STATE OF FLUX
AESTHETICS OF FLUID MATERIALS

EDITED BY MARCEL FINKE & FRIEDRICH WELTZIEN

REIMER

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CONTENT

THINKING THROUGH FOAM: ART, AGENCY, APHROLOGY

MARCEL FINKE

Aphrology – what might that be? In a basic sense, this neologism means 'the study of foam' (from ancient Greek *aphrós*). Accordingly, research into the physical properties, structures, and rheological dynamics of foams could be referred to as aphrology (cf. Cantat *et al.* 2013: 1). The notion, however, is not restricted to the field of materials studies. In the last volume of his *Spheres* trilogy, Peter Sloterdijk develops a philosophical concept of aphrology, which draws upon foam as a figure of thought. Rather than reflecting *about* foam, he thinks *with* or *along* foam to conceive his cultural-anthropological "theory of co-fragile systems" (Sloterdijk 2004: 38; my translation). In what follows, I shall borrow from Sloterdijk both the term aphrology and the methodological strategy of using liquid foam as a theoretical object.[1] However, instead of contemplating architecture and the polyspherical structuring of social space (as Sloterdijk does), I will focus on processual artworks that make use of liquid foam. Thus, I refer to foam not as a metaphor but as actual 'stuff in flux', which poses questions about processes of materialisation and the generative capacities of matter. Aphrology, in my case, means thinking *through* foam about issues of material agency.

But why give a thought to such a mundane material at all? At the first glance, liquid foam appears to be rather simple and ordinary, its ephemerality and triviality suggest that it is a subject without substance. Due to its everyday prevalence, liquid foam seems to belong to the realm of domestic activities such as housecleaning, cooking, personal hygiene, or child's play, rather than academic discourse. Nevertheless, the attempt to grasp this fragile material is intricate – both practically and intellectually. As we try

1 The notion 'theoretical object' refers to an art historical concept developed by Hubert Damisch, Louis Marin, and Mieke Bal, among others (cf. Finke 2014a). The concept implies a specific relation between art and theory: both are brought into a reciprocal and critical dialogue with each other. They are considered equal partners in an exchange that is neither a mere application of theories to art nor an illustration of theories by art. Calling on works of art as theoretical objects, then, means acknowledging their epistemic potency: "A theoretical object is something that obliges one to do theory; we could start there. Second, it's an object that obliges you to do theory but also furnishes you with the means of doing it. Thus, ... it will produce effects around itself ... Third, it's a theoretical object because it forces us to ask ourselves what theory is. It is posed in theoretical terms; it produces theory; and it necessitates a reflection on theory" (Damisch *et al.* 1998: 8).

to get hold of it, the fluid foam yields and runs through our fingers; and despite its airy nothingness and evanescence, it is far from being a theoretical lightweight. Liquid foam is subtle in the double sense of the word: on the one hand, it is a delicate meshwork of myriads of tiny bubbles that trembles and dissolves at the slightest touch. On the other hand, it is a tricky challenge to the ways in which we conceptualize matter.

There are, indeed, many reasons to pay attention to liquid foam. With regard to the argument developed below, I shall mention only three. First, it is a material that – surprisingly perhaps – has been used frequently in art from the 1960s onwards until today (cf. Finke 2016: 129–139). Yet despite the repeated and increasing occurrence of this bubbling stuff, art historical research into the use of fluid foam and its particular aesthetics is still in its infancy. In the following, I shall focus on four instances from the history of artistic involvement with this soft, volatile, and mutable material – two early examples (David Medalla, Toshio Yoshida) and two recent ones (Dieter Lutsch, Mark Porter). Second, liquid foam and its employment in performative objects or installations necessitate alternative approaches to our thinking about works of art. Due to its physical characteristics, overflowing behaviour, and fleeting nature, from the outset fluid foam works defy, for instance, classical aesthetic ideas of closure, durability, and material value. Moreover, this effervescent stuff in its aleatory and sympoietic becoming draws into question the role of intention within artistic creation, and it runs counter to the classical distinctions between form and matter. Third, liquid foam not only has particular aesthetic capacities but also epistemic potentials. No matter how lightly these frothy outpourings may bubble forth, within its protean material currents a number of substantial issues are in turmoil. When thinking through foam and its materialisation, we are more than ever confronted with fluctuation, transmutation, and the open-endedness of material processes. Instead of being a mere aggregation of solid and inert objects, the world appears as a transitory mixture, whose provisional reifications always remain open to continuous change, dissipation, and leaking (cf. Ingold 2011: 86–87; chapter 1: 24). An art historical aphrology, then, would be a theoretical contribution to a much needed epistemology of the fluid.

By using the phrase 'epistemology of the fluid', I am loosely referring to the book *An Epistemology of the Concrete* by the historian of science Hans-Jörg Rheinberger (2010). In this publication (and many others) he explores the material culture of experimentation and laboratory life, pointing to the agentic role that material and technological conditions of research play in the production and shaping of our objects of knowledge, which he calls "epistemic things". Rheinberger pays close attention to concrete components of experimental systems such as instruments, apparatuses, and technical devices, i.e. to the "machinic field" (Pickering 1995: 16), which constitute the actual environments of scientific practices. Although mainly focussing on the *hardware* of laboratory work, he repeatedly suggests that the 'dry and hard' physicality of technological assemblages is often accompanied by the 'soft and wet' materiality of fluids at work. In his *An Epistemology of the Concrete*, liquids are lurking in various forms such as solvents, silicon oil, acids, gels, solutions, or mercury. Taking this coming together or entanglement of hardware and *wetware* into account, I shall reverse Rheinberger's

perspective and focus mainly on the agency of liquid foam within artistic assemblages.[2] The preference of enclosed objects or fixed apparatuses, thus, is counterbalanced by an epistemology of the fluid, which aims at a better understanding of how matter mingles and circulates. This shift seems all the more legitimate since epistemic things themselves are fluid in a metaphorical sense: they constantly elude their final fixation, they are "in flux" (cf. Rheinberger 2010: 155).[3] If materials have the potential to affect the generation and shaping of our shifting objects of knowledge, then, what may be learned from liquid foam works about material agency?

