THE BLOOMSBURY HANDBOOK OF
FOOD AND POPULAR CULTURE

EDITED BY
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BLOOMSBURY

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Where Popular Culture Meets Food Studies

KATHLEEN LEBESCO AND PETER NACCARATO

A *Time* magazine online photo gallery titled "Bam! How Culinary Culture Became a Pop Phenomenon" offers viewers a "timeline of food as popular culture." As it identifies significant moments in this contemporary history (ranging from 1982 to 2010), it provides a context for understanding how and why food and foodways have gained increased visibility across the cultural landscape. At the same time, it offers a useful framework for approaching the topic of this book: food in popular culture. Specifically, the eighteen moments selected for this photo gallery illustrate the social, economic, political, and ideological role of popular food culture. Its social impact is evidenced by the growing intersection of cooking and celebrity culture—for example, the launching of the Food Network in 1992, and celebrity chef Rocco DiSpirito's appearances on *Dancing with the Stars* and *The Biggest Loser* in 2008. As chefs have become celebrities and cooking has extended its reach across the media landscape from its traditional place among how-to programming on public television, food and foodways have had increasing influence on popular culture. Intertwined with this social aspect of popular food culture is its economic influence, particularly its expanding value within capitalist, commodity culture. Three moments from the photo gallery that capture this economic role are in 2004, when more than one million people tried to get reservations at Ferran Adria's fifty-seat restaurant El Bulli; in 2003, when Emeril Lagasse appeared in ads for Crest toothpaste; and in 2007, when Mario Batali became a spokesperson for Crocs. The photo gallery also illustrates the political and ideological intersection of food and popular culture. From Jamie Oliver collecting signatures to push Britain to improve school meals in 2005 to Blue Hill chef Dan Barber speaking at the World Economic Forum in Davos in 2010, popular food culture has had a consistent influence on public policy and has also proven to be an effective vehicle for circulating cultural values and ideologies.

This *Time* magazine list is by no means exhaustive; rather, it demonstrates one of the central tenets of this book: while the importance of food across the cultural landscape has a long and rich history, over the last thirty years, with renewed media attention, we have witnessed a remarkable extension of food's influence as it has become intertwined with various facets of popular culture. Thus, the purpose of this book is to critically examine the role that food and foodways play across contemporary popular culture and, in doing so, to frame this analysis within the historical context that necessarily informs it. Although there are numerous scholarly works focused on different manifestations of food in popular

culture (food in television and film; food and social media; celebrity chefs; cultures of eating), this handbook provides a comprehensive collection that brings together original essays from leading international scholars from a range of disciplines and theoretical perspectives. And while each chapter offers a depth of analysis of its particular topic, considered collectively, the various chapters provide a breadth of coverage that takes into account the numerous intersections that make up what we understand as popular culture and the role of food across that diverse landscape.

WHAT IS POPULAR CULTURE?

The first step in tracing the relationship between popular culture and food studies is to ask, "What is Popular Culture?" But even as we tackle this complex question, we heed the warning of Henry Jenkins, Tara McPherson, and Jane Shattuc that "an honest history of popular culture is fraught with contradictions concerning economics, class power, theory and criticism, and critical enjoyment" (2003, 27). While we attempt to attend to these contradictions in the pages that follow, we also recognize that there is no comprehensive way to answer the seemingly simple question, "What is Popular Culture?" Understanding the history of the term is an important first step for using it to frame our engagement with food and foodways. Raymond Williams traces the etymology of both "popular" and "culture," noting that while "popular" was originally a legal and political term, it gradually became associated with that which is well-liked (1983, 236). In fleshing out this transition, Williams notes that by the nineteenth century, the point of view on what was deemed "popular" was shifting and that the modern term "popular culture" bridges an older sense of "popular," namely "inferior kinds of work . . . and work deliberately setting out to win favour" with a more modern inflection, "well-liked by many people" (237). At the same time, he emphasizes that another sense of popular culture emerges from its association with "folk" culture, namely those cultural products that are made by the people for themselves (237).

· The sense of popular culture as that which is liked by many people highlights its common distinction from more elitist forms of cultural production and opens up an important avenue for connecting it to the study of food and foodways. This inflection is heard in Ray Browne's foundational essay, "Popular Culture: Notes Toward a Definition," in which he defines Popular Culture as

all those elements of life which are not narrowly intellectual or creatively elitist and which are generally though not necessarily disseminated through the mass media. Popular Culture consists of the spoken and printed word, sounds, pictures, objects and artifacts. "Popular Culture" thus embraces all levels of society and culture other than the Elite—the "popular," "mass," and "folk." It includes most of the bewildering aspects of life which hammer us daily. (1973, 22)

In this definition, we can identify two separate but related elements: content and mode of dissemination. Regarding content, "Popular" culture is typically differentiated from "Elite" culture insofar as the former is related to the examination of how everyday life is constructed (Turner 1996, 6). Browne traces the roots of this distinction, noting that historically American colleges and universities have neglected the study of popular culture because elitist scholars have not deemed that which they judge to be artistically inferior as worthy of study (1973, 15).

However, contemporary scholars offer a different perspective, arguing that one reason why popular culture has been marginalized in relation to elite culture is because it is inherently political. As Turner explains, the purpose of studying popular culture is "to examine power relations that constitute this form of everyday life and thus reveal the configurations of interests its construction serves" (1996, 6). Such work, Russel Nye argues, is important insofar as it challenges older concepts of society that relegate the masses to an easily manipulated group who are at the mercy of the cultured elite (2006, 24). From this perspective, popular culture is understood to empower the "masses" by giving them voice in a society that privileges elites, both aesthetically and politically. This perspective is reinforced by John Fiske, who argues that culture is inherently political because it involves a set of social practices that are related to the distribution and possible redistribution of power (2006, 119). In the specific case of popular culture, Fiske notes an important contradiction: "Popular culture is made by subordinated peoples in their own interests and out of resources that also, contradictorily, serve the economic interests of the dominant" (2006, 119). Thus, as we unpack definitions of popular culture, we must be mindful of this double-edged sword; on the one hand, it serves to empower the mass majority against an elite minority but even as it does so, it may simultaneously advance the economic interests of that very minority.

Fiske's definition of culture is especially useful because it provides a framework for challenging elitist assumptions about the specific types of practices that constitute its production. While "high" culture is distinguished by a limited set of intellectual or creative practices (Nelson 1973, 22), popular culture expands this list to include everyday practices and the material conditions in which they occur. As such, scholars of popular culture attend to "agency in everyday life," recognizing it as "a form of craftwork involving intimate collaborations among embodied humans and material objects" (Farquhar 2006, 146). This focus on the agency of those who participate in the work of producing popular culture leads to "a more participatory model of culture, one which sees the public no as simply consumers of preconstructed messages but as people who are shaping, sharing, reframing, and remixing media content in ways which might not have been previously imagined" (Jenkins, Ford, and Green 2013, 36). Thus, in addition to expanding the types of media studied, popular culture scholars also turn their attention to material practices and objects—"any form of cultural phenomenon, material item, practice, social relation and even idea that is conceived, produced, distributed, and consumed within a market driven environment" (Parasecoli 2008, 4). In doing so, they recognize the links between individuals, societies, and the material objects that they produce (Dant 1999, 2).

