Food and Nutrition

By Emmanuelle Cronier

Summary

During the First World War, food became a major issue for military and civilian matters. This contribution aims to discuss the food situation in the belligerent countries in connection with global issues. It focuses on food supply both on the military and the home front, in order to understand how those issues were connected and entangled in the total war, and what role they played in the final defeat of the Central Powers, whose populations were starving in 1918.

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Introduction

The First World War not only overwhelmed societies, it also revolutionised the diet of European and North American countries. In 1918, 75 million soldiers of the Entente and the Central Powers had to be fed daily, an unprecedented challenge for armies. On the home front, hundreds of millions of civilians, indispensable to the war effort, had to be fed despite shortages. Food was an essential issue in this total war, as food production and distribution were areas where states intervened massively to provide the food essential to the survival of

populations. Cutting off the enemy's food supplies was one of the objectives of economic warfare fought on a global scale. In 1918, the defeat of the Central Powers, strangled by the food shortages, was also rooted in their approach to wartime supplies and the failures of the policies put in place.

This article examines the civil and military issues of food and nutrition within the Entente and the Central Powers during the Great War in the context of longer-term developments in global food issues, with a particular focus on the countries of Europe and North America. However, the current state of research does not allow us to study the Central Powers as thoroughly as the Entente countries. Over the last ten years, studies on economic warfare, logistics, the feeding of soldiers and food aid have contributed a great deal to our knowledge of food and nutrition issues in different countries at war. But much remains to be done, for example concerning the rural world,[1] food markets or the phenomena of food acculturation. Combining global approaches and local case studies would make it possible to move away from the national approaches that still dominate the field.

Starvation as a Weapon

Starving the Enemy

By 1914, the economies of Western countries were already largely globalised to different degrees. Nearly two-thirds of the British calories were imported from all over the world, while France and Germany produced most of their food, but bought some from abroad.[2] In 1914, Germany imported about 30 percent of its food, including half of its meat, fertilizers and almost all of its vegetable fats. In Belgium, dependence on foreign foodstuffs rose to 80 percent. Some states, being self-sufficient in basic foodstuffs, had to resort to imports from time to time. Others had great regional disparities, such as the Austro-Hungarian Empire, where the Hungarian agrarian periphery supplied a large proportion of Austria's food.[3] This interdependence was also evident at the local level in many countries, where city dwellers obtained their food from the nearby suburbs, from increasingly specialized agricultural regions, or from abroad. In the 1910s, food security in Western countries depended on a complex logistical system, combining maritime, rail, river and road transport, whose networks were very diversely developed. The United Kingdom's economy was already oriented toward the world. Two thirds of Germany's imports were transported by ship, including grain from Russia, the world's leading exporter of grain prior to 1914, where the transport network, designed for export, would prove unsuitable to deliver food to domestic markets during the war.[4] The Ottoman Empire was still facing regular food crises before 1914, and lacked road and rail infrastructure. The powers that entered the war in 1914

therefore had very different food situations, with more or less marked dependence on exporting countries, some of which were now in the opposite camp.

Even before 1914, starving the enemy became an explicit strategic objective in the context of economic warfare.[5] Winston Churchill (1874-1965), one of its architects and first lord of the admiralty, wrote after the conflict that the shared aim was to "to starve the whole population – men, women, and children, old and young, wounded and sound – into submission".[6] The outbreak of war in 1914 immediately disrupted traditional supply channels, which were now aligned with military alliances. Only neutral countries, such as Switzerland, the Netherlands, Sweden, or the United States (U.S.) until 1917, continued to supply both sides before the Allies put in place a concerted strategy to starve the Central Powers: firms suspected of trading with the enemy were blacklisted.[7] The Netherlands and Switzerland gradually reduced their trade with Germany. Access to the Allied market was also a means of pressure in negotiations with the neutrals; the French, for example, having committed themselves to buy part of the production of Italian citrus fruits in exchange for its entry into the war alongside the Entente. The strategy of isolating the Central Powers contributed to intensified mobilisation and to the crystallization of the food crisis in these countries from the winter of 1916-1917. On the contrary, France and Great Britain could count on the enormous resources of their empires, while the Allies as a whole surpassed the Central Powers in their ability to mobilise and transport food on a global scale. The deployment of food globalisation to a previously unknown degree was therefore mainly for the benefit of the Allies and was a central element of the extensive mobilisation characteristic of these countries.[8]

As early as the summer of 1914, British naval power put itself at the service of the blockade led by the Allies, the German naval blockade being unable to compete in the long term.[9] The German cruisers were too few in number and subject to too many constraints in terms of coal supplies to succeed in preventing Allied maritime traffic in the long term. The hundreds of thousands of tons of goods sunk by the Germans – more than 500,000 tons per month from 1917 during unrestricted submarine warfare – were not enough to widen the gap with the Allies' concerted strategy to eliminate German and Austrian ships from the seas. The Allied Maritime Transport Council (AMTC), set up in early 1918, coordinated resources and effectively compensated for port congestion and ship shortages. By the summer of 1918, the Allies were fully benefiting from the entry of the United States into the war and were able to compensate for the tonnage of sunken ships. They also introduced highly efficient convoy shipping to protect the fleet. Thus, while shipping was very much affected by the military context, the advantage turned in 1918 in favour of the Allies, as they decided to maintain the blockade until the end of the Paris Peace Conference in 1919.