Aphrogenesis: David Medalla, Toshio Yoshida, and the Materialisation of Foam

In the mid-1960s, liquid foam began to infiltrate art. One of the first to use the effervescent material extensively in his works was David Medalla, who might be considered the first foam artist proper. Although other examples can be found in the oeuvres of contemporaneous artists such as Allan Kaprow, Heinz Mack, and Peter Könitz (cf. Finke 2016: 129–131), Medalla's foam-oozing bio-kinetic sculptures celebrated matter in motion with particular fluency and unprecedented insistence. From 1963 onwards, the Filipino artist devised so-called *Cloud Canyons* or *Bubble Machines* which qualified as instances of what Gustav Metzger had called "auto-creative art".[4] Whereas the earliest *Bubble Machines* were simple, whitewashed wooden boxes overflowing with froth (Figure 8.1), his sculptures became more complex and diversified over the years: meanwhile, Medalla's liquid foam productions also spurt from oversized glass tubes, transparent plastic cylinders, and gate-like Perspex constructions (cf. Brett 1995: 39–65). The common trait of all the *Cloud Canyons* is that they stage an ongoing material process as the essential part of the artwork itself. Indeed, the lifespan of these bio-kinetic works is congruent with the life cycle of the liquid foam, i.e. the sculpture is alive only as long as the foaming unfolds (and, eventually, slowly regresses).

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2 In what follows, the term "assemblage" will not be used in the sense of the technical term known from the vocabulary of art history. I shall not refer to 'assemblage art' (cf., for instance, Dezeuze 2008; Kelly 2008) but to new materialist concepts of 'assemblage theory'. For further remarks, see section 2 below.

3 See also Rheinberger's lecture "In Constant Flux: Thoughts About the Epistemic", which he gave at the symposium *Flows (Un)Bound: Fluid Materials in Artistic and Scientific Practices* (Vienna, 2013), https://vimeo.com/78612551 (last accessed March 16, 2017).

4 In his manifesto "Auto-Destructive Art, Machine Art, Auto-Creative Art", Metzger (1961: 402) characterises auto-creative art as an "art of change, movement, [and] growth" that aims "at the integration of art with the advances of science and technology". Elsewhere, he called David Medalla "the first master of auto-creative art" (cf. Brett 1995: 55). Medalla and Metzger worked together at the Centre for Advanced Creative Study in London, which was founded in 1964 (and later became the gallery Signals London).

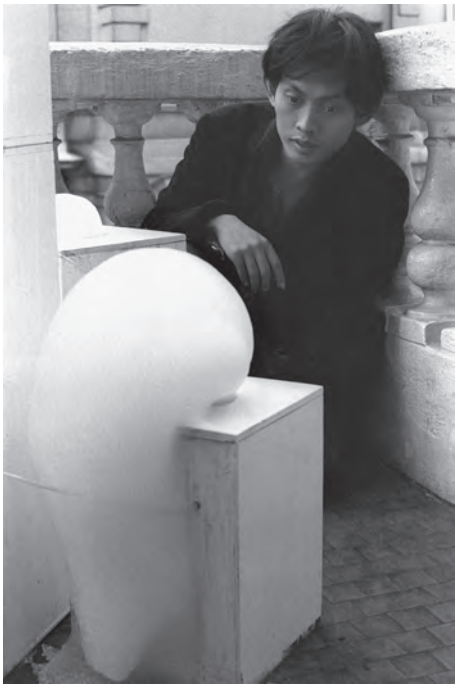

Figure 8.1: Clay Perry, *David Medalla at Cornwall Gardens*, 1964.

Medalla's decision to use liquid foam as an active co-producer of his works rested upon the processual and generative qualities of this particular material. The gradual yet continuous expansion and seemingly spontaneous growth of foam, the randomness of its self-generated forms, and its incessant transformation and change matched perfectly with the artist's attitude towards nature. For Medalla, who considered himself a hylozoist in the 1960s, materials were not fixed or immutable, but enlivened and vibrant stuff invested with polymorphic energies and productive vital forces that strive to express themselves. The free flow of countless tiny bubbles also corresponded well with his search "for materials that, in sculpture, would be analogous to the smallest biological unit, the cell; materials that would be capable of multiplication" (Medalla quoted in Brett 2000: 32). The artist's vitalism and his preference for cellular, growing, and animated stuff had a bearing on the way he conceived of the relation between artwork and beholder. He regarded his bio-kinetic *Bubble Machines* as attempts to "give life to materials, so that instead of finding ourselves separate from them we find a complete dialogue with the material" (Medalla quoted in Brett 1995: 62). Thus, for Medalla the openness of the material process in its unfolding enables the foam work to remain open for an exchange with its audience – both take part and are immersed in a "world of materials" that is in constant flux (cf. Ingold 2011: 31).

At about the same time as Medalla, Japanese artist Toshio Yoshida also put liquid foam to work in his sculptures and installations. Yoshida, who was a founding member of the artist group Gutai, first exhibited one of his bubbling pieces at the *15th Gutai Art*

Figure 8.2: Harry Shunk & Janos Kender, *Toshio Yoshida in his Studio*, 1969.

Exhibition in 1965 (cf. Tiampo 2011: 149–155). Compared to Medalla's frothing white boxes, Yoshida's sculpture had a far more technical or scientific look about it: a dark basin-like structure contained cuboid pedestals of different heights, on which the artist had placed laboratory flasks equipped with a soapy solution, transparent tubes, and airing stones. In the beginning, individual strands of foam grew from the flasks until the fluid material eventually coalesced and formed a heap of froth that covered the setup. The spherical glass vessels which echoed the shape and the translucency of the emerging soap bubbles were thus slowly veiled by their own sudsy discharge. In 1967, Yoshida extended this concept when he proposed a large-scale foam installation for the open-air festival *ZERO on Sea* (cf. De Westenholz 2011: 108–109; Tiampo 2011: 69–70). The exhibition never materialised; however, Yoshida's designs show that he envisaged an assemblage of twenty flasks (measuring about nine meters in width), which was to be installed outside on Scheveningen pier. As a result, the artificial froth from his installation would have been in close proximity to the spume naturally produced by the North Sea; and both would have been blown away by the breeze, dispensed into the environment, and disseminated amongst the visitors of the exhibition.