This overarching definition of popular culture comes into greater focus as we consider its relationship to the kinds of scholarly work produced in the interdisciplinary field of food studies. As each chapter in this book demonstrates, food and foodways intersect with popular culture in myriad ways, including through cultural representations of food (Part I), material cultures of eating (Part II), aesthetics and design (Part III), and sociopolitical debates (Part IV). In fact, food proves to be an especially productive vehicle for studying popular culture. Peter Atkins and Ian Bowler metaphorically identify the study of food as a "barium meal' for X-raying social, political, economic and cultural issues, a kind of marker dye for broad structures and processes" (2016, vii). In addition to viewing food as the material object that fulfils the quotidian need for nourishment food studies scholars expand their focus toward an understanding of consumption in "the metaphorical sense of symbolic and economic appropriation" (de Solier 2013, 4).

THE BOOK'S STRUCTURE

The *Handbook of Food and Popular Culture* is organized in four sections that progress in specific and intentional ways. While every contributor brings their individual expertise to the topics at hand, each chapter also explains key theories, paradigms, and/or areas of research related to its topic, and contextualizes current phenomena historically, including a consideration of possible future developments. The book is international in scope, addressing both global and national issues; in addition, contributors themselves span half a dozen countries and three continents.

Part I, **Vicarious Consumption: Media and Communication**, focuses on the relationship between traditionally recognized forms of popular culture—including film, television, print media, the internet, and emerging media—and food. Recognizing that scholars of popular culture have thoroughly studied the influence of such media across the cultural landscape, the chapters in this section bring this scholarship to bear on their analyses of these media in relation to the evolution of food as both a subject of media representation and a growing source of cultural capital. And even as these chapters move from "older" to "newer" forms of media, they underscore the importance of attending to each of them and putting them in dialogue with each other. In fact, it is at the intersections between these forms of media that we encounter what Henry Jenkins identifies as "convergence culture," a notion that he argues helps us rethink our relationship to media (Jenkins 2006, 23). For Jenkins, the crucial yet unpredictable convergences are between old and new media, grassroots and corporate media, and media producers and consumers (2). As new forms of media develop, producers and consumers acquire skills that "may have implications for how we learn, work, participate in the political process, and connect with other people around the world" (23).

The chapters in this section explore how such convergences most certainly have and continue to occur across the culinary media landscape. In Chapter 1, Jonatan Leer reviews the history of American and European food television with a specific focus on how it has reinforced and/or subverted normative codes of gender. Leer argues that while the majority of food-related television programming from its earliest inception through the 1990s sustained the dichotomy between traditional masculine and feminine gender roles, in recent decades, a number of shows have functioned to transgress these boundaries. Leer's analysis traces this evolution in food television while positioning his discussion of gender in relation to ethnicity and economic class. In Chapter 2, Laura Lindenfeld and Fabio Parasecoli explore the history of representations of food in film, from early cinema to the emergence of the food film genre beginning in the 1980s. Taking a global perspective, they reveal how representations of food in film both sustain and undermine society's normative values and ideologies. Such analysis is extended in Chapter 3, as Rohit Chopra focuses on the role of media representations of Indian cuisine in shaping both local and global perceptions of India and Indian culture. His analysis includes televisual, digital, and online media, revealing how the affluent segments of Indian society adopt contemporary global food trends to assert their international cosmopolitanism and, in doing so, define what the terms "new Indian cuisine." The focus on digital media continues in the remaining two chapters in this section. In Chapter 4, Isabelle de Solier analyses the role of new food media in circulating specific messages about production and consumption. Focusing specifically on food blogs, Instagram, Facebook, Pinterest, Twitter, and YouTube, de Solier frames her analysis through concepts of culinary capital, food porn, and digital creative production. In the second part of the chapter, she offers a case study of an edible

community garden, the Pop Up Patch, to show how its supporters utilize various digit[al] media platforms to shape the messages about food that it circulates. The focus on digit[al] media continues in Chapter 5, as Deborah Lupton traces the contemporary fascinatio[n] with documenting and representing cooking and eating practices through digital med[ia] and technologies. Lupton analyzes various digital media, including websites, blogs, soci[al] media, and mobile apps, focusing specifically on their role in creating a participatory foo[d] culture that is sustained by an ethos of sharing. At the same time, Lupton considers ho[w] digital media and technologies also contribute to a culture of surveillance as consume[r] food practices and choices are tracked in ways that serve the economic interests of th[e] transnational food industry.

Following these analyses of how food is represented across the media landscap[e], Part II, **Visceral Practices: Material Cultures of Eating**, shifts the focus on the materiali[ty] of food, including consideration of specific food-related activities and practices (eatin[g] across the lifespan, home cooking, food retail, restaurants, and street food). In making th[e] shift, the five chapters in this section consider the historical evolution of food and foo[d]-related practices in relation to relevant cultural, political, and economic developments.] In doing so, they tease out the connections between how society engages with food and th[e] broader cultural landscape upon which it does so. This evaluation of material practic[e] is an essential step for validating scholarly engagements with food and foodways. T[o] easily taken for granted, material culture is a constituent element of our social liv[ing], that impacts our actions and values (Dant 1999, 2). For Isabelle de Solier, the study [of] material culture is essential for understanding how people create a meaningful and mor[e] individual self (2013, 2). As she argues, it is not the objects, themselves, that are mo[re] significant but rather, the relationship between these objects and the people who u[se] them given how material objects impact identity formation (1999, 2). De Solier's conce[pt] of material media—"forms of media dedicated to material objects" (1999, 3)—provides [a] useful framework for understanding the chapters in this section and linking them to th[e] previous section. As she explains, the study of such material media is essential becau[se] rather than seeing the material world as existing in isolation, we need to recognize ho[w] the media influences the relationship between people and things (1999, 3). Specificall[y] de Solier argues, these material media educate us as to how to consume and produ[ce] material objects as part of the work of identity formation (1999, 4). Through the various explorations, the chapters in this section highlight the role of material practic[e] around food in creating and sustaining certain types of identities.

