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FATBERG: Chapter 1

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Abstract: Looking out towards the ocean, FATBERG is easily spotted by the flock of seagulls circling above, swooping down to nibble on its vast store of energy. Only a few square meters of the manmade island hoist themselves above the waves, slowly bobbing up and down, side to side. If you ask the creators of FATBERG why they made it, you might hear: we feel the need to archive our times; or, we're building a strategic reserve, anticipating difficult times ahead. Whatever the reason for its creation, they sensed its need to exist, as a point of reference of fat's emergence as the iconic substance of our time.

FATBERG is an ongoing critical design research project. A series of public design experiments, exhibitions and discussions, focused on the construction and growth of a floating island of fat – the FATBERG.

At Research Through Design 2015 we present observations from FATBERG: Chapter 1, developed in the build up to the project launch at MU (Eindhoven) during Dutch Design Week 2014. The exhibit and accompanying paper focus on the emergence of the FATBERG, illustrating the process and knowledge developed through our experiences of 'getting to know fat'. Subsequently, we lay claim to the FATBERG as research territory, outlining the scope of our ambition.

Keywords: Critical Reflective Practice; Knowledge Creation; Thinking Through Making; Innovation; Independent / Entrepreneurial Research.

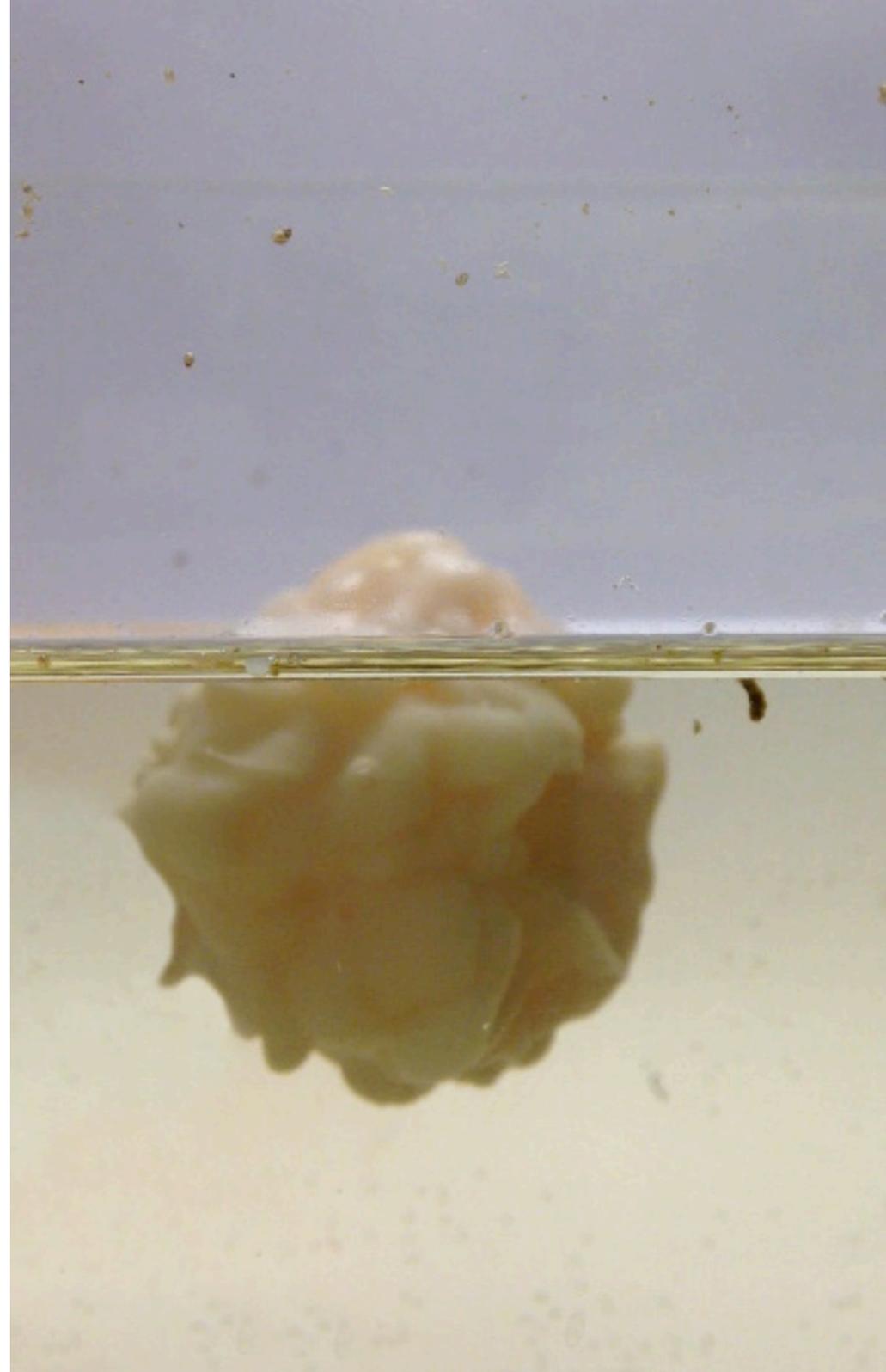




INTRODUCTION

In August 2013 it was reported that Thames Water had removed a, 15-tonne mass of congealed fat from the sewers beneath the London borough of Kingston upon Thames. This “fatberg”, a huge mound of solidified grease and oil built-up on sewer roofs like lard stalactites, had grown to the size of a double decker bus, blocking 95% of the 2.4metre diameter sewer pipe and putting the borough of Kingston at serious risk of flooding (Vidal 2013). Interestingly it is not the blockage itself that made this so internationally newsworthy, rather, the cause of the blockage itself – fat. Fat is, of course, something we understand intimately as an innate part of our diet and physical being. What is this substance? What is fat if its ‘behaviour’ becomes so unpredictable, overtaking not only our bodies but our systems? What is fat when its original purpose as an energy reserve evolves into the impractical blockage of a sewer pipe? Do we still understand fat, or are our presumptions so limited that we need a fresh perspective?

Fat performs both a unique and vital function as an energy reserve, stored within the body for times of scarcity. Yet, from a western perspective, fat has lost this function. In 2005, the global adult biomass hit around 287 million metric tons, 15 million metric tonnes of which being caused by an overweight global population (a body mass of 25 or greater). It is stored and stored some more, but rarely used for its original purpose. We just



