Introduction

Canned food is not something most of us spend much time dwelling on. It occupies that corner of our pantry shelves, reached for unthinkingly on days when we want a quick meal or a simple ingredient. We may think of cans as a staple of food pantries or as ingredients in favorite childhood dishes—Campbell's tomato soup, green bean casserole, one-pot bean chili. We may imagine tin cans as part of stockpiles ready for the apocalypse. But wherever the can appears, it is typically in the background of our thoughts.

Canned food is also not something historians think much about. Larger, complicated technologies like the automobile or the electrical grid take center stage, while the mundane tin can recedes into the background.[1] It just does not register in considerations of how our country, or our world, came to be as it is. And, even among the many historians who try to understand the ordinary aspects of life and of our diets, canned food has received scant attention.[2]

But this book argues that the tin can and the sometimes mushy food inside deserve our full and rapt attention. Canned food—produced in factories and packed in manufactured metal cans—has played as significant a role in shaping our daily lives as have many more highly touted technologies, both directly and in the ways it laid the groundwork for other processed food. The invisibility of canned food is particular to our moment in time, when factory-produced foods of all forms surround us.[3] It is only relatively recently that we have begun to

think of cans as normal, or boring. There was a time, just over a century ago, when canned food seemed magical.

In a time when most Americans' diets changed with the seasons and were limited by their geographic locations, cans opened up a whole new world of foods and flavors. For the first time, for many kinds of food, the offerings on the dinner table were not bound by the natural laws of decay. In the words of early canners: "All the hoarded gifts of summer live in the can." Canned food "put the June garden into the January pantry."[4] As emphasized by the mythology that the canners created, canning made it possible for the juice of a summer peach to run down American chins in winter. Peas were no longer limited to a brief period in spring. Salmon from the Pacific Northwest could grace dinner tables in land-locked Arkansas. The idea that farmwives and fishermen could seal up food in one part of the year, only to eat it months or years later, when it was still edible and healthful, was revolutionary.

Still, when canned food began to appear on general store shelves, customers eyed the metal objects with equal parts awe and suspicion. Growing and buying food had always been a sensory experience, involving picking up food, smelling it, feeling it for ripeness. A savvy farmer or consumer could always identify a good tomato by the smell of its vine, the firmness of its flesh, the hue of its skin. Canned food broke that relationship, offering consumers only hard metal adorned by colorful paper. As historian Ann Vileisis writes, "Before cans, foods were leafy and earthy with attached greens and clinging soil. They were odorous animals with ears, eyes, and tongues. . . . But cans—be they filled with salmon, dandelion greens, oysters, or tomatoes—had no swish or splash."[5] The transition—from growing your own tomatoes to reaching for an opaque can of tomatoes packed in an unknown place by unknown hands—did not come easily, taking more than a century. And even when the unfamiliarity was no longer the central impediment, spoilage and overcooking often made canned food unappetizing or even frightening. Consumers had to develop a relationship of trust to these industrial products. Only then were they convinced to bring canned foods into their homes on a regular basis.

Early canners, the businessmen who used new technologies to convert the fruit of the field into the fruit of the factory, dedicated themselves to fostering trust in consumers. At first, they worked to perfect the technologies of the canning process, breed can-ready crops, and banish the bacteria that led to spoilage. All of this was done in the name of building a better product to gain consumer confidence. Later, as they became

more secure in the technical aspects of their products, canners shifted to marketing, advertising, and currying political favor. In doing this, they created a vast network of relationships among farmers, scientists, physicians, universities, governmental bodies, media outlets, and advertising agencies. This network served as the foundation upon which a broader food industry, beyond cans, grew in the twentieth century. In analyzing the overarching systems that built American food, this work makes clear that it wasn't just consumer choice driving the move to processed food: machinations beyond the view of consumers were critical.[6]

The story of canned food offers crucial insight into understanding how and why Americans eat the way that we do. Many of us are familiar with contemporary conversations linking processed foods to obesity, and we see cases of foodborne illness splashed across the headlines, leading to ebbs and flows in the public's confidence. But, thinking historically, where did processed foods originate, what were their precursors, and how was public confidence in industrialized food earned in the first place? How did we come to accept and trust that these packages filled with foods of unknown origin and age would be worth eating?

