

# **Creating and Disseminating a National Food Conservation Literature:**

## **The U.S. Information Response to the Wheat Crisis in World War I**

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## INTRODUCTION

Within the Wisconsin Historical Society Library and Archives Pamphlet Collection, a small publicity sheet resides among a number of oversized miscellaneous broadsides printed in Wisconsin during World War I.<sup>1</sup> Measuring just 6 ½ in. wide by 12 in. long, this sheet features the word, “EAT,” in a large, bold, sans-serif typeface alongside the following list of breads: Oatmeal Bread, Barley Bread, Corn Meal Bread, Corn Flour Griddle Cakes, and Rice-Corn Meal Muffins. The heading that follows, “Try The Following War Bread Recipes,” tops a selection of recipes that call for roughly four parts wheat flour to 1-2 parts substitute flours. This tract was issued by the Dane County Food Administration.

Why would a government entity, a local one in this case, produce what is essentially a government document containing recipes for bread? This article will examine the big story behind this small, nondescript broadside, which starts with a world war being fought in Europe (1914-1918), the resulting severe food shortages from that conflict, and the subsequent nationwide effort in the United States to address the food issue at home and abroad, via the American homemaker.

During World War I, American women wholeheartedly took on many non-traditional roles outside of the home, including many that had never been open to them before—women trained to work on farms, they took jobs in manufacturing, and in some cases, they served as military personnel. But amid the clamor to sign up for patriotic war work, the United States government issued their urgent appeal to conserve food. This imperative to voluntarily conserve food at home, in order to feed soldiers and starving populations in Europe, urged women to consider that, in fact, their most significant role during the war may be that of homemaker. And thus, an extraordinary, far-reaching government information campaign was conceived and set in

motion to reach and support women in the traditional, feminized sphere of the home kitchen, where they alone could make prudent food choices when preparing meals for their families.

This massive communications appeal—in an era before the “mass media” of radio and television—was unprecedented. The U.S. government had never before needed to mount an information campaign of this size, for this audience, on this topic.

President Woodrow Wilson, when establishing conscription on May 18, 1917, stated, “It is not an army that we must shape and train for war; it is a nation.”<sup>2</sup> And if the nation needed to conserve food in order to win the war, how would the U.S. government carry out such a campaign?

A number of questions immediately arise that will serve as a useful mechanism by which to critically consider this monumental publishing event. First, how could the U.S. government shape and appeal to this new mass audience? In a progressive era, when a multiplicity of women’s groups were leading the charge to gain a place for women in the public sphere, namely organizing around the demand for women’s rights and suffrage, and women were joining the war effort by volunteering outside of the home, how could a mass appeal directed at women in the domestic sphere resonate with them such that they would respond by voluntarily altering their daily cooking and baking habits? Second, how could the U.S. government generate a new, authoritative media for this audience in order to effectively convey this mass directive? Who could the government turn to, to produce this educational message of conserving foods and what format should the information take? Third, how could the government ensure that this message would reach an appreciable, substantial volume in order to sustain this urgent message and American homemakers’ attention to it for the unspecified duration of the war? Fourth, by what method could the U.S. government disseminate this message to ensure that this information

would be accessible to this mass audience of homemakers in the millions of homes spread out throughout the nation? And finally, how could the government ensure that homemakers would in fact establish and then sustain a practice of information seeking and readership around the new information on cooking and ultimately change their cooking habits at every meal?

While several foodstuffs were actively conserved during World War I, namely wheat, meat, sugar, and fats, this article will focus on the extraordinary approach undertaken to educate homemakers on conserving wheat in particular, as a way to explore the government's vast food campaign. This focus will allow for a critical assessment of the remarkable elements that together made this particular effort possible and will establish a rightful place for this literature, and its female readership, within the larger context of early twentieth century print culture.

## **PART ONE: CONTEXT: WAR AND CORRESPONDING WHEAT SHORTAGES**

This story begins with the onset of war in Europe in 1914 and the severe food shortages that ensued. This section will discuss the U.S. entry into the war, the U.S. understanding of the wheat crisis that followed, based on the role of wheat as the major dietary component in Europe and America, and the steps the Wilson administration took to address the issue.

### **1 U.S. Entry into World War I**

The United States entry into World War I on April 6, 1917, signaled a tremendous reversal on the part of the Americans, who under President Woodrow Wilson had initially remained neutral when the conflict broke out in Europe in 1914.<sup>3</sup> In 1916, Woodrow Wilson in fact ran for re-election on a platform of neutrality, and won.<sup>4</sup>

But no one had seen such a conflagration among nations before, or such an assault on democracy. And Americans were again and again decidedly drawn into the conflict through various issues, including shipping difficulties in the wake of British shipping blockades and loss of American lives on passenger ships and other vessels due to German u-boat activity.<sup>5</sup> Susan R. Grayzel writes that the first world war was “so destructive, and so seemingly unprecedented that, at the time, it seemed to defy traditional description.”<sup>6</sup> It thus became known as the Great War because no other moniker fitted.<sup>7</sup>

By 1917, in Europe, most able-bodied men had signed on to become soldiers. Because of this, and because farmland was devastated by battle, crop yields were low. American ships bringing food were attacked by German U-boats, which decreased the food supply further. The desperation of Europeans reeling from the food crisis, especially Belgians, was covered extensively in the American press, and American sympathy helped build support for the U.S. decision to enter the conflict.<sup>8</sup>

The United States’ decision to go to war with Germany would require a tremendous commitment. Over a million American men would serve on the frontlines in Europe, and another two million Americans would be shipped to Europe to serve.<sup>9</sup> Americans had never before been sent in such staggering numbers to wage war overseas. The mobilization of troops and other personnel to serve in Europe, and the mobilization of the home front to support these military forces abroad, would be enormous.

## **2 Severe Wartime Wheat Shortage**

By the spring of 1917, Europe had already been embroiled in war for almost three years, and food shortages there were extreme: not only did European countries rely on imports for vital

foodstuffs before the war, but also, when war broke out in Europe, a continent still largely agrarian at the time, many farmers had had to leave their fields to become soldiers, thus limiting the domestic food supply further.<sup>10</sup> Between 20 to 30 million men left their homes to fight in the war, and in this way, many farms lost their male labor.<sup>11</sup> Additionally, drought conditions and bad weather reduced crop totals in Europe even more; in 1916, crops failed worldwide and surpluses were used to make up the difference.<sup>12</sup> Furthermore, hundreds of thousands of acres of cropland that would have been ready for harvest in the ensuing months after war broke out were abandoned or trampled in battle, thus drastically altering the food supply immediately.<sup>13</sup> Very shortly, “The world’s food supply was thrown entirely out of balance.”<sup>14</sup>

In a piece written for a 1918 wartime food guide, Herbert Hoover, who would be selected to administer the U.S. wartime food program, wrote,

All agriculture has been seriously interfered with. Food production has been lessened to the point of danger. Millions of men who had given all their time and energy to raising food have been killed; more millions are still fighting; other millions have gone from the farms into the great war-factories. Women, too, have been drafted from the fields and home gardens into the factories and to replace the absent men in a host of occupations. Great stretches of once fertile land have been temporarily ruined by the scourge of war; some are still under falling shot and shell. Belgium and France have lost millions of acres of productive land to the enemy.<sup>15</sup>

Writing after the war about the victory garden movement that he had helped shepherd as director of the U.S. National War Garden Commission, Charles Lathrop Pack stated that daily rations in Europe became so limited during World War I that they barely sustained life.<sup>16</sup> With regard to wheat especially, he said,

The peasant population of continental Europe, which means a large part of the people, lives principally upon wheat in one form or another. In France bread is literally the staff of life, normally constituting 52 per cent. of the Frenchmen's food. Yet the French bread ration was successively lowered until at one time it reached seven ounces a day per capita.<sup>17</sup>

In September 1917 Hoover announced that the shortfall of grain in Europe that autumn would total around 500,000,000 bushels below normally expected production.<sup>18</sup>

Something would have to be done quickly to rectify this. But the shipping allocated to moving food had to be extremely efficient—shipping in Europe was concentrated on moving troops and munitions, and, as noted above, ships were in peril on the water from German submarines. To reach available markets efficiently, the shipments of food would have to travel the shortest possible distance. The shortest possible distance was from North America to England or France.<sup>19</sup> The wheat scarcity was not just a problem of supply but also one of movement—“wheat plus ships.”<sup>20</sup> The United States would have to step in as the food supplier for the Allied nations fighting Germany.

Again, in September 1917, Hoover stated that the United States would have to supply Europe with 225,000,000 bushels, even with the reduced crop of 1916. He argued that Europeans would have to reduce their consumption of bread by 25%, and that it would be “war bread they must eat—war bread, of which a large portion consists of other cereals.”<sup>21</sup>

The Allied and neutral European nations thus began to rely heavily on shipments of wheat from the United States. In 1916, the United States exported 169,971,185 bushels of wheat to help feed Allied troops and neutral European countries.<sup>22</sup> It would be imperative for the United States to maintain this commitment, even as it was adding to the food crisis by sending its

complement of American soldiers to fight. It would be crucial for Americans at home to conserve food so that there would be a sufficient food supply for Europe as well as a sufficient food supply at home. “Food Will Win the War” became the slogan to rally the movement for food conservation on the home front. But how could something like this be achieved? Never before had the U.S. government been called upon to mobilize the entire nation on a single idea, an idea that could well decide victory or loss.

### **3 Wheat as the Major Dietary Staple**

In wartime, although all the major food groups were conserved, wheat would take precedence. William Clinton Mullendore, a USFA official writing in his definitive account of the United States Food Administration after the war, *History of the United States Food Administration* (1941), illustrated how wheat was prioritized above other foodstuffs during the war:

wheat and rye-29.5%

pork products-15.7%

dairy products-15.3%

beef products-5.3%

corn products-7.0%

sugar products-13.2%

vegetable oils-3.6%

(All other foods, including potatoes, amounted to 10.4%.)<sup>23</sup>

Mullendore wrote that wheat was likely the most basic food commodity in the world. “As we descend in the scale of economic resources in our population, reliance on bread for food increases.”<sup>24</sup> This would prove especially true in time of war.