- get - fatter. From an evolutionary perspective this existence without functionality is unprecedented. Fat has become an antiquated biological substance. It simply is. Paradoxically, however, fat is more present than ever. FATBERG as a project asks: what happens when we create an entity of fat unlike any known natural, cultural, chemical or other point of reference? What if we free fat from its original evolutionary purpose? What if it becomes a substance with an identity crisis looking for a *raison d'être*? What then is fat, what does it want to be, and what could it become?

Simply put, fat is “the” iconic substance of our time. It relates to health. It relates to energy. It relates to beauty, ecology and consumption. Yet all these truths and cliches must be overcome or reframed if we are to come to a deeper understanding. An understanding that may bring us closer to comprehending how fat sometimes appears to control us more than we control it. Fat is the somatic manifestation of our desire to accumulate, to collect, to hoard. Fat's first occurrence in evolution therefore introduces the concept of time. With the birth of fat, there was, for the first time, a presumption that there would be a future other than the single prolonged moment of being in constant contact with one's energy source. It is life's battery, and because of this, life's first mobile autonomous technology. In other words, fat is the start of consciousness. This should come as no surprise when so much of our brain is in fact made from fatty acids. We owe much to fat, but it is a dependency that has come to steer our behaviour.

AIMS

FATBERG is conceived as open ended design exploration, reflecting upon our understanding of fat from a variety of perspectives to challenge what is known and what could be. Author and media theorist Steven Johnson talks of the ‘adjacent possible’: a phrase that both captures the limits and creative potential of change and innovation, by acknowledging that innovative thinking is a slow and gradual process based around a ‘slow hunch’. Such an approach is deemed to enable the thinker to develop uncharted insights into unexplored areas (Johnson 2010). Our focus is thus situated on the cultural implications of our hands on experimentation and designs, physical artefacts generated in response and opposition to the technical challenges of attempting to build a floating island of fat. What starts as an independently driven research, emerging from our personal fascinations, is intended to evolve as a very public research, as society comes to reflect upon the berg, attaching their own meanings and values. The FATBERG thus gains a second presence as a storytelling device, a hub for the accumulation of knowledge, and a conceptual mirror, reflecting society's relationship to fat.

