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THE SAUSAGE OF THE FUTURE, CAROLIEN NIEBLING (2017)

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1. Niebling's source for this figure is unclear, as it was widely reported that Dutch researcher Mark Post developed the first lab-grown burger for a cost of approximately €250,000 (\$325,000) when it was unveiled in August 2013. Incidentally, the price of the lab-grown burger had reportedly plummeted to \$11 by April 2015, well within the time frame of Niebling's research (Schwartz 2015). In any case, her attitude towards these startups certainly invites commentary, which we will get to shortly.

The sausage of the future has arrived: in May 2019, Beyond Meat, a Los Angeles-based vegan-protein start-up, became a public company with the 'best performing first-day IPO in nearly two decades' (Linnane 2019). In addition to its flagship pea-based patties, its sausages are available at not only select restaurants but also the likes of Whole Foods, priced at \$8.99 for four plump links.

It's a fraction of €125,000 cost of a lab-grown burger back in 2017, when designer Carolien Niebling published her book The Sausage of the Future, but the price tag is not why she summarily dismissed these mass-market meatsubstitutes at the time.1 Rather, Niebling has a proverbial bone to pick with 'contemporary food culture, for the ease with which we obtain our groceries from supermarkets allows us to create a distance between ourselves and the origins of our food' (5). A feast for the eyes and the mind - but sadly not the stomach – her project is intended for those of us who look at food products not in terms of return on investment but as design objects.

Hailing the sausage one of mankind's greatest edible inventions', Niebling restricts her forward-looking research to these encased, processed foods, though it is worth clarifying that it is essentially a means of investigating the protein sources of the future. Over the course of some 150 A4-sized pages – a majority of which feature images, alongside economical texts – she swiftly traces a 5000-year arc from 'the first records' of sausage production to present day and tomorrow, or perhaps a few years out. The time frame is besides the point; rather, it's a rhetorical move to start a dietary conversation – if not a conversion - about '[reducing] meat consumption and [increasing] dietary diversity'. As Niebling puts it, 'I propose here a move away from our relatively impoverished "supermarket selection", a move back from what I call eximius forivores (eaters of supermarket food) to omnivores (eaters of everything)' (5).

The straightforward chapters and subsections roughly fall into three parts. 'Theory' and 'Method' offer background, not only about the history, varieties and composition of sausages, but also relevant information about meat in general and food science, as well as a clear statement of the problem at hand: 'By the end of the 21st Century, there will simply not be enough land to produce [enough] meat for 10 billion people' (21). 'Material' is the meat of the book, a thoroughgoing catalogue of about a hundred potential ingredients for the titular food product. The final third 'Result' includes a handful of recipes combining upwards of a half-dozen of these ingredients in familiar forms mortadella, boudin, salami etc. - and end material.

Niebling's writing is lucid and succinct, efficiently or even breezily summarizing topics, at times opting for flavour over content. The text is intermittently peppered with trivia, typically italicized or relegated to image captions; these factoids are colourful enough - that is Victorian satirist Samuel Butler [claimed] that a chicken is just an egg's way of making another egg' - to overlook their inconsistent treatment in the layout (42).

But it is the winsome visuals that are the signature and hallmark of project, from its conception at Switzerland's renowned ÉCAL (University of Art and Design, Lausanne) to its Grand Prix-worthy development at the Villa Noailles design festival to the publication of the book, in 2017, by discerning art/design publisher Lars Müller. For better or for worse, The Sausage of the Future is as much about the eye-catching imagery, from photos and collages to infographics and illustrations, as the content it depicts. It turns out that sausage can be surprisingly photogenic: the sliced, collaged mortadella that graces the book cover, for example, showcases discrete elements suspended in cross section; similarly, an illustration of it depicts a colourful, terrazzo-like disc. Although some graphics might, as a matter of taste, come across as too childish, abstract or uncanny, plenty of others - such as the representations of 'Types of Sausage' and infographics in the 'Sausage Matrix' and Glossary are exceptional. (Credit where due to Niebling's collaborators: illustrator Olli Hirvonen, graphic designer Helge Hjorth Bentsen and photographers Emile Barret and Jonas Marguet.)

If the visual elements are compelling to the point that they risk making The Sausage of the Future seem like an exercise in aesthetics, this is merely a symptom of the double-edged sword of digital media, where food and design alike are predominantly consumed in feeds, on screens. To that end, Niebling has demonstrated impressive media savvy - an essential skill in today's design world – from the Kickstarter campaign for the publication (Niebling 2017) to a TEDxGeneva talk, in March 2018 (TEDxTalks 2018). In fact, the book itself is the most static document of a broader research project that has also yielded conventional design output: the graphics, of course, as well as artefacts. The Sausage of the Future also comprises a collection of faux-biological cutaway models, which Niebling has exhibited (against a backdrop of the collages, blown-up to floor-to-ceiling scale) across Europe and the United States, often next to furniture and lighting at tradeshows.2

However, as the most traditional – or at least the most traditionally scholarly - medium for her research, the book has several shortcomings, such as the uneven citations and an afterthought of a bibliography. Instead, Niebling acknowledges her debt to a pair of key primary sources in the first paragraph of the preface: 'Among the many publications consulted during the making of this book, Harold McGee's On Food and Cooking (McGee 2004) and Nathan Myhrvold, Chris Young and Maxime Bilet's Modernist Cuisine (Myhrvold et al. 2011) were major sources of inspiration, and provided the basis for several sections of this book' (5). Throughout the rest of the book, she cites a number 2. This includes the Salone Satellite in Milan, in April 2017, and WantedDesign in New York City, in May of the following year.

of sources, often quoting them in passing (especially in the essay on insects, which veers into a kind of discursive literature review), but the survey-like early and middle chapters would benefit from more substantive references.