In his short work entitled *War Bread* (1918), Alonzo Englebert Taylor, another official of the U.S. wartime food program, had this to say about bread:

I have used the title War Bread because with us every problem in cereals ultimately ends in the question of bread.... If we are *short* of bread-grains, we must modify our bread. If we are *very short* of bread-grains, we must substitute other cereals for bread.<sup>25</sup>

Mary Swartz Rose, an assistant professor of home economics at the Columbia Teachers College, noted in a 1918 food pamphlet the importance of wheat and how Americans at home would struggle to eat less of it, bringing the enormity of the problem, and the responsibility of solving it, to the American homemaker:

Fully one-third of our calories have come from wheat flour. To ask us to do without wheat is to shake the very foundation of our daily living. How shall we be able to do without it? What shall we substitute for it? These are questions which every housewife must ask and answer before she can take her place in the Amazon Army of Food Conservers.<sup>26</sup>

In a government pamphlet published after the United States entered the war, called the “Food Administrators’ Catechism,” the conservation of wheat and flour, sugar, and meat are all covered. The sections on wheat and flour illustrate the path from production to consumption—from farmer to grain elevator, miller, manufacturer, wholesaler/dealer, merchant, hotel/restaurant owner, and baker to housewife. The pamphlet details Hoover’s directive to mix 80% of wheat flour with 20% of other grain flours when baking bread.<sup>27</sup> The merchant could sell any amount of flour the customer wished to buy, as long as one substitute pound was sold along with every four pounds of wheat flour.<sup>28</sup> Bakers were provided a long list of substitute flours they were allowed to sell: “corn flour, corn meal, rye flour and meal, edible corn starch, hominy, corn grits,

barley flour, rolled oats, oatmeal, rice flour, buckwheat flour, potato flour, sweet potato flour, tapioca flour,” and so on.<sup>29</sup>

In 1890, roughly 90% of bread was home baked; by 1930, most bread was factory made.<sup>30</sup> Within that intervening time period lie the years leading up to and including World War I. Instructions in a wartime food guide offer suggestions for substituting other cereal grains for wheat when making bread:

A housekeeper for her family of four buys five pounds of wheat flour and five pounds of other cereals. She may use 1¼ pounds of the substitutes with the 5 pounds of wheat flour to make about 8 pounds of Victory bread—sufficient to give each member of her family 2 pounds of bread during the week.<sup>31</sup>

In popular cookbooks of the time, the space allotted for discussing bread making was indicative of the important role of this food; recipes for bread and other baked goods called for ample amounts of wheat flour, and in many cases, these recipes occurred alongside detailed nutritive information as well. In 1896, Fanny Merritt Farmer, who taught at the famed Boston Cooking School, published her first cookbook—*The Boston Cooking-School Cookbook*—which would become the most popular and influential cookbook in America.<sup>32</sup> In the 1896 edition of the Farmer cookbook, she wrote at length about wheat bread and its characteristics, stating that bread making should get more attention than it does.<sup>33</sup> She believed that bread was the most important food, based on its long history of use, and that wheat bread, especially, was the “perfect food.”<sup>34</sup> With regard to baking, she explained that wheat flour was the best flour for bread making, as it contained “gluten in the right proportion to make the spongy loaf.”<sup>35</sup> Other flours, such as rye and corn, were inferior to wheat flour in this regard she believed, for only in combination with wheat did these flours produce sufficient breads.<sup>36</sup> The recipes for bread in the

1896 edition of her cookbook each call for anywhere between three and six cups of flour.

Another popular cookbook at the time, *The Settlement Cookbook*, authored by Lizzie Black Kander, intended to assist immigrants arriving in the Milwaukee, WI, area, also called for liberal amounts of wheat flour in its bread recipes.<sup>37</sup>

#### **4 The United States Organizes Around Preparedness and Food/Wheat Issue**

After the United States entered the war, it took the government several months to organize around the food crisis. President Wilson would have to quickly establish some as yet unknown but effective mechanism for procuring enough food for the troops fighting in Europe and for Americans at home. During the Civil War, the last protracted war the United States had fought, there had been terrible food shortages in the South. To feed soldiers, the government had had to resort to appropriating farmers' crops, often paying farmers below market value, which had led to widespread food hoarding and so-called "bread riots."<sup>38</sup> To avoid this, and to defer rationing if possible, the effort this time would have to be substantially different.

[a] Wartime Council of Defense

In the meantime, on April 12, 1917, just six days after war was declared, the state of Wisconsin formed a State Council of Defense, the first state in the country to do so, with county councils forming as well.<sup>39</sup> The chairman of the Wisconsin state council, Magnus Swenson, promoted the idea of food conservation as a way to aid the nation's war effort. Working with the county councils, he strove to eliminate food hoarding, urged residents to plant vegetable gardens, and introduced the idea of having wheatless and meatless days in the home.<sup>40</sup> Swenson focused his efforts on women, particularly housewives, as they were the ones to decide on a daily basis

which foods they would use in their home cooking and baking.<sup>41</sup> Wisconsin's efforts became known as the "Wisconsin Plan," and would serve as a model for the national effort that got underway later that year.<sup>42</sup>

Other states rushed to form councils of defense to begin essential war preparedness work, including critical food conservation, stimulated by the federal Council of National Defense, State Councils Section.<sup>43</sup> The Council of National Defense had formed in 1916 with the goal of assessing the nation's war readiness with regard to many public and private sectors—manufacturing, labor, natural resources, science and research, transportation, communication, etc.—but with the onset of war, this effort took on a greater urgency.<sup>44</sup>

#### [b] Wartime United States Food Administration

In August 1917, Congress passed the Lever Food and Fuel Control Act, giving President Woodrow Wilson broad powers to control the supply and distribution of food for Americans at home and for those fighting the war in Europe.<sup>45</sup> With the authority from the Food Control Act, President Wilson created the United States Food Administration; the new wartime commission operated with unprecedented power across extensive networks to send as much food as could be conserved to Allied countries and troops in Europe.<sup>46</sup>

President Wilson appointed Herbert Hoover as the director of the new national effort to conserve food.<sup>47</sup> Hoover was already experienced in feeding large populations in Europe as Allied and neutral countries grappled with the severe food shortages created during the war. To administer the new U.S. Food Administration, he stepped down from his post at the Commission for the Relief in Belgium, a program that had fed 10 million people in Belgium and parts of France during the years before the United States entered the war.<sup>48</sup>

The mission of the Food administration was threefold:

First, to so guide the trade in the fundamental good commodities as to eliminate vicious speculation, extortion, and wasteful practices and to stabilize prices in the essential staples. Second, to guard our exports so that against the world's shortage we retain sufficient supplies for our own people, and to co-operate with the Allies to prevent inflation of prices, and third, that we stimulate in every manner within our power the saving of our food in order that we may increase exports to our Allies to a point which will enable them to properly provision their armies and to feed their peoples during the coming winter.<sup>49</sup>

With shipping space scant, the Food Administration aimed to send highly concentrated nutrients to Europe.<sup>50</sup> Based on the nutrition standards established by Wilbur O. Atwater, an eminent American scientist who had established nutrition as a new science in the late 1800s, this would involve selecting the major staple foods of wheat (cereals), meats, sugar, and fats and actively urging citizens not to consume those foods.<sup>51</sup> The Allies urged the U.S. government to institute rationing, but Hoover believed that voluntarism, based on the “loyal and patriotic cooperation” of everyone—from the food-producers and purveyors to the consumers, would lead the way to victory.<sup>52</sup>

In addressing the American people on wheat specifically, Hoover stated that everyone must reduce their wheat intake by 30%, by eliminating one loaf of bread a week per person.<sup>53</sup> He emphasized that if each person could limit their intake of bread by a pound a week, the country's wheat exports could be increased by 100,000,000 bushels in a year.<sup>54</sup> Hoover's determined message on food economy at home led to the popular phrase “to Hooverize.”<sup>55</sup>

On the difficulties in conserving food, Hoover opined,

There is no royal road to food conservation. It can be accomplished only through sincere and earnest daily co-operation in the 20,000,000 kitchens and at the 20,000,000 dinner tables of the United States. If we can reduce our consumption of wheat flour by one pound,...those quantities multiplied by 100,000,000 will immeasurably aid and encourage our allies, help our own growing armies and so effectively serve the great and noble cause of humanity in which our nation has embarked.<sup>56</sup>

As the food shortages worsened, in January 1918 Lord Rhondda, the food controller for Britain, requested that the ratio of wheat to other flours used in baking in the United States be changed again, this time to 70-30.<sup>57</sup>

Following Swenson's lead in Wisconsin, Hoover soon targeted housewives especially—although farmers throughout the country were alerted to policy shifts on production, it was the consumption end that was the most critical to the food program, and this meant targeting the homemaker. Hoover's message to housewives stated,

that [women] might well prove to be the deciding factor in winning the war against Germany. 'Food,' he said, 'will decide the war.' Eighty per cent of the food in the country passed through their hands; therefore, their full cooperation was at once solicited.<sup>58</sup>

To localize efforts around the country, Hoover called for each state to establish a food administration.<sup>59</sup> Additionally, a Home Conservation Division was established within the U.S. Food Administration. Initially, to inform and mobilize the American public, especially homemakers, with regard to the expectations of U.S. Food Administration program, the nation's press was approached for wide distribution of the government's message.<sup>60</sup> The conservation message was publicized, as well, via direct advertising, outdoor advertising (on buildings,

railway cars, and street cars), and in motion pictures.<sup>61</sup> Soon, too, the Committee on Public Information (CPI), the wartime propaganda unit, would be contributing to the mass appeal.<sup>62</sup>

Much of this message would be engineered within the Educational Division of the U.S. Food Administration and its decentralized structure. An educational director was assigned to work with the Federal Food Administrator in each state; they were to supply their state's press with local food conservation news and information updates from the U.S. Food Administration in Washington.<sup>63</sup> The Education Division prepared material for publications that served a particular readership. These included "Women's Journals and Women's Pages, Trade Journals, Farm Journals and Country Weeklies, Religious Journals, Negro Press, and Labor Publications."<sup>64</sup>

## **PART TWO: IDENTIFYING THE PRE-WAR FACILITATORS**

As the government grappled with organizing a media that would reach across the country to deal with the food crisis, the Wilson administration must have realized what a daunting task lay ahead. Having never been faced with the necessity of mobilizing homemakers on the idea of conserving wheat and other foods, the government soon recognized that simply relying on advertising and running articles in the nation's press would not suffice. It understood that it would have to take steps to educate women on *how* to conserve—the idea was not that Americans should limit their food intake altogether but rather that they could achieve a similar standard of nutrition by cooking with nutritionally equivalent substitutes. Ida M. Tarbell, known for her muckraking journalism against the Standard Oil Company at the turn of the century, writing from her wartime post on the Women's Committee of the Council of National Defense, commented:

It is not easy for the busy woman who is not in direct touch with the sources of scientific information on the subject of food to learn just what she ought to do and how to do it. She knows that she is not doing her part unless in place of those things that she gives up for the sake of the Allies, she provides her family with others which are equally nutritious. But where can she learn how to do this?<sup>65</sup>

Mary Swartz Rose, writing in her 1918 food pamphlet, noted the problem in finding good substitutes for wheat flour:

...we must learn to cook other cereals as least as well as we do wheat. Without proper cooking they are unpalatable and unwholesome, and they are not so easy to cook as wheat. They take a longer time and we cannot get the same culinary effects, since with the exception of rye they will not make a light loaf. Fortunately we are [not] asked to deny ourselves wheat entirely, only to substitute other cereals for part of it. Let each housewife resolve when next she buys flour to buy at the same time one-fourth as much as some other grain, finely ground, rye, corn, barley, according to preference, and mix the two thoroughly at once. Then she will be sure not to forget to carry out her good intentions.<sup>66</sup>

The government, then, had to educate homemakers on using substitutes in order to bring about the desired, critical response.

This section considers a number of circumstances that came into existence pre-war and which, during wartime, enabled the government to launch its massive food conservation directive in a much more comprehensive way. In his book *All the Facts: A History of Information in the United States since 1870* (2016), James W. Cortada writes about “facilitators,” which are circumstances that enable people to make use of information.<sup>67</sup> I would extend this definition to

include factors that first enable the information creator to establish, generate, and disseminate information, and which in this case, made it possible for the federal government to execute its monumental information campaign.

Government information before this time often did not extend beyond the work of Congress, and other governmental agencies, such as the USDA's regular bulletins to farm families, and statistical information about the United States and its population.<sup>68</sup> In wartime, the government typically furnished information regarding military matters, including training manuals for soldiers, drillbooks, and regulations.<sup>69</sup> But never before had the U.S. government had to mount such an urgent massive appeal: never before had it needed to focus on the topic of food for a mass audience of homemakers, with a hoped for, crucial outcome. The facilitators discussed here made it possible for the Wilson government to effectively reach and assist women in complying with the government's urgent directive.

