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On the rise of shocking food

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ABSTRACT

Some dishes are shocking because of what they contain, such as Korean dog stew to many Western diners, or horsemeat to the British. Others are shocking merely because of what they look like, or resemble: The growing popularity of animate dishes in parts of Asia, for example, or the much-publicized Michelin-starred Hong Kong chef Alvin Leung's 'Sex on the beach' dessert, fall into the latter category. There is a growing trend amongst contemporary chefs to develop dishes that their diners will most likely find 'shocking'. Such a practice appears to represent something of a step change from the 'search for deliciousness' that lies behind molecular gastronomy or modernist cuisine. Here, we describe a dish (dessert) that was recently introduced onto the menu at Kitchen Theory, inspired by Barbara Smith's (1969) edible performance art work entitled 'Ritual Meal'. Consisting of nothing more than rhubarb and a beetroot juice reduction, the dish is shocking solely because of its visual appearance, both its form and the way in which it is served, cue a human organ that has been removed during surgery. Informal reports suggest that this dish constitutes an especially memorable multisensory component of the diner's experience at Kitchen Theory's Gastrophysics Chef's Table.

1. Introduction

Some dishes are shocking because of what they contain, such as Korean dog stew to many Western diners (e.g., Newkey-Burden, 2018; Solomons, 2022), or horsemeat to the British (Anon, 2013; Mackenzie, 2013). Dishes that are popular in other cultures, but where the preference is not shared, can evoke horror, such as the eating of bats (Thomson, 2020) or live mice in a dish known as 'Three Squeaks' (Mazzoni, 2020; McGuire, 2016) in China (see also Harding, 2006; Rice, 2021; Simmonds, 1859). Others are shocking merely because of what they look like, or resemble: The growing popularity of animate dishes (such as dancing squid) in parts of Asia (Gates, 2017; Spence, 2018a), for example, or the much-publicized Michelin-starred Hong Kong chef Alvin Leung's 'Sex on the Beach' dessert 2012 (e.g., see Constable, 2012; Tannenbaum, 2012) can both be seen as falling into the latter category.[1] In fact, there is a growing trend amongst contemporary chefs to develop dishes that their diners will most likely find 'shocking'. Such a practice can be contrasted with the 'search for deliciousness' that has so often been claimed to lie behind molecular gastronomy and/or modernist cuisine (see del Moral, 2020; Spence and Youssef, 2018). Here, we summarize the various reasons as to why chefs might be interested in serving dishes that are primarily shocking rather than delicious. We also describe a new dish (a dessert) that was recently introduced onto the menu at Kitchen Theory, inspired by Barbara Smith's (1969) edible performance art work entitled 'Ritual Meal'. Consisting of just two ingredients, rhubarb and beetroot, the dish is shocking because its presentation, both its form and plateware cue a human organ. Informal reports suggest that this visually-striking dish constitutes an especially memorable multisensory element at the diner's experience of the Gastrophysics Chef's Table. In this review, we take a closer look at the various reasons why chefs may have taken this 'shocking' turn, and detail the performance art inspiration behind this new dish.

2. Molecular gastronomy and the search for deliciousness

According to a number of influential commentators, such as the

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[1] Going much further back in time, one should also mention the shocking banquets that were once put on by the third-century teenage emperor known as Elagabalus (203-222 AD), which apparently even shocked the famously liberal-minded Roman elite with their excesses (Lampridius, 2002). Meanwhile, Attar (1991) describes a Victorian dish made of Eel with Montpellier butter, from J. H. Walsh (1879 P. 124), A manual of domestic economy suited to families spending from £150 to £1500 a year. That was shockingly made to look like a serpent.

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North American author Harold McGee, molecular gastronomy can be defined as "the scientific study of deliciousness" (McGee, 1984/2004; see also Adria et al., 2006). Barham, Skibsted, Bredie, Bom Frøst, Møller, Risbo, Snitkjær, and Mortensen (2010, p. 2315) also suggest that molecular gastronomy involves the scientific search for deliciousness, writing that: "We take a broad view of Molecular Gastronomy and argue it should be considered as the scientific study of why some food tastes terrible, some is mediocre, some good, and occasionally some absolutely delicious. We want to understand what it is that makes one dish delicious and another not, whether it be the choice of ingredients and how they were grown, the manner in which the food was cooked and presented, or the environment in which it was served." More recently, the authors behind the *10 Principles of Modernist Cuisine* have also stressed how important it is for chefs to: "always strive to produce the most delicious, technically exquisite food" (http://modernistcuisine.com/about-modernist-cuisine/principles/; cf. Spence and Youssef, 2018).