The Politics of Hunger: Welfare and Warfare

The First World War threatened the food security of populations at war on an unknown scale. The capacity of states to supply both soldiers and civilians was a central issue, posing particular problems for states – such as the Ottoman Empire – that entered the war in 1914 lacking the capacity to feed their populations, and without having anticipated the food constraints and needs of a large-scale conflict. Access to food resources was immediately marked by increasing inequalities on local and national scales, deepening during the conflict and persisting until the 1920s in some countries. The extension of the war beyond the winter of 1914-1915 imposed new constraints on the societies at war as shortages and logistical issues threatened the victory of their own side. Powers operating on large and mobile fronts and lacking transportation networks adapted to the war effort, such as Russia or the Ottoman Empire, faced massive shortages. The ability of states to supply their populations was therefore put to the test in terms of forecasting and regulating food supply and distribution.[10]

Food was therefore a crucial area of intervention for the belligerent states, which implemented supply regulation through requisitioning, price controls, and rationing targeting basic necessities. In most countries, measures were taken to increase production and decrease food consumption. The design of these regulations, however, followed very different logic on the side of the Entente forces and the Central Powers. Among the Entente powers, particularly in France and Great Britain, an integrated economy was set up which, based on principles of equity, did not sacrifice the needs of civilians to satisfy those of soldiers. This testifies to a better understanding of what was at stake in a total war where victory depended on the global mobilisation of societies. In these countries, avoiding food shortages was one of the explicit objectives of increased and early state intervention in the economy. Feeding civilians, the productive force of the nation, was not neglected and the Allies considered food as an essential factor in maintaining social peace and the *Union sacrée*.

Most countries set up dedicated committees (food boards) to approach the question of provisioning in a global way and adapt to the challenges of an increasingly total war. Much had to be done to compensate for the deterioration of crops (shortage of male workers, farm animals, fertilizers, machinery) and the disruption of food import networks. In France, a Provisioning Department was created within the Ministry of Trade as early as September 1914 before a dedicated ministry was created in December 1916 (*Ministère des Travaux publics, des Transports et du Ravitaillement*). The U.S. Food Administration, directed by Herbert Hoover (1874-1964), was one of the most important agencies established by the Wilson administration during World War I. In August 1917, the Lever Food and Fuel Act aimed to ensure adequate production, and control the price and supply of food and agricultural feed in the U.S. during the war. It ensured a major extension of federal authority. The

effectiveness of such boards, although imperfect, contrasted nevertheless with the agencies set up within the Central Powers. The Habsburg Monarchy failed to establish a supra-national agency for food distribution with adequate executive power. The Joint Food Committee (*Gemeinsamer Ernährungsausschuss*), formed in early 1917 to ensure coordination between the two parts of the empire was largely powerless. In Germany, the *Kriegsernährungsamt* (War Food Office) was created in May 1916, later becoming the *Reichsernährungsamt* (Reich Food Office). But by 1917, the food allocation aimed only to cover about half the daily calories needed by an adult.

The effectiveness of the Allies was particularly noticeable in price control and more broadly in food distribution, allowing their populations – apart from in Italy – to escape the massive black market faced by the Germans and Austrians. Lacking the resources of extra-European empires and foreign capital, Germany and Austria-Hungary had to rely on intensive mobilisation.[11] The food situation deteriorated more rapidly in these countries and rationing affected essential food items earlier. In Germany, the Imperial Grain Authority issued ration cards for bread as early as January 1915. By the time of the “turnip winter” of 1916-1917, both rations and price controls had been implemented for virtually all food items in Germany, as well as for coal and other fuels. But the rations were often so minimal that it wasn’t even worth picking them up.[12] In comparison, the ration card for bread was only introduced in France in 1918 and it was not until 25 February 1918 that rationing was introduced throughout Britain.[13] The measures implemented by the Supreme Army Command in Germany favoured army supplies to the detriment of civilians.

The pressure of economic warfare, the establishment of a segmented economy, and the lack of anticipation and coordination in supply made the measures ineffective, discouraging producers who sold a large part of their production on the black market. One of the signs of the ineffectiveness of these public policies was the number of parcels sent by German soldiers to their families when they had food to share before 1918. The last two years of the war were also characterized, in Germany, by numerous cases of fraud by merchants or theft by the starving population.[14] On the Allied side, food concerns were the subject of joint discussions and measures. The French Wheat Executive set up in November 1916 rapidly served as a model for the many Allied food committees. An Allied maritime transport pool was established in the spring of 1917, which transported 10 million tons of food from July 1917 to July 1918. Despite their imperfections, these structures supported much higher supply capacities than those of the Central Powers. In the context of increased scarcity due to the economic warfare of the Entente, the economic organisation of the Central Powers was unable to cope with the needs of total war and was already overwhelmed at the very moment when Germany relaunched the war of movement on the Western Front in spring 1918. This

offensive required resources, coordination, and logistical performance that Germany was no longer in a position to provide by summer 1918.