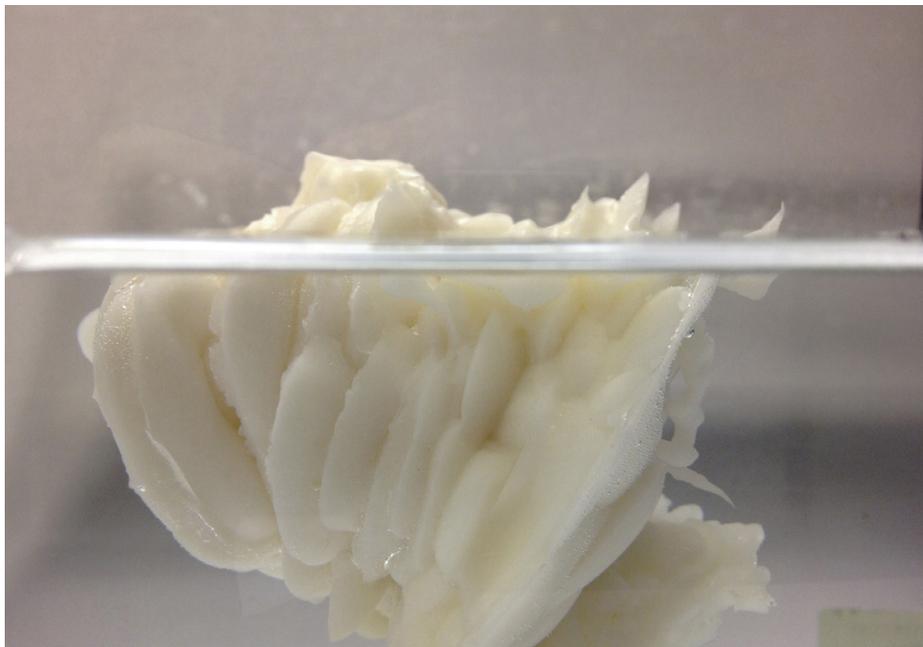
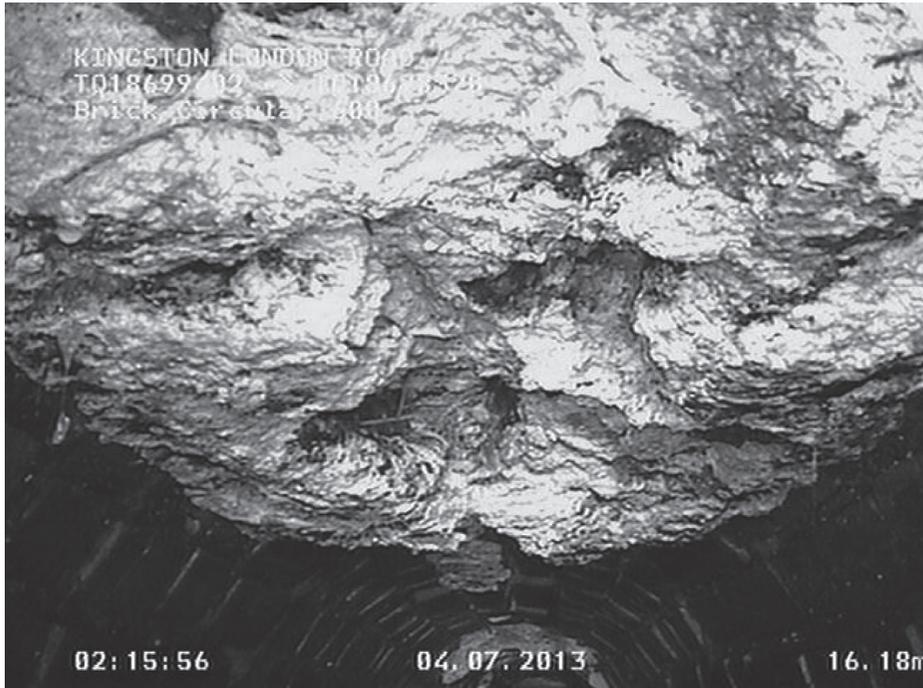


