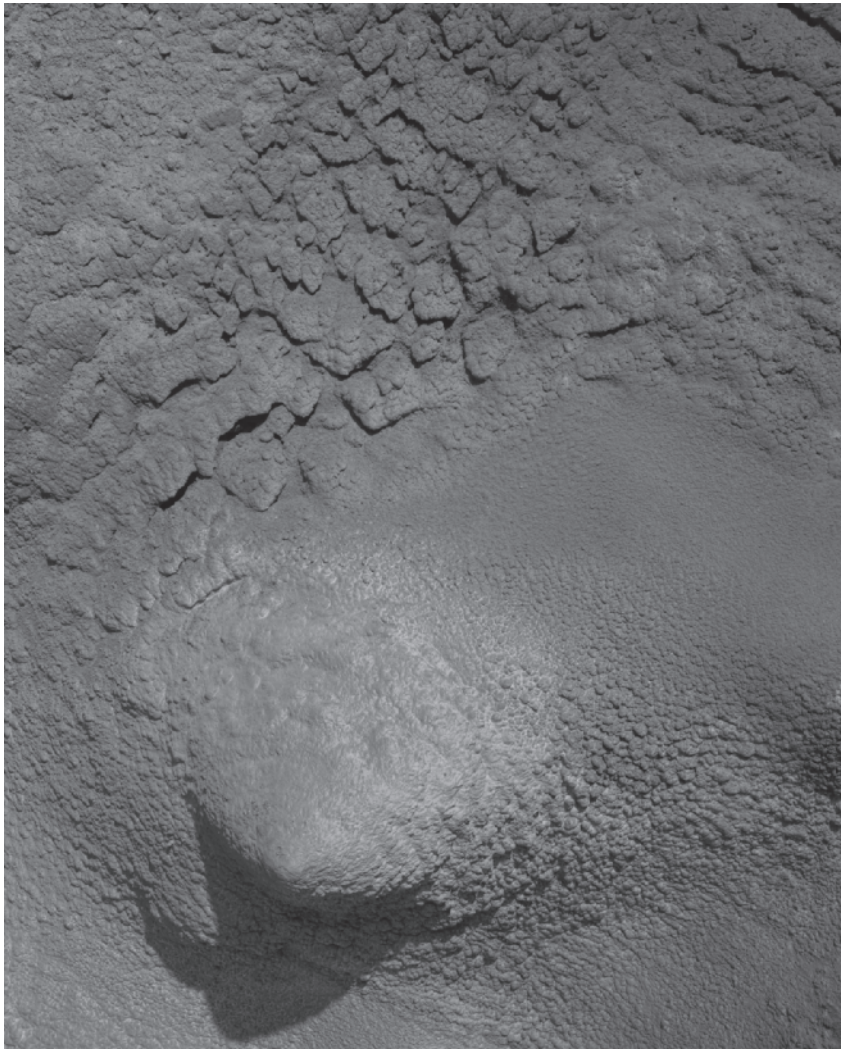

Figure 6: Bernd Behr, from the series Akeley Inside the Elephant*, 2014, silver gelatin print, 245x195mm.*

Figure 7: Bernd Behr, from the series Akeley Inside the Elephant, *2014, silver gelatin print, 245x195mm.*

Figure 8: Bernd Behr, from the series Akeley Inside the Elephant*, 2014, silver gelatin print, 245x195mm.*

human observers, and the reflexive gaze of a camera turned towards a liquid subject that inhabits a kind of somatic prehistory of the medium (1989).

Sprayed concrete is a sentient liquid too, seemingly reproducing everything it touches, an emulsion that operates both on a human timescale of the frozen moment and the glacial deep time of geological formations. It is also more than simply a metaphor. As Adrian Forty has shown, concrete shares with photography not only a parallel and reciprocal genealogy from the early nineteenth century onwards, but an ontological relationship expressed in the chemical corollary of a crystalline curing that fixes the positive pour in the negative mould of formwork, reframing the built environment literally as a continuous contact print (2012).

As I feel myself gradually becoming continuous with the skin around me, I remember that the workshop actually concluded by dematerializing its subject, with a young startup, Edvirt, introducing their virtual platform to train operators on their digitally rendered shotcrete machines. In many ways, Akeley's innovations in taxidermy also preempt the workflow of contemporary 3D modelling, 'rigging' a form with bones and joints and 'skinning' the model to connect skeleton with surface mesh. In the emerging paradigm of parametric photography and the general spatialisation of the image brought on by photogrammetry, the realism of a photographic skin, or 'texture map', stretched over the polygonal carcass is further enhanced by 'topologizing' the latent landscape that is inherent in every image. We live among an increasing amount of synthetically rendered images that measure themselves against a remediated model of 'photorealism', reinforcing the normative solar regime of 'surface normals', which turn directional light and its shadow formation into the calculable volume and texture of the world. In this prison of photorealism, sprayed concrete recasts reality as an interior of taxidermy, and realism as a metastasizing elephantiasis of the visible world.

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