2.1. On the rise of 'interesting' dishes

While, in recent decades, the search for deliciousness has been championed by the proponents of molecular gastronomy/modernist cuisine (see Spence and Youssef, 2018, for a review), there has been something of a shift in focus amongst a number of chefs from the simple desire to deliver deliciousness to a growing fascination with serving those dishes that are 'interesting' (Spence and Youssef, 2018). Hinting at this change of direction, a decade ago, the two Michelin-starred Spanish chef Andoni Luis Aduriz, of restaurant Mugaritz near San Sebastian, Spain was quoted as saying that: "You know, I went to cooking school decades ago, and there they taught me how to make delicious food. It's not my goal to make delicious food anymore. I want to make interesting food." (quoted in Ulla, 2012). The chef is famous for having served certain dishes that he knows many of his guests will not like the taste of, because they play a particular narrative function within the fabulous multi-course meals that are served in his restaurant: Dishes that are especially relevant to the region where the restaurant is situated, and/or are poignant for the chef, despite their occasionally being criticized by diners online. One could certainly consider this as an example of presenting interesting dishes that are not necessarily delicious. However, over the last decade or so, a number of chefs have gone even further in terms of delivering dishes that are presented in such a way that they will likely literally shock the diner.

3. Various types of shocking dish

There are a number of reasons as to why diners may find a particular dish shocking and, as such, a distinction can be drawn between various different kinds of shocking dish.

3.1. Shocking ingredients

Many Western diners are, for example, shocked and horrified by the idea that the older generation in Korea might enjoy dog soup (e.g., Fagge, 2018; Newkey-Burden, 2018; Solomons, 2022).[2] Similarly, many British diners currently find the idea of eating horse meat unpleasant (see Anon, 2013), though, perhaps counterintuitively, it has been noted that sales have apparently been invigorated following the UK's horse-meat scandal (see Newman, 2014). Horse meat (or hippophagy) has long been popular in many other European countries, as well as in Central Asia and South America (Anon, 2013), and was once also popular in the UK. However, there is little evidence that western chefs are necessarily pursuing this particular route to shocking their guests (i.e., presenting shocking ingredients). There are, though, a few famous exceptions here: Consider only Noma serving live ants (Bloomberg News, 2012). In 2015, at their Tokyo pop-up, Noma went even further, serving a live shrimp covered in ants from the Nagano forest (Huen E, 2015).[3]

Ingredients harvested from the human body would also appear to have a certain shock value, such as, for example, breast milk ice cream (e.g., BBC News, 2011; see also Locker, 2014; on snake ice-cream), or the cheese containing human secretions from Christin Agapakis and Sissel Tolaas as part of the Self Made Installation at the Science Gallery in Dublin in 2013 (see Howells and Hayman, 2014, pp. 88–95). Of course, anything that touches on cannibalism, albeit voluntarily and knowingly undertaken is also likely to be shocking (see Cooper, 2012; Royle, 2003). This, a theme that plays out in Peter Greenaway's (1989) 'The cook, the thief, his wife & her lover'.[4]

3.2. The visual appearance is shocking

The second class of shocking food includes those dishes that simply look disturbing. Apparently animate dishes, such as the dancing squid (animated by the salt in soy sauce; see Spence, 2018b; see also Skladany, 2016, on the Korean delicacy, Sannakji, that involves eating live octopus) fall into this category. One might also consider the use of trompe l'oeil to make a tasty dish look visually like something entirely inedible (cf. Aduriz et al., 2012), such as, for example, chef Andoni's mouldy apple dish (Canavan, 2017).[5] A number of other shocking (or taboo) dishes served at Mugaritz include an edible condom, a dish that looks like a human embryo, something that looks like a mouldy loaf of bread, and a live elver (i.e., young eel; Portero, 2019). Notice how these dishes represent a combination of trompe l'oeil and animacy.