Such an investigation implies the necessity for collaborative research undertaken alongside expertise from a variety of professions including the Agricultural, Energy, Waste Treatment and Food and Cosmetics Industries. However, while scientific sources and theories may be one source of inspiration, we greatly value the insights generated via more informal analyses, chance observations, and other “unscientific” sources (Gaver et al. 1999). FATBERG can thus be seen as an intervention into societies perception of fat, as we “use ‘micro-targeting, low-cost, democratic, and empowering tactics’ to actualise details from scenarios, catalyse shifts in public discourse, and – ultimately – effect lasting behavioural change (Jain et al. 2011).” Our ultimate goal then, is that FATBERG develops its own cultural presence within society – a point of reference, existing outside of the current debate surrounding fat. To do so, FATBERG employs two parallel methods of enquiry: the physical building of the berg; and, storytelling, that is the narratives that emerge in direct response to its physical presence. As is implied, the two counterbalance one another, acting as lenses with which to view what we perceive with new clarity. Despite how it might appear, FATBERG is not a speculative design project, though we acknowledge we share the same critical design ethos. Our goal is thus not to create speculative reflections and objects, rather insights and tools that facilitate a paradigm shift through the creation of the FATBERG itself – “inspirational data” to stimulate the imagination (Gaver et al. 1999). Disruptive innovation might be a more apt term here,

as we elect to embrace uncertainty as a tool to probe opportunities within the unknown. Thought of in this manner, FATBERG contrast’s the classic model of scientific research in acting out predetermined hypotheses, instead opting to explore the “slow hunch”.

One might argue that the FATBERG follows a similar route to that developed within the l’art pour l’art movement (in this case ‘Lard pour Lard’). The need for autonomy that led to l’art pour l’art, which proclaimed that art did not exist for anything but itself, established art as an individual point of reference. In fact, its autonomous position gave art the freedom to reflect upon society in ways never before accessible. Subsequently, both art and society were able to reflect upon each other simultaneously. It is for this very reason that we deliberately shy away from explaining too much too soon, not because there are not ways to infuse the FATBERG with meaning but precisely because meaning can only fully form itself via a loosely directed, open process. In the book, *See It Again, Say it Again*, Janneke Wesseling explains:

“Artistic research is necessarily cognitive. But what is observed and investigated? Is it something that by its existence as phenomenon ‘earned’ the right to be the subject of artistic research. Or can the process of becoming itself become the subject of investigation. In that case the concept prior to the emergence of the substance investigated must initiate an intuitive understanding that this could be worth investigating. The artist as researcher distinguishes himself by



an emphasis on communicating about the production of his work and thought process. Others are allowed into this process, are part of the discussion and voice criticism. It is an open artistry, where the coming into existence of meaning is itself the central point of interest. In this process the voice of the artist is merely the first voice amongst equals” (Wesseling 2011).

The emergence of FATBERG, as a cultural reference within the larger constellation of debates, is an experiment in how design research is directed by the desires connected to fat. Not every material or form has the potential to create such interest, however, in this instance, the combination of material, process and form intuitively guide us, alerting us of the desire to appropriate, reflect, pull towards other debates, and to stir curiosity and inspire questions, and answers, as to its meaning. As Sarat Maharaj states, “for research to be research it has to be debated in the public domain” (Maharaj 2011).

At first glance FATBERG appears a rather absurd proposition. How and

Figure 1 (top). The 15 tonne mass of congealed fat discovered underneath Kingston Upon Thames in August 2013.

Figure 2 (bottom). Fat is “the” iconic substance of our time.



why would anyone want or hope to build a giant floating island of fat? While we have much to be grateful for from the solutionist approach that seems to drive modern innovation, to quote design theorist Michael Dobbins: “solutionism presumes rather than investigates the problems that it is trying to solve, reaching “for the answer before the questions have been fully asked.” Simply put, the manner in which a problem is composed matters every bit as much as how it is resolved (Dobbins 2009). Building a “floating island of fat”, we make this incredibly important substance visible without falling into preconceived notions of what fat is, how it functions, what it means, or how we should regard it as a society, anticipating alternative value systems that help us embrace and overcome the challenges posed by contemporary societies inability to change the way we interact with the planet.