Following the trail of processed food backward leads to canned food, in the early nineteenth century. It was the first nationally marketed, factory-processed, packaged food. Canning, along with meatpacking and grain processing, was the original technique of processing food, yielding a product that emerged from the factory in a form quite different from what you would find in nature or on the farm. Two characteristics distinguished canned food from meat and grain: one was the opaque metal container in which it was packaged; the other was the unfamiliar process by which it seemed to halt nature's process of decomposition. Both of these factors made canned food a tough sell. The product and the process by which it was created were opaque to the average consumer, both literally and metaphorically. Before the spread of canning in the late nineteenth century, most Americans had just begun the shift away from eating foods that they either grew themselves or obtained locally.[7] The foreign nature of canned goods, along with the industry's early difficulties in making its products safe and appealing, led to a lack of confidence among consumers and an early market that grew slowly.

Today, a commercial can is far more familiar, but it is still an opaque object, in both senses of the word. Its metal body conceals the contents; its industrial origins conceal the story.[8] The fruit or vegetables inside have typically been grown on huge industrial farms in some faraway

place, then packed by whirring machines and the hands of strangers. The can is then shipped to our local grocery stores by way of enormous warehouses, anonymous cardboard boxes, diesel trucks, wholesalers, and the hidden labor of many. The men and women who profit most from the production of our industrially canned food are the CEOs of far-flung multinational corporations, along with the bankers and advertisers whose hands never touch the food in question.[9]

To accept industrially canned food today, we must either adopt unquestioning faith in the industrial food system in which we are all enmeshed or embark on a study of a labyrinthine network involving thousands of people. Doing the former might come naturally to a twenty-first-century consumer. After all, the majority of us have come of age in a time when international food companies, processed food, advertising, and complicated food technologies are central players in determining how we eat. But what about a nineteenth-century consumer, when this complicated network was just forming? Would the same leap of faith have come naturally to her? What would it have taken for her to make sense of a tin can of tomatoes that came from a factory? What led her to trust that commercially canned product and decide to feed it to her family? And how did these factors differ for consumers depending on their varying backgrounds?

This book explores the question of trust in processed food.[10] It seeks to understand how the complicated network of production that underlies today's factory-produced food came to be. It is, in many ways, a story of institutions and policies that exerted power to shape the American diet, laying the groundwork for key components of the growing industrial food system: factory production, packaging, national marketing, the deployment of scientific expertise, and involvement in the regulatory process. Understanding these systemic forces is crucial for the modern food movement. Many commentators today criticize the lack of transparency in the American food system. Michael Pollan has written: "Forgetting, or not knowing in the first place, is what the industrial food chain is all about, the principal reason it is so opaque, for if we could see what lies on the far side of the increasingly high walls of our industrial agriculture, we would surely change the way we eat." Even McDonald's has launched a marketing effort to answer consumer questions, with the claim that this project "promotes radical transparency."[11] These metaphors of "transparent" and "opaque" suggest just how difficult it has become for interested consumers to understand food production. The operations of companies that supply the majority of

American food are not open to public scrutiny. The complicated steps of production, processing, distribution, and marketing obscure the source of American food, building a wall between producers and consumers.

While this book is certainly about cans, it is also about much more. When we open up the can, we see it becomes a lens through which we can understand social organization, science and technology, corporations, politics, marketing, labor, and the environment—and the way that all of these come together through the food industry. Further, by studying trust, we can see how the story of cans reflects a larger story of American history, one that tells of a more general move toward opacity. For it is not just the food system that has become larger and less comprehensible to the average American. So many of our twenty-first-century institutions—political, financial, technological—have come to feel impenetrable. They have all become black boxes. Most of us accept the nature of these massive systems that govern our lives, even as critics attempt to highlight the flaws.[12] This story about trust, then, is a story about knowing and not knowing, about first feeling powerless in the face of impersonal structures and then finding ways to push back and exert control.