A potentially important distinction should be drawn here, though, between what Schifferstein and Spence (2008) refer to (in the context of multisensory product experience) as hidden versus visible incongruency. The beetroot and orange jelly dish served by chef Heston Blumenthal a couple of decades ago (see Blumenthal, 2007, 2008), for example, provides an example of hidden sensory incongruity (Spence, 2010). The colours of the two elements in the dish (orange and purple) are what most people would expect. However, on being presented with the dish, the majority of diners were typically completely unaware of the sensory incongruency hidden within. The apparent sensory incongruity

[2] According to Laudan (2013), dog liver wrapped in fat was apparently a particular delicacy amongst those living in East Asia several thousand years ago. Note that much has been written on the history of eating dog (e.g., Le Breton, 2017, pp. 242–245; MacClancy, 1992, p. 179; Marks, 2002, p. 30; Tannahill, 1973, p. 214).

[3] As one journalist put it: "Increasingly chefs are playing with the customers' senses – in a way that often challenges people to step outside of their comfort zone – to heighten the dining experience … Sucking on an amuse bouche of "pebbles" at Mugaritz may be a hurdle for some, but Noma's sometime serving of live shrimps takes the whole process of forcing the diner to perceive, engage with and question what they are eating to a whole new and confrontational level." (Naylor, 2012).

[4] While the Italian chef Giorgio Locatelli is credited with preparing the food that was used for props in the film, it is unclear whether his culinary skills were used in the cannibalistic scene when the English gangster Albert Spica is forced to eat the bookshop owner Michael whom he has just had killed that closes the movie.

[5] It is here perhaps also worth considering those psychological studies, many of which were conducted by Paul Rozin several decades ago, aimed at investigating issues of contamination and disgust (cf. Ahrens, 2018; Angyal, 1941; Martins and Pliner, 2006). So, for example, Rozin famously conducted laboratory studies in which chocolate that had been shaped to look like faeces, and apple juice that was served to participants from a potty so as to look like urine (see Rozin and Fallon, 1987). Rozin found that his participants were typically reticent to try the food in such cases even if they saw the potty being unwrapped for the first time. Many of the dishes are shocking because there is an element of disgust associated with the visual presentation or with the ingredients used.

in this case being between the colours of the elements and the flavours that are typically associated with them (e.g., orange = orange colour, beetroot = purple colour). Using blood red oranges and golden beetroots, the kitchen team at The Fat Duck restaurant were able to play (naturally) with their diners' visually-induced flavour expectations (Spence, 2015). Intriguingly, vision's dominance over flavour perception meant that diners often failed to recognize the sensory incongruity, even once they started eating the dish, until, that is, it was pointed out to the diners by one of the waiters.

Interestingly, however, in addition to sensory incongruency (cf. Spence, 2020a), there can also be conceptual incongruency as when, for example, ingredients are moulded/presented in such a way that they look like something else entirely. Take, for example, the two-Michelin starred Hong Kong chef Alvin Leung's 'Sex on the beach' dessert (also the name of a cocktail) that triggered something of a media storm when it was first served to diners in London in 2012 (e.g., see Constable, 2012; Tannenbaum, 2012).[6] Once again, notice how this dish uses culinary *tromp l'oeil* to achieve its shocking effect (Aduriz et al., 2012). That said, it can sometimes be hard to decide whether such an approach to conceptual incongruency in a gastronomic dish should be classed as hidden or visible. Importantly, the context in which a dish is presented will likely exert a not insignificant effect on how diners respond to it. For, as noted by Spence and Piqueras-Fiszman (2014), diners who find themselves eating in a modernist restaurant, may well assume that what they appear to have been served cannot possibly be what it looks like. That is, many diners in such a restaurant have come to expect the unexpected. As such, while the incongruency is in some sense hidden, diners are, at one and the same time, presumably also aware of the likely disconfirmation of their explicit expectations if/when they choose to taste a dish that doesn't look like something that they would expect to be served (see Piqueras-Fiszman and Spence, 2015; Velasco et al., 2016, for reviews).[7]

3.3. Playful nudging

A third kind of shocking dish involves presenting diners with ingredients, often in the context of animal-based dishes, that they normally enjoy eating, but are arranged in such a way as to remind them of where their food came from. In this category, for example, consider the mallard duck head dish served at Noma as part of the Game and Forest menu in 2019 (Spence, 2020a, in press).[8] Note here how we typically do not refer to the animals that we choose to consume by name. That is, we order beef/steak, lamb, venison, and pork not cow, sheep, deer, and pig (cf. Leach, 1964).[9] This links to 'the meat eater's paradox' – namely, that while many diners like to eat animal-based protein, they do not care to think about where it came from and what may have happened to the animal along the way (see Bastian and Loughnan, 2017; Loughnan et al., 2014; Loughnan et al., 2010). Many western diners would also appear to have an aversion to being presented with recognizable animal parts, such as heads, faces, and feet, that are easy to anthropomorphize (Niemyjska et al., 2018; see also Tucker, 2013; Zickfeld et al., 2018).