There were possibly many factors that converged to assist the government; here three main facilitators will be discussed. First was the federally funded agriculture education and research based at the land-grant colleges, the agriculture experiment stations, and cooperative extension programs around the country and the food scientists who emerged to work in the new disciplines of nutrition and home economics at those institutions. Next was the mass female audience that had formed around an information and reading practice related to the commercial domestic science literature that developed as a means of communicating the new sciences of nutrition and home economics to women. Third was the emergence of a public library system that placed public libraries in many communities around the country, with their collections free and accessible to a local populace. (A brief comment on government propaganda will be provided, as well.)

These high-profile facilitators had their origin in the mid-1800s, when society began to question the impact of decades of industrialization and the resulting transition from a previously rural society to an urban, industrial one. Areas that got a lot of attention were nutrition of the newly formed working class, the workings of domestic home life, and by what means the citizenry could continue to be educated beyond school. As it turned out, each of these facilitators possessed components essential to the success of the government's food conservation plan.

## **1 Government Legislation Funds Science Education and Research, and Nutrition, Home Economics, and the First Food Guidelines Emerge**

[a] Government Legislation Funds Science Education and Research

Beginning in the mid-1800s and leading up to the onset of war for America in 1917, the United States government took definitive steps to establish the infrastructure that would allow young Americans to pursue agricultural science majors via higher education and provide the means to conduct and publish their scientific research.

The first of these federal laws were passed during the Civil War; in 1862 Congress passed the Morrill Land-Grant College Act and also established the United States Department of Agriculture (USDA). The Morrill Act made it possible for each state to erect institutions of higher learning that would promote the study of agricultural science and the "mechanic arts."<sup>70</sup> By the 1880s, their mission had extended to assisting farmers increase production and profit.<sup>71</sup> Whereas private schools offered courses in the classics, these new schools formed around the rubric of agricultural science as an authority; agricultural science was already an established field internationally, particularly in Germany, and the U.S. land-grant colleges would provide the

means to practice and publish within the discipline in the United States.<sup>72</sup> Chemists were the first scientists to approach the land-grants as experts that could improve farming.<sup>73</sup>

Scientific discipline would thus define the focus of all land-grant education, including the science of housekeeping, which would first be known as domestic science and then later home economics, and provided the only means at the time for women to pursue careers in science. Home economists studied many things related to the home, including sanitation, clean water, and nutrition.<sup>74</sup>

The mission of the USDA was to promote and promulgate the scientific study of agriculture.<sup>75</sup> At the time, roughly half of the population of the United States lived on farms.<sup>76</sup> In 1860 the population of the United States was roughly 30 million; by 1917, and the U.S. entry into World War I, the population had increased to around 103 million.<sup>77</sup> Chemists figured prominently here, too, populating labs that were funded by the USDA to study digestion and the chemical composition of foods.<sup>78</sup>

In 1887, the passage of the Hatch Act provided federal funds to open and maintain an agricultural experiment station in each state mirroring what was happening in Germany with state funded agricultural research there; these experiment stations most often were affiliated with the land-grant colleges.<sup>79</sup> This additional funding for agricultural research propelled the discipline forward, increasing exponentially the associated body of knowledge.<sup>80</sup> The first of these agricultural experiment stations was located in Storrs, CT, affiliated with Wesleyan University, where nutrition scientist Wilbur O. Atwater would carry out his seminal studies on food and the “new nutrition.”<sup>81</sup>

The Adams Act in 1906 increased federal funding to agricultural research stations and also required states to contribute monies. This combination of federal and state funding continued to drive interest in agricultural education and research and spurred innovation.<sup>82</sup>

The Smith-Lever Act of 1914 created the United States Cooperative Extension Service (CES), which especially supported agricultural production and additionally sought to reform rural life by conveying to farm homemakers the practices of their urban domestic counterparts.<sup>83</sup> Smith-Lever combined two strands of existing “extension”: land-grant college short courses and farmer institutes and USDA field demonstrations and placed all of this work under the USDA.<sup>84</sup> This legislation continued to open up science opportunities for women; by 1917, 27,000 women had attended courses at 450 home economics extension schools across the country.<sup>85</sup>

At the core of the cooperative extension program were young women who had earned college degrees in home economics and whose job it was to reach out to rural homemakers. World War I increased the number of these young, female extension agents, who sometimes also worked for the United States Food Administration.<sup>86</sup>

Finally, the Smith-Hughes Act of 1917 increased the number of home demonstration agents and home economics teachers, who took up posts at high schools and colleges, which resulted in the growth of home economics departments in colleges and universities as a way to meet the demand for qualified teachers, greatly professionalizing the field.<sup>87</sup>

#### [b] The New Nutrition

By the time World War I had begun, the new nutrition had emerged as a critical, new food science. Noted American chemist Wilbur O. Atwater, considered to be the founder of the American discipline of nutrition, championed work done in Germany during the 1800s that

revealed the chemical constituents of food and quantified them.<sup>88</sup> He was among a group of young American scientists who had earned degrees at American colleges and then worked in Germany under acclaimed agricultural scientists, returning later to the United States with their new technical knowledge to advance on the nascent network of land-grant schools and experiment stations to practice their craft.<sup>89</sup>

Atwater conducted research into food chemistry at the first U.S. Department of Agriculture research experiment station, established in Connecticut, which he founded; he later directed the Office of Experiment Stations (OES), which would oversee work at all of the experiment stations around the country once they were established.<sup>90</sup>

He was the first researcher to isolate the caloric unit. He also worked diligently to analyze the chemical makeup of foods and produced exacting tables that showed the percentages of protein, fats, carbohydrates, sugars, and minerals, and calorie count, or “fuel per pound”, for close to 3,000 foods grown in the United States.<sup>91</sup> He published extensively, assiduously detailing his analysis of the makeup of the body, the elements of food, and how those elements provided fuel and nourishment for the body.<sup>92</sup> This new scientific understanding of the constituent nutritive elements of food would prove to be highly useful in the work to come on conserving food and finding reliable, nutritious substitutes.

### [c] Home Economics

The discipline of home economics can be traced to the domestic science movement of the mid-1800s, which was initially a kind of instructional method that applied scientific principles to domestic life. As industrialization moved the center of production from the rural home into the urban factory, the old economics of the home vanished. Domestic science stepped in to assist the

young woman understand the new, “modern” home and taught new methods of housekeeping, cooking, and childrearing. As literacy and printed matter increased, textbooks and other literature proliferated around this new discipline. One of the earliest examples of this was a text written by Catherine Beecher, half-sister to Harriet Beecher Stowe, entitled the *Treatise on Domestic Economy for the Use of Young Ladies at Home*, published in 1841.<sup>93</sup> (This literature will be considered more fully in a following section.)

Another antecedent were the cooking schools that emerged in the 1870s, which offered instruction on cooking nutritious, low-cost meals. One of the most popular of these schools was the Boston Cooking School; Fannie Merritt Farmer was one of its principals, and her cookbook mentioned earlier, *The Boston Cooking-School Cookbook*, was hugely popular. In 1890 another effort opened in Boston called the New England Kitchen. This organization was founded and run by Mary Hinman Abel and Ellen Swallow Richards, both scientists, and served as an experimental food science kitchen that prepared nutritious, inexpensive meals for clients in the Boston area, particularly the working class.<sup>94</sup> When funding for the kitchen ended, the U.S. government was opening the first of its agricultural experiment stations, and in that setting, Richards would find a publishing venue for her continued food science studies (see the Hatch Act, above).<sup>95</sup>

Early domestic scientists such as Richards paired a commitment to social reform with a chosen career path in science research.<sup>96</sup> They worked with Atwater on dietary studies and applied his work in nutrition to their public projects. Richards also spent years organizing conferences where leading educators and social reformers would convene to discuss the possibility of establishing a new profession around the work of these females scientists; this eventually led to the new home economics discipline being established and sanctioned at the

land-grant colleges.<sup>97</sup> The movement created a legitimate space for women wishing to pursue careers in science: in Richards' experience, the only areas of science that would admit women were those that were already associated with the home and the family—if a woman applied her studies to food chemistry, water purity in the home, and domestic sanitation, she was allowed to advance to graduate study.<sup>98</sup>

Home economics became a natural place for the new nutrition science to reside; while nutrition had grown as a discipline via the work of the agricultural experiment stations, home economics practitioners soon realized that their objectives aligned nicely with concerns about food and public health.<sup>99</sup> In 1916, when the USDA began a campaign to promote nutrition information to the public, universities did not yet have nutrition departments, and home economics departments became the logical home for studying and promulgating the science of food.<sup>100</sup> The new profession also pushed for increasing home economics courses offered in high schools, colleges and universities.<sup>101</sup> By the time World War I began, there were thousands of young women, mostly middle-class, who had graduated from the nation's public schools with basic knowledge of the New Nutrition.<sup>102</sup>

#### [d] USDA Food Guidelines

One further manifestation of food science that had an impact on the government's wartime campaign was the publication of the very first government food guidelines; in 1917, the U.S. Department of Agriculture issued food guidelines for the very first time. The food guidelines were authored by Caroline Hunt and Helen Atwater, both practitioners of the new nutrition and home economics movement and thus knowledgeable about food groups and the recently discovered calorie. Five food groups were identified: fruits and vegetables, meat and meat

substitutes, starches, sugars, and fats.<sup>103</sup> Each food was assessed for its caloric value, as fuel for the body, and the housekeeper was encouraged to consider this value when buying food and preparing meals for her family.<sup>104</sup> Much of this information was based on the work of Helen Atwater's father, Wilbur O. Atwater.<sup>105</sup>

From this a typical diet could be ascertained. Mary Swartz Rose at Columbia Teachers College recommended the following diet in her 1918 food pamphlet. Here cereals predominate:

A wholesome and yet economical diet may be built upon a plan wherein we find for an average working man fourteen ounces of cereal food and one pint of milk, from two to four ounces of meat or a good meat substitute, two ounces of fat, three ounces of sugar or other sweeteners, at least one kind of fruit, and one kind of vegetable besides potatoes (more if one has a garden).<sup>106</sup>

She noted that "cereal may furnish half of the fuel value of the diet...without any danger of undernutrition."<sup>107</sup>

The government's fledgling commitment during the Civil War to fund agricultural science secured a critical role for scientific enquiry in the years to come: science, and the ability it conferred to isolate and quantify discrete parts, whether of food or sanitation procedures in the home, would take center stage in the decades before World War I. During wartime, this government funded science education and research model would provide the crucial assemblage of state and federal institutions for the Wilson administration to approach for assistance: these institutions, distributed throughout each state in the country, would participate in an extraordinary experiment on cooperation, enabling the U.S. government to organize around and effectively decentralize its food conservation message. Specifically, the practitioners of the two closely related scientific disciplines of nutrition and home economics would be called upon in

World War I to craft the essential, authoritative narrative behind the government's information campaign on food conservation and the selection and use of viable wheat substitutes.

## **2 Literature of Domestic Science: Household manuals, Cookbooks, and Ladies Magazines**

Just as the domestic scientists and then the home economists established instructional practices to educate female students about the science of the home, so too did a body of commercial literature emerge before the war that proffered expert advice on housekeeping, cooking, health, and child rearing.