This section begins with Chapter 6, in which Amy Bentley and Shayne Leslie Figuer[oa] offer a broad overview of food practices across the lifespan, from infancy and childho[od] through adulthood and old age. They focus on specific foods and food programs in ea[ch] of these phases, reading them in relation to prevailing discourses of health, the foo[d] industry, and the role of the consumer. Following this overview, Jessamyn Neuhaus['s] Chapter 7, looks specifically at the evolution of cooking practices within the home. S[he] provides a comprehensive review of scholarship on "home cooking" and its symbol[ic] function across US popular culture. Additionally, the chapter considers how the practi[ce] of cooking at home relates to prevailing ideologies of gender, race, class, and ethnici[ty] and how this connection circulates across a range of texts, from cookbooks, consum[er] products, and government propaganda to advertising, websites, and social media. [In] Chapter 8, Shelley Koch shifts focus from cooking to buying food, tracing how consum[er] choices are made in relation to historically specific economic and social structur[es]. Koch considers the ideological implications of certain consumer choices, from th[e]

that reinforce the power of the modern supermarket and the industrial food system to those that challenge it by promoting alternative networks of Fair Trade stores, small producers, and local purveyors. The chapter concludes by considering the current and future impact of online food shopping on the fundamental act of shopping for food. After considering how consumers buy food and cook it at home, in Chapter 9, David Beriss offers an historical analysis of the rise of restaurants and its impact on popular culture. Beyond serving as a place to eat, Beriss argues that from their inception, restaurants have served as spaces in which individuals can perform various social roles in ways that can reinforce or critique social hierarchies. From their ability to confer status on the social elite to their contribution to the rise of the middle class, restaurants across the global landscape are intimately connected with prevailing ideas about class, gender, race, and ethnicity. Beriss concludes by considering the rise of fast food in relation to globalization and concerns about cultural homogenization. And in Chapter 10, Bryan Moe and Kendall Shurance extend this analysis from restaurants to street food. Tracing the contemporary fascination with street food across popular culture back to its historical roots, this chapter maps out a trajectory in which street food vendors have been both celebrated and chastised, arguing that the current popularity of street food must be read in relation to the internet and social media. At the same time, it considers how street food has evolved in relation to globalization, suggesting that to some extent, it has shifted from a localized means of sustaining communities and their unique culinary practices and traditions to an unlikely source of culinary and cultural imperialism.

Following this focus on the material practices of cooking and eating, Part III, **The Aesthetics of Food**, offers six chapters that consider design and the arts (including urban landscapes, museums, and visual and performance arts) and their relationship to food. Recent scholarship on food design focuses on how food-related products, practices, and spaces impact individuals and communities. Founding editor of the *International Journal of Food Design* Francesca Zampollo defines this field as follows: "Food Design is the design process that leads to innovation on products, services or systems for food and eating: from production, procurement, preservation, and transportation, to preparation, presentation, consumption, and disposal" ("Food Design Definitions"). This field of inquiry has emerged as an especially productive space for bringing together scholars, researchers, professionals, and practitioners to explore the connections between the physical spaces in which food is produced and consumed and how these lived experiences impact those who engage in them. In approaching food and food-related practices from a design perspective, scholars and practitioners are interested in all aspects of the eating experience. As the editors of the *International Journal of Food Design* explain:

The eating experience is the process that transforms stimuli of an eating situation into emotions, knowledge and ultimately memories. The stimuli are many, and analysing them is a complex issue. Here we are interested in looking at how Design can be applied to the control of such stimuli, and therefore, to the control of the different aspects influencing the eating experience. (*International Journal of Food and Design*)

While scholars and researchers in Food Design look holistically at the eating experience, they also identify several ways of breaking it down into its constituent parts. In doing so, they ask separate but related questions: How are specific food products designed and packaged? How does this impact how they are marketed, purchased, and consumed? How are objects (pots and pans, utensils, cutlery, dishware, and appliances) used in the production and consumption of food designed and how does this impact how individuals

interact with food and process these experiences? How do cutting-edge chefs and artists design *with* food and in doing so, how do they push boundaries between food and art? How do such creative enterprises use design to raise fundamental questions about food and our relationship with it? How are the spaces in which we procure, prepare, and consume food designed and how does this design influence our thinking about production and consumption? And finally, how do design decisions across the culinary landscape impact individual cooking and eating experiences as well as the broader values and ideologies that are circulated by them? ("Food Design sub-disciplines")

These are some of the overarching questions that inform the chapters in this section. In Chapter 11, Fabio Parasecoli surveys the landscape of food design, focusing on how scholars and practitioners in this field seek to improve our relationship with food. Parasecoli outlines the diversity of expressions of food design, from design of the food itself to design of the tools, technologies, and environments used to produce, distribute, and consume it. Katrin Bohn and André Viljoen continue the investigation of aesthetics in Chapter 12, zeroing in on the link between food and urban design. They explore how discourses of urban agriculture are animated by popular desires about food production and food culture, and offer the concept of "Second Nature" as a framework for better supporting productive landscapes within cities. Chapter 13, by Paulette Singley, considers the history of the abattoir, emphasizing architecture's role in food production, and appraises the separation of sites of food production from those of consumption, and appraises alternative architectural design solutions that revolutionize the slaughterhouse. Chapter 14, by Yael Raviv, examines how changing definitions of art, as opposed to popular culture, have excluded food until recently. From the 1930s avant-garde movements in Europe to the modernist cuisine phenomenon of the present day, Raviv showcases the evolving role of food as a creative, conceptual medium. Irina Mihalache, in Chapter 15, comes at art from a different direction—not what would be considered worthy of installing in a museum gallery, but rather the experience of dining in an art museum restaurant. Looking at their history, Mihalache explores these restaurants as spaces of interpretation and display where the museological experience is applied to food and eating. Finally, Chapter 16, David Szanto presents three frameworks for understanding performance as it intersects with food systems and food scholarship. Examining the production of food performance outcomes, the elevation of performativity over causality-based outcomes, and structures of power, authority, and positionality, Szanto proposes speculative scenarios for performance as a foundation for future forms of food scholarship.

Finally, the seven chapters in Part IV, **Sociopolitical Considerations: Contemporary Debates and Trends**, examine contemporary sociopolitical concerns, including popular discourses around food science, waste, nutrition, ethical eating, and food advocacy. Tim Lang and Michael Heasman note a number of dichotomies in the foodscape: "over- and under-consumption; over- and underproduction; over- and under-availability; intensification versus extensification; sustainable and unsustainable food systems; and high-tech solutions versus traditional, culturally based ones, knowledge- and skill-rich food systems versus de-skilled and knowledge-poor ones; affluent world modes of eating versus simpler dietary patterns" (2015, 6). Food is contested terrain, and this section looks at a number of those sites of contested meaning from a critical cultural studies perspective, analyzing popular discourses sheds light on the ideological underpinnings of vital public conversations. Following Gary Harmon, popular culture—"what people are willing to share and consume"—"is a key to their views and values, and to their unconscious held beliefs and tensions" (2006, 62–63). Examining how people participate in popular

culture publicly and privately reveals cultural anxieties characteristic of particular historical and economic conditions. The chapters in this section on contemporary debates and trends situate their subject matter within political economies, historical moments, and technological states, remedying what Jim McGuigan has critiqued as "an *uncritical populist drift in the study of popular culture*" (1992, 5).