Several of the shocking dishes that have appeared in recent years, reference the animals that we choose/like to eat, by bringing the diner closer to the animal that they are eating than is typically the case. It is important to note that such an approach need not rely on vision. So, for example in the Picasso Dish (Spence and Youssef, 2016), the last moments of a duck's life are made audible to diners before they are served a delicious duck dish. The sounds effects are shocking but also humorous. Indeed, there is typically a wave of uneasy giggling when the duck meets its fate. Note that humour can be an important means of adding levity to what diners might otherwise find to be a stressful encounter with food (cf. Youssef and Spence, 2021, for a conceptually-similar approach, using an audiovisual performance of the Venison Dance, where a deer is chased and killed, prior to diners being served a Mexican venison dish).

Having outlined the three kinds of shocking dish that a diner may come across, or read about, the next question to be addressed is why a chef would deliberately choose to serve such a shocking dish in the first place.

4. Why do chefs choose to create/serve shocking dishes?

On occasion, the purpose behind the creation of a visually-shocking dish may be nothing more than purely playful, as seemingly the case for the 'Sex on the beach' dessert from two Michelin-starred Hong Kong chef Alvin Leung. At the same time, certain chefs may simply enjoy the challenge associated with making something disgusting taste good. Here it is interesting to note how many fine dining chefs nowadays want their guests to experience a range of emotions – that is, they want to encourage emotional engagement and to provoke an emotional reaction (see, for example, the concept of 'techno emotional cuisine', Curley, 2015).[10] Because we have moved in to a more experience-based economy (e.g., see Pine and Gilmore, 1998, 1999), many chefs,[11] restaurants, restaurateurs, and brands now talk about taking their guests on an emotional journey. Diners should be provoked into thinking about what delicious really means and what it looks like. There are, in fact, at least four different, though, it should be noted, not necessarily mutually exclusive, reasons as to why chefs, bakers, and culinary/performance artists, etc. have developed shocking dishes/foods.

Chef Rasmus Munk, of Alchemist in Copenhagen has been described thus: "Munk refers to his cooking as 'Holistic Cuisine', a gastronomic experience that stimulates the five senses by making use of elements from theatre, art, science, and technology. The aim is to **stimulate the mind through innovation with every plate imbued with a higher meaning intended to initiate debate around important cultural and societal issues** such as garbage, food waste and plastic pollution as well as delivering humoristic nods to both Andy Warhol and Casper the friendly ghost." (Fine Dining Lovers, Editorial Fine Dining LoversEditorial Staff, 2019; emphasis in original).

4.1. Political

Shocking dishes may sometimes serve a political function. Indeed, there may be a relevant link to the Italian Futurists here (Marinetti,

[6] The dish, which was first presented at the international chef congress Identità Golose in Milan in 2010 is made by dipping a cigar tube into a kappa and konjac mixture. Alvin then squeezes a few drops of a honey and Yunnan ham mixture into the fuchsia-coloured prophylactic Using a pipette, which is then placed onto powdered shiitake mushrooms that have been made to look like sand (see Constable, 2012).

[7] It is possible that such incongruent dishes (be it of the sensory or conceptual variety) may also give rise to a positively-valenced 'aesthetic aha' (Muth and Carbon, 2013) that can potentially help to elevate the diner's experience (Spence and Piqueras-Fiszman, 2014; Spence and Youssef, 2016).

[8] The dish in question being a colourful mallard head, with feathers intact, stuffed with its fried brain, garnished with its own beak and a spoon to eat from made from its dried out tongue (Garrad-Cole, 2020). Vespertine served something along similar lines, though not quite as shocking the last time the authors ate there (cf. https://www.finediningexplorer.com/reviews/na/vespertine/).

[9] Unless you happen to be Desperate Dan, the cartoon character (from The Dandy) who was inordinately fond of cow pie (cf. Heffer, 2012).

[10] As chef Joan Roca puts it in the cookbook, El Celler de Can Roca: "We have blind faith in the force of feelings, the ability to delve in the psychological impact produced by flavor, and the power to evoke memories, stirring the emotive aspect of those who visit us and experience our cuisine." (Roca et al., 2016).