The adoption of economic interventionism in the Allied countries was accompanied by a reactivation of the moral economy of the early modern age, which proved effective in mobilising people in the long-running war. Coercion through regulation and volunteerism combined on the Allied side to mobilise the population for the food effort. However, it was often achieved under the banner of volunteerism rather than coercion. The call for civic mobilisation took many forms, with an emphasis on patriotism. In the United States, under Herbert Hoover, control of the food supply depended mostly on food conservation as opposed to direct rationing. Saving food through “wheatless days” and pledge cards signed by consumers, the U.S. government used the same method to conserve food as it did to sell war bonds, and both proved successful.[15] By contrast, the German system was a combination of liberalism through the black market, the most powerful instrument of procurement, and control over consumers. The development of the black market in German and Austrian cities thus highlighted the extreme inequality of access to food and fuelled public anger and public demand for urgent action by the state.[16]

Populations at Risk of Famine and Food Aid

The situation of certain groups exemplifies the two extremes of food provision during the First World War: the establishment of food aid structures for some, while other groups were deliberately abandoned by the state or even targeted by intentional starvation.

Food shortages had particularly dramatic consequences for the occupied populations. In the combat zones, agricultural land was devastated and unfit for cultivation. France lost one fifth of its cereal production and more than half of its beet production located in the combat zone on the Western Front. The occupied populations were very exposed to food shortages, as the occupied regions were plundered by the enemy, such as in Galicia (by Russians), Romania (by Austrians) or Ukraine (by Austrians and Germans). The French also faced criticism for their food requisitions of cereals from the Greeks, who saw the Allied presence as an occupation.[17] Belgium, occupied since August 1914, was subjected by the Germans to looting and concerted requisitions, for example of livestock.[18] Isolated by the Allied blockade, 9 million Belgians and people of northern France escaped famine only thanks to the intervention of neutral countries within the framework of the Commission for Relief in Belgium (CRB). The commission operated through international purchases, shipping to Europe and control of distribution by local committees[19]. In Belgium, printed cotton sacks of the CRB’s flour were often turned into everyday items or kept as souvenirs of this difficult

period, during which people went hungry and survived on food aid and soup kitchens. After mid-1919, the lifting of the blockade and food aid provided by Germany's former enemies ameliorated German hunger and is credited with the relatively swift recovery of the most severely affected of German children.[20]

The Ottoman Empire was not able to efficiently supply the populations of its huge territory before 1914 and risked starvation by entering the war in October 1914.[21] In addition to the pressure of the British sea blockade, Mount Lebanon was also subject to a land blockade imposed by the Ottoman governor Ahmet Jamal Pasha (1872-1922), which prohibited the province from obtaining supplies from outside. Between 1915 and 1918, a combination of military requisitions, a locust invasion and blockades caused a famine that killed between 120,000 and 200,000 people, a third of the population. Rare photographs taken secretly in 1915 by Ibrahim Naoum Kanaan (1887-1984), director of Mount Lebanon assistance, testified to the horror of the famine.[22]

The deliberate starvation of civilian populations has also been used in genocidal policies targeting particular groups, as in the genocide of Armenians perpetrated by the Turkish authorities from 1915 to 1923. Deprivation of food and water, whether in concentration camps or during death marches in the desert, was central to the genocide which claimed almost 1.5 million victims.[23]

Food aid initiatives set up during the war, in the form of soup kitchens or direct food distribution, helped the most vulnerable populations – children, refugees, forcibly displaced persons, victims of mass violence – for whom it was sometimes the only chance of survival. It persisted after 1919 in Central and Eastern Europe through the now privately funded American Relief Administration European Children's Fund (ARAECF). Following the tradition of the American humanitarian commitment during the war, it was now also part of the will to fight against the advance of communism.[24]

Feeding 75 Million Soldiers

Providing the Calories

In 1914, the armies at war had to feed more than 20 million soldiers. In 1918, this figure had risen to 75 million soldiers who had to be fed on a daily basis. The armies, which had not expected to fight a war on such a scale, faced a tremendous challenge, as past experience showed that the management of food was a crucial factor for a victorious campaign. Both the French and the German armies had learned from the Franco-Prussian War in 1870-1871,

when the siege of Paris had been a factor in the Prussian victory over the French. Many armies had also used military campaigns and training since the end of the 19th century to define the best rations suitable for soldiers or to test new equipment. The French, British and German armies had settled for rations providing around 3,200 calories a day, up to 4,000 to 4,400 calories in winter or when soldiers were fighting. These were known as field rations or *ration forte*. But, while medical studies and military archives define the ideal rations due to the soldiers, it is almost impossible to know what they were actually given, as consumption differed according to rank, local supply conditions on the various fronts, the number of parcels sent by families, and the proximity of a civilian market or military cooperatives. One of the main challenges for the current research in this area is to get closer to what the soldiers actually received in their tins, as soldiers' food was much more diversified than what was provided by the military rations alone.[25]