In Chapter 17, Rebecca Wells and Martin Caraher discuss the interplay between mediated food promotion and public health, specifically highlighting the corporate capture of food and food culture, advertising and marketing food to youth, and the influence of emerging forms of media. Rachel Ankeny and Heather Bray present an analysis of the complicated relationship between food and science in Chapter 18. Observing that scientific interventions in the food system have been either considered unnatural and thus frightening, or rendered entirely invisible, Ankeny and Bray advocate for alternative approaches to foods made with science and technology that do not simply reinforce neoliberal ideologies. Jessica Mudry, in Chapter 19, argues that popular food culture is nutrition because of the imperative to manage our bodies through scientific eating. Mudry details the historical path to the conflation of popular food culture and science, pointing to the impact of this framework on understanding the body, food, exercise, and diet. Following suit, in Chapter 20, Josée Johnston, Kate Cairns, and Merin Oleschuk appraise scholarship on ethical consumption, documenting its function as not only a questionable version of consumer politics but also a basis for status and a way to perform femininity. Their close analysis of *The Kind Diet* books leads Johnston, Cairns, and Oleschuk to advocate for scholarship that links ethical eating discourse and gendered care-work. Chapter 21, by Elisa Ascione, looks at the processes through which heritage is assembled and asserted. Ascione explores how food is used to create identity claims about cultural heritage and how claims of typicality often result in the standardization of food products. Chapter 22, by Lori Stahlbrand and Wayne Roberts, investigates the decoupling of eating and agriculture from popular culture. Stahlbrand and Roberts review key themes in the major discourses of food advocates—human rights, public health, food security, and sustainability—and argue for the reclamation of the cultural dimension of food. Finally, in Chapter 23, Leda Cooks surveys popular media stories and activist efforts regarding food waste and interrogates the discursive framing of both the problem and its solutions.

Each chapter in this book offers an historical overview of a specific theme or topic under the broad category of food and popular culture, summarizes cultural trends and activities in relation to it, reviews relevant scholarship, and points to possible future directions for researchers, practitioners, and consumers. While each chapter can stand individually as a comprehensive review of its particular topic, taken together, the chapters combine to form what we hope is an indispensable precis on food and popular culture. Overall, we hope that this book situates its engagement with food and popular culture at what Peter Atkins and Ian Bowler have described as "diverse sites of activity" (2016, 8), including patterns of language and conversation, well-known and widely available texts, and individual accounts. Both individually and collectively, the chapters reflect a critical approach to food and popular culture that recognizes its sociopolitical context and drivers. As such, this book aims to participate in a lively conversation about where food and popular culture intersect and how a critical understanding of these sites of intersection is crucial for guiding future scholarship as well as effecting positive social change.

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CHAPTER FIVE

Cooking, Eating, Uploading: Digital Food Cultures

DEBORAH LUPTON

INTRODUCTION

In the increasingly digitized societies of the Global North, food and eating practices are documented and portrayed in a multitude of ways. Digital technologies like search engines facilitate finding information about food and eating. Mobile media such as smartphones and tablet computers allow users to document their food practices, navigate to the best places to eat using geolocational software, and easily share images and comments about their food experiences with other people online. Such digital media as blogs, websites, discussion forums, mobile apps, and social media platforms provide many opportunities for the discussion and visual representation of food and eating that can reach much larger audiences than older forms of media. All of these digital technologies work to represent, locate, and share food-related images, ideas, beliefs, and practices in public forums in novel ways. They serve to "datafy" food and food practices, rendering them into a variety of digital data formats.

Despite the prominence of digital technologies in contemporary food and eating practices, very little scholarship has been published on their contribution to popular food cultures. Human-computer interaction studies (a sub-discipline of information and technology research) is one of the few fields that has devoted sustained attention to digital technologies in the context of food. However, researchers in this field tend to be interested more in technological design and the user experience rather than the wider sociocultural aspects of digital food cultures. Medical and public health researchers have undertaken some studies of the representation of food in websites, apps, and social media in the interests of identifying such elements as the relative healthiness of food discussed or portrayed in these media. The lack of interest and awareness of the role and impact of digital technologies in contemporary food studies scholarship was exemplified by a recent article on the future of food studies published in the prominent journal *Food, Culture and Society* (Hamada et al. 2015). Digital media were mentioned only in the context of food studies scholars using such public engagement outlets as blogs to publish their work and engage in food activism. Nor have many researchers in new media and internet studies turned their attention to digital food cultures.

Many features of the digitization and datafication of food cultures remain to be explored by critical food studies scholars. In this chapter, I focus on several important features of contemporary digital food cultures. These include the sharing ethos, convergences, and

cross-platform affordances of new digital media and the increasing value that is attributed to the data generated by digital interactions and practices and the possibilities for using these data to generate insights into consumer preferences and behaviors. In the wake of these transformations, popular food cultures have attracted unprecedented visibility and contributions from lay publics. Digital data about food and food practices contribute to concepts of selfhood, embodiment, and social relations. At the same time, however, the material that is contributed by users of these new media has become commodified and repurposed well beyond the original intentions of the creators. This content can easily be shared across many forms and genres of media. It can be aggregated and archived and used by a multitude of actors and agencies as part of the digital data economy. These technologies allow for various modes of dataveillance (using digital data to watch or monitor people) (van Dijck 2014; Raley 2013) to be conducted. In some cases, this dataveillance is consensual and voluntary; in others, people do not fully realize who may be watching them and using their personal data. As I demonstrate, these features have important implications for the configurations, experiences, uses, and futures of digital food cultures.

I begin the chapter by outlining key issues and concepts concerning digital technologies and their role in popular culture. I then provide an overview of the diverse ways in which food and eating have been digitized from the early years of the internet to the present day. This is followed by a discussion of the growing emphasis on image-based content in digital media and its contribution to portrayals of food and embodiment and consideration of the big data sets that these practices generate, including how these are used in the digital data economy across a diverse range of domains. The chapter ends with some comments about directions for future research into digital food cultures.

DIGITAL TECHNOLOGIES, DIGITAL DATA, AND POPULAR CULTURE

An integral principle underlying my discussion here is the acknowledgment that digital technologies, including both hardware and software, are important contributors to, and embedded within, popular culture. This is particularly the case of digital media such as websites, discussion forums, and social media. These media, accessed via devices such as smartphones, tablet computers, iPods, and desktop and laptop computers, have become important forums for people to engage and communicate with each other, develop and maintain social networks, and share information and experiences (Lupton 2015; van Dijck 2013; Beer 2013; Raley 2013). As Beer observes, "In many ways it has now become almost impossible to think of popular culture outside of its new media infrastructures" (2013, 1).