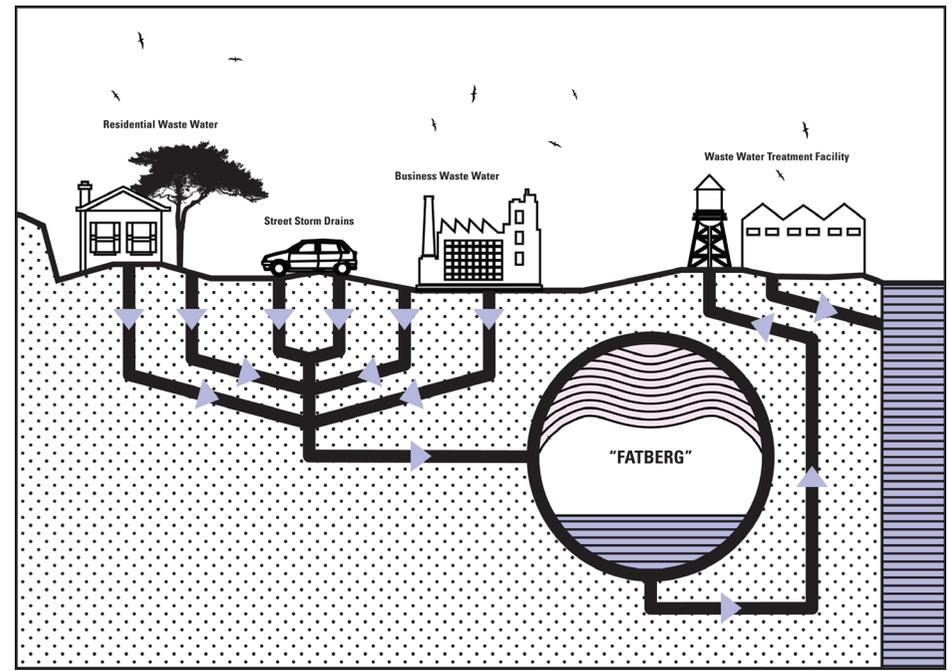


Figure 3 (top). Our goal is to harness the sewer as a method for production.
Figure 4 (bottom). An island of fat – a new platform to contemplate fat from a fresh perspective.

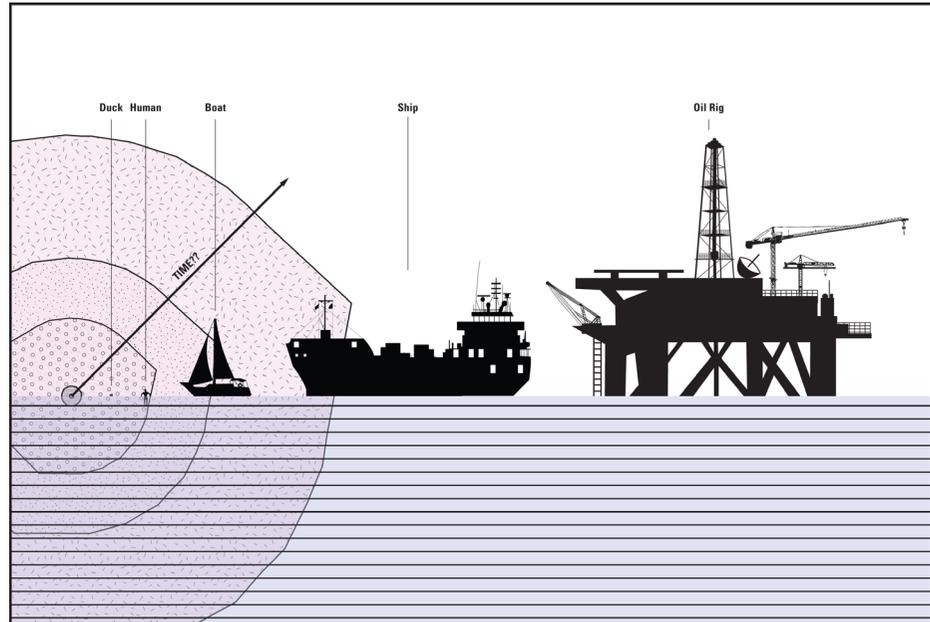


Figure 5 (top left). Fat is “the” iconic substance of our time.

Figure 6 (top right). The rapid increase in scale creates new physical and conceptual challenges.

Figure 7 (bottom left). Beginning to Build the berg during Dutch Design Week 2014.

Figure 8 (bottom right). Drip by drip, layer by layer, we begin to understand and evaluate the true value of fat.



PRACTICE

FATBERG focuses on the “Thinking Through Making” approach as a tool to generate experiential knowledge and insights (Ingold 2013) and was officially launched with a publicly performed workshop held at MU (Eindhoven) during Dutch Design Week 2014. Participants ranged from fellow design professionals, to members from the Ministry of Agriculture and the local water board, as well as research scientists from Unilever. The workshop was conceived as the official birth of the FATBERG, with the workshop focused on the hands-on experience of Fat as a material, beginning with the processing and rendering of Beef and Pork Fat, and continuing with the physical act of ‘building the berg’. Interspersed with this hands-on process were moments of critical group reflection, as participants examined the properties of fat, created new tools, and discussed the logistics of constructing such a large scale floating object.