Yoshida continued his engagement with liquid foam in the second half of the 1960s, producing sculptures as well as extensive installations which staged the material metabolism of foam within the context of technology (Figure 8.2). In 1967, for instance, he contributed a piece to the exhibition *Gutai Art for the Space Age* that featured a new futuristic aesthetic within a "postapocalyptic landscape" (Tiampo 2011: 156). Mounted

at an amusement park near Osaka, Yoshida's foam installation presented a wall of cascading streams of soap bubbles evoking eerie images of extra-terrestrial life forms or living materials from outer space.[5] A less critical (yet still curious) approach toward scientific and technological advancement was taken when Yoshida and many other Gutai members participated in the 1970 Japan World Exhibition. The Expo '70 took place under the slogan "Progress and Harmony for Mankind" and it showcased a number of foam-producing environments such as a rainbow-coloured tunnel which invited the visitors into a frothy passage, or a slope of colourful 'chimneys' which emitted an avalanche of suds. Foam, however, had its most spectacular appearance at the end of the Expo, in the *Gutai Art Festival*, when in the closing sequence of this theatrical extravaganza the stage was flooded with enormous amounts of the effervescent material (cf. ibid.: 164). Massive jets of foam generated by two fire engines rapidly filled the Festival Plaza, turning the grand finale into a playful and turbulent bubble palooza. With his foam works, Yoshida was able to address issues of technology (typical of Gutai's second phase; 1962–1972) while staying true to commitments from the early days of the movement. Not only did he experiment with 'concrete', i.e. actual materials, he also followed the path laid out in Jiro Yoshihara's *Gutai Manifesto* by trying to present liquid foam's "own material self" (Yoshihara 1956: 33). "Gutai art does not change the material: it brings it to life" (ibid.), is one of the objectives that guided Yoshida's attempts to let the foam express itself without forcing form or meaning upon it.[6]

One does not need to subscribe to Medalla's material vitalism or Yoshida's vital materialism, however, to recognise that liquid foam is a peculiar matter. Due to its physical characteristics it can hardly be subsumed as a brute and inert substance or a 'solid foundation' of dull stuff that waits patiently to be acted upon. Right from its bubbling beginning, this material queries the problematic "association of matter with passivity" (Bennett 2010a: 49), the hylomorphic model of creation (cf. Ingold, chapter 1: 21), as well as the conception of form as a container into which matter is 'stuffed' in order to be contained (cf. Flusser 2012: 22–24). Instead of being reified in the form of a bounded and static object, liquid foam carries on as 'stuff in action'; its materialisation is open-ended, never reaches a final state. Moreover, its fluctuating forms arise from internal self-organization rather than being fabricated or imposed from the outside. In a sense, foam is not made but grows. In its becoming, the effervescent stuff produces forms that change; this, however, is not a transition from one distinct shape to another but

5 Ming Tiampo (2013: 65) pointed out that Yoshida's work was set in a dark exhibition space and illuminated only by the red light of a crystalline sculpture by Masaya Sakamoto; accordingly, she compares this environment to an "alien hatchery". This gloomy and menacing appeal of the foam can also be found in horror and science fiction movies from this period such as, for instance, The Unknown Terror (Charles Marquis Warren, USA 1957), The Seeds of Death (Michael Ferguson, UK 1969), or Space Brain (Charles Crichton, UK 1976).

6 A different translation of Yoshihara's *Gutai Manifesto* (1956) can be found in the exhibition catalogue *Gutai: Splendid Playground* (2013: 18) where the quoted passage reads: "Gutai Art does not alter matter. Gutai Art imparts life to matter."

a fluent passage of becoming and withering. The examples from Medalla and Yoshida showed how, in the ongoing production of the artwork, the protean material is itself under constant generation. Fluid foam, however, does not only grow itself into transient forms but also ages, shrinks, drains, liquefies, and dissipates into the environment, which in turn affects the volatile congregation of soap bubbles. Atmospheric conditions such as, for instance, humidity, temperature, barometric pressure, aerial movements, or the exposure to sunlight have an impact on the life cycle of foam. The cellular material responds sensitively to such and many other influences, which bring about its heterogeneous structure. Fluid foam is no uniform substance but rather internally differentiated with divergent densities and manifold local arrangements of bubbles varying in shape, size, wetness, and stability. Thus, a lot is going on within foam; it is permanently in flux – simultaneously and on different levels.[7]

Due to its continual generation, rearrangement, and decomposition, liquid foam is a dynamic material that contradicts any idea of matter as ready-made stuff. Moreover, its processual nature renders problematic the art historical preference for form; and because of that, concepts such as 'anti form' or 'formlessness' seem to come to hand easily (cf. Bois & Krauss 1997; Morris 1968). However, I would like to argue that foam cannot be grasped in terms of form at all. Even a conceptual shift from form to (trans-)formation or metamorphosis may not be enough to come to an adequate understanding of this material. Although both notions acknowledge processuality to a greater degree, they still give priority to form (which itself is pregiven and precedes matter). From the perspective of liquid foam, however, the short-lived forms are only secondary; they are merely cursory expressions of an ongoing material event from which the mesh of bubbles arises. Thus, the notion of morphogenesis might be more apt to describe the reality of foam. As philosopher Manuel DeLanda has argued, morphogenesis ("the birth of form") is the emergence of semi-stable structures out of flows of materials; above all, the concept emphasises the expressive powers immanent in processes of material self-organisation (DeLanda 1995; 2006).[8] In order to avoid any reference to form, however, I shall use the neologism *aphrogenesis* ("the birth of foam"). Aphrogenic materialisation, then, is the becoming of foam, i.e. the generative and vibrant process of foaming.

The examples of Medalla and Yoshida already suggested, however, that liquid foam is not a magical substance that bubbles into existence completely by itself. Their aphrogenic real-time systems were assemblages of 'soft and wet' components (water,

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7 In their fascinating and comprehensive book *Foams: Structure and Dynamics*, Cantat *et al.* (2013: 17) differentiate between four levels or length-scales: the observer's scale on which the foam as whole has the appearance of a soft and opaque 'solid'; the millimetre scale where individual bubbles can be distinguished; the micron scale of the walls or liquid films that enclose the gas; and the nanometre scale of the gas/liquid interfaces.

8 In his lecture "Deleuze, Morphogenesis, and Population Thinking", given at the European Graduate School in 2011, DeLanda explicitly mentions the creation of soap bubbles, calling their emergence "a perfect example of morphogenesis"; see https://www.youtube.com/watch?v=5HSMTUZ64bY (last accessed March 16, 2017). He makes recourse to foam bubbles on several occasions; cf., for instance, DeLanda (2002: 7–8, 64, 164).

detergent, foam) as well as 'hard and dry' components (such as laboratory flasks, wooden boxes, tubes, valves, air pumps).[9] In the following section, I shall therefore focus more on the complexity of such assemblages, discussing how aphrogenesis comes about through the mingling and entanglement of diverse materials. Foaming, then, will be regarded as an instance of emergent and distributed agency.