The high rate of use of internet services and apps is demonstrated by the Excelacom company's infographic, "What happens in an internet minute?" (Leboeuf 2016). The numbers shown include over 701,000 Facebook logins, 2.78 million video views on YouTube, over 527,760 photos shared in Snapchat, over 38,100 posts to Instagram, over 347,000 tweets, and 2.4 million Google Search queries per minute. The use of digital technologies continually generates data about people's actions, habits, behaviors, and preferences that are transmitted to the computing cloud for storage and retrieval. All of these activities are cultural practices, and the artifacts that they create—images, sounds, words—are cultural objects. They are special types of cultural objects, however, in their

existence as digitized materials. Nor only are these digital cultural objects easily generated via the use of digital technologies, but they can readily be shared across devices and software, archived in digital databases, and used for many purposes.

The term "participatory culture" has been used to describe the ways in which digital media offer these opportunities to create and consume content (Beer and Burrows 2010; Beer 2013). While traditional media outlets have enabled participatory culture to a limited extent, contemporary digital technologies allow people to communicate with others easily and share material online. The sharing ethos is a central feature of digital participatory culture (John 2013a; Gehl 2014). This ethos supports the idea that digital participation is highly social, interactive, and collaborative. Users generate material online that can be readily shared with other users, who can then use this material for their own purposes. This is a form of collaborative consumption, in which individual pursuits and motivations are part of social interactions that benefit all participants (John 2013b).

The technological capacities of contemporary digital media are also important to digital participation. The growing convergences and cross-platform affordances of digital technologies facilitate content creation, sharing, and interactivity. Many apps, platforms, and devices are now designed to enable the ready movement and sharing of material. Thus, for example, a photograph captured on a smartphone can quickly be shared with other people on social media sites like Facebook, Instagram, Snapchat, Pinterest, and Twitter straight from the phone. Once the image is uploaded to these sites, it becomes part of the databases of the developers of these platforms, who can use it in various ways.

These developments toward participation, sharing, interactivity, and the technological convergence of digital media generate quantities of digital data (usually referred to as "big data") in unprecedented volume and rate of production. In response, a digital data economy has developed, in which data about people's tastes, preferences, and habits have become invested with significant value (Beer 2013; Andrejevic 2013; Kitchin 2014). While digital participation builds on and further facilitates the sharing ethos of internet communication (John 2013a), it has also become harnessed to the motives of commercial endeavors. Many business and industries have recognized the value of digital data about cultural practices for researching consumer behavior and informing the marketing, advertising, and distribution of goods and services. While users who upload content to online platforms and apps do so either for private purposes or because they want to engage in collaborative consumption and participate in the sharing and communal ethos that these platforms and apps promote, their unpaid labor is exploited by the developers and other parties (Gehl 2014; van Dijck 2013). Sometimes users are aware of the ways in which others are exploiting their personal data; in many other cases this happens without their knowledge or consent.

The expanding industry of data mining and harvesting has emerged in response to the plethora of big data generated by people's engagements online and with media such as apps and self-tracking devices. Members of this industry are proficient in accessing, manipulating, and analyzing personal data from diverse datasets and databases to configure and profit from the new forms of knowledge they are able to develop from these sources (Andrejevic, Hearn, and Kennedy 2015; Pasquale 2014). Such processes, as well as those undertaken using algorithmic calculations by companies including many of the internet empires, work to rank, sort, and profile people and their cultural practices and preferences. In this way, internet companies attempt to better target advertising and send notifications to users based on their previous consumption activities (Striphas 2015). These algorithmic strategies have significant implications for popular cultural practices,

in terms of the kinds of material people are offered by companies when they go online. The personalization and customization of data analytics result in targeted advertising, special offers, and recommendation systems such as those offered by Google, Facebook, Amazon, Twitter, Spotify, and Netflix to profile and categorize people's preferences based on their online interactions, potentially shaping the future tastes and actions of consumers. Algorithms, therefore, can have recursive effects, in documenting, predicting, and manipulating people's behaviors (Beer 2013; Cheney-Lippold 2011).

DIGITAL FOOD CULTURES: FROM WEB 1.0 TO WEB 2.0

Changes in the affordances of digital devices, the internet, and the World Wide Web since their emergence in the 1980s have led to a proliferation of these practices. The early years of the web (often referred to as "Web 1.0"), spanning the ten years or so from the mid-1990s to the middle of the first decade of the twenty-first century, were characterized by the development of websites, discussion forums, wikis, and blogs that provided information about food (such as offering recipes and nutritional advice) and some limited facility for users to interact with each other. Search engines like Google Search developed, allowing users to easily search the internet for food-related queries. Consumers were able to shop for their groceries online using several websites devoted to this service, often offered by major supermarket chains as well as niche providers such as organic food purveyors.

Websites developed by a wide range of authors, including the restaurant and food industries and food magazines as well as everyday people, special interest groups, and health organizations, have proliferated, presenting many different topics related to food and eating. Websites like Celiac.com (first established in 1995) provide information and support for people with celiac disease and those seeking a gluten-free diet. Discussion forums are offered on websites such as eGullet, a service for the eGullet Society for Culinary Arts & Letters, Restaurant Professionals Forum. Forums such as VeggieBoards, for vegetarians and vegans, also facilitate interactions between like-minded members wanting to exchange information and advice. Food activist efforts are supported by websites like those offered by the Organic Consumers Association, its tagline claiming that it is campaigning for nothing less than "health, justice, sustainability, peace, and democracy" (Organic Consumers Association 2016).

Since the emergence of the internet, food blogs have been a particularly popular way for amateurs and professionals alike to write about food and eating, assisted by the introduction of blogging platforms like Blogger and WordPress (Rousseau 2012). By 2013, a list of most common blog categories showed food as the eighth-most common topic, with over 2 million blogs on it (Gaille 2013). These blogs cover an extensive range of food-related topics, including providing recipes and discussions of food preparation techniques, focusing on health-related eating and nutrition and special dietary needs related to allergies, intolerances, or ethical food choices, discussing ways to purchase and prepare food on a limited budget and directing attention to food-related political issues. A list of the most popular and influential American food blogs published online in early September 2016 is illustrative of the diversity of food blogs. The top five blogs are headed by Serious Eats, a blog that combines advice, recipes, and news about sourcing and preparing gourmet food; followed by The Pioneer Woman, a more personal blog

written by a woman living in a rural area of the United States, combining chatty accounts of her life with recipes; Simply Recipes, which presents recipes for home-cooked family meals; Vegetarian Recipes of India, written by a blogger based in India; and Skinny Taste, focusing on tasty food that is low in calories (American Food Bloggers 2016).