This is not to say that the text is not accurate or informative - nor does it detract from Niebling's original contributions to food-design discourse - but it does raise questions about who, exactly, is the target audience for the project. In an exhibition context, The Sausage of the Future easily entices a wide audience of design enthusiasts through both its premise and imagery; outside of those self-selecting venues, the audience is at once broad and niche. On the one hand, the project and publication are meant to appeal to everyone who might partake in sausage in the future, which is to say the masses - hence, the pithy taglines (such as 'the sausage is one of mankind's first-ever designed food items' on the book's back cover) and striking visuals. On the other hand, the obscure ingredients and formulations are well beyond the means of all but the most ambitious enthusiasts. Niebling herself worked closely with master butcher Herman ter Weele, deferring to a professional for the actual making of the sausage (as she noted in an interview, 'the sausages that I made are only suggestions for butchers' [Rapacki 2019]).

Which brings us back to Niebling's insistence on 'using existing techniques rather than relying on lab-based innovation', on the grounds that 'fake meat only creates a bigger gap between consumers and their food' (5, 23). Her primary findings are the 'selection of well- and lesser-known ingredients that illustrate the diversity of our planet' - roughly 100 in all - based on 'their potential for replacing protein used in sausages traditionally, for their great nutritional composition or because they are ingredients that we could include in our diets but that are not (yet) in our supermarkets' (67). Although this section is supplemented by a tabulated index with nutritional information, adapted from USDA data, the descriptions focus on physical properties and flavours, at the expense of real-world factors such as geographic availability and scalability - the mundane supply-chain considerations that ultimately determine what we find in Niebling's much-derided supermarkets.

It is also worth unpacking her rhetorical assertion that 'around 80 per cent of the world's inhabitants are entomophagists so why aren't we?' (22). Implicit Eurocentric bias notwithstanding, the book is about consuming not bugs but sausage, and it is the degree of abstraction afforded by the latter that is precisely why it may well be the ideal vehicle for introducing new ingredients such as insects to the western diet. It is unusual, then, that Niebling finds it 'alarming [...] that we could be eating real or fake chicken without being able to tell the difference' because it certainly does not encourage us to examine our eating habits more closely and therefore make changes for the better' (23). To the extent that that very same argument could be levelled against sausage - in which animal parts are essentially reconstituted and rendered unrecognizable in tubular form – Niebling is simply making a case for an expanded notion of craft butchery.

This also explains her outright rejection of newly developed alternative proteins, conflation of 'lab-grown' and 'plant-based' notwithstanding. After all, the main ingredient of Beyond Meat's proprietary meat replacement, 'pea protein isolate', also happens to serve as the basis of one of Niebling's 'Bangers & Mash' sausages (122-23). What the designer opposes about these newfangled foodstuffs has less to do with their substance and more with the fact that they are developed in a laboratory, at industrial scale: In short, she rejects the virtue-signalling Silicon Valley mentality in which these products are metaphorically encased. Yet her scepticism towards this techno-utopian attitude, understandable though it may be, goes largely unstated. Instead, by celebrating the primal (offal), ancient (grains), obscure (flowers) and exotic (insects) in turn, Niebling paints herself into a corner of fanciful, art-directed tokens of 'real food', popularized by (unnamed) patron saint Michael Pollan and others.

In the end, the sausage may be too neat a package – too self-enclosed a metaphor - to encapsulate, so to speak, both time-honoured foodways and sustainable protein production. Beautiful and thought-provoking though it may be, The Sausage of the Future finds its place on neither kitchen counter nor reference shelf but rather the coffee table – a book less for acolytes of McGee or Myhrvold and more for fans of, say, industrial designer Jonathan Olivares' A Taxonomy of Office Chairs (Olivares 2011), which Niebling has tellingly acknowledged as her original source of inspiration.3

In fact, contrary to her statement that 'the aim of this book to provide readers with enough information to understand the complexity of sausages and see their beauty', Niebling has since conceded that The Sausage of the Future has a shelf life (5): 'In five years [the book] will be a bit useless. There will be new developments. But still, I think it paints a good picture of the moment' (Rapacki 2019). To that point, in the summer of 2019, Londoners could ruminate on Niebling's project at the Victoria & Albert Museum, where it was on view in the exhibition FOOD: Bigger Than the Plate, and then take the tube across town to the vegan restaurant where start-up Moving Mountains launched its sunflower-seed-based hot dog - or stop by UK bakery chain Greggs, whose vegan sausage roll has reportedly been selling like hotcakes (Hawkes 2019; Monaghan 2019). Perhaps to Niebling's chagrin, these developments obliquely affirm her conclusion that 'the future sausage is a metaphor for the possibilities that lie ahead' even as they fail to 'revive creativity and curiosity in our eating habits' (147).

Meanwhile, just as Kickstarter befits an artistic endeavour, so too does Beyond Meat's stock-market debut consummate its tech-start-up credibility. Just a few weeks after its blockbuster IPO, the company announced major expansion plans with the construction of a manufacturing plant in the Netherlands - Niebling's own backyard - in partnership with Zandbergen, a multinational meat distributor, to bring its products to European supermarkets (Sampath 2019).

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3. As she related to Disegno's Kristina Rapacki, 'a research workshop that I did with Jonathan [Olivares, while at ÉCAL]' led Niebling to the realization that 'you can translate research into an object - but you don't have to'. Regarding A Taxonomy of Office Chairs, the designer notes 'for me, that book was an eye-opener'.

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