Aphrogenic Assemblages: Dieter Lutsch, Mark Porter, and the Agency of Foam

After the 1960s, which saw the sudsy experiments of Medalla, Yoshida, and others, the flood of aphrogenic productions in art subsided temporarily. Only few liquid foam works can be found in the period until the mid-1990s. One example is Coop Himmelblau's architectural happening *Soft Space* (1970), which took place in a nocturnal street in downtown Vienna. Over a time span of 10 minutes, the public space was rapidly filled with 12,000 cubic meters of the aleatoric material, converting the urban environment into a frothy landscape that invited the audience to plunge into a situationist 'foam party'.[10] Another and very different example is the recorded processual installation *The Way Things Go* (1987) by Peter Fischli and David Weiss. In this witty chain reaction, growing, squirting, burning, and exploding foams play a vital part in keeping going the material performance's automatic unfolding (cf. Rübel 2012: 303–305). Beginning with the mid-1990s, aphrogenic materialisations emerged increasingly in art. Christine Biehler and Brigitt Lademann, for instance, used liquid foam in installations and processual objects to address issues of gender, artistic production, and purity (cf. Finke 2014b). Other artists, such as Michel Blazy and Roger Hiorns, again focused on the liveliness of foam displaying its 'metabolic' processes of organic growth, self-replication, and decay. Many more examples could be cited here (cf. Finke 2016: 137). I shall, however, discuss only two representatives of this younger generation of foam artists, namely Dieter Lutsch and Mark Porter.

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9 The notion 'aphrogenic real-time system' refers to Hans Haacke's concept of the real-time system. Influenced by ideas of the ZERO movement, Haacke experimented with fluids in the 1960s; one result of his engagement with liquids and physical processes was *Foam* (1964), a work that consisted of an acrylic glass cylinder filled with a mixture of water and laundry powder, and bellows. When the latter were in operation, soap bubbles slowly emerged, trickled down the transparent walls of the container, and eventually fell to the floor.

10 Many years later, in 2008, the Sony Company also transformed urban space with outpourings of suds, albeit on a much bigger scale. For its advertising campaign *Foam City*, more than 460 million liters of the effervescent stuff were produced to deluge Downtown Miami, converting the streets into a bubbling playground (and an innocent looking backdrop for the company's sales strategy). In the 1960s, comedy movies such as, for instance, Bachelor in Paradise (Jack Arnold, USA 1961), The Thrill of It All (Norman Jewison, USA 1963), and The Party (Blake Edwards, USA 1968) had already established the motif of the foam flood that, for a short yet joyful time, dissolves the discrete order of things. Cf. Finke (2016: 124–125).

Figure 8.3: Dieter Lutsch, *Booster*, 2008, approx. 70 × 230 cm. See Plate 12.

In Dieter Lutsch's installations and sculptures, the frothy material is encouraged to tell contradictory and irritating stories; very often, these narratives are presented with a touch of subtle humour. Take, for instance, his earliest foam piece *Schaumberg* (2006), which grew a heap of froth on a modified airbed. The foam mountain, pleasantly smelling of bubble bath and gently swaying to and fro, was reminiscent of a gigantic mould fungus that had taken possession of the guest mattress due to its inappropriate storage in a damp basement. Equally evocative was *Booster* (2008), a rather simple construction consisting of two plastic bottles, an acrylic pipe, flexible PVC tubes, air pumps, water, and washing-up liquid (Figure 8.3). One of the bottles contained the soapy solution and was joined to the erect acrylic pipe, which had the other plastic bottle mounted but still mobile on top of it. Activated by the air pumps, the foam climbed up through the pipe and filled the second bottle until the suds eventually oozed out of it and cascaded down to the floor. By growing upwards through the acrylic pipe, the foam temporarily overcame gravity, resulting in a slight up-and-down motion of the top bottle. When the aphrogenic stream finally veiled the scaffold and created a quivering pillar of frothy stuff, *Booster* looked like a model rocket riding on a jet of white foam.

The association with space travel is not at all incidental. Although there is no (real) rocket science involved in Lutsch's processual sculpture, it alludes wittily to aerospace technology by using a silverish PVC bottle of the energy drink *Booster*. In rocketry, the term 'booster' designates an engine that generates additional thrust during takeoff. As a disposable part of the launch vehicle, the booster usually separates from the spacecraft

Figure 8.4: Mark Porter, *Autohaemorrhaging Actuator #1*, 2011, aluminium, steel, glass, air pump, vinyl tubing, soapy mixture, maple syrup, pigment, 170 × 30 × 50 cm. See Plate 13.

after its fuel has been expended and falls back to Earth. In Lutsch's work, however, the plastic bottle rocket seems to carry on by itself, stubbornly emitting its jet of liquid foam and striving to fulfil the slogan of the energy drink advertisement: "Higher, Faster, Booster." Yet despite its ceaseless efforts, the frothing rocket appears to be exhausted already, since it is stuck in mid-flight; it does not have enough propulsion to continue its journey to the gallery ceiling and beyond. Thus, the energetic iconography of space-flight and the high-end technology of aeronautic research are both referred to ironically in Lutsch's sculpture, using very simple means. The activities of liquid foam play a vital role in *Booster* because it is aphrogenesis that keeps the artwork running; without the foaming it would only be an aggregate of ordinary bottles, vinyl tubing, soapy water, and air pumps. In contrast to Medalla's or Yoshida's foam pieces, made in the heyday of the space race, Lutsch's aeronautic sculpture is an aphrogenic assemblage that is not confined to the fluid material's self-expression; rather, it involves the process of foaming and its aphrogenic productivity in a broader and more complex technological field.

With his maverick frothing gadgetry, US-American artist Mark Porter stages the coming together of the 'dry and hard' materiality of technology and the 'soft and wet' materiality of fluids even more explicitly. Over the last decade, he has created several kinetic foam machines that are reminiscent of provisional laboratory racks or medical devices. These makeshift apparatuses, however, are a far cry from aseptic purity and the rationalism of science; rather, they appear to suffer from mysterious diseases that

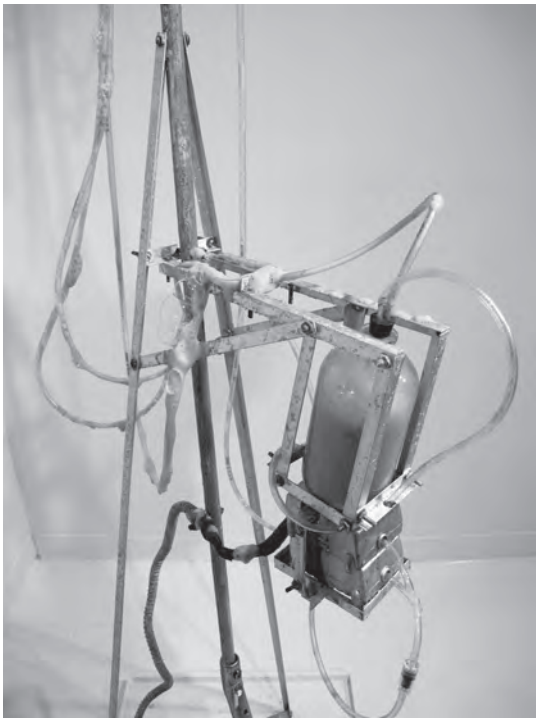

Figure 8.5: Mark Porter, *Autohaemorrhaging Actuator #1*, 2011, detail. See Plate 14.