Field kitchens are an example of the different approaches to food by the armies in 1914. Their use was considered in the German army in the 19th century, but it was the Russian army that was the first to equip itself with them after 1860. The reports made in the 1900s showed their many advantages: an increase of 20 to 30 percent in the endurance of troops on the march was expected after a hot meal, and a significant decrease in the rates of dysentery. "Go and ask men who have been fighting all day or have walked 30 km with 25 kg of luggage to cook their dinner as well! They will eat half raw vegetables, they don't care, they want to sleep", complained a French commander before the war.[26] The benefit of field kitchens was recognized by most armies apart from the French, who were not equipped with one in 1914. German field kitchens would thus be sought after war trophies for the French until they were provided with their own in 1915. Their multiple models illustrated the adaptation of military catering to the constraints of the terrain, and how essential services were brought closer to the front line during the war.

Supplies had to cover one of the soldier's most basic needs, food, and to support morale in a war whose length had not been anticipated. Soup remained the basic element of military rations, along with bread and drink. In all the armies it was recognised that it was the restorative power of these rations that allowed soldiers to bear the fatigue of their job. In the Entente armies, the soup contained a significant amount of meat, up to 500 grams a day, animal proteins being considered an essential fortifier of the soldiers' constitution. By contrast, the average meat consumption in European civilian societies before 1914 was 150 grams a day, and up to 210 grams in the United States. Military rations lacked fresh produce such as vegetables, fruit and eggs, leading soldiers to buy them from civilians. Water remained the ordinary drink of the soldiers, even if the consumption of wine or beer had the advantage of protecting them from the epidemiological risk attached to dirty water. Often,

water supply was a logistical challenge: transported by camel in Egypt, desalinated in ships on the Gallipoli front, and transformed into mineral water on the Argonne front by the Germans. Low-alcohol fermented drinks which accorded to national pre-war consumption were included in the rations, with beer for the German and British troops and wine for the French. The rations also included spirits such as rum, schnapps or *eau-de-vie* in small quantities. Both forms of alcohol were recognised for their effect on the endurance and morale of the troops and were either distributed as part of the rations (low alcohol content), as “Dutch courage” before going over the top, or as a reward after the fighting, thus promoting discipline and morale.[27]

The war accelerated the shift in consumption away from traditional products to processed food, as the 19th century food industry had already seen the development of the canning industry, concentrated broths or broths in tablets. Herds were impossible to keep near the front, and meat that was already prepared, boned, refrigerated, or canned was better suited to army logistics.[28] The loading of one ship with frozen meat was then equivalent to the loading of ten ships with live cattle. Canned food and frozen cows, sheep, rabbits, and pigs were imported from the United States, Argentina, Australia, and New Zealand, opening up the European market, and particularly the French, to products that were still expensive or not very widespread.[29] The largest supplier of food to the British armed forces during the First World War was the Aberdeen Machonochie Company, manufacturing the “Meat & Veg” tins. They helped to balance the soldiers’ diet and prevent scurvy, providing an alternative to the ubiquitous “bully beef” rations. The introduction of processed foods into soldiers’ diets was thus an important factor in the change in European consumption habits during and after the war. The war thus led to a significant – albeit temporary – increase in the consumption of meat by soldiers from working-class backgrounds.

The needs of armies in the field, on land or at sea have been major vectors of food innovation. Since the 19th century, technical progress had favoured the diversification of military rations, which were essential to the morale of soldiers fighting far from home. However, it was not until the Franco-Prussian War (1870-1871) that the French army adopted canned food, invented as early as 1795. Another example of the innovations promoted by military needs was the Soyer stove, a light field cooker which accompanied the British armies in the First World War. Light, resilient, and easy to clean, it could heat up to 45 litres of soup, cook bread or roast meat. Versatile, it could use coal, wood or camel dung as fuel. The headquarters of the British Royal Logistics Corps still bears the name “Soyer’s house” in memory of his action to improve the soldier’s ordinary life.

To cope with emergencies – disruption of supply lines, distance from logistical bases – soldiers were provided with reserve food, such as canned food, war biscuits, and water flasks. Compact and light, with a long shelf life, hence its nickname “hard tack”, the war biscuit (or war bread) met the practical requirements of field supply. Hundreds of millions of units were produced during the First World War, for example by the London firm Huntley & Palmers for the British Army. Such provisions did not always prevent failures, such as in Mesopotamia, where the local climatic conditions combined with a logistical disaster created a breakdown in the quantity and quality of food supplied to the soldiers. As the British Army failed to provide fresh food, many sepoys suffered from deficiency diseases, such as scurvy. During the siege of Kut-el-Amara from December 1915 to April 1916, the logistical base was 400 kilometres south and both the British and the sepoys were depending on iron rations, made of biscuit and bully beef or mutton. Cases of deficiency diseases rose, exacerbated by the fact that the British had been scrimping on the sepoys’ rations, which represented four times less than those of British soldiers.[30] In six months, 11,000 Indian soldiers, exhausted by deprivation, fell victim to scurvy in Kut-el-Amara. In *The Lord of the Rings*, the Lembas Elven bread that saved Frodo and Sam from hunger during their trip to Mordor is reminiscent of the role played by war biscuits in the survival of thousands of soldiers during the Great War, as J. R. R. Tolkien (1892-1973) experienced himself.