With the advent of mobile computing, social media, and apps, new ways of using the web emerged in what is often referred to as "Web 2.0" or "the social web." Users could more readily connect to the internet at virtually any time and location, and easily generate, share, and comment on digital content. These affordances have promoted the expansion of digital food cultures. Such practices as posting restaurant reviews to platforms like Yelp and TripAdvisor have proliferated. YouTube has allowed amateur and professional cooks alike to upload videos demonstrating cooking techniques, often on dedicated cooking channels. The most successful of these attract tens of millions of views and feature hundreds of videos. An analysis of YouTube (Jarboe 2015) found that by 2015, food content had received nearly 41 billion views, with approximately 14,000 creators uploading their food videos in that year alone. Food topics are the fourth-most popular category on the platform, after gaming, how-to-style, and comedy videos. Views for cake-baking content constitute one-fifth of all food content views. While British celebrity chef Jamie Oliver was the most highly viewed YouTube food content contributor, he was followed by several amateur cooks in attracting the highest number of views.

Social media have been central to political and activist endeavors (Shirky 2011; Obar, Zube, and Lampe 2012), and this is true of civic engagement and collective activism related to food issues. Social media like Facebook and Twitter have been taken up by food activists to draw attention to their causes and communicate with interested parties. The Huffington Post published an article on "250 must-follow Twitter feeds for every food activist" in 2015 (Nierenberg 2015) listing Twitter handles for individuals, groups, and organizations working in activism related to such issues as climate change, food waste, food security, safety and sustainability, world hunger, poverty and malnutrition, organic and pesticide-free food production, health promotion, agricultural policy, and fair trade.

Newer digital technologies have emerged over the past decade or so. Geolocational software, as enshrined in platforms and apps such as Foursquare, enables users to both readily identify places to eat out in their area and "check in" to show friends where they are eating. Apps related to food and eating abound in the major app stores. When I checked the apps listed under the search term "food" in the Google Play Store in late July 2016, the types of apps included restaurant finders like Zomato (5 to 10 million installs), restaurant review apps (Urban Restaurant Spoon Reviews, 5 to 10 million installs), food-related games for children like Lego Duplo Food (5 to 10 million installs) and games for adults (Food Quiz, 5 to 10 million installs) and Toca Kitchen (10 to 50 million installs, What Food and Food Street, both 1 to 5 million installs), recipe apps (Food Network in the Kitchen, 1 to 5 million installs, Yummly Recipes and Shopping List, 1 to 5 million installs), calorie counters (Calorie Counter—MyFitnessPal, 10 to 50 million installs), apps to enhance photos of food taken with users' smartphones (Foodie—Delicious Camera, 1 to 5 million installs), and food delivery apps (iFood and Food Panda, both 5 to 10 million installs).

As the numbers of downloads recorded by Google Play demonstrate, these apps were all very popular. Their popularity suggests the multiplicity of pleasures and uses that app users find in food apps. Food-related games and quizzes suggest the attraction of the ludification of food, while restaurant review apps and food delivery apps meet people's desire to seek out the best or most convenient dining experiences. These types of apps

engage with the interactions between food and entertainment and leisure cultures. Apps for recipes and food preparation techniques attest to the importance of people being able to cook competently, also contributing to the concept of food as pleasurable and performative. In contrast, the extreme popularity of calorie-counting apps represents the ways in which food cultures are permeated by concepts of health and the importance of body weight management.

FOOD IMAGERY AND EMBODIMENT IN NEW DIGITAL MEDIA

Digital media platforms offer spaces for heightened visibility of bodily practices and displays, inviting a type of watching from other users that has been dubbed "social" or "participatory" surveillance (Marwick 2012; Albrechtslund and Lauritsen 2013). Visual images, often organized by way of hashtags used to signify their content and audience are particularly important in the latest digital media. "Food selfies" are photos that people take of the food they have prepared or purchased (with or without inclusion of the photo-takers in the photos) and share on social media platforms before or while consuming it. The food selfie trend has become so popular that tips and advice on how best to take this type of image are available online. According to one such blog post, food selfie takers should consider such features as the lighting and the crockery used to display the food, the presentation of the food itself, and the filters used to enhance shots. As I observed earlier, apps for manipulating food images are also commonly downloaded.

The image-focused social media platforms Instagram, Pinterest, Tumblr, and Snapchat have gathered momentum in the past few years, providing spaces for a proliferation of portrayals of people cooking and eating food and of food itself. The hashtag #foodporn (and related tag #foodgasm) is frequently used on these platforms when users are sharing images of food. "Food porn" is used to describe the attractive qualities that people see when visually portraying food in media such as cookbooks, television cooking programs, websites, and social media platforms. It suggests the performative dimensions of these images, which are manipulated to incite feelings of desire or envy, and the emphasis on appearance over other qualities (Dejmanee 2016). Some users go further by using #fatfoodporn to post images of and celebrate food that is culturally coded as "fatty" or "fattening." Images posted using this hashtag on Tumblr, for example, feature French fries, burgers, cakes, bacon, pasta, pancakes, pizza, and cookies.

Food selfies and other visual images of food and eating on social media also frequently draw attention to the shapes and sizes of human bodies and their assumed relative health statuses. In contrast to the food porn representations that focus on highlighting the sensory pleasures of food are visual images that focus on celebrating and performing health and fitness. Other common hashtags on social media to tag images of food include #fitness, #fitspo and #thinspo (short for "fitspiration" and "thinspiration") and #eatclean, #healthylife and #health or #healthy. All of these are used to include images of food or food consumption activities that refer to foods that are culturally coded as "healthy," "unfattening," or "clean." Images of food such as fresh juices, green smoothies, fruit, ancient grains, salads, and muesli are often accompanied by those of the user in workout wear, demonstrating her or his slim (and often very thin) or taut and muscular body and suggesting that this body has been achieved partially through the consumption of these kinds of foods. Even more extreme representations of restricted eating and very

thin bodies are found on "pro ana" (pro-anorexia) social media. Thus, for example, a search using the #tihinspo hashtag on Tumblr and Twitter reveals a plethora of images of emaciated (nearly all female) bodies and images, lists, or advice about containing calorie intake and resisting the temptation to eat. Fat activists, for their part, use hashtags like #obeselifestyle and #notyourgoodfatry to highlight images of themselves eating decadent food as a way of countering fat stigma and challenging assumptions about the kind of diet fat people "should" be consuming (Pausé 2015; Lupton 2017).

The convergences and cross-platform affordances of contemporary digital media are evident in websites such as Foodspotting, which encourages users to take photographs of food they enjoy (mostly when dining out) and upload them to the site using geolocation tagging, so that other users can see where they purchased the food. The platform also offers a blog and an app and encourages Instagram users to tag photos with the #foodspotting hashtag. Another example of a platform that combines several different media is the food blog Food Babe, created by American Vani Hari. Hari, a conventionally attractive and slim young woman, publishes material about nutrition, food safety, clean eating, and health, combined with photos of herself with a radiant smile and clad in clingy outfits. She also has Twitter, Instagram, and Facebook profiles and YouTube videos. Hari has embedded one of these videos on her website stating her major claims and showing "before" photos of herself demonstrating the changes she has wrought in her own health and body weight. Hari uses her social media and blog presence to sign members up to health and weight-loss programs and to sell her book *The Food Babe Way* (which reached the *New York Times* bestseller list soon after publication). Here fitspiration and thinspiration combine with food activism, health, and wellness discourses in the strategic use of a range of media to maximize attention, achieve celebrity status, and generate sales. Hari boasts that her website receives 3 million unique visitors each month.