make them perform seemingly purposeless tasks, and expectorate frothy blood. Porter reinforces such impressions by adding pigments or glycerine to his soap mixture, so that the emerging foam is not white and pristine, but reddish or bluish (and sometimes rather filthy). His machines, fitted with vinyl tubing, lab glassware, electric motors, air pumps, and other mechanical parts, discharge the pigmented froth through their orifices and fissures. Due to the somewhat careless construction, his aphrogenic sculptures leak, with the result that not only the technical apparatuses are spattered but also the exhibition space. Frothing all over the place, the devices often stain the gallery walls and leave spillages and pools of sudsy liquid on the floor. The foam in Porter's kinetic works, thus, displays an overflowing and dissipative quality of aphrogenesis rather than demonstrating the proper functioning of an allegedly ingenious machine.

Liquid foam's inclination to overspill, mingle, and mix is particularly exemplified by a group of works aptly named *Autohaemorrhaging Actuators.* Autohaemorrhaging or reflex bleeding is a physiological defence mechanism of certain animals, which eject body fluids to keep predators away; and spitting out frothy fluids is what these kinetic sculptures do. See, for instance, *Autohaemorrhaging Actuator #1* (2011), which looks like an awkwardly self-built infusion rack (Figures 8.4–5). Basically a tripod constructed of aluminium and stainless steel pipes, vinyl tubing, air pump, and a glass bottle filled with a mixture of soapy water, pigment, and maple syrup, this apparatus noisily gurgles and spouts thick tangerine scum. Its sudsy sputum turns the device (and its proximity) into

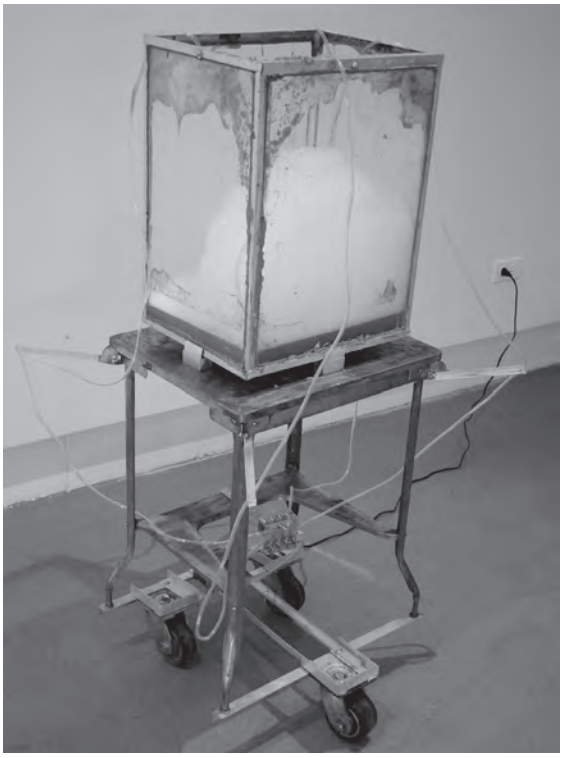

Figure 8.6: Mark Porter, *Internal Activity*, 2009, aluminium, steel, Plexiglass, air pump, pigmented soap mixture, 122 × 122 × 91 cm. See Plate 15.

a mess, coating the components with a sticky film that causes the metal frame to erode partially. "Each machine I build," the artist says accordingly, "is a performative object that changes throughout its use, it is in a constant state of flux much like our landscape, which is very much alive and constantly evolving" (Porter 2010: no pagination). What the artist calls "performative object", we could also consider a "thing", following the definition given by Tim Ingold (chapter 1: 24): "The thing has the character not of an externally bounded entity, set over and against the observer," he argues, "[but instead] things *leak*, forever discharging through the surfaces that form temporarily around them." It is not by coincidence that Porter's performative things leak, since he deliberately constructs his apparatuses as poor containers; and in turn, he presents liquid foam as a material that is not willing to be contained easily (by whatever form or technical object).

In one of Porter's works, however, the containment of aphrogenic processes and their intricacies seem to be particularly addressed. *Internal Activity* (2009) is basically a Plexiglas tank, which the artist has furnished with vinyl tubing, and mounted on top of a wheeled metal rack (Figure 8.6). This construction has the appearance of an improvised lab appliance pieced together from discarded and found components such as aluminium scrap, garden furniture, and garbage bin casters. Likewise, the tank with its sloppily caulked joints is a makeshift receptacle that raises concerns whether it actually has the

capacity to enclose the pigmented soap mixture that the artist has filled it with. When air is pumped into the reddish liquid, it is turned into some sort of bubbling primeval soup, slowly generating foam that carries with it the contaminants in the water. Little by little, the aphrogenic materialisation expands, growing to the top of the tank and beyond, and thereby disseminating particles of pigment that coat the glass panels and the rest of the equipment with a sticky deposit.

The function of this frothing device, however, remains uncertain; one can only conjecture about its intended purpose and the motives behind its implementation. Porter's *Internal Activity* oscillates between a strange aquarium, bursting with an unknown form of life,[11] and an abandoned experimental setup that has run out of control. Its attempt to contain the generative flux of materials is thwarted, and the clear distinction between fluid foam and solid technical apparatus is liquefied. What seemed at first to be a mere aggregate of the machinic (a technical object set up from pre-fabricated parts) and the organic (cellular stuff emerging from material processes), turns out to be a complex and fluctuating whole. The 'soft and wet' foam is neither simply contained by the 'hard and dry' device, nor is it a by-product of the latter's workings. Rather, foam plays an integral and active part in the coming-into-existence of this performative or *liquid thing*, which draws into question the demarcation between made artefact and growing organism. Thus, together they form an aphrogenic assemblage.