With increasing literacy and access to print publications, women became active participants in the expanding print culture in the mid-to late 1800s.<sup>108</sup> In *Reading on the Middle Border* (2001), Christine Pawley writes, "For people of all classes, print was inescapable."<sup>109</sup> From the domestic science literature, newspapers and popular magazines, to reading for pleasure, women had ample printed material to choose from. Women turned to the domestic science literature to manage their homes and keep their families healthy.<sup>110</sup>

This domestic science literature was the result of years of attention to what was happening in the home in the wake of the industrial revolution. The industrial revolution brought chaos to the idea of the "home" and thus to women, who inhabited this domestic sphere. In *For Her Own Good: Two Centuries of the Experts' Advice to Women* (2005), Barbara Ehrenreich and Deirdre English write,

When production entered the factory, the household was left with only the most personal biological activities.... Life would now be experienced as divided into two distinct spheres: a 'public' sphere of endeavor governed ultimately by the Market; and a 'private' sphere of intimate relationships and individual biological existence.<sup>111</sup>

The ensuing “domestic void” and the “woman question” were hotly debated. What would women (largely of the middle class) do with all of their free time?<sup>112</sup> Some also worried that women would lose their dignity as their particular skills would no longer be required. Ehrenreich and English write that the changes brought about by industrialization were thus contradictory:

Industrial capitalism freed women from the endless round of household productive labor, and in one and the same gesture tore away the skills which had been the source of women’s unique dignity.<sup>113</sup>

Furthermore, some began to view the home as a haven from the dreadful reality of an industrialized society and began to question what would happen to the working man if he could not escape to the comfort of his home each night.<sup>114</sup> Even as the home front was in flux, it still seemed relatively stable when considered alongside the grit and noise of the factory and the growing urban landscape.<sup>115</sup> And what would happen to this refuge if women opted to leave the home to enter the workforce?<sup>116</sup>

Amid all of this public debate an additional factor asserted itself: the home had become the nexus for technological innovation and required some kind of expert guidance to manage. Cortada posits that an information explosion centered on the fact that the modern home was complicated to run, and women (along with men) sought information to help them navigate this new terrain. Refrigeration, electricity, and running water were still new at the turn of the century, as well as new modes of cooking on the modern kitchen stoves that were becoming available.<sup>117</sup> The modern woman increasingly relied on factual information to manage her home, and the expectation was that this information had to be scientific in order to be of value.<sup>118</sup>

In the end, women overwhelmingly—over 95%—choose to remain at home like their mothers had, despite the disruption caused by industrialization.<sup>119</sup> And domestic scientists

stepped in to address the domestic void and the woman question. Domestic science triumphed partly because men, and many women, hoped for the continued comfort of the home.<sup>120</sup> But Ehrenreich and English cite a pragmatic reason as well: “Women’s domesticity, it turned out, meshed ideally with the needs of the maturing economy, which would increasingly depend on the economic pattern of individual domestic consumption to fuel its growth.”<sup>121</sup>

The domestic literature included household manuals, cookbooks, and ladies magazines, to name a few different formats. (Newspapers also carried women’s sections, but their coverage won’t be considered here as this is beyond the scope of this paper.)

#### [a] Household Manuals

Household manuals were some of the earliest manifestations of a print literature on domestic science and proliferated in the decades following industrialization; some of these also served as textbooks in domestic science training. One of the earliest household manuals published in the United States was Catherine Beecher’s 1841 *A Treatise on Domestic Economy, for the Use of Young Ladies at Home and At School*, mentioned earlier. In an 1855 revised edition, the author stated that her purpose was to train young girls for the “profession” of housewifery and homemaking using a scientific method. Women were to be trained “to secure, as of first importance, a strong and healthy constitution, and all those rules of thrift and economy that will make domestic duty easy and pleasant.”<sup>122</sup> An even earlier text, *The American Frugal Housewife*, was already in its 22<sup>nd</sup> edition in 1838; it was dedicated to those “Who Are Not Ashamed of Economy.” This text covered in its initial pages, among other things, soap, simple remedies, vegetables, herbs, and salted hams. There were instructions throughout for cooking

foods, but no exact measurements were given as would appear in the Farmer and Kander cookbooks that followed much later in the century.<sup>123</sup>

## [b] Cookbooks

Cookbooks in United States date to the 1790s, when American women turned away from British cookery to start writing their own recipes in order to address the bounty of local ingredients.<sup>124</sup>

As cookbooks evolved over the next century, however, they didn't always cover cooking itself in a very efficient manner. Early cookbooks contained

not only recipes for the fashionable dishes of the day, but [also] remedies for everything from leaking faucets to receding hairlines. A cookbook devoted wholly to food was inconceivable. As scientific frontiers expanded and the nature of nutrition began to be understood more clearly, a new kind of cookbook emerged. For the first time, cookbook authors attempted to explain the chemical composition of food and to present their recipes in a clearer, less arbitrary fashion than before. Thus Fanny Farmer's *Boston Cooking-School Cookbook* and *The Settlement Cookbook* were born."<sup>125</sup>

Farmer's was the first cookbook to focus on using level measurements when cooking and to encourage home cooks to connect the consumption of good food with good health.<sup>126</sup>

Lizzie Black Kander's *Settlement Cookbook* followed the same pattern: in the first few pages of the 1901 and subsequent editions, she stressed the importance of using level measurements and spent some time discussing the science behind food and its component parts: the "proteids," carbohydrates, fats and oils, and "mineral matter."<sup>127</sup>

As manufacturing of foods increased, other kinds of cookbooks appeared as well, produced especially to assist women make use of these many new products. Manufacturers hired

domestic scientists and home economists as consultants; these practitioners crafted cookbooks to promote the use of novel food products.<sup>128</sup>

The products that many of these firms produced—such as processed cheese, lard substitutes, or manufactured leavening agents—were new, and it was far from certain that people were interested in buying them. Many company leaders discovered that advertising alone could not create a desire for unfamiliar goods.<sup>129</sup>

This would parallel the challenge the government had to get women on board with purchasing substitute flours, many of which they had never cooked with before.

Cookbooks thus became more specialized, moving away from household matters and focusing on food and diet, with recommendations for eating to promote good health and the ways in which it was possible to cook with novel foodstuffs.<sup>130</sup>

[c] Ladies Magazines

Before there was radio, magazines comprised the media that could reach a national audience.<sup>131</sup> (Newspapers were also a mass media, in that many people subscribed to a paper at the time, but papers were local, not national—in 1900 around 16 million households read around 15 million papers. After 1910, newspaper circulation began to decline per household.)<sup>132</sup> At the turn of the century, most magazines sold for ten or fifteen cents a copy, with a year's subscription costing a dollar; advertising, of the many new manufactured products available, would pay the majority of publication costs.<sup>133</sup>

In addition to magazines that covered distinct subjects, there were any number of general interest magazines, and many of these were intended for a female audience. Science would be revered here as well, as noted in an 1898 issue of the *Atlantic Monthly*, which published an

article celebrating the American Association for the Advancement of Science semicentennial celebration:

In truth, America has become a nation of science. There is no industry, from agriculture to architecture, that is not shaped by scientific research and its results; there is not one of our fifteen million families that does not enjoy the benefits of scientific advancement;...<sup>134</sup>

One of the earliest magazines for women was the *Woman's Home Companion*, begun in 1886. It published articles on practical housekeeping, food, fashion, and serialized fiction. In 1890 circulation reached 100,000.<sup>135</sup>

The *Ladies' Home Journal*, a hugely popular women's magazine, got its start in 1883 as a supplement to an agricultural journal, *Tribune and Farmer*. It was soon separated from this journal and became a stand-alone title; for a while it was known as the *Ladies' Home Journal and Practical Housekeeper*.<sup>136</sup> It was the first magazine ever to reach a circulation of 1,000,000, achieving this in 1903.<sup>137</sup> It attracted some of the top artistic and literary output of the time.<sup>138</sup> In 1917, the magazine completely turned content over to coverage of the war, including Hoover's message of food conservation.<sup>139</sup>

*Good Housekeeping* was very popular as well, and the publisher took on a much bigger role in the dissemination of domestic science than did its counterparts. The magazine provided research on foods, consumer goods, food preparation, and household appliances. Additionally, in 1900, the magazine set up a research institute, which by 1902 had transitioned to a test kitchen and later a domestic science laboratory.<sup>140</sup> Through its research efforts it established a product testing service in 1909 known as the "Good Housekeeping Seal of Approval," which still awards

products today.<sup>141</sup> Good Housekeeping worked on the principle that information was relevant when it was *scientific*.<sup>142</sup>

This concern for domesticity generated a great body of scientific literature on domestic life to aid women. This addressed the issues of the domestic void and the woman problem, it preserved the home as a vital social unit, and it generated a vast supply of information for women by providing reliable, hands-on, expert advice on all household and family matters. During wartime, the components of this literature would be significant. The domestic science literature had created a mass reading public of women and taught them to rely on science as an expert advisor in the home. It had generated a vast volume of information to assist women with things that were new: new methods of cooking, cleaning, sanitation, raising children, using new technologies in the home, and so on. And had it created a sustained information and reading practice around a body of literature that served to advise women, as homemakers, on household matters they must consider every day.

### **3 Public Libraries**

The idea of the free public library—one in which public money funds the operation of the library, including services and the lending of books—first came into being on the East Coast.<sup>143</sup> After the Boston Public Library opened in 1854, one of the first libraries in the country to operate on this model, other public libraries began to develop in other communities across the New England states and eventually the rest of the country.<sup>144</sup> Public libraries would get another boost when Andrew Carnegie began his era of philanthropic support, from 1886 to 1917, erecting public libraries in over a thousand smaller communities, mainly in the Midwest and

western United States, many with populations under 7,500.<sup>145</sup> Combined, the Carnegie libraries would serve around 35 million patrons.<sup>146</sup>

Before the war, women had been major proponents of the public library movement—women’s clubs had campaigned extensively in communities around the country to push local governments to agree to fund libraries once Carnegie monies had built them.<sup>147</sup> In this way, these clubs, largely comprising middle and upper class women, were responsible for establishing around 80% of the nation’s public libraries as a way to promote culture and education, including lifelong learning opportunities for their gender.<sup>148</sup>

Libraries had become the focal point for continued education as various methods of adult education grew and then receded in the mid- to late 1800s, such as the lyceum and the Chautauqua methods.<sup>149</sup> The reality was that some adults had attended school for just a short time and others had received an inadequate education.<sup>150</sup> Sidney Ditzion, writing in *Arsenals of a Democratic Culture*, his 1947 social history of American public libraries, wrote that “Educational gaps were to be filled in, errors to be corrected: the level of the collective culture was to be raised immeasurably by this most inexpensive of public institutions—the free library.”<sup>151</sup> The educational promise of books was infinite, and it was believed that all classes would benefit from reading in adulthood.<sup>152</sup> Public libraries, and their ability to provide comprehensive collections for public use in thousands of communities across America ensured that everyone could continue to receive an education past school age.<sup>153</sup>

Women’s clubs made use of the library’s physical space as a place to hold their extensive meetings and made use of the materials in libraries to further their education aims.<sup>154</sup> Women as readers were also frequent visitors to libraries; they had long had access to libraries, either through the borrowing privileges of male relatives in the early subscription libraries or with the

advent of the public libraries: “The Boston Public Library was intended from the outset to be open to women.”<sup>155</sup> In these various ways, women were closely associated with libraries in the decades before World War I.