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Through extensive historical research across archives of the federal government, universities, canning companies, agricultural experiment stations, and trade organizations, this study uncovers how canners—those sometimes-ignored middlemen in the chain of food production—shaped modern American food.[13] It examines the relationships of negotiation and contestation that underlay the creation of a way of eating shaped by scientific research, governmental regulation, consumer trust, and ideas about health and environment. It is also about the complicated behind-the-scenes events that inform the seemingly simple decisions we make each day. Should we pick up this item of food or that one from the grocery store shelf? Such ordinary daily behavior is indirectly influenced by a deep history and a large infrastructure that most of us never see. This project seeks to make visible some of those stories and structures, to open a window on the place of processed food in the United States.

Individual corporations and government agencies tend to get the most attention in examinations of the inner workings of the food system, both present and past. But one of the most powerful, yet overlooked, players is the trade association. These groups of businesses in a

specific industry band together under a common agenda, finding power and influence through unification. In her 2006 food industry exposé *Appetite for Profit,* public health attorney Michele Simon points to a few key players in what she calls "Big Food." In addition to the usual culprits—McDonald's, Coca-Cola, and Kraft Foods—Simon focuses on one name that is somewhat less familiar: the Grocery Manufacturers Association (GMA).[14] This is a trade association representing nearly every major food manufacturer in the United States, with almost three hundred members. The GMA, though unknown to the average consumer, exerts inordinate influence on policy, science, and consumer access through its concentration of power and its large pool of money to spend on influencing politics.

The GMA has over 250 member companies. Of those, the ones with the longest histories are nearly all canning companies. This is because the influential GMA began, in part, as the National Canners Association (NCA) over a century ago.[15] The NCA is one of the main characters in this story, making clear how trade organizations have influenced the direction of our industrial food system. Individual entrepreneurs and large firms certainly play a part, but the NCA emerged as the driving force of change. From its beginnings during the debates about the purity of food in the early twentieth century, the NCA brought together canners of fruits and vegetables under a common mantle. It launched research initiatives, funded advertising campaigns, promoted inspection programs, represented the industry before the federal government, and intervened in political processes. The organization also met annually at a national conference and published a regular journal that apprised members of goings-on in the field. These events and documents defined the canning industry, creating a model of unified action that guided other processed-food companies as they developed atop the foundation laid by the canners. By looking at trade associations, we can expand the institutions considered important to histories of capitalism and industrialization, seeing these collaborative groups as central to shaping economic and social outcomes. Because they are positioned in the middle between factories and consumers, they allow us to understand more about both.[16] And, in telling this story, we find a new view on the history of industrial food, which provides tools to better understand and influence the contemporary food system.

The story told here unfolds both chronologically and thematically. Each chapter uses a different food and a different issue to frame the develop-

ment of the canning industry. The foods chosen—condensed milk, peas, olives, tomatoes, tuna, Campbell's soup—are narrative devices that anchor each chapter but are often only symbolic of the larger central arguments of each section. Similarly, the varying focus—on technology, agriculture, bacteriology, regulation, and consumer activism—is also a way to broadly chart what canners were concerned with in a given moment, rather than suggesting these were their exclusive concerns.

To give a sense of the growth that serves as a backdrop to this story, consider these data: the first commercial canneries opened in New York, Maryland, and Delaware in the 1850s, focusing largely on vegetables, fruits, and oysters. Ohio, Indiana, Illinois, Iowa, and California followed in the next two decades. The 1870s saw new seafoods canned: salmon in Alaska and California, shrimp in New Orleans, sardines in Maine. Wisconsin began canning peas in 1881, and Hawaii took to pineapples in 1891. By 1899, there were 2,570 canning establishments across the country. In 1914, there were 4,220 canneries, with the largest numbers in New York (987), Virginia (441), Maryland (465), and California (289). Indiana, Illinois, Ohio, Wisconsin, and Missouri all had over 100 canneries as well. The country's canneries, by 1914, had spread to forty-two states, producing over 55 million cases of canned vegetables (nearly one-third tomatoes), 9.5 million cases of canned fruits, and 8.8 million cases of canned fish and oysters. By 1939, through consolidation, there were 2,612 canning companies across forty-five states, packing 354 million cases of canned foods, with a distribution across vegetables, fruits, and fish similar to the one twenty-five years earlier. By 1961, the number of cases grew to 722 million, double the 1939 production. Throughout the industry's life span, these companies were in rural areas near farms, and most were small, few with more than one hundred employees on average over the course of a year. While some foods, like citrus, pineapple, apricots, and seafood, were packed in specific parts of the country, many others—green beans, tomatoes, corn, and peas, for example—were packed in many states, with a variety of climates. This information presents a constant upward trajectory of per capita production of canned food, even as consumption remained below that of fresh food.[17]