Thinking about and with Lutsch's and Porter's sculptures, it becomes obvious that it is not advisable to describe these works (and their workings) in opposing terms, such as: foam vs apparatus, fluid vs solid, wetware vs hardware, material vs technology, volatile thing vs distinct object, organic vs machinic, growth vs construction, processual vs inert, emergent vs ready-made, ephemeral vs enduring, active vs passive, and so on. Instead of being hybrids of seemingly antagonistic parts and characteristics, these sculptures come about performatively through the creative intermingling and collaboration of diverse material components. It is due to the ongoing entanglements and interactions within these assemblages that aphrogenesis, i.e. the emergent materialisation of foam, is set in motion. Regarding these frothing sculptures as (aphrogenic) assemblages seems appropriate, since the concept of assemblage generally aims at "linking the problematic of structure with that of change" (Venn 2006: 107). "It recognizes both structurizing and indeterminate effects: that is, both flow and turbulence, produced in the interaction of open systems" (ibid.: 107), and acknowledges movement, dynamics, and the joining together of heterogeneous and mutable elements (cf. Marcus & Saka 2006: 102). Thus, on an abstract level the concept of assemblage already takes into account the relations between ephemerality and stability, fluctuation and persistence, process and structure.

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11 Porter's foam-filled glass tank is reminiscent of a similar container that appears in the science fiction series Space: 1999. In the episode Space Brain (Charles Crichton, UK 1976), the moon station Alpha and its crew are threatened by a plethora of frothy antibodies issued by an extra-terrestrial organism, the so-called "space brain". One scene shows the commander and a professor bent over a glass tank which contains the dangerous excretions of the alien life form; both men are bewildered by the foam's unusual capacity to "crush anything".

As Manuel DeLanda (2016: 137) has rightly argued, however, it is necessary to keep in mind the distinction between the concept of assemblage and the concrete entities that qualify as assemblages. How, then, can liquid foam sculptures be described as actual assemblages? An assemblage is characterised as a more or less defined whole made up of heterogeneous material and expressive components that do not form a monolithic object or seamless totality (ibid.: 13). Instead of being a homogeneous whole, the "assemblage's only unity is that of a co-functioning" (Deleuze & Parnet 2006: 52), i.e. the interaction of its constituent parts that "retain their [relative] autonomy, so that they can be detached from one whole and plunged into another one, entering into new interactions" (DeLanda 2016: 10). Thus, due to the extrinsic relations between its individual components, an assemblage is decomposable: for example, the parts of Porter's *Internal Activity* (such as the vinyl tubing, airing stones, soap mixture, glass panels, metal rods, compressor etc.) can be disassembled and put to completely different uses. To qualify as an assemblage, however, the ensemble must be more than a mere aggregate of distinct components. Rather than being a sum of its parts (and their properties, tendencies, and capacities), an assemblage has properties, tendencies, and capacities that arise from the joining and performing together of the components involved in its creation (ibid.: 5). Thus, an assemblage manifests novel characteristics that are produced temporarily by the intertwining and cooperation of its parts; accordingly, these irreducible and emergent characteristics cease to exist "if the interactions cease to take place" (ibid.: 12, 88). In the cases discussed above, the emergence of the foaming process is the most salient new feature of these assemblages; without their components (i.e. water, air, detergent, tubes, pumps, vessels, and so on) collaborating, aphrogenic materialisation could not be actuated. But instead of being a mere by-product of the components' co-functioning, it is aphrogenesis (as a co-production) that eventually turns these parts into an actual assemblage.

Speaking of 'parts', it is important to note that they are not considered self-contained units. Rather, the components "matched together to form an ensemble are themselves treated as assemblages … so that at all times we are dealing with assemblages of assemblages" (ibid.: 3). Each assemblage, therefore, is a nested set of assemblages that operate on varying levels of scale and time. From this perspective, we may ask whether liquid foam itself is a multi-scalar and multi-temporal material assemblage. A single soap bubble is already the co-product of diverse interacting parts (e.g. water molecules, air, surfactants, soap film, dust particles, atmospheric pressure), which together bring into existence a new physical entity with characteristics different from its components. Yet liquid foam is not a simple accumulation of soap bubbles that remain distinct spheres like stacked Christmas balls. Instead of being a mere aggregation of individual cellular units, foam is a mutable coalition of soap bubbles that share walls and create a complex meshwork of channels within which liquid moves freely (cf. Cantat *et al.* 2013: 21–22). The joining together of the myriads of bubbles brings about a flowing entity that has its own properties, tendencies, and capacities; compared with its parts, the foam lasts longer than a single bubble, it is more stable, grows bigger, responds differently to internal and external changes, and so on. Rewording a passage taken from DeLanda

(2016: 147–148), one may conclude that in "assemblage theory, there is no such thing as [foam bubbles] in general, only populations of individual [aphrogenic] assemblages." Thus, liquid foam itself could be regarded as a provisional assemblage of assemblages; an assemblage, however, that is itself contributing to the emergence of a temporary assemblage that operates once more on other levels of scale and time (i.e. the foam sculptures).

Assemblages, therefore, seem to be in a constant state of flux, with various speeds and magnitudes of change. Take, for example, the works of Lutsch and Porter: the foam on the one hand is short-lived, fluctuating, and inclined to dissipate and mix with its environment; other parts of these frothing devices on the other hand are stable, enduring, and faithful to their pre-fabricated boundaries. For the short duration of an exhibition visit this difference between the fluid and the solid seems apparent. We should take into account, however, that the material lives of foam and technical apparatus take place on different time-scales and at different rates. In the long run, the 'hard and dry' components of these assemblages will alter, decompose, and return to the "current of materials" (Ingold 2011: 24), too; even if they are maintained incessantly. Thus, movements and flows of matter can be quick or slow, turbulent or calm; they can be decelerated in one phase or speeded up in another; they may change their momentum or impact, but they do not come to a halt. If an assemblage emerges from the joint collaboration of heterogeneous parts, then, it is necessarily characterised by the entanglement of manifold temporalities and dynamics that simultaneously perform on various scales (cf. Coole 2013: 455). Liquid foam works, such as Dieter Lutsch's *Booster* or Mark Porter's *Autohaemorrhaging Actuator #1* (Figures 8.3–4), showcase this temporal and spatial heterogeneity insofar as they exhibit a complex, multi-tiered, and open-ended material event rather than a self-contained object or uniform process. Their frothing assemblages demonstrate that aphrogenesis arises from the concerted interactions of diverse material components and processes, instead of being the result of simple auto-creation or self-expression (as Medalla or Yoshida suggest).