The federal government, too, would recognize the value of the public library; by 1895, the U.S. government was already sending its literature to public libraries. At that time, documents were sent by the Government Printing Office (GPO) to libraries based on which libraries Congressmen selected in their home districts.<sup>156</sup> This system of providing public libraries with the documentation of federal government activity, known as the depository program, allowed for government information to be dispatched and made available to all communities: citizens in every congressional district, in every state, could make use of the depository libraries located in their district.

During wartime, this type of decentralized distribution of government information would work exceedingly well for the government when it came time to disseminate its food conservation message. As the U.S. government geared up to launch its campaign, public libraries were the obvious pipelines for dispatching the government’s message: libraries were after all, seats of continued learning, and most communities had a public library, with frequent female patrons, enabling the government to truly decentralize and deliver its message to homemakers throughout rural and urban communities alike. Libraries, too, then, would contribute to the cooperation among public entities to deliver the government’s urgent appeal.

#### **4 Gov information vs. Government Propaganda**

A note on a useful distinction between information and propaganda. Propaganda certainly played a big role in World War I; the Committee on Public Instruction (CPI), with director George

Creel, would become famous for its work in wartime propaganda.<sup>157</sup> The USFA also maintained a separate publicity office throughout the war, and this office, too, generated propaganda aimed to promote the food conservation campaign.<sup>158</sup>

But I would like to assert that the campaign to educate homemakers on using substitute flours when cooking/baking was, decidedly, an information campaign and that the propaganda engineered by the USFA publicity office, and the CPI with its more general, yet strident, message and images about the war effort, worked in concert with this information campaign and was perhaps another type of facilitator. The USFA education campaign provided very specific information on cooking with substitute flours—recipes, based on painstaking research into the chemical analysis of substitute foods by the home economics experts, detailed how much of each alternate flour was to be used and what steps the cook must take to prepare the dish. But the broader, emotional appeal made in the many posters and other types of advertising about the war, the very essence of propaganda, was something women also came into contact with on a daily basis. The USFA publicity office throughout the war churned out numerous posters for the food conservation effort. I would consider these to be propaganda as they depicted dramatic characterizations of the wheat crisis and the starving populations in Europe. These impassioned images, along with similar images coming out of the CPI, worked to underscore the very somber moment at hand, the great patriotic contribution that women were making daily in their kitchens, and the urgent need for their continued participation in the USFA directives so that food really *would* win the war.

## **PART THREE: EXAMINING THE U.S. GOVERNMENT'S WARTIME PUBLISHING EVENT**

To return to the story of the United States' program to conserve foods in wartime, especially wheat, let's consider again the questions posed earlier, which work well as a mechanism with which to conceptualize the objectives the government would have to fulfill in order to successfully carry out its educational campaign and send critical food supplies to Europe. This section will examine this framework of objectives one by one; in doing so, we can learn how each of these objectives were met, we can learn what role each of the facilitators played, and we can discuss exemplars of the published literature. This will allow us to comprehend the full extent of the government's campaign to reach and support women in the feminized sphere of the home kitchen.

In wartime, the everyday practice of cooking came under intense scrutiny—women had to alter their everyday cooking practices at every single meal, often cooking with foodstuffs they had never cooked with before. The seeking of and using recipes that highlighted food substitutes had to become habitual so that enough wheat could be conserved to feed troops and Allied populations in Europe.

As the Wilson administration began to promote its food conservation message early on in outdoor advertising and in articles run in the nation's press, it realized that these efforts would do little to teach women *how* to actually cook with viable substitutes in order to conserve food. To achieve this goal, the government would have to come up with a far-reaching plan. First, it would have to consider how to shape and appeal to a mass audience of homemakers. Next, it would have to consider who would craft the expert message on using substitutes when cooking and how it would devise a reliable media to effectively convey this expert message. It would

have to consider how it would ensure an appreciable volume of material that would sustain the urgency of the message and American housewives' attention to it for the duration of the war. It would have to sufficiently disseminate its message such that every community in the country, both large and small, would have access to the information. Finally, it was desperately hoped that homemakers would embrace the new cooking standards by establishing and sustaining a practice of information seeking and reading about cooking with food substitutes so that they could change their cooking habits at every meal.

### **1 Establishing a Mass Food Conservation Audience: the Pledge Campaign**

The initial efforts made by the U.S. government to produce and deliver information on food conservation for housewives, while somewhat successful, would nevertheless underscore the lack of adequate existing material to educate housewives on how to conserve wheat.

The inaugural essay into reaching housewives began with the USFA personal pledge campaigns in the summer of 1917.<sup>159</sup> These door-to-door canvassing efforts were undertaken by volunteers of various women's wartime committees (from the State Councils of Defense and later from state and county food administrations, among many other organizations), who informed housewives of the food/wheat crisis and asked them to sign pledge cards to aid the effort.<sup>160</sup> The signed pledge cards were sent to Washington, and in return for their participation in the food conservation program, women received a window card for display, along with a home card to hang in the kitchen for easy reference when cooking.<sup>161</sup> On one side of the home card there was an explanation of the food crisis and the need to conserve foods in order to help win the war. The other side contained details of the foodstuffs involved and practical suggestions for fulfilling the pledge in the home.<sup>162</sup> The pledge cards promoted saving by substituting in

alternative foods; along with other conservation measures such as suggestions for meatless meals, the cards instructed the housewife to plan for one wheatless meal every day and one wheatless day every week.<sup>163</sup> The pledge campaigns became increasingly successful: by October 1917, out of roughly 20 million American homes, fourteen million had signed on as active members of the U.S. Food Administration food conservation program.<sup>164</sup> At the time, Hoover noted, “We found in the American people exactly what we expected—a wealth of cooperation.”<sup>165</sup>

That same fall, the U.S. Food Administration also recruited the services of a librarian from the Boston Public Library, Edith Guerrier, who was charged with developing a food facts library on food conservation. The library she developed comprised pamphlets and bulletins produced at the agricultural experiment stations around the country and was free and open to the public.<sup>166</sup>

The success of the pledge campaigns highlighted the benefit of providing women with practical guidance right in the home. But the pledge campaigns were labor and time intensive, and the Food Facts Bureau didn’t serve a population beyond the Boston area. Both the pledge campaigns and Guerrier’s work underscored the dearth of reliable, authoritative print matter on food conservation topics, and the question of access to such material should it exist.

Now that the housewives around the country had been mobilized, they required a steady stream of dependable, accurate information tailored to their needs to ensure food conservation would become habit. The national press was reporting daily on the thousands and millions of bushels of wheat needed to feed Europe.<sup>167</sup> When questioned, women reported that to be most effective when cooking, what they really needed were precise, small quantities of substitute foods to work with in their kitchens.<sup>168</sup> The Dane County Food Administration broadside with

the war bread recipes is an example of the kind of government publication that proliferated over the course of the next year, which provided practical assistance to the housewife, offering recipes with manageable proportions that were appropriate to home cooking and baking.

Despite the government abandoning the pledge campaigns because they were inefficient, this initial effort had accomplished the first major hurdle the government faced—it had shaped and appealed to the mass homemaker audience the government desperately needed to reach. This outcome had been greatly facilitated by the existence of the commercial domestic science literature that existed before the war—the domestic science literature had provided an established reading public around the issues of the home, and thus for most women, a familiarity with being targeted with this type of advice literature.

In Michael Warner's "Publics and Counterpublics," the author posits that a "public" begins to exist at the point at which they are addressed.<sup>169</sup> Mullendore, in his history of the U.S. Food Administration, noted the larger public first envisioned when the government turned its attention to food conservation: "The first requirement of the situation was to arouse this great force, which was to a large degree dormant and only potential, and then to direct it toward the elimination of waste in all the economic processes, particularly those having to do with food."<sup>170</sup> But Warner's view allows us to narrow this public specifically to the housewives that were especially targeted: a public of women—especially homemakers—was formed around the need to educate Americans about food conservation, as it had been formed before the war around the body of literature that applied domestic science to the household.

## **2 Marshaling the Experts: Food Science Comes to Washington**

Now that the education campaign had to be greatly expanded, the next step in this grand scheme was to reach out to the practitioners and teachers in the new home economics discipline so that their expertise in nutrition and food science could be put to work. Hoover, and Ray Lyman Wilbur, the Director of the Food Conservation Division of the United States Food Administration, turned to the cadre of university-trained, home economics faculty and practitioners who were based at land-grant colleges, agricultural experiment stations, and cooperative extension programs throughout the country, many of whom had authored extensive literature for use in instruction and were accustomed to writing about food science for an inexpert audience.<sup>171</sup> This would draw the top names in the field to Washington on a rotating basis to serve in leadership roles and included Martha Van Rensselaer from Cornell University, Katherine Blunt from the University of Chicago, Isabel Bevier from the University of Illinois, and Mary Swartz Rose from Columbia Teachers College.<sup>172</sup> Additionally, a Home-Economics Director was appointed in each state whose job it was to devise strategies for reaching housewives throughout the state, particularly through home visits.<sup>173</sup> Many home economics faculty and teachers throughout the country remained at their home institutions and contributed tremendous amounts of material for the war effort.

The work of experimenting with food substitutes and devising valid and appetizing ways of cooking with them would be carried out in new experimental kitchens set up in Washington and elsewhere.<sup>174</sup> For help with recommending nutritious, tasty substitutes, food scientists turned to the nutrition charts that Atwater had created decades earlier to identify caloric content in foods along with the percentages of protein, carbohydrates, fats, and sugars. The recipes they generated presented this scientific information to homemakers in a conversational manner, yet still

provided the science behind the selection of substitutes and the underlying nutrition available, along with precise instructions for preparing dishes.<sup>175</sup> The variety of substitute flours was legion, including foods that had never before been associated with a flour variant: corn flour, corn meal, corn grits, hominy, rye flour, barley flour, oat flour, rice flour, buckwheat flour, potato flour, tapioca flour, graham flour, pumpkin flour, sweet potato flour, and so on.

Selecting home economists to work at the front lines of the food conservation appeal fulfilled the second objective I have identified: Here were the knowledgeable practitioners the government needed to generate the government's critical message. They were proficient in the new food science disciplines as educators and researchers, and they had already published extensively, mainly textbooks and other materials for use in teaching courses.<sup>176</sup> The structure and focus of the federally funded institutions working within science disciplines had made this group of experts and their particular science possible, and because their research institutions were located in each state, their national efforts would extend to local communities as well, thus decentralizing the government's urgent directive.

As the work of Ehrenreich, English, and Cortada illustrated earlier, homemakers had come to rely on the authoritative, reassuring voice of science in the domestic science literature to learn new skills in the modern home. During wartime women would expect science to guide them again, in the new world of cooking with substitute foods. The expert advice the home economists would issue to homemakers during the war would provide the facts on substitution and precise, easy-to-follow instructions in recipes, allowing women to continue to provide tasty, nutritious meals every day for their families even as they achieved the greater good of food conservation for a nation at war.

### **3 Generating the Food Conservation Literature/Media**

The next step would be to take the new work on food conservation—the findings produced in the test kitchens by the home economics experts—and formulate a media in which to publish this information. Three main issuing government entities would contribute to the new mass media and will be considered here, but many more agencies published material as well (see next section below). The United States Food Administration, of course, published extensively on the subject, generating pamphlets both short and long to convey all of the necessary information about this extremely important food conservation effort. The United States Department of Agriculture was another big contributor. And home economics faculty and staff based at the land-grants colleges, agriculture experiment stations, and cooperative extension programs, some of whom were now working in Washington, worked diligently to produce a third massive response to help educate women about cooking with food substitutes.