Attempting to form such a structure, participants were immediately confronted by the issues of control associated with employing fat as a building material in open water. It is estimated that food businesses in London, produce an estimated 32 - 44 million litres of used cooking oil annually, the vast majority being simply poured down the drain (Vidal 2013). Given our original source of inspiration, we were particularly interested in the solidifying process of liquid fats, and how this behaviour might be harnessed to create a logical system for construction. Native

fatbergs, that is, fatbergs formed within living sewer systems, are born from a complex mixture of animal, vegetable and man-made trans fats with other materials such as sanitary wipes, which when solid form a rancid, fatty like concrete. Perhaps this phenomena can be appropriated as a means of production of the raw material for the berg. As a starting point we chose to use natural, animal fats as source material. While this might appear a somewhat arbitrary decision, we wanted to understand the process of extracting fat from tissue thus returning fat to its purest form. Typically this meant the slow rendering of beef tallow and pork fats over gas stoves to separate fat from the solids. We then create a 70% to 30% blend to create a more optimal material, combining the physical characteristics of each species of fat. Beef Tallow, for example, tends to have a more waxy yet brittle consistency, with a higher melting point than Pork Fat, which is comparatively a much softer, more malleable material.

Central to this workshop was the Observation Tank, a two metre tall, cylindrical tank, allowing the FATBERG to be viewed seamlessly in 360 degrees. The tank was conceived as a research tool, to monitor the construction and behaviour of the FATBERG during its growth. It also acts as an incubator. The first droplets of fat, released into the tank from above, form the developing foetus of the FATBERG, in time transforming into a fully fledged berg. More practically, this means the dripping of small, and later larger, quantities of fat by hand via syringe, into the saline,

ocean-like solution, giving birth to the “foetus” of the fat island. Upon contact with the water the fatty solution begins to immediately solidify, building a small fat platform that functions as a scaffold for the next batch of fat. After dripping for several minutes the weight of the tiny platform pushes itself through the surface of the water tension and starts to “sink”, effectively dividing the FATBERG into two parts: one above the surface, and one submerged. Within one hour of dripping, the majority of the berg lies beneath the surface of the water. This method of dripping is of some consequence to the rotation of the FATBERG. By building up mass on one side of the island, the heavy side will push itself underwater while the lighter side tilts towards the sky. The behaviour, at first erratic, becomes more and more predictable in time, making it possible to manipulate the direction of rotation. As the berg grows we will be able to steer it, by virtue of which it will almost act as an abstract clock, much like the year rings in a tree, where we know what part of the berg will be on the surface at that moment, or better said, after a specific quantity of fat has been deposited in a certain area. At any given moment the vast majority of the FATBERG will be under water leaving us with only a small percentage of the berg to work with. Understanding that submerged presence, that potential vitality stored beneath the visible surface, that Leviathan perhaps, is an important consideration as we open up to fat’s new meaning.

Because of its constantly changing scale, we foresee interesting challenges in both the construction of the FATBERG as well as in reading its output. The birth of the FATBERG, and its foetus-like present state, are the result of micro-donations of fat administered by hand via small tools. Yet the effects and behaviour at this point are spectacular and follow in quick succession, whereas at some point in the not too distant future, as we upscale our operation, the spectacle will shift more towards the logistical. We will subsequently need to develop new tools, new networks of people in support of our cause, and new ways of distributing the fat on the island, to name just a few of the challenges we foresee.

Each challenge, each innovation, each step or outcome of the practical building of the berg, acts as a possible storytelling opportunity, with the potential to add to the stories already accumulated on the surface of the FATBERG. Its autonomy creates the necessary ambivalent state of being, where FATBERG is real and yet at the same time questions the state of this reality.