Army cooks capable of improving the regular diet by cooking rations, especially canned meat, were valuable assets for the units’ morale. Some mastered the use of wild plants or finding rare products. Exchanging recipes, on-the-job training and even cookery competitions allowed many of them to improve their skills as the conflict progressed. Combatants’ testimonies (memoirs, trench newspapers) praised or taunted this figure of front-line food culture, as in the French trench newspaper *Rigolboche* in February 1917:

“The soup has its secret, the rata has its mystery
Culinary masterpiece in a moment conceived
Will it be rice or potatoes?
The cook who made it never knew”.

Private Baldrick’s performance in the hit British comedy series *Blackadder Goes Forth* (1989) illustrates the central role and poor performance of some front-line cooks during the Great War. Challenging himself to accommodate the rat in every possible way, Cook Baldrick offered it sautéed, marinated – drowned in a pond –, or fricasseed for the bigger ones. His signature dish was a “Rat-au-Van”, a rat crushed by a van that had a distant relation to the original French *coq au vin*. His endless gastronomic improvisations caused despair among his unit stuck in a trench in Flanders. In Great Britain, the series helped to anchor the myth of rat consumption by combatants during the First World War.

Food, Morale and Discipline

Ensuring proper calorific intake was the primary concern of the Supply Corps, but the quality and variety of meals also played an essential role in the fighting spirit of the soldiers. They paid close attention to the quality of the meals, seeing this as a sign of their side's ability to win the war. Bread and drinks in particular, which already played this role in early modern times, were scrutinized. If the bread was bad or the rations were reduced, anxiety set in, as can be seen from the examination of soldiers' correspondence.[31] However, it was not until the mutiny of 1917 that French soldiers' complaints about rations were considered to a greater extent. In Italy, the re-establishment of a military ration of 3,580 calories had to wait until June 1918, long after the defeat of Caporetto.

Despite the strong similarity of the basic rations among the combatants, many elements brought variety to the meals. They were adapted to national food cultures, playing a central role in maintaining the morale of expatriate troops, reminding them of the peacetime tastes they were nostalgic for.[32] American rations included more sugar and meat than those of the other belligerents according to their eating habits. Typical products were imported when possible or replaced by local substitutes. Breakfast porridge was essential to the morale of English-speaking Canadians serving in France, as was *kasha* for Russians, a hearty cereal dish suitable for cold weather warfare. On the Western Front, the many kinds of bread eaten testified to the cultural diversity of the Allied forces: French sourdough bread, American or Australian sandwich bread, Indian troops' *chapattis*.

The extra food distributed during festivities was an opportunity to rediscover dietary diversity and the taste of products from their country of origin. For Thanksgiving, American and Canadian troops in France could get turkeys, an expensive product at the time. The French soldiers particularly appreciated the roast meat sometimes served at Christmas or Easter. Anzac biscuits, which became the emblem of the Australian and New Zealand Army Corps (ANZAC), showed the importance of local recipes for uprooted troops. These biscuits, made from oat flakes, coconut and golden syrup, contained no egg to help them endure a boat trip of several weeks to Europe. First sent in parcels by families worried about the quality of the rations in Gallipoli, they were later integrated into the rations.[33]

The adaptation of rations was particularly important for colonial troops, which included many volunteers whose religious needs were catered for to maintain morale and discipline.[34] The British, mindful of the damaging sepoy revolt in 1857 in India, tried to avoid complaints by devising a standard ration meant to satisfy all religious practices (Hindu, Muslim, Sikh). It included rice, *dal* (lentils), vegetables and *chapattis*. Some items were even imported from

India, such as rice, lentils, ginger, and *ghee*, a clarified butter. Meat was thus the changing part of the menu, as some sepoys were vegetarians, and others avoided pork or beef. These concerns were also important in the French army, where it was crucial to show colonial soldiers that they were treated the same way the French were. For them, bacon and alcohol were replaced by mutton and green tea. Another source of satisfaction was the pay, which allowed North African troops to buy extras like lemonade, peppers, or semolina to cook their own food. The care given to the dietary requirements of the empires' soldiers played an important role in the discipline of these troops, who were finally recognized for their military obedience during the war.