The media crafted took the shape of small format leaflets, pamphlets, bulletins, circulars, and booklets, with length ranging from a single sheet to several pages—sizes that would be easy to handle in the kitchen. Content usually consisted of some coverage of the national food crisis, then some of the science behind the food substitutes on offer, often condensed in order to keep things brief and to the point, and then detailed recipes.

[a] United States Food Administration Publications

As the main governmental body in charge of food during World War I, the USFA publications were vast. The USFA Educational Division created a large number of seminal and popular texts on the food conservation effort in the home. The first of these was entitled “Ten Lessons on Food Conservation: Lessons 1-10,” issued on August 1, 1917. (Washington, D.C.: Government

Printing Office, 1917). This was a hefty document of 64 pages and was really a primer on the war food crisis, containing extensive contextual information on the war in Europe, the resulting food shortages, information about the U.S. Food Administration aims, food conservation measures at home, and so on. The manual covered various foodstuffs in particular, including a discussion of wheat. Recipes for “emergency breads” ran for five pages. Substitute flours such as corn meal, oatmeal, barley, rye, rice, and potato figured prominently here.

One of the U.S. Food Administration’s most popular publications was the “War Economy in Food: With Suggestions and Recipes for Substitutions in the Planning of Meals” (Hammond, IN: W.B. Conkey Company, 1918).<sup>177</sup> At 30 pages, it was no doubt a much more practical document than “Ten Lessons.” It opened with a transcript of a speech by President Woodrow Wilson calling upon American women whom he acknowledged were already contributing a great deal to solve the food issue, to do more by “cheerfully accepting” the directive of the U.S. Food Administration. A copy of the U.S. Food Administration pledge card is included early on in the pamphlet, followed by several pages explaining the war, the food shortages, and the nutrition standards of the day. Recipes for breads using substitute flours predominate.

The U.S. Food Administration, in cooperation with the U.S. Department of Agriculture, also published a popular series of leaflets on food conservation topics, several of them on wheat substitutes with corresponding recipes. (Washington, D.C.: GPO, 1917-1918). These small publications ran about 4 pages each. “Do You Know Cornmeal?,” “Do You Know Oatmeal?,” “Wheatless Breads and Cakes,” “Rice,” “Hominy,” and “Plenty of Potatoes” were some of the titles published in this particular series. Other occasional pamphlets included, “Bread, a Foreword and Three Recipes,” “Victory Bread (Experimental Formulas),” “Victory Bread (Save

the Wheat),” “Wheat Saving Program for the Household,” “Wheat for Liberty,” “Corn,” “Wheatless Recipes,” and “Potatoes for Wheat.”<sup>178</sup>

Due to the fact that many homes that had been visited during the pledge campaign were found to have no English spoken in the home, the USFA offered translations of its many publications.<sup>179</sup> Browsing through a listing of USFA publications on archive.org shows translations into Portuguese, Finnish, Armenian, Swedish, French, Greek, Lithuanian, Arabic, Italian, Polish, Yiddish, and so on.<sup>180</sup>

Commercial publishers also carried the government’s food conservation message, but their contribution lies beyond the scope of this paper. One thing I will mention, though, is that they often published government information, and one such publication was a book that came out in October 1917, a compilation of various USFA and USDA publications that had previously been issued separately. Entitled *Uncle Sam’s Advice to Housewives*, and compiled by Vera Connolly, it ran for 375 pages and comprised 19 booklets and leaflets on conserving food, including one on corn meal and one on breadmaking. The publisher was the Christian Herald.

[b] U.S. Department of Agriculture Publications

The U.S. Department of Agriculture had a long history of working with farmers at the state level via the state agricultural experiment stations to improve farming techniques and crop yields and publishing literature for them, mainly in the form of Farmers’ Bulletins and Circulars. But the agency did not wholly neglect the farm wife, and by the time the United States entered World War I, the Department had taken a particular stance on providing homemakers with information they could use. Much of this material was used by home-economics departments at the state agricultural colleges to support curriculum, but the Department reached individual homemakers

as well, corresponding with many who wrote in for information covering domestic food queries.<sup>181</sup>

Before the war, based on research carried out at the agricultural experiment stations established in each state, the USDA collected facts and information that the homemaker could use, stating in their 1913 Yearbook that they had published around 50 technical bulletins to date—part of their Farmers’ Bulletins—on household topics, including some on food with recipes to assist in the home preparation of food.<sup>182</sup> “Just as the farmer turns to the Department of Agriculture and his experiment stations for information, so the housekeeper seeks answers to her problems from the Department of Agriculture.”<sup>183</sup> These bulletins were lengthy and contained lots of technical information, with figures, tables, and scientific illustrations. One of the more extensive bulletins to come out pre-war (1910), written by Helen W. Atwater entitled “Bread and Breadmaking,” took up 42 pages with extensive coverage of the different grains, the wheat germ, gluten, yeast, and the nutritive value of bread.<sup>184</sup> This lengthy Farmers’ Bulletin did not contain any recipes, however.

While these publications were clearly intended for women, there was no dedicated means of disseminating these texts to a wider homemaker audience. Therefore, it is not clear if women could regularly access these materials. Certainly farm wives would have benefited from this material if the household subscribed to the Farmers’ Bulletins. But beyond that group, and the faculty and students of home-economics departments at state colleges, it seems unlikely that these materials found a mass audience.

With the onset of World War I and the accompanying food alarm, the U. S. Department of Agriculture was nevertheless poised to publish tracts on food topics for women. The new bulletins they produced, in response to the food conservation movement, took on a different

look, however, adding in multiple recipes to aid the housewife on planning for substitutions on a meal-by-meal basis. The new bulletins spent less time on the science and technical material and more on the how-to. Bulletin 955, “Use of Wheat Flour Substitutes in Baking,” which came out in March 1918, is a testament to the Department’s ability to shift gears and provide a wealth of practical information on food conservation and substitution for the homemaker. About 20 pages in length, this Bulletin interspersed explanatory material with over 40 recipes for biscuits, breads, griddle cakes, cookies, muffins, and pie crust all using substitute flours ranging from barley and buckwheat, corn and graham, to potato and pumpkin.

The Agriculture Department also published Circulars for a homemaker audience. The same month that Bulletin 955 was issued, Circular 106 on cooking and baking with potatoes was released as well.<sup>185</sup> Entitled “Use Potatoes to Save Wheat,” this 8-page pamphlet suggests eating potatoes instead of bread. Text is again interspersed with recipes, calling for mashed potatoes to be used in place of wheat flour. “Potato tea biscuit,” “potato corn-meal muffins,” and “chocolate potato cake” are some of the recipes given here.

#### c] Publications from Land-Grant College Home-Economics Departments, Cooperative Extension, and Agriculture Experiment Stations

At the state level, state colleges often published informational bulletins on their own, issued by the home economics department, agricultural experiment station, and/or cooperative extension of the college. They were often brief, to the point, covered a specific topic, and considered attractive and easy to read and use.<sup>186</sup> Many titles covered wheat and wheat substitutes and fell within the following broader areas: meal and menu planning; bread and breadmaking (including recipes for breads variously called “patriotic bread,” “liberty bread,” “war bread,” and “victory

bread”); using corn (such as “Appetizing Dishes Made from Corn” and “Corn Meal as a Food and Ways of Using It”); using other grains (such as “Twelve Ways to Use Barley” and “Why not Buckwheat?”).<sup>187</sup>

On the title page of a University of Texas Bulletin No. 1727, issued on May 10, 1917, entitled “Cotton Seed Flour as a Human Food,” we see Anna E. Richardson, Adjunct Professor of Home Economics, and Jennie R. Bear, Instructor in Home Economics, listed as authors. This pamphlet is around 13 pages in length. Several of the initial, interior pages are missing. On pages 4-7, the authors go into great detail about experiments giving cotton seed to farm animals, such as pigs, and an unfortunate illness that resulted; initially the thinking was that the cotton seed had poisoned the pigs. Then comes an account of experiments feeding cotton seed to rats with positive results, and the authors conclude that the pigs had not been poisoned but had suffered instead from an insufficient diet and had in fact contracted beriberi—the conclusion was that when using cotton seed as a food, it was important to combine it with other nutritious foodstuffs.<sup>188</sup> Subsequent pages cover experiments on women’s digestion. The recipes begin on page 8; the one included below gives instructions for cooking with cotton seed flour to make a hot breakfast food. Viewing this pamphlet today, it’s hard to imagine that a homemaker would have continued on to the recipes after the first few pages, yet this pamphlet, like its thousands of counterparts, was produced in complete earnest. Cotton seed, after much study, had been deemed a viable, nutritious substitute, and so the recipes contained within were considered entirely legitimate; this pamphlet illustrates the resolve to come up with suitable alternatives to wheat flour.

## COTTON SEED FLOUR RECIPES

Cotton seed flour has a very high per cent of protein or tissue building material. It has more than twice as much protein as meat, and when used in the diet should be substituted for part of the meat.

It can replace to advantage one-fourth to one-third of the wheat flour in all recipes where flour is used, and thus conserve our rapidly decreasing supply of wheat.

*Cotton seed flour for breakfast food:*

¼ cup cotton seed flour,

¾ cup corn meal,

1/3 teaspoon salt,

4 cups boiling water.

Mix flour and corn meal together. Stir this into boiling salted water. Allow to boil for ten minutes, stirring constantly. Cook over boiling water for forty minutes. This may be served with cream and sugar, or moulded in pans one inch deep. When cool cut in squares, roll in crumbs, and brown in fat.<sup>189</sup>

The third objective the government needed to fulfill, to convey the expert message in a reliable media, was met with the smaller format materials that proliferated. This format was designed specifically to be easier to use in the kitchen, the publications usually covered a single topic, the food science portion was concise and condensed, and there were always multiple recipes included that detailed precise measurements of substitute flours to be used and instructions for cooking. The expectation was that although commercial publishers were also covering the food crisis in their newspapers, magazines, and books, homemakers would be more likely to read *all the way through* these single topic, smaller tracts, thus making them a more reliable media for conveying the government's directives on food conservation, and thus hopefully, an effective way to get homemakers to alter their cooking practices.<sup>190</sup>

Although the format of these tracts was different from the kinds of formats issued within the body of domestic science literature before the war, the advice contained within these wartime pamphlets, again, would have been familiar to homemakers already conversant with the former media. Just as women relied on the domestic science literature to help them with new methods of housekeeping before the war, this novel, government issued media helped them navigate the uncertain terrain of cooking with novel, substitute foods.

#### **4 Generating and Sustaining a Volume of Literature**

As these multiple government entities based in Washington and scattered across every state each began to contribute their particular publications on food conservation, the available literature became voluminous, making it hard to keep track of the surplus of materials available. It became evident that this massive publishing output needed organization. Thus work was undertaken to create bibliographies and indexes. These bibliographic tools not only provided a means to survey

the seemingly unlimited number of tracts being issued, but they also grouped publications by format, supplying a handy way to consider the extent of all the publishing going on, including commercially published books and magazine articles. Most of these materials were intended for libraries, which became the conduit to disseminate all of this literature, as will be shown in the section following (see below).

*Food News Notes for Public Libraries* was a publication conceived by Guerrier that came out monthly and ran for thirteen issues, from October 1917 through October 1918. Among other features, it contained a bibliography that served as a guide to the rapidly expanding supply of literature on food conservation. While it included references to pertinent articles appearing in the popular press, it also served as a reliable and authoritative aid to librarians inundated with information from U.S. government agencies and multiple state and local agencies and colleges. This absolutely unprecedented bulk of material had to be categorized in order to provide patrons with access to the most comprehensive up-to-date information possible—this would assist libraries in requesting the extensive materials coming out of these various agencies.