[11] It's important to point out only a small number of chefs are engaging in such creative/artistic/thought provoking dishes. The majority of chefs are inspired by ingredients, flavour combinations and acceptability by their market. Chefs who develop these more complex, emotionally engaging dishes are storytellers.

1932/2014; Valentini, 1998). The latter proposed, and, on occasion, executed a number of highly provocative dishes (such as roast chicken stuffed with steel ball-bearings). Marinetti famously suggested that pasta should be banned! The Futurist's goal certainly wasn't to maximize deliciousness, but rather to provoke and discombobulate their guests (cf. Spence, 2017; Spence and Piqueras-Fiszman, 2014).[12]

The shocking dishes mentioned in Section 3.3, such as the Mallard Duck Head dish served by Rene Redzepi at Noma can be seen as chefs focing their diners to confront the meat eater's paradox (Simoons, 1994; though the dish has been criticized as going too far by one Italian vegetarian chef Pietro Leemann, see Garrad-Cole, 2020). Meanwhile, the Plastic Fantastic dish served by Rasmus Munk at Alchemist restaurant in Copenhagen (see Fine Dining Lovers, Editorial Staff, 2019), attempts to raise the diners' awareness of the plastic pollution in our oceans. Meanwhile, the ants served on a live shrimp dish served while Noma popped-up in Tokyo was linked to promotion of entomophagy (Huen E, 2015).

With regards to the Sex on the Beach dessert served by one Michelin-starred chef Alvin Leung of Bo Innovation, Tannenbaum (2012) writes: "Why would a respected chef put a condom on a plate? For gags? For shock value? To send a message? His original reason is the latter: to raise awareness about HIV and AIDS. In fact, all of the money raised by the sale of the dish at Bo Innovation goes toward AIDS Concern in Hong Kong." Another example that could be mentioned here concerns the luxury baker OhLaLa in London who launched edible tampon macarons dipped in fake blood to raise awareness of Bloody Good Period, which hands out free sanitary products (Pike, 2018). Once again, this can be seen as gastronomy supporting a charitable, and hence in some sense political, function.

At Alchemist in Copenhagen, Rasmus Munk's dessert, lifeline, is created to raise awareness about the importance of giving blood. The ice cream is made of pig's blood, cream, and sugar. It comes shaped like a drop of blood and is filled with wild blueberry jam, and a 'ganache' made of deer blood garum and juniper oil (Toda, 2021). Some might also find the Cod's Head dish served at Fallow (https://fallowrestaurant.com/) in London shocking. The dish fits into the restaurant's philosophy around sustainability, so can perhaps be seen as political.

4.2. Performance art

A number of performance artists have presented foods in a way that their audiences have found shocking. Consider here, for example, 'Meat Joy', from the pioneering feminist artist, Carolee Schneemann investigates women's lives, bodies, and roles in society) about the commodification of the female body (see Goldberg, 1979; cf. Acamovic, 2003). The German artist, Josef Beuys, also created a number of works to pursue his interest in fat (e.g., Forth, 2014; Laing, 2016). That said, while a number of these (performance) artists have used foods (ingredients) in their works, the viewer typically does not get to eat anything (that is, they do not taste the art).[13] One key difference for chefs is that the shocking food that they serve should be edible (and preferably also delicious). This is typically not the case for performance art works.

Nothing, though, could ever match the harrowing ordeal faced by the sixteen guests who attended Barbara Smith's six-course *Ritual Meal* (1969). This performative event started with the invitees waiting outside someone's home for an hour. They were told repeatedly by a voice over a Tannoy to: 'Please wait, please wait.' On being let in, the guests found themselves in a space listening to the sound of a loud, pulsing heartbeat, with videos of open-heart surgery projected on the walls and ceiling. Prior to entering the house, the guests had to put on surgical scrubs and were led to the table by waiters wearing surgical scrubs and masks. The eating utensils consisted of surgical instruments. The guests had to cut the meat with scalpels. Wine, served in test tubes, resembled blood or urine. In this tense atmosphere, the food took on extraordinary connotations, an effect that was enhanced by the preparation and presentation of the food (e.g., pureed fruit was served in plasma bottles). The dining experience was intensely uncomfortable for the guests, who couldn't put down their wine/test tubes and were sometimes forced to eat with their hands (Klein, 1999, p. 25; Howells and Hayman, 2014, p. 132). One gets an idea of what it must have been like for the guests from a close-up of the hands of one of the guests at the performance (see Fig. 1). That said, it is one thing to use food in artistic works/performance, quite another to have diners in a fine-dining context be invited to eat something that looks shocking.