Soldiers could also obtain food from the civilian market, either directly from military cooperatives and civilians near the front or from businesses in the rear. The military cooperatives offered a variety of dishes such such as cold cuts, chocolate, preserves, instant drinks, condiments such as mustard popular with the Germans, pickles, and jams which were held dear by the British, and served as a welcome alternative to the ubiquitous Tickler's plum and apple jam.[35]

The First World War also put soldiers in contact with civilians, allowing them to discover foreign food cultures. At Gallipoli or in Macedonia, the Allied troops tasted citrus fruits, pastries of Ottoman origin, or local wines.[36] The large consumption of confectionery by the Americans surprised the French, like this inhabitant of Loire-Atlantique remembering them as people who "chew gum all day long with their gold teeth".[37] On the Mediterranean fronts, exchanges between soldiers were frequent, the French being inclined to trade British "Meat & Veg" tins for their own *"singe"*, a very fatty seasoned beef, while others received peanuts from the Senegalese. Exchanging food products with the enemy was also often reported during Christmas truces, for example in 1914 when the British and the German exchanged presents of cigarettes and plum puddings on the Western Front. With their high pay, the Americans were a choice clientele for French food stores, buying products unaffordable for other soldiers such as champagne or fine wines. However, the high level of purchases by soldiers of all nationalities contributed to inflation on the home front and led to much criticism against profiteers.

Sharing food with comrades was an important moment for the combatants and a long-awaited relief, even when meals were taken in the trenches. Every day, ration parties left to fetch food for their comrades, returning loaded with 20 to 30 kilograms of supplies. Some never came back from this dangerous task. The wet bread, cold rations or those soiled with dirt were testament to the risks incurred on the way. Jean Giono (1895-1970), mobilised in 1914 at the age of nineteen, testified to this in his post-war pacifist writings, describing how

he and his comrades survived on picking foodstuffs from “larder corpses”.[38]

Mealtime was a moment of conviviality for the squad, the unit of fifteen men who shared the miseries at the front and that Henri Barbusse (1873-1935) staged in *Le Feu*.[39] During their free time, some raised rabbits or chickens, or tended a vegetable garden: fresh vegetables, poultry and eggs were very popular at the front. In the Florina plain in Macedonia, the French cultivated 1,500 hectares of vegetable gardens to escape scurvy. Others had the opportunity to fish, hunt or poach, disobeying military regulations but often covered by their officer, as Ernst Jünger (1895-1998) described on the Western Front “the men were back from foraging trips of their own through the gardens, and had boiled up a soup in which you could stand your spoon out of bully beef, potatoes, peas, carrots, artichokes and various other vegetables”.[40] Good comrades were valued according to the parcels they shared: a homemade cake, pâté or a bottle of schnaps were also useful in forging fighting bonds. The officers took their meals separately and in more comfortable conditions than the soldiers. The quality of their meals and the interpersonal relationships of the officers reproduced the pre-war social hierarchy.[41] Bottles of corked wine or oyster shells found during archaeological excavations of the trenches provide evidence of the fine delicacies some soldiers enjoyed,[42] traces of which can also be found in rare handwritten archives, such as drawn menus.

During furlough, which was introduced in the main armies from 1915 onwards, the combatants had the opportunity to return to civilian food habits, hoping to “stuff it up” to compensate for the monotony of the rations. The intimacy of family meals was particularly appreciated, and the soldiers also contributed to the economic revival of cafés and restaurants on the home front where, despite the food shortage, they could enjoy “civilised” dishes that could not be found at the front, and a way of life that endured despite the war.[43]

Coping with Food Scarcity on the Home Front

The tactics of total war, and the use of hunger as a weapon, exposed civilians to massive shortages and starvation. However, the situation varied greatly among different groups: local and national, but also between the Allies and the Central Powers, ultimately playing an essential role in the defeat of the latter.

Cities under Stress

The current state of research has given priority to studies of the urban world, and argues that cities faced a more difficult situation than the countryside, which could rely on local production, short supply chains, and frugal food cultures. While soup was still a staple of

peasant food in many countries, such as France, Germany and the Balkans, the urban diet lost its diversity during the war and regained characteristics of peasant or popular diets. Food shortages began earlier in the cities where it became difficult to obtain fresh products such as vegetables, eggs, and meat. The high cost of living (*"la vie chère"*) severely blunted the purchasing power of civilians since prices were multiplied by three on average in Paris, by four in Berlin, and by eight in Bulgaria during the war. In some regions of the Ottoman Empire, such as Mount Lebanon, the price of cereals, on which many depended for their survival, was multiplied by almost forty times. Even in the United States, food supplies reached crisis proportions in 1917 thanks to a poor harvest and a huge demand for exports to Britain and France. Between 1914 and 1917, food prices had risen by 82 percent with wheat, sugar, and pork being particularly badly affected.