The first issue of *Food News Notes for Public Libraries*, which came out in October 1917, revealed a rather short, manageable, orderly listing of materials in its bibliographic section. This section of the publication was divided into books, U.S. Department of Agriculture publications (bulletins, Farmers' Bulletins, and Yearbook), and pertinent magazine articles. Two months later, in the December issue, the bibliographic information had swelled considerably, reflecting the rapid growth in literature on the topic. Now, listed along with the U.S. Department of Agriculture bulletins there were numerous college and university agriculture departments, extension, and experiment station bulletins; correspondence and reading courses (Iowa and Cornell); and a listing of twenty-eight different commercial magazines all carrying one or more

pertinent articles on the food issue (many of these women's magazines). Over the next year, the bibliographic section continued to increase.

As the food shortages in Europe continued and in fact worsened, and the U.S. government pressed American women to further economize in the kitchen, each issue of this monthly publication began to highlight the economy of a single foodstuff. The bibliography in the May 1918 issue was devoted to wheat flour substitutes and provided a comprehensive list, running from page 10 through page 12, of well known substitute flours alongside some surprising new ones (with an accompanying listing of resources carrying this content): acorns, alfalfa, bananas, barley, cornmeal, dasheen, feterita, kafir, milo, oatmeal, peanuts, potatoes, rice, soy beans, and sweet potato flour.

Another bibliography intended for libraries, called *Bibliography of Food Economy for the Housewife*, issued initially in July 1917, was prepared by Linda M. Clatworthy, a bibliographer from the University of Illinois, and Lelia W. Hunt, an Associate Professor of Foods and Cookery at the State College of Washington. A second, revised edition came out in March 1918 at the request of Edith Guerrier and the Food Information Committee of the War Service Committee of the American Library Association.<sup>191</sup> The compilers' goal was as follows:

This bibliography of Food Economy has been prepared to meet the needs of those who are seeking to give the housewife the most authentic and accessible information on the proper feeding of the family. Earnest and patriotic women in millions of American homes are trying to keep the Hoover pledge and to offset the high cost and scarcity of the customary foods, fortified with very little training in the new science of Home Economics as now taught in the schools. To search out the literature which seems adapted to their

reading and to arrange it in a list for use, by librarians, as to aid in book selection and as a special catalog of food literature, has been the aim of the compilers.<sup>192</sup>

This publication was divided into “Household Organization,” “Nutrition,” “Food,” “Cookery,” “Fuel Economy,” “Care of Food,” and “List of U.S. Food Administration Publications.” Out of about fifty pages devoted to bibliographic listings, this second edition carried five pages of listings on wheat, wheat substitutes, corn, rice, and potatoes; most of these publications were produced by state colleges and their agricultural and home-economics extension services. At the time of printing, 8,000 copies had been printed, distributed throughout each state by the Library Directors working under the Library Division of the USFA, with cooperation from the American Library Association (ALA).<sup>193</sup>

Many other catalogs, bibliographies, and indexes were published at this time to aid in identifying the vast amount of literature being produced on food conservation. It is not clear, however, how many of these guides public libraries would have had access to or how comprehensive they were. The *Monthly Catalogue*, put out by the Government Printing Office, listed government agencies and their publications, including the U.S. Department of Agriculture and the U.S. Food Administration, but because it was a monthly it did not provide the overview of resources that other indexes did. This resource was sent to those libraries serving as federal depository libraries and to as many other public libraries as supplies would permit.<sup>194</sup> The Department of Agriculture put out a compendious index on its publications (issued by H.W. Wilson). In the introductory pages of Volumes I-III (1916-1918), the editor noted the tremendous surge in interest in agrarian topics due to the war and the need to identify the most important material.<sup>195</sup> It listed various types of institutions as “cooperators or subscribers,” including agricultural college libraries, but public libraries were not among them.<sup>196</sup> This index

contained numerous entries under “bread,” “cookery,” “food conservation,” “flour,” and close to thirteen pages of entries for wheat.

Bibliographers in the Library of Congress, Division of Bibliography, produced a wartime bibliography entitled “The United States at War: Organizations and Literature,” with particular emphasis on “Government publications.”<sup>197</sup> The preface noted the sheer task of compiling such a resource and states, “No attempt has been made at bibliographical fullness.”<sup>198</sup> The entry for food conservation noted a “List of references on the conservation, production, and economic use of foods,” which libraries could receive free of charge if they wrote to request a copy.<sup>199</sup>

The *Reader's Guide to Periodical Literature*, published by the H.W. Wilson Company, was a popular commercial index to which libraries subscribed (a year's subscription was \$12.00).<sup>200</sup> It expanded its pages during the war years to carry listings of some of the government literature, especially evident in the sections on “bread” and “cookery.”

The sheer output of publications generated by state and federal entities worked tremendously in the government's favor, fulfilling the third suggested objective of reaching an appreciable, substantial volume that would sustain this urgent message and American homemakers' attention to it, for the duration of the war. America was at war for over one and half years; the more agencies around the country that were publishing meant that there was multitude of material circulating at all times. Even as publications went out of print, new ones emerged to take their place.<sup>201</sup>

The bibliographies and indexes that were created to impose some control over the new mass media further underscored the tremendous number of materials that were generated. This was an unprecedented publishing phenomenon: Never before had the U.S. government needed to publish on this scale, for this audience, for this topic. The multiple issuing entities were all part

of the vast network of federally funded science institutions, which made this massive publishing campaign possible. And with the desire to do their patriotic part, and in possession of nutrition and food science knowledge that must be put to use to help win the war, the home economics educators and researchers at these institutions generated a monumental response to the government's appeal.

### **5 Disseminating the Food Conservation Directive: the Public Library**

Libraries actively engaged with critical war work. They offered meeting space for war preparedness organizations like the Red Cross and the local Council of Defense and displayed and circulated the materials coming out of the CPI.<sup>202</sup> They actively participated in the ALA's Library War Service work, collecting books and magazines that were eventually shipped overseas for soldiers, and they were proponents of Americanization programs that aimed to determine the loyalties of immigrants. They also distributed millions of pamphlets on food conservation.<sup>203</sup>

As plans got underway to initiate this huge publishing effort, Edith Guerrier in Washington, D.C., got busy devising a way for the U.S. Food Administration to broadly distribute this critical wartime information. She was convinced that public libraries would be the ideal place in which to disseminate the rapidly evolving material.

Public libraries are the possession of the people. To justify claim to this statement librarians must not be merely keepers of archives; they must enter into the daily lives of the people to the extent of furnishing timely material related to daily living. The timely subject is now food conservation. Let the great libraries of the country for the moment put Shakespeare in the alcove and feature 'Food Conservation'.<sup>204</sup>

Herbert Hoover delivered a special appeal to librarians, noting the very pertinent role that libraries could play, saying that, “Libraries are so organized as to get in touch with rich and poor, young and old... We ask your loyal support and we know that you will give it.”<sup>205</sup> Hoover often spoke of the role that libraries would play, noted Guerrier.<sup>206</sup> He asked that every librarian make food conservation information sources available to the public; in this way the public would be armed with the critical knowledge that would result in “constructive and definite action.”<sup>207</sup>

At Guerrier’s request, a Library Section was soon established within the Educational Division of the U.S. Food Administration, and a library director was assigned to each state food administrator.<sup>208</sup> The library director was charged with communicating with the librarians across his/her state and ensuring that libraries were making the food conservation information accessible to patrons.<sup>209</sup> State library directors were asked to compile a list of all the libraries in their state that should receive USFA literature.<sup>210</sup> Guerrier directed the new Washington office and maintained contact with the state Library Directors, as well as individual libraries to some extent.<sup>211</sup>

These levels of organization established efficient routes through which Guerrier could deploy the government’s food conservation literature. Libraries automatically received publications from the U.S. Food Administration for display and exhibit; these materials were sent in large lots, which enabled state Library Directors to ensure adequate supplies for each library in their state.<sup>212</sup> During the war, Guerrier’s Library Section distributed well over 1 million pamphlets and leaflets and around 600,000 posters, among other types of materials.<sup>213</sup> Librarians were also expected to request literature as well from the many other federal and state issuing agencies, including the state land-grant agricultural colleges and their home economics departments, the state agricultural experiment stations, and the cooperative extension

programs.<sup>214</sup> In this way, access to all of the government information would become accessible at a localized level, to women in their own communities. And, as discussed in the section above, bibliographies and indexes emerged as a way to make sense of the avalanche of materials.

Guerrier's objectives directed librarians to prominently display books, magazines, and all of the rapidly proliferating government pamphlets, circulars, and leaflets covering food production and conservation, as these were all considered invaluable as sources of information.<sup>215</sup> She asked librarians to create exhibits and spaces to distribute leaflets.<sup>216</sup> Exhibits that were carefully prepared were believed to awake "in thoughtless persons an intelligent interest in the part food must play in winning the war."<sup>217</sup>

Food Administration news was to be prominently posted on bulletin boards and other public spaces in the library.<sup>218</sup> Libraries were also instructed to maintain recipe files and to work with local women's groups to continually renew and change exhibits and materials.<sup>219</sup> In the spring of 1918, Guerrier noted in her memoir, "During the great wheatless drive, food shows were planned in all parts of the United States and demonstrations of wheat substitutes were given in libraries and schools under the auspices of women's organizations everywhere."<sup>220</sup> All such efforts would have relied heavily on the scores of government documents covering the movement.

Librarians were also asked to clip items from local newspapers that highlighted the libraries' work with the food conservation literature; they sent these items to state publicity directors.<sup>221</sup> Libraries with auditoriums were expected to arrange for lectures on the food situation.<sup>222</sup> Throughout, Guerrier requested and received full cooperation from the Food Information Committee of the War Service Committee of the American Library Association so that efforts would not be duplicated."<sup>223</sup>

Libraries received much needed assistance with all of these directives via Guerrier's *Food News Notes for Public Libraries*, (noted earlier). The publication was a compendium of instructions and guidelines. It detailed Guerrier's expectations each month for bulletin board themes and offered recommendations on displays and exhibits covering food conservation and U.S. Food Administration news. And because all government documents at this point seemed to include recipes, this publication was no exception. Recipes ranged from "patriotic bread" to pie crust made with corn meal.

Libraries would serve as the final strategy in the government's information campaign. Because of the structure that placed a Library Director with each state Food Administer, who in turn communicated with all of the libraries in his/her state, the government's message—including all of the publications from the multiple public issuing agencies—could be sufficiently disseminated and realized throughout communities across the country, whether rural or urban. As Guerrier had noted, with this disposition in communities throughout each state, reaching millions of patrons overall, and their mission to make educational materials free and accessible to the public, public libraries were the obvious choice to receive and distribute the government's message during wartime.

During the war, library staff worked tirelessly to display and curate all of the government's wartime information, including food conservation materials, and continually requested those additional materials not automatically sent to them. This meant that female patrons, who were frequent visitors to libraries, were kept apprised of the government's message on a continuous basis and were provided with ample informational materials to collect and take home to use in their kitchens.

## **6 Achieving an Information and Reading Practice of Everyday Cooking in Wartime**

This objective, more than any of the others, was unfortunately beyond the government's control; because the U.S. government did not institute rationing during World War I, the effort asked of women was entirely voluntarily. Yet, it was this step that would ultimately determine if the homemakers of America could conserve enough wheat to feed Allied nations and troops, and Americans at home, for the duration of the war. It was therefore critical that homemakers sought out the government's information on altering everyday cooking practices, read it, understood it, and then applied it when preparing each meal, every single day.