In the remaining paragraphs, I shall now turn to the issue of material agency. Given the traits of assemblages indicated above, it should be clear that it would be counterproductive to impute foam with an autonomous will to act, let alone spirit, consciousness, or rationality. In recent years, the discussion about material agency has been closely linked to a general critique of anthropocentric views that acknowledge only human individuals as agents proper in the world (cf. Knappett & Malafouris 2008). Along with this turn against human exceptionalism comes the necessity to develop alternative concepts that attribute agency neither exclusively to humans nor to mind, subjectivity, and intentionality; the "post-human condition" (Braidotti 2013: 2) entails the need for concepts of agency that allow for the inclusion of a variety of material entities. Could we, then, consider liquid foam as a material that has agency? After all, the artists themselves did not actually make the suds or impose (artistic) form onto them, but initiated processes of aphrogenic materialisation that spontaneously gave birth to the vibrant entity that is liquid foam. This, however, does not imply that foam as such possesses or exerts agency on its own. On the contrary, the artworks suggest that agency is not at

all a property of the material itself. If we regard these bubbling pieces as multi-scalar and multi-temporal assemblages, then, we might gain a better understanding of how material agency evolves within them.[12]

Thus far, assemblages have been characterised as heterogeneous wholes that come into being through the ongoing interaction and cooperation of diverse components performing on various levels of time and scale. Accordingly, the agency of an assemblage cannot be located within a single part; there is no such thing as a central agent or material mastermind directing its functioning and working. It would make no sense, for instance, to claim that the air pumps possess the agency to bring about aphrogenesis due to their ability to produce the necessary pressure differences – without the other components they would only blow air. Rather, agency is *unevenly distributed* across the heterogeneous parts of these aphrogenic assemblages. That, however, does not mean that agency is split into varying portions and then allotted among the components like pieces of cake (as if the pump has a bigger bit of agency, the soap mixture a smaller one, the vinyl tubing yet another bit, and so on). In contrast, agency is distributed unequally across the entire assemblage precisely because it does not form a homogeneous totality, but instead keeps operating on a multitude of scales with changing speeds and intensities. Agency evolves from the performing together of the assemblage's diverse parts; yet their respective contribution to the evolution of the assemblage's agentic capacities may vary. That also implies that agency is nothing that can be possessed at all; it is neither a pregiven property of single components nor a property of the assemblage as a whole. As with the assemblage itself, its agency arises from the goings-on between the constitutive parts; it is therefore *emergent* and *relational*, and efficacious only as long as it is *jointly enacted*. Hence, there would be no material agency of foam at all in the artworks discussed if they were merely a loose collection of bits and pieces placed neatly side by side.

Moreover, the material agency of foam is *immanent* to these aphrogenic assemblages. Their agentic capacities develop from within the manifold interactions, and are not introduced or caused by an external agent (such as, for example, the artists who designed and built these bubbling sculptures). These aphrogenic assemblages do not "borrow their [secondary] agency from some external source" (Gell 1998: 36), let alone mediate or manifest the agency of their makers. Rather, their agency originates from inherent processes that take place under specific conditions and circumstances. The material agency of foam therefore is always *situated*, i.e. it emerges within particular settings and milieus. As a consequence, agency is never fully stable and constant, but alters along with the changes of the complex situation from which it evolved: if, for instance, the air pressure of the pump drops, the air stones become clogged, the water

12 The following deliberations about possible characteristics of material agency draw upon a number of recent publications such as, for instance, Boivin & Jones (2010), Dolphijn & Van der Tuin (2012), Malafouris (2013), to name only a few. One of the most comprehensive accounts can be found in Coole (2013: 453–461).

in the soap mixture evaporates, or the humidity and aerial currents in the gallery space increase, the material agency of the foam will take on a different quality.

In addition, the artworks show that material agency is not restricted to recalcitrance or resistance, i.e. a negative force or impediment to human actions and goals (cf. Bennett 2010b: 1–3). The agentic capacity of these artistic assemblages, namely to set and keep aphrogenesis in motion, demonstrates how material agency is *productive*: it is about generativity rather than counter-performativity. Thus, the active process of foaming, which is generated through the concerted interactions within the assemblage, is not a side-effect of the materials' resistance to intentional artistic manipulation but instead an effervescent manifestation of inherent creativity. Last but not least, the frothing sculptures suggest that the potency and efficacy of the material agency of foam is *open-ended*, i.e. its outcome is neither determined nor can it reach a final state. Their aphrogenic productions are *contingent* inasmuch as their mutable forms, individual structure, and actual performance are unpredictable beforehand; and they always remain unfinished since there exists no end point at which aphrogenesis is ultimately completed. One can, of course, switch off the sculptures and bring them to a standstill – as is usually done daily after the exhibition closes. This completion, however, is extrinsic and an intervention into the co-functioning and interactions within the assemblage: if the aphrogenic assemblage is prevented from working together as a heterogeneous whole, its generative agency will disappear – and with it, eventually, the liquid foam.

Résumé

The objectives of the preceding study in art historical aphrology were twofold: first, to call attention to the use of foam as a processual material in art practice (beginning with the 1960s to the present); second, to employ liquid foam as a theoretical object that may help to shed some light on the issue of material agency. Thinking through or along performative sculptures and installations by David Medalla, Toshio Yoshida, Dieter Lutsch, and Mark Porter, I argued that the emergent materialisation and becoming of foam in such artworks cannot be grasped in terms of form (or even transformation) and autopoiesis. I therefore proposed considering the productive and vibrant process of foaming as *aphrogenesis*, i.e. an effervescent material event generated by the joining and performing together of various constituents. In order to understand better how aphrogenesis comes into existence in these processual artworks, I discussed them as aphrogenic real-time systems or *aphrogenic assemblages*. There seem to be at least two benefits of this recourse to assemblage theory: on the one hand, it enables a more detailed and complex account of the ongoing material processes and intermeshings within such bubbling sculptures as *Booster* or *Internal Activity*; on the other hand, we derive from it a description of material agency that takes into consideration various levels of time and scale. The agency of a material such as liquid foam, then, turns out to be an intricate outcome of entanglements and interactions rather than a property of the

suds themselves. By taking aphrogenic assemblages as my examples, I aimed to explain how material agency is immanent to the performance of these assemblages, and how it is distributed, relational, emergent, situated, productive, open-ended, and contingent. Thus, despite the mundane character of liquid foam, this frothy matter should not be taken lightly; thinking through or with this overflowing and lightweight material is by no means superfluous, but may contribute to a fuller understanding of how the world of materials is in constant and creative flux.