All of these representations of eating practices related to body size involve people voluntarily displaying their eating practices and bodies. For those who seek to perform and display clean eating, slimness, physical fitness, or extreme thinness of their flesh, the association made between food, health, and embodiment is that of restriction, control, and self-discipline (Lupton 2017). In contrast, food porn aficionados and fat activists concentrate on celebrating excess and the carnivalesque potential of enjoying eating the kinds of food that are culturally coded as fattening, unhealthy, only for special occasions, or junk. They draw on and reproduce the pleasures of transgressing culturally accepted norms of appropriate bodily deportment and food practices. Images of "unclean" "junk" foods are juxtaposed with burgeoning fleshy bodies, drawing attention to and celebrating the direct association that is typically made between fatty foods and fat bodies.

BIG FOOD DATA

Another mode of digital surveillance afforded by new media involves dataveillance using big food data. The digital data configured from human-digital technological encounters potentially reveal novel insights into popular food cultures. Analysis of the vast data sets generated by social media content referring to food can identify aspects of the social, cultural, temporal, and geographical patterns and differences in consumption and preferences. Thus, for example, a post published on the Twitter company's blog reported the findings of the company's analysis of discussions using the hashtag #coffee in sixty-five languages over a seven-day period (Pigott 2015). A corpus of 3.2 million tweets was used

for this analysis. The findings revealed interesting differences between countries. While the peak time for mentions of coffee from American tweeters was around the start of the working day (around 9.00 a.m.), in Turkey there were two bumps in coffee tweets: around 2.00 p.m. and also around 7.00 p.m. These data point to cultural differences in coffee consumption norms. While Americans tweeted about drinking coffee as part of preparing for the working day, for Turkish tweeters it is part of social gatherings, following lunch or dinner.

Apps provide a major way by which developers elicit personal information from users that they can then use for their own purposes. Although many apps do not directly require users to input personal data, when people sign up to download apps they are frequently asked by the developers to consent to share personal details like their gender, birth date, contact list, or geolocation (Seneviratne et al. 2015). Several food apps do ask for additional information about users. This is particularly true in the case of weight-loss apps, which often require users to input details such as their age, weight and height, diet, health status, food intolerances, and exercise routines.

Data uploaded to geolocational platforms and apps can identify other elements of popular food cultures. A study of Foursquare restaurant check-ins sought to identify users' cultural food preferences across countries, cities, and regions (Silva et al. 2014). The researchers found that people living in countries that are geographically close often share food preferences. In some cases, however, the correlation was stronger with countries further away: for example, the correlation of drinking practices between Brazil and France was stronger than between England and France. Cities in the United States and Brazil demonstrated similar drinking and fast food habits but almost no correlation in Slow Food habits. When the researchers looked at daily and weekly food and drink patterns comparing Brazil, the United States, and England, they found a strong correlation in temporal patterns between the latter two countries (both of which had their main meal in the evening, while Brazilians consumed it in the middle of the day).

Changes over time in food trends can also be identified in big food data sets. The most popular search engine by far is Google Search. It offers a tool, Google Trends, which allows for the tracking of searches conducted by users over time. Google uses its own data to generate reports about search trends. One such report focused on the findings revealed by Google Trends about the most popular food-related searches conducted in the United States between 2014 and 2016 (Think with Google 2016). It showed that ramen, rigatoni, bibimbap, linguine, empanada, uncured bacon, and bundt cakes have received sustained and rising searcher attention, while turmeric, jackfruit, cauliflower rice, sourdough bread, funfetti, and vegan donuts have suddenly received a high level of interest. Those foods gradually losing the interest of searchers over this time-period included gluten-free cupcakes, evaporated cane juice, wheat-free bread, bacon cupcakes, and bacon cinnamon rolls, while rainbow bagel, vanilla bean paste, Dutch pancake, mulligan stew, buffalo chicken fries, and chocolate slices suddenly lost searchers' attention.

Google noted that several broader trends are apparent in these data. One is the interest in functional foods. This analysis showed that the term "best foods for . . ." has increased in volume, often followed by such words as "skin," "energy," "acid reflux," "your brain" and "gym workout." This trend suggests that Google Search users have become more interested in the functional uses of food over the past decade or so. Foods that have become culturally designated as "healthy" or even as "superfoods" have also attracted far more attention—turmeric, apple cider vinegar, avocado oil, bitter melon, and kefir, are among the foodstuffs receiving a higher volume of searches. Searchers were also looking

for ways to consume or prepare these foods. Other trends observed in these data were an interest in exotic foods from non-Western cultures, experimenting with ways of cooking pork and related products such as uncured bacon, looking for interesting and quick-to-prepare snack foods in small servings (such as mug cakes), and the comeback of pasta.

In the context of the digital data economy, digitized information about food-and eating-related habits and practices is now accorded commercial, managerial, research, political, and government as well as private value. Focus has turned to ways of harvesting, or scraping these data to provide insights into populations' food preferences and practices. Sometimes these data are used for the purposes of medical and public health research. Researchers have viewed social media content and other forms of online interactions as ways of researching how members of the public are engaging in preventive health, health promotion, or self-management activities in relation to their diet. They have conducted investigations into Facebook and Twitter content related to diabetes and weight loss, for example (De la Torre-Díez, Díaz-Pernas, and Antón-Rodríguez 2012; Pagoto et al. 2014; Greene et al. 2011) or the calorie content of Instagram food images (Sharma and De Choudhury 2015).

The possibilities of using digital technologies to generate information by crowdsourcing or citizen science projects have also been explored. Some of these projects are attempts to develop better databases for public health or food activist initiatives. The University of Sydney's The George Institute for Global Health, for example, has developed the Foodswitch app, which enables users to scan packaged food product barcodes to determine the nutritional content. Users are also able to contribute to the product database by uploading information about products that are not yet present. They are asked to take photos of the front of the product, the nutritional information panel, and the ingredients on its packaging, which are then sent through the app to be validated for inclusion in the database by the research team supporting the app. The app has versions for New Zealand, the UK, South Africa, India, and China, and a US version is in development. People interested in ethical consumption can use apps like Buycott and GoodGuide to crowdsource information about the provenance and nutrition of food products by scanning their barcodes with their phones, again with the ideal of sharing data as a collective move toward promoting and supporting these kinds of practices (Eli et al. 2016).