4.3. Instagrammability

There can be little doubting the growing importance of the online presentation of food for the social media presence of chefs, as on sites such as Instagram's 'The Art of Plating' (e.g., Hosie, 2018; O'Hagan, 2020; Spence et al., 2022). There are various strategies that the chef can consider in order to increase the 'instagrammability' of the dishes they serve. Importantly, few of them have anything to do with 'deliciousness', rather they play to the eye appeal, or rather 'instagrammability' of a dish. It is, in fact, especially difficult to convey deliciousness visually (see Galarza, 2016). Far more common is the use of unusual plateware, such as serving food from flat caps, wellington boots, plant pots, shovels, etc. (e.g., Connell, 2014). Alvin Leung's 'Sex on the beach' dessert illustrates just how much media/social media coverage a chef can generate simply by creating a shocking-looking dessert (i.e., seemingly regardless of how delicious it tastes).

While blue foods have become popular amongst instagrammers (and drinks brands; see Spence, 2021b), such an approach has not been widely adopted by chefs (Spence, 2021a).[14] Notice here how meat/fish can be made to look deeply unappealing, shocking even, if coloured blue

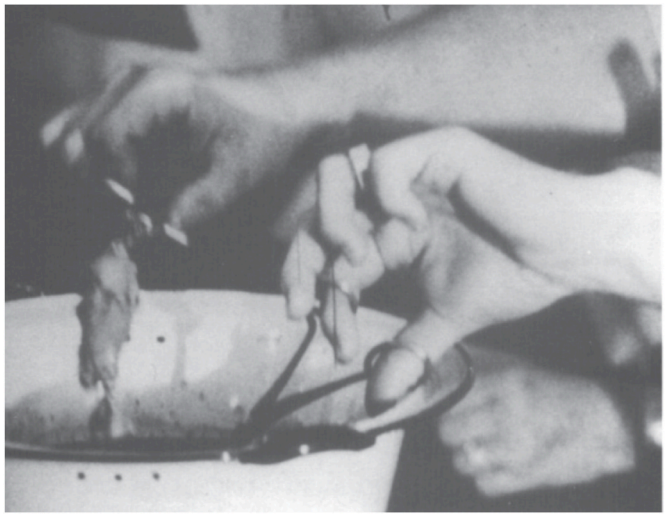

Fig. 1. Still from Barbara Smith's (1969) Ritual Meal performance art dinner.

[12] That said, it is worth remembering that the Futurist's were described by the Italian press at the time as nothing more than 'a fart from the kitchen' (Berghaus, 2001, p. 15), perhaps suggesting that we should not take their culinary exploits too seriously.

[13] In this category, one might also consider those artistic works involving provocative plateware, as in the case of Meret Oppenheim's 'Fur Cup' (Caws, 2011), which was meant to trigger the shocking thought of the lips touching a woman's pubic hair.

[14] This may be because there is no good gastronomic reason for the presence of blue food colour.

(see Spence, 2021b). The creation of new fusion foods is something that many people want to Instagram about too (see Spence, 2018c). While the introduction of a shocking dishes provide one means of enhancing social media coverage (though see also Hosie, 2018), it is by no means the only route (see Green, 2022, for one of the other routes to achieving an outstanding social media presence). Of course, not everyone is happy that the age of the 'Insta-diner' is upon us. Del Moral (2020, p. 10) despairs of: "The gastronomic egocentrism associated with social networks and the self-it is linked to photography (Kozinets et al., 2017) or food-stagramming (Wong et al., 2019), which tends to give more value to the image of the photographed dishes than to their gastronomic importance."

4.4. Creating dishes with sticktion

LaTour and Carbone (2014) have highlighted the importance of 'Sticktion', given the predictable fallibility of human memory (see Spence, 2017; 2022). While the technical definition of Sticktion refers to "the static friction that needs to be overcome to enable relative motion of stationary objects in contact," Carbone uses the term to refer to those things that stick in memory, and hence are not easily forgotten. Their main point is that experiences, gastronomic or otherwise, should be optimized for memory. Indeed, it can be argued that creating memorable dining moments might help to explain the rise in unusual plateware, not to mention the rise in small sharing plates and tasting menus that can offer multiple hooks for memorable food experiences (see Spence, 2017). Theatrical service can also help to increase Sticktion (that is, to make a particular part of the meal stand out in memory after the event; see Spence, 2017, 2022). It is, though, currently unclear whether the techniques that many chefs have adopted to increase the sticktion of the dining experiences they provide has occurred consciously or, more likely, intuitively to date.