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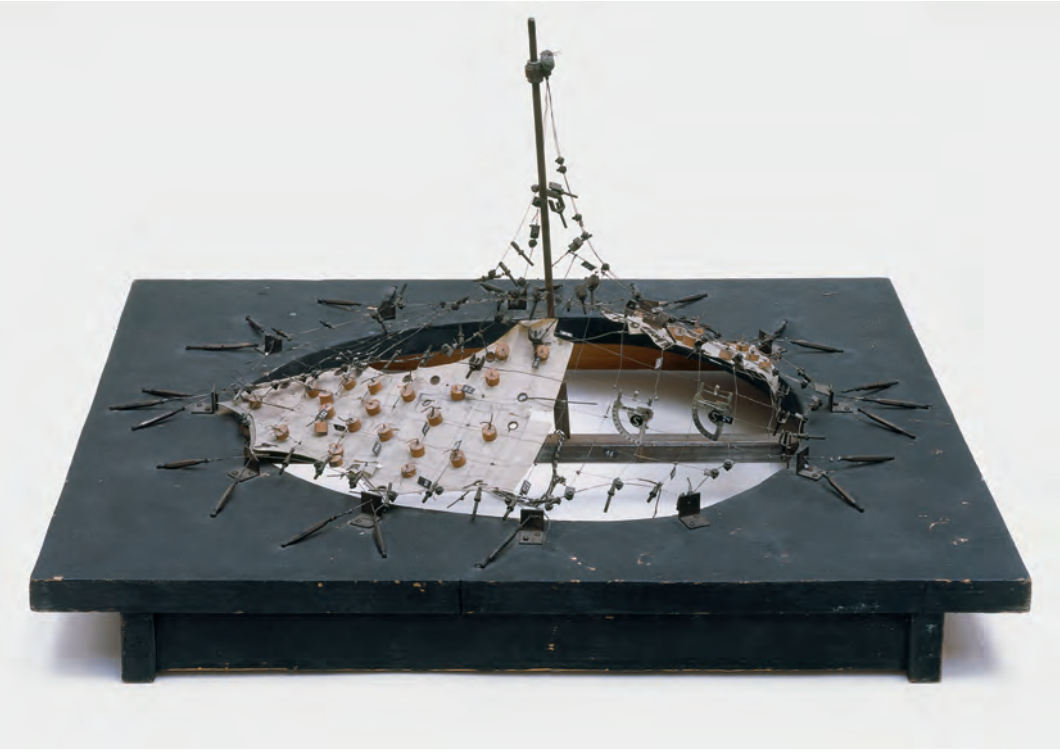

Figure 7.5: Frei Otto, *Measurement model for the German World Exhibition pavilion in Montreal*, 1967.

Figure 8.3: Dieter Lutsch, *Booster*, 2008, approx. 70 × 230 cm.

Figure 8.4: Mark Porter, *Autohaemorrhaging Actuator #1*, 2011, aluminium, steel, glass, air pump, vinyl tubing, soapy mixture, maple syrup, pigment, 170 × 30 × 50 cm.

Plate 14 | Marcel Finke

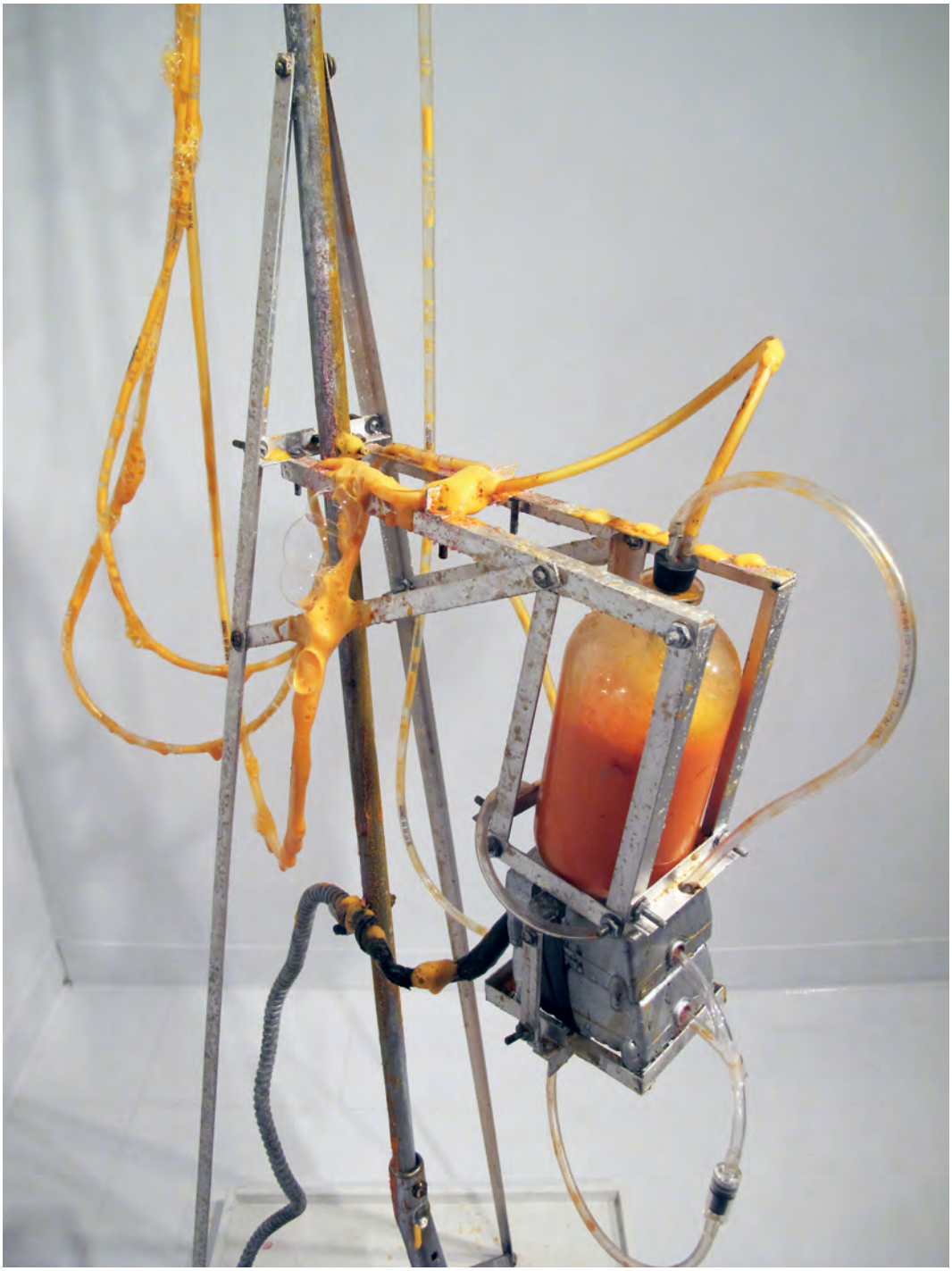

Figure 8.5: Mark Porter, *Autohaemorrhaging Actuator #1*, 2011, detail.

Figure 8.6: Mark Porter, *Internal Activity*, 2009, aluminium, steel, Plexiglass, air pump, pigmented soap mixture, 122 × 122 × 91 cm.