The rising wages of male and female wartime factory workers and the military allowances paid to the partners of the mobilised did not always compensate for the rise in prices. An exception was Great Britain, where the overall standard of living improved thanks to the efficiency of state intervention and increased purchasing power of the working classes. In this country, the average consumption of meat by civilians even increased during the conflict, partly thanks to the supply of American ham and bacon starting in July 1918.[44] In contrast, the situation in German and Austrian cities was tense from the "turnip winter" of 1916-1917 onwards. While public regulatory policies partly limited food tensions, queues in front of food shops were a testimony in the public space to the very different situations people faced. Monitored by the police or the army, queues could be crowded in French and British cities, and sometimes became unruly like at the end of 1917 in Great Britain. But the situation was nonetheless much less tense than in Germany or Austria-Hungary where food lines became increasingly agitated in 1917 and 1918.[45]

City dwellers found ingenious solutions to the shortage of fresh produce. The smallest amount of space was used to grow vegetables or raise poultry. Community gardens developed in cities or their suburbs, in a return to nature that contrasted with the 19th century. In Paris, a symbol of urban modernization, vegetables were planted on balconies and in public gardens, and gardening classes were held in the Tuileries garden close to *le Louvre*.[46] Allotments were common in London too. Due to the lack of space, fewer of these opportunies could be found in Berlin, where city dwellers had to go to the countryside to exchange goods for food, but such practices did not prevent famine. The daily ration in the city fell to less than 1,000 calories in 1918.[47]

The Mobilisation of Stomachs

Supply constraints pushed to rationalize not only food production but also food consumption. The support of the full range of mass media outlets contributed to the food war effort. In parallel with the introduction of food regulation, the theme of “war economies” became central to wartime cultures and targeted food as a priority. These measures aimed to save time, money, and raw materials in order to avoid massive shortages that could be fatal to victory. Derived from the principles of home economics that had developed in the second half of the 19th century, these prescriptions called for voluntary sacrifices from civilians, presented as a form of participation in the war effort. Reducing one’s consumption of bread, meat, wine, or sugar became a form of contribution to the survival and morale of soldiers at the front. More broadly, the call for individual sacrifice was part of a moral economy at the service of the collective war effort. The culture of frugality was nothing new to peasants or the poor, accustomed to making the most of the food available. However, it became a global issue in societies at war, even in the United States which only entered the war in 1917 and supplied the Allies with many of the raw materials for food. Populations resorted to economical processes and recipes, encouraged by the press, culinary publishing, and popular conferences.

Various associations and government committees encouraged civilians to moderate their food consumption, through posters, brochures, or lectures. Alternative cooking methods that saved gas and coal were encouraged, and conservation tips were widely featured in the press, almanacs and culinary publications. The hay box, a fireless cooker in a container buried in a hay box, saved 50 to 75 percent of fuel and reduced cooking time to one third of the usual. Very efficient, this traditional process came to be used in many countries both in homes and collective catering such as schools, hospitals and factory canteens.[48] For peasant and war factory workers, it was a response to the food queues and longer working day. It became widespread in many countries under different names: *Marmite norvégienne* in France, *Koch Kasten* in Germany and, *cassette di cottura* in Italy.

People were under pressure to save the basic foodstuffs most in demand. The consumption of substitutes for wheat, meat, and sugar was encouraged, in keeping with the spirit of “wheatless”, “meatless” and “sugarless” days. In the United States, the promotion of corn, the “nation’s most abundant cereal”, was aimed at reserving wheat for the export market. Cornmeal, corn starch, corn syrup, and hominy grits, originating from a Native American recipe, were widely used in North America. Other U.S. products, such as frozen meat for example, reached the Allied European market through exports and food aid. They contributed to supplying the Allied front, to the fight against the high cost of living and, in the longer

term, to the globalisation of North American taste. The use of industrial ersatz developed for the civil or military market was a key component of this, such as instant drinks, powdered eggs (Layton brand), and concentrated broths. In the countries most affected by food shortages, the use of poor quality ersatz had consequences for the health of the population. The scale of the shortage opened the way to numerous frauds, such as those observed in the making of *K.K.* bread in Germany, which included low quality cereals, ashes, or sawdust[49].

Many culinary booklets recommended increasing the proportion of pasta and pulses to compensate for the lack of fresh meat and vegetables.[50] They promoted “economical dishes” and “how-to-save cookery”. Vegetable proteins and starchy foods were rehabilitated as a contribution to the war effort. Sugar was subject to strict regulations, perceived as a luxury product that could easily be avoided and associated with the elites and “war profiteers”; its consumption was condemned in the name of national unity (*Burgfrieden/Union sacrée*). Manufacturers of yeast, coffee ersatz or cocoa-free breakfast ersatz accompanied their products with recipe booklets to persuade consumers of the incomparable taste of these derivatives. Popular conferences, educational brochures sometimes also in the form of postcards, and advertising slogans all argued for the need to save food.