The FATBERG exhibit at Research Through Design 2015 (RTD 2015), is viewed as a research opportunity in itself, as we present examples from both facets of our on-going research: the presence felt by the physical production of the FATBERG, and the narratives that emerge from its very existence. At the time of writing, these two elements are rapidly developing. The physical berg itself is constantly growing, continually



initiating the development of new tools and processes. Currently FATBERG has a diameter of about 50 centimetre, and is suspended within its own custom built observation tank. There is perhaps 30 hours of building involved already, but as the scale increases so does the speed of production. Soon the berg will be too large for its tank, and we will be forced to move to another environment. At RTD 2015 we present the process of building the berg, the practicalities of doing so, and how this process initiates stories, knowledge and debate that functions within the second facet of the exhibition – the FATBERG as cultural reference. The exhibition setup thus follows our two pronged approach. From the physical, line of enquiry, we present a ‘live’ observation tank containing a growing fatberg, supported by the tools, equipment and ingredients required to facilitate its production. Additionally, in parallel to this, we exhibit a research desk illustrating the storytelling component of our research, presenting sketches, infographics, related news articles and academic papers on fat and the FATBERG, as well as our reflections, via the FATBERG website. This second component is swiftly evolving. In January 2015, we were invited by Museum Boijmans van Beuningen, to exhibit FATBERG as part of Design Column #10: Crazy Care System, an exhibition exploring alternative perceptions and projections on existing health systems. The proposal, allowed us to investigate other, more niche facets of the fat landscape, by reflecting upon FATBERG via the lens of others, in this case the cultural projections of the museum curators.

Recontextualising designed artefacts from the project, in this instance presenting live video feed of the original FATBERG embryo from its then location at MU Eindhoven, within the topic of healthcare, allowed both ourselves as researchers and the public, to reflect upon the relationship between fat and health via the externalisation of a substance so intrinsically linked to health issues such as diabetes and obesity. Similarly, Thames Water, the very water and wastewater services company responsible for the removal of the sewer fatberg discovered in Kingston Upon Thames, have become aware of our FATBERG, inviting us to visit their waste water facilities and observe sewer fatbergs in their natural habitat, as well as writing an article on the project for their in-house magazine. This is a particularly interesting development, because it recontextualises sewer fat through our lens, the lens of the fatberg. From here-on-in, Thames Water have, and will now use FATBERG as a cultural point of reference, becoming part of their consciousness and understanding of the fatberg phenomena. Indeed, sooner than expected, the FATBERG has started to function as the storytelling device we intend it to be.

(INTENDED) OUTCOMES

Let’s, for one moment, imagine that the FATBERG already exists, floating on the Atlantic Ocean, traced perhaps by GPS, or other tracking systems. A growing shawl of fish swim around its edges, taking a nibble perchance, perhaps even living, or resting on its surface. It has become reality. It is

there, and by its presence, by its existence in the minds of those who have helped build it, and those who know of its presence, it begins to alter what fat is. Because fat, in the entire history of the planet, has never existed in this state before. Perhaps in the wake of FATBERG new ecosystems will come into existence, calling for the need to create more of them, continuously...

Such an ecology might be one outcome, and yet, due of the nature of the project and its process-based development, the intended outcomes of this research are best described in terms of practical goals and our personal ambitions:

- FATBERG exists to inspire new readings of the meaning of fat. We therefore aim to discuss, in a interdisciplinary manner, what fat signifies within differing discipline-related thought and language systems and to see if, via this crossover, we generate new knowledge and understanding.
- FATBERG is intended as a cultural reference: a surreal thing with a surreal production history. It exists to spark the imagination by its sheer presence.
- FATBERG must grow as large as physically possible.
- FATBERG as a project requires a large scale collective effort. We need to acquire fat. It needs to be harvested and deposited by

a team of volunteers. This collective action within the parameters of a (literally) large scale design research project, is something we particularly relish.

- FATBERG must be owned collectively, both in reality as well as in the mind of the people.
- FATBERG must ultimately be released into the wild by being launched into the North Sea. However, it may be necessary to obtain the necessary licenses and paperwork to do so. Practical knowledge of the laws and bureaucracy involved in this process is key to our practical investigation.
- FATBERG must trigger us to ask as yet unknown questions to as yet unknown specialists, institutions, government officials, companies, and the public, forcing us to continuously develop the language and tools to do so. FATBERG must allow for a different reading of anything or anybody involved in either the creation, the production, the consumption or the investigation of fat.

FATBERG is thus, in our cognition, intended as a physical-conceptual space, a space consisting of both the physical and informational (images, data, writings etc.) presence of the berg, allowing society the freedom to look upon fat with fresh eyes.

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Figure 9. Our goal is not to create speculative reflections and objects, rather insights and tools that facilitate a paradigm shift through the creation of the FATBERG.

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Thompson and Hendriks