To understand the texture that fleshes out the above statistics, this study begins with a focus on canners' proactive efforts to gain the trust of their imagined consumers. After the invention of canning in 1795, over a century of technological improvement, increasingly scientific processing techniques, trade organization, and food legislation led to an

industry reliant on biological research by 1913. These elements made canned food cheaper, safer, and somewhat more trustworthy, even as they led to the deskilling of craft labor, the ousting of smaller canners who could not conform to regulation and organization, and the rise of standardization within the food sector.

Beginning around 1910, canners began to address two resistant problems: agricultural quality and bacterial contamination. In the improvement of raw crops, canners saw an opportunity to secure consumer confidence. This led to new relationships with farmers and agricultural scientists. Canners worked with state agricultural experiment stations and some farmers to solve a range of agricultural problems—collaboratively battling pests, improving soil composition, and breeding heartier and more manageable plants. In so doing, the canning industry paved the way for the practice of businesses funding university research. Further, in 1919–20, a highly publicized outbreak of botulism in canned olives led California canners and the NCA to form alliances with the California State Department of Health, academic bacteriologists, and federal health inspectors. Research after the botulism outbreak led to a standardized system of processing that was implemented throughout the canning industry, building consumer trust.

By the 1930s, canned food had come to be important to the American diet. But with this increase in consumption, some consumers and government advocates grew concerned that the standardized food system and prominence of brand names obscured the true quality of canned goods. In response, consumer advocates within the New Deal's National Recovery Administration called for grade labeling as a way of empowering consumers. Now armed with the stability to resist, canners pushed back against this intrusion, hoping to protect brand identities and influence consumer shopping habits more directly.

The 1940s and '50s saw a kind of truce among food business, consumers, and the government. By the early 1960s, canned food had become part of—and had helped to produce—a much larger processed-foods industry, rooted in American postwar culture. But this trust was once again called into question in the late 1960s and 1970s as emerging consumer and environmental movements highlighted broader issues of the food system, tied to concerns about chemicals, nutrition, and pollution. Canners rejected the consumer advocates' authority and pushed back against the rising tide of regulation by embracing political involvement and marketing campaigns. The forms of scientific expertise on which the industry primarily relied shifted from the biological to the

social and political. Even as canned food itself became familiar to American consumers, the processes that underlay the food system grew more obscure, leading to calls for increased transparency.

In the twenty-first century, fears about the chemical Bisphenol-A, or BPA, an endocrine system disruptor used in can linings, have emerged to threaten the canning industry. While most scientific evidence points toward the conclusion that BPA indeed causes substantial harm, the food industry (along with trade organizations representing the chemical and plastics industries) has funded its own scientific research and has manipulated the regulatory process to raise doubt and limit significant regulation. This move characterizes the increasingly opaque nature of American food—now no longer unfamiliar to consumers in the way that first made canned food questionable in the nineteenth century but characterized by an even more intractable systemic opacity.

Many food activists today fight to lay bare the path from farm to table. They believe that this knowledge can counter the lack of transparency so ingrained in our twenty-first-century industrial food system, leading to needed change at both the farm and the table. But finding transparency has not proven to be as simple as just lifting the lid off the can. A rallying cry of the food movement, which it has inherited from its Progressive Era predecessors, contends that knowledge will lead to social change: if the "public" could simply see the messy truth, there would be a social and political push to for transformation.[18] But the story within these pages shows that transparency has been a complicated and shifting goal since the canning industry's inception and that canners have used it strategically for their own purposes, just as they have any other marketing tool. The modern food system has become so complex that simply uncovering it may not automatically lead to dramatic structural change. But perhaps understanding its history is one place to begin.