In 2017, Miss Cakehead and UberEATS teamed up in the UK for a gruesome Halloween menu that included and a slice of cake with what looked like a bleeding finger on top (Abrahams, 2017). The menu for two for two included 1 m of pork intestines (i.e., sausage), abscess of prawn, creepy crawly couscous and severed finger cake, and was available for anyone living within 2 miles of Dinerama in Shoreditch on the 31st October. However, given its extremely limited availability this clearly represents the use of shocking food specifically to capture the media's attention. From the same group, one might also consider the Surgeon Sim dining experience (https://misscakehead.wordpress.com/2014/11/07/surgical-dining-for-surgeon-sim/), a five-course dining experience in an operating theatre to go along with the launch of an iPhone app Surgeon Sim.

Freak your date out this Valentine's with a Tongue Kiss at Alchemist in Copenhagen (Editorial Staff, 2020) was another headline hinting at something ever so slightly shocking. In this case, the dish is served on a silicone tongue, cast from a real, human tongue, with the toppings on this seasonal dish changing over time. A couple of the other striking dishes, that might be shocking to some include the dish Antwich, with all the elements in this ice cream sandwich shaped like a large black ant contain ants. The ice cream in the middle is made by combining sheep's milk and fresh ants. There is an ant get between the ice cream and the crackers, which are made from flour and ant powder (Toda, 2021).

5. Kitchen Theory's homage to Barbara Smith's ritual meal

Chef Jozef Youssef recently introduced a shocking dish onto the menu at the Gastrophysics Chef's Table at Kitchen Theory. The dish was inspired by Barbara Smith's 'Ritual Meal' (1969; see Klein, 1999). Prior to the dessert being served, the lights in the room are turned off and the only source of illumination are the 2.5 inch wide spotlights cast on to the table in front of each guest by means of projection mapping. The chef introduces the course by telling the guests about Smith's original Ritual Meal, before the sound of a heartbeat is presented over the loudspeakers. This dessert consists of an anatomically-correct flesh-coloured heart created using rhubarb sorbet coated in a deep-red beetroot reduction which appears uncannily blood-like. The dessert is served in a kidney-shaped chrome surgical tray (see Fig. 2). Once the dish has been served, the spotlight on the table begins to pulse. Combining the visually-pulsating effect with the synchronized audio of a heartbeat, it somehow appears as though each diner's heart is animated.[15]

It may be important that this potentially challenging dish is presented as a sweet dessert, given that people may be more likely to accept entomophagy in the context of a sweet chocolate brownie than, say, in the context of a savoury dish. That is, it may well be easier to encourage people to eat something they potentially have an aversion to if it is presented in a sweet format (i.e., playing to most people's most preferred taste; Drewnowski and Greenwood, 1983; Drewnowski et al., 1992). At the same time, however, it is also important to consider the stage within a meal at which such a shocking dish is presented. Notice how, by the time that dessert arrives, diners are presumably more likely to be settled into their meal and thus feeling comfortable and relaxed (cf. Youssef and Spence, 2021). By contrast, serving such a challenging dish as the *amuse bouche*, say, could well be a bit too polarising.

Once again, the context likely plays a crucial role here. Serving such a dish in a hospital canteen, say, is likely to elicit a very different response than when such a dish is playfully presented in the context of a modernist restaurant. Everyone who is presented with something so graphic is likely going to have some form of reaction, excitement, laughter, disgust, confusion, or even fear.[16]

6. Conclusions

The 'ritual meal' dessert, inspired by the 1969 performance art work 'Ritual Meal' by Barbara Smith (1969; see Howells and Hayman (2014),