This is the most difficult part of the food conservation campaign to document: Without actual records of readership and homemaker activity in the daily practice of cooking, in all of the communities across the United States, it's difficult to know the extent of conservation efforts made as they cooked family meals each day. But there are a number of reasons to suppose that women did heed the call and make the required effort.

First, the government did successfully mount the actual educational campaign on food conservation and in doing so, provided homemakers with the complex support they would need to make informed decisions about cooking: the government procured the top faculty in home economics to both conduct research on and generate information about cooking with novel wheat substitutes; a reliable, handy media was produced to convey this message; multiple issuing agencies created a phenomenal volume of pamphlets and tracts on the subject; and public libraries worked hard to organize and make these materials accessible.

Second, women were disposed to follow the cooking advice of the home economists, not only because they wanted to contribute to the war effort and were in a unique position to do so, but also because they had already established an information and reading practice around the

domestic science advice literature that existed before the war. Women had relied on science before the war when it came to household matters, and because of this familiarity, women would feel comfortable with turning to science for help with cooking during wartime, and in fact would rely on the expertise of the home economists to cook with new foodstuffs.

Third, the success of the government's initial experiment with pledge campaigns is well documented—the 14 million homes out of around 20 million homes that signed on to take part in the pledge meant that a majority of households in the United States were committed to following the government's program as it got underway. Also documented at the time of the pledge campaigns was the request from women around the country for more precise guidance when cooking. Women were, therefore, eager to make the changes to their daily cooking practice but needed help with selecting suitable substitutes, which they then received.

Fourth, women actively used the public library, either as part of the social gatherings held by women's clubs or as readers looking for materials to read. As repeat patrons of the library they would have seen the displays and exhibits that librarians created on the food crisis and would have been able to access all of the government pamphlets and tracts that libraries distributed.

Finally, at a time when women did not yet have the vote, they nevertheless were frequently recognized in the press by leading figures of the Wilson administration, including Wilson and Hoover themselves, for the vital role they were to play in conserving food to win the war. To be so sought after by the nation's government provided women with a political agency they had never before experienced. The empowerment that resulted from being addressed as key participants in the nation's urgent business of war must surely have compelled women to actively comply with the government's conservation directive.

In 1918, the first year that would reflect conservation efforts begun in 1917, the United States shipped 213,654,000 bushels of wheat to Allied nations. This was a substantial increase from the 1916 and 1917 figures of 169,971,185 and 137,200,000 bushels shipped, respectively.<sup>224</sup> Mobilizing American housewives, and their part in voluntarily complying with the USFA directives, proved to be a major contributing factor in the success of the government's ambitious food conservation program.<sup>225</sup>

## **CONCLUSION**

This paper has explored a previously unexamined United States government information event that played out during World War I in response to severe food shortages in Europe; the outcome of the war was uncertain for the Allies as long as the feeding of troops and starving populations in Europe was an issue. This paper asserts that even as women eagerly joined the war effort by volunteering for work outside of the home, the government's appeal to conserve various foodstuffs, especially wheat, targeted women in the domestic sphere where they alone could make prudent food choices when preparing daily meals. To assist homemakers as they struggled to cook with viable, nutritious wheat substitutes, many of which were new to them, the government launched a massive, unprecedented information campaign: the government had never before had to issue such a vast amount of information, for such a critical cause, for this audience, on this topic. This paper considers several pre-war "facilitators," circumstances that enabled the government to successfully launch its campaign—the government funded science and research institutions and their home economics faculty, established by legislation that began during the Civil War and continued into the first year of the war; the well documented domestic science literature and its established female reading public; and the role of the public library as a

space with free, accessible collections, located throughout the country in communities small and large. These facilitators, along with objectives the government would have to meet in order to successfully realize its conservation directive, have allowed the whole of the information campaign to be studied and interpreted.

## **SUGGESTIONS FOR FURTHER RESEARCH**

There is evidence, based on the research conducted for this article, that the government did in fact generate some information before the war for women and their families, such as tracts on child rearing. But it's not clear if this information was forwarded to libraries as part of the depository program, and if not, then the question becomes could women freely access these pamphlets in some way or did they have to write to request them (and pay some nominal fee). In other words, how frequently would women have come into contact with this material and read the information provided? It would be instructive to learn the extent of government information for women and homemakers before the war (in addition to the Farmers' Bulletins that addressed homemakers' concerns), which entities generated this media, the range of topics that were covered, what formats were utilized, how much was produced, how women accessed this information, and readership levels. Further, it would be interesting to consider this government information alongside the pre-war commercial domestic science literature with regard to range of topics, formats, accessibility, readership, etc., to get at an overall picture of pre-war publishing on domestic science topics.

## **USING DIGITIZED PRIMARY RESOURCES**

Because of the ephemeral nature of much of the government's food conservation literature produced during World War I, this study draws heavily on several extant, digitized bibliographies whose print versions were created at the time to track the many individual publications issued on the topic—these bibliographies provided the means with which to begin to grasp the scope of this campaign and to get actual, individual titles to search for. Several examples from the larger body of literature have been provided in this paper along with some discussion of the bibliographies themselves. Many other primary (and near-primary sources) have been used to write this paper, including documents created during World War I, as well as histories written by people after the war who had been actively involved with the conservation effort. These primary, digital documents were available through Google Books, Hathi Trust, Internet Archive, and other digital collections and repositories, making it possible to engage with many original documents from the time period.

## NOTES

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<sup>1</sup> *Dictionary of Publishing and Printing*, s.v. "broadside," <http://ezproxy.library.wisc.edu/login?url=http://www.credoreference.com/entry/acbpublishing/broadside> (accessed October 12, 2012). In printing parlance, a broadside is typically a sheet of paper that is uncut, unfolded, and only printed on one side. [Add in note on WHS collection, call #, etc.]

<sup>2</sup> Arthur S. Link, *The Papers of Woodrow Wilson*, vol. 42, (Princeton, NJ: Princeton University Press, 1983), 181, quoted in Jonathan Auerbach, *Weapons of Democracy: Propaganda, Progressivism, and American Public Opinion* (Baltimore, MD: Johns Hopkins University Press, 2015), 93.

<sup>3</sup> See Michael Shally-Jensen, *Defining Documents in American History: World War I (1914-1919)* (Ipswich, MA: Salem Press, 2014), 33, and Woodrow Wilson, "Statement on Neutrality," in *World War I and America: Told by the Americans Who Lived It*, ed. A. Scott Berg (New York, NY: The Library of America, 2017), 30-32.

<sup>4</sup> Berg, *World War I and America*, 30-32, 261.

<sup>5</sup> "U.S. Economy in World War I," Economic History Association, accessed October 4, 2017, <http://eh.net/encyclopedia/u-s-economy-in-world-war-i/>.

<sup>6</sup> Susan R. Grayzel, *The First World War: A Brief History with Documents* (Boston, MA: Bedford/St. Martin's, 2013), 1.

<sup>7</sup> Ibid.

<sup>8</sup> Rose Hayden-Smith, *Sowing the Seeds of Victory: American Gardening Programs of World War I* (Jefferson, NC: McFarland & Company, Inc., Publishers, 2014), 38.

<sup>9</sup> Economic History Association, "U.S. Economy in World War I."

<sup>10</sup> Helen Zoe Veit, "We Were a Soft People," *Food, Culture & Society* 10, no. 2 (2007): 169.

<sup>11</sup> Charles Lathrop Pack, *The War Garden Victorious* (Philadelphia, PA: J.B. Lippincott Company, 1919), 2-9.

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<sup>21</sup> "Food Dictator," 390.

<sup>22</sup> William Clinton Mullendore, *History of the United States Food Administration: 1917-1919* (Stanford, CA: Stanford University Press, 1941), 120.

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<sup>26</sup> Mary Swartz Rose, *Everyday Foods in Wartime* (New York, NY: The Macmillan Company, 1918), 12.

<sup>27</sup> Food Administration for Wisconsin, *Food Administrators' Catechism* (n.d.), 3.

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<sup>30</sup> Jesse Rhodes, "Why We Have Sliced Bread," Smithsonian.com, accessed October 4, 2017,

<http://blogs.smithsonianmag.com/food/2012/03/why-we-have-sliced-bread/>.

<sup>31</sup> USFA, *Food Guide for War Service at Home*, 16.

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- <sup>40</sup> Glad, *The History of Wisconsin Vol. V: War, a New Era, and Depression*, 29.
- <sup>41</sup> Janik, "Food Will Win the War: Food Conservation in World War I Wisconsin," 19.
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- <sup>45</sup> Mullendore, *History of the United States Food Administration, 1917-1919*, 56.
- <sup>46</sup> Veit, "We Were a Soft People," 168-169.
- <sup>47</sup> Leonard P. Dileanis, "Herbert Hoover's Use of Public Relations in the United States Food Administration" (master's thesis, University of Wisconsin, 1969), 50.
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- <sup>68</sup> Charles A. Seavey and Caroline F. Sloat, "The Government as Publisher," in *History of the Book in America, Volume 4, Print in Motion: The Expansion of Publishing and Reading in the United States*,

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<sup>70</sup> Hayden-Smith, *Sowing the Seeds of Victory*, 135.

<sup>71</sup> Roger L. Geiger, "Land-Grant Colleges and the Pre-Modern Era of American Higher Education, 1850-1890," in *Science as Service: Establishing and Reformulation American Land-Grant Universities, 1865-1930*, ed. Alan I. Marcus (Tuscaloosa, AL: University of Alabama Press, 2015), 9.

<sup>72</sup> Mark R. Finlay, "Transnational Exchanges of Agricultural Scientific Thought from the Morrill Act through the Hatch Act," in *Science as Service*, 33. Also, throughout the this same text, in the Introduction and in Part One, the dichotomy of an agricultural school and a private school that taught classics is raised.

<sup>73</sup> Alan I. Marcus, "Introduction," *Science as Service*, 5.

<sup>74</sup> Carolyn M. Goldstein, *Creating Consumers: Home Economists in Twentieth-Century America* (Chapel Hill, NC: University of North Carolina Press, 2012), 23-29. See also Charlotte Biltekoff, *Eating Right in America: The Cultural Politics of Food and Health* (Durham, NC: Duke University Press, 2013), 20ff, and Sarah Stage and Virginia B. Vincenti, *Rethinking Home Economics: Women and the History of a Profession* (Ithaca, NY: Cornell University Press, 1997), 17-33.

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<sup>89</sup> Kenneth J. Carpenter, "The Life and Times of W.O. Atwater (1844-1907)," *The Journal of Nutrition* 124/9 Suppl (1994): 1708S; see also Mark R. Finlay, *Science as Service*, 34ff.

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<sup>92</sup> See the 1887 issue of *Century Magazine* (vol. 34) for two articles by Atwater on nutrition: "The Chemistry of Foods and Nutrition" (pp. 59-74) and "How Food Nourishes the Body," (pp. 237-252). See also Carpenter, "The Life and Times of W.O. Atwater (1844-1907)," *The Journal of Nutrition* 124/9 Suppl (1994) for a fuller account of Atwater's publications.

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- <sup>156</sup> Government Printing Office, *100 GPO Years 1861-1961: A History of United States Public Printing* (Washington, D.C.: Government Printing Office, 2010), 75.
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