More often, however, big food data analytics are turned to commercial endeavors. The Google Trends analytics report cited earlier, for example, makes a direct link to these results and what they imply for food marketing and branding. The report suggests that the knowledge of which foodstuffs are trending and what related information users are looking for can be employed to direct consumers' attention to them via marketing strategies. Food industry companies are now urged to exploit the types of information that consumers freely generate on social media sites for competitive analysis, branding, and marketing strategies. Thus, for example, a recent study used text mining to analyze Facebook and Twitter content (or what the researchers described as "hidden knowledge") on three large American pizza chains (He, Zha, and Li 2013). The researchers sought to identify the emotions expressed by contributors around such features as ordering and the delivery of pizzas, comments about the quality of the pizzas they ordered and consumed and the types of photos that were posted. They conclude that this kind of analysis can help food brands learn more about how their competitors are portrayed as well as about consumer attitudes to their own brand.

Marketing companies and food-related industries are attempting to use the digital data generated by online interactions to better target and promote their products. For

example, the editors of the Taste.com.au website (associated with Taste magazine), which publishes recipes, observed from the search queries generated by visitors to the site that there was a growing interest in quinoa. They responded to this by quickly including more quinoa recipes on the site to fulfill demand, as well as placing a quinoa recipe on the magazine's front page.

This strategy is also evident in McDonald's Canada effort to research tweets about coffee by Canadians. It found that people tweeted most about coffee on Wednesdays and in the month of March. The company used these data in their promotional tweets, as in the following tweet: "Did you know Canadians tweet most about #coffee on Wednesdays? Grab a #FreeCoffee today and join the conversation!"

Market research companies have been at the forefront of developing apps designed to monitor consumer food behavior. Using these apps, they can recruit people to collect information on their shopping habits in real-time or to answer questions on products as they move around a supermarket. In the effort to "earn" public attention, food manufacturers have encouraged consumers to download recipes using their products, cook the food, take a photo of the finished product, and then upload to Instagram as a way of achieving free publicity for their products. The American Bolthouse Farms company, which produces and sells fresh vegetables, juices, and salad dressings, undertook an analysis of food-related hashtags on social media. It found that there was an average of 1.7 million such hashtags used each day, with 37 percent referring to fruit and vegetables and the remainder to other foods (Bolthouse Farms 2015). It used this information as part of a marketing campaign to encourage people to talk more about fruit and vegetables in social media interactions (and at the same time to support and publicize the kinds of products the company produces).

In the light of the manifold ways in which dataveillance of people's food consumption and preparation habits operates, it is important to acknowledge issues of data security and privacy in relation to the reams of details about food cultures that have entered into the digital data economy. Critics have begun to identify the ways in which such information as people's diets, physical activity, and body weight are used by health and life insurance companies, for example, in determining whether they should be provided coverage and how high their premiums should be (Lupton 2016). Developers often fail to inform users that their data are available to third parties (Ackerman 2013; Sarasohn-Kahn 2014). Sensitive medical conditions can become identifiable by the examination of other datasets, such as supermarket or pharmacy purchasing habits (Rosenblat et al. 2014). Cloud computing provides great opportunities for ease of data storage, sharing and access from diverse locations. However, it also poses significant data privacy and storage risks. During transmission and storage, many opportunities exist for data leakage breaches, and hacking to occur (Ali, Khan, and Vasilakos 2015). Geolocation data recorded and emitted by mobile devices and apps can reveal to others the places people have visited and what their patterns of movements are, leaving them open to potential criminal harms. Personal data about people's consumption habits, health functions, and bodies are a frequent target of cybercriminal activity (Ablon, Libicki, and Golay 2015). They can reveal more about people to others than they may want. Many people have little idea of where the personal data they generate when going online or using apps end up and how they are being used for commercial or other purposes, both legal and illicit (Lupton and Michael 2015). They often express their feelings of powerlessness over how their personal data are used by others and can feel ambivalent about companies or government agencies

having access to their information (Rainie and Duggan 2016; Rainie 2015). These issues have yet to be acknowledged or discussed in the literatures on digital food data.

CONCLUSION

As I have demonstrated in this chapter, contemporary digital food cultures are characterized by several elements that continue the integral role of media in food cultures. The affordances of digital technologies, in datafying phenomena and rendering them into digital formats, generate new ways of representing and discussing food. Such aspects as the visual properties of food and consuming bodies, the geolocation of sites in which food is prepared, purchased, and consumed, and the quantification of food and bodies are brought to the fore in digital food cultures. The proliferation and unceasing generation of digital data about food and eating is also a distinctive feature of new digital food cultures. Via these technologies and practices, more information about food and eating practices, both at the individual and the social level, is produced and stored as digital data than ever before.

Digital media directed at representing, documenting, and monitoring people's food and eating practices can be important contributors to their concepts of selfhood, identity, social relations, and embodiment. Using digital technologies, people are able to monitor and reflect on their habits and preferences and share these with others. They can use digital data to perform aspects of selfhood and social and cultural belonging. They are able to step outside traditional boundaries that delineate who are considered to be the expert voices in food preparation and nutrition and engage in aesthetic practices related to food choice and consumption that previously were the preserve of traditional media outlets. Digital food media also provide a way of developing and contributing to social networks and communities around such aspects as health, fitness, body size, ethical and sustainable food consumption, and food activism. As I have shown, drawing distinctions between how digital material about food should be classified (work or leisure, pleasure or health, private or public, commercial or personal, and so on) has become increasingly difficult, given that this material is created and shared across contexts and repurposed in potentially unlimited ways.

I have identified some elements of digital food cultures in this chapter, but many others remain to be researched. The digital data that digital technologies generate pose a number of questions for further scholarship. These data sets provide opportunities for food studies scholars to identify patterns in food consumption, habits, and preferences. The ways in which people, groups, and organizations make use of digital food data also requires analysis, including issues of data privacy and security related to personal information. We know little as yet about how the food industry, government organizations, and food activists access and use big food data, or how individuals generate, respond to, and incorporate these data as part of their everyday lives. The types of communities and networks that are configured via these technologies and the purposes they serve also deserve greater attention. Another key research question is developing understanding of the ways in which the affordances of digital technologies, including digital recommendation systems and notifications encouraging certain kinds of consumption, are both generative and delimiting of food practices. All of these research questions require analyses that are aware of and can identify the social, cultural, and geographical contexts in which people take up, resist, or reinvent digital technologies as part of popular food cultures.

Finally, food studies researchers need to be responsive to future developments in digital technologies. On the horizon are innovative technologies such as 3D printers

for fabricating foods, augmented reality for enhancing the fine dining experience, and "smart" fridges and cooking implements that can track users' food consumption habits and interact with other devices they are using, such as fitness trackers and calorie counter apps. As new digital technologies continue to be developed and released on the market, ever more research questions and topics for scholars interested in popular food cultures emerge.

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