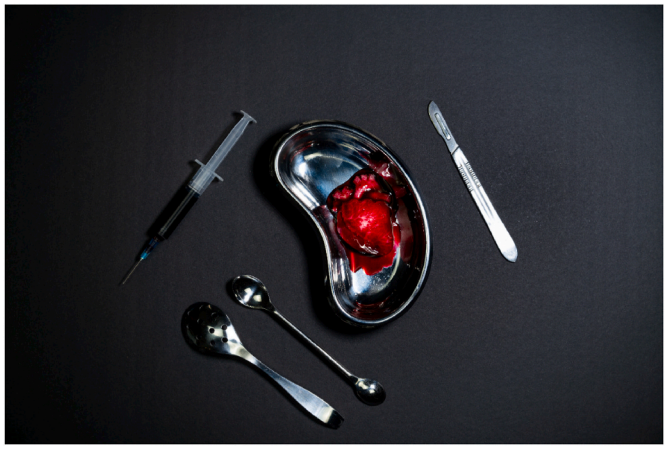

Fig. 2. The 'Ritual Meal'-inspired dessert from Kitchen Theory. Consisting of nothing but rhubarb and beetroot juice, these innocuous ingredients become shocking by their visual presentation. Looking like a flesh bloody organ, and served in a metal kidney-shaped surgical tray, the visual appearance cues cannibalism. Playing the sound of a heartbeat, helps to increase the immersion/anxiety of diners. In Barbara Smith's (1969) 'Ritual Meal' edible food performance, video footage of open-heart surgery was presented on the walls, and guests wore surgical scrubs too. *Recipe:* Rhubarb sorbet and reduced beetroot juice. The ingredients, in other words, are not in-and-of-themselves particularly interesting.

[15] Note that a similar effect could presumably be achieved using a version of the neon fruit illusion (Harvey et al., 2019).

[16] Serving the dish at body temperature would likely ramp up the diners' unease/discomfort even further.

p. 132), demonstrates how even the simplest of culinary ingredients can be transformed/elevated to a very different level, simply by presenting them in a form, and/or on plateware, that conveys an entirely different association than the one that people would normally have with the two ingredients that make up the dish. The dish shines a spotlight (quite literally, in this case) on the provocative aspect of the work of those performance artists, like Barbara Smith, who have, in decades gone by, chosen to work with food (e.g., Smith, 1969). The playful nature of this visually-shocking dessert is primary (i.e., there is no political, or nudging, agenda associated with its presentation). Nevertheless, informal reports suggest that this shocking dish constitutes an especially memorable multisensory element at the diner's experience of the Gastrophysics Chef's Table (i.e., it has much more Sticktion than a regular presentation of the same ingredients would have had; LaTour and Carbone, 2014; Spence, 2017). As one diner who had experienced the dish at a dinner several weeks before anecdotally said to one of the authors: "I still just can't get the dish out of my mind."

Of course, beyond shocking their guests, it is worth stressing how there are a number of other emotions that creative chefs can potentially work with in order to help create extraordinary food experiences (see Spence, 2020b, c).[17] There are also a number of ways, beyond the creation of shocking dishes, for those chefs wanting to create content for social media. Nevertheless, the key point remains that the growing interest in creating dishes that are interesting and/or in some sense extraordinary moves us beyond delicious to interesting so moves us beyond the era molecular gastronomy (cf. del Moral, 2020; Spence and Youssef, 2018). Looking to the future, it will be interesting to see whether the era of shocking dishes continues to thrive, or else is replaced by the next culinary movement or trend.

Implications for gastronomy

Molecular gastronomy/modernist cuisine has been described as 'the search for deliciousness'. That said, a growing number of *avant-garde* chefs have started to come up with dishes (or presentations of dishes) that are, in some sense, shocking (i.e., rather than focusing on optimizing deliciousness). While some dishes may be shocking because of the ingredients they contain, others are shocking because of the way in which typically innocuous ingredients (though often, in fact, animal protein) are presented, or what they are made to look like (i.e., often using a form of culinary trompe l'oeil). There are a number of drivers behind the growing popularity of such dishes beyond merely just a desire to shock. The undoubted instagrammability of many such dishes should not be neglected, nor should the likely 'Sticktion' (i.e., enhanced memorability) that such dishes typically possess in the minds of diners. Furthermore, chefs sometimes playfully introduce such dishes in order to encourage their guests to think/eat differently (e.g., about the consumption of animal protein). Whatever the motivation, it can be argued that the emergence of shocking gastronomic dishes requires our culinary theorizing to move beyond molecular gastronomy's narrow search for optimal deliciousness, and possibly hints at the rise of 'techno-emotional cuisine'.

Author statements

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Declaration of competing interest

There are no known conflicts of interest.

[17] One might also consider whether certain dishes might elicit fear in diners, and whether there would be positive attributes to the induction of such culinary emotions (cf. Hur et al., 2020), as a means of delivering a truly sublime tasting experience (cf. Eskine et al., 2012; Pelowski et al., 2021).

Data availability

No data was used for the research described in the article.

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