These patriotic calls for frugality and abstinence mobilised children, in particular through school projects such as poster contests or participation in agricultural work. Children were taught economic prudence and rational eating at school, through war lessons and daily exercises. Children and teachers were also driven to contribute to food projects. In Berlin, Paris, and London, as in many other cities, school children planted cabbage, dug potatoes, or collected blackberries for jam factories with their teachers. Their consumption conscious behaviour, commitment to rational eating, and involvement in producing the most useful vegetables were held up as examples for adults in propaganda, but this was also a way for them to connect with their fathers, uncles, and brothers facing hardship at the front. Such experiences evolved into compulsory work with no educational purpose in Germany, especially in cities like Berlin where survival was at stake at the end of the war.[51]

All these practices illustrated how the rationalized war effort interfered with all aspects of daily life during the war. While these narratives were essential elements of the food cultures of the First World War, the introduction of increasingly restrictive and widespread regulations, including in France or Great Britain in 1917 and 1918, testifies to the limited effectiveness of the conservation appeals when food shortages became more severe.[52] Food controls and rationing had to be applied in a fair and strict manner in order to be effective. But as in the case of food regulation, the various initiatives to mobilise stomachs underlined a clear distinction between the Allies and the Central Powers, where the recommendations of posters

and cooking manuals also reflected a food situation that reached a critical threshold earlier. In Germany, posters encouraging the collection of fruit pits or acorns testified to the extent of the shortages that had been raging in the country since the winter of 1916-1917.[53]

Food Sharing and Tensions

The sharing of food had a major civic dimension as a contribution to the war effort. It marked the departure of the soldiers in August 1914, accompanied by offerings symbolizing the new place occupied by the combatants in the moral economy of sacrifice. Bread, wine, and water were offered to soldiers on their way to the front at stations, ports, and on roadsides. Parcels sent by families to combatants or prisoners of war, often containing food, helped to maintain family ties and the well-being of uprooted soldiers.[54] Within local or national communities, the sharing of food embodied the national *Union sacrée* in a very concrete way, as a gesture of welcome for refugees for example. The food offered to the prisoners was staged by propaganda, particularly in postcards often using the theme of the hungry enemy who were almost defeated.[55] The sharing of food among allies, also very common, embodied military alliances in concrete terms.

Conversely, food crystallized the exclusion of the enemies of the nation. This was the case as early as the summer of 1914, when food shops with names appearing to be linked to the enemy were attacked in the major capitals such as London, Vienna, Paris, Berlin, or Moscow. The ransacking of the Maggi dairies in Paris, accused of financing Germany, bears witness to the food fears typical of the outbreak of war.[56] This Swiss firm had been accused for years by French nationalists (*Action française*) of financing Germany. In all countries, food was suspected of being used by the enemy to poison the population, particularly sweets and milk, or for military intelligence purposes such as enclosing secret messages in packaging or advertising. This othering was also visible in patriotic marketing, which encouraged the consumption of national brands by means of specific labels, such as the self-proclaimed French national dessert *le piou-piou*. Decorated crockery and advertising packaging also served as a medium for particularly fertile patriotic imagery in food; these included German cups with depictions of Paul von Hindenburg (1847-1934) or British “Toby Jugs”, pitchers modelled in the form of Allied commanders such as Douglas Haig (1861-1928).

In each country, food also crystallized the denunciation of internal enemies, those seen as participating insufficiently in the food war effort, hoarding food, or taking advantage of profitable military markets. In the Central Powers, food scarcity exacerbated tensions between urban and rural dwellers, who were accused of monopolizing food, as in Austria-Hungary where posters urged “peasant, do your duty, the cities are hungry”.[57] As in

Germany, city dwellers in Austria had to resort to the black market to obtain food. In these countries, the main social divisions that before the war were based on production (employers/workers) were now founded upon consumption; namely those who had access to food and those who were deprived of it.[58]

The combatants also complained massively about civilians and merchants who, on all fronts, were charging prohibitive tariffs on the most popular products, such as wine and eggs.[59] The attributes of the profiteers echoed those long attributed to capitalists within cartoon, pitting the figure of the "fat" man against the hungry crowds. In some countries, such as Germany, these depictions contributed to the rise of anti-Semitism during and after the war.[60] At the level of the fighting units, some soldiers, particularly the Supply Corps and Service Corps, had easier access to food, which they diverted or resold to acquaintances. This aroused a lot of jealousy on fronts where the soldiers were surviving on iron rations, such as Macedonia or Mesopotamia.[61]

Conclusion

Feeding both civilians and soldiers was a global issue during the First World War and food shortages were a major feature of the war experience. The food crisis experienced by the Central Powers in 1918 played a decisive role in their defeat, and hunger induced by economic warfare played a crucial part in it. The scale of these food shortages also removed all legitimacy from their rulers until the fall of the empires, while the Allies, thanks to a better understanding of what was at stake in total war and more efficient organisation, managed to maintain the subsistence of their populations at a higher level. This food gap explains why the experience of food shortage during the First World War crystallized in very different memories on both sides. While ration cards remained in force in Allied countries until the 1920s for some products, the situation was much more dramatic in the defeated countries. In Italy, which faced massive shortages during the war despite being on the Allied side, the first propaganda initiative of the fascist regime was the "battle for wheat" launched in 1925. In Germany, the blockade, prolonged by the Allies until the signing of the Treaty of Versailles in June 1919, contributed to the entrenchment of anti-Allied sentiment and the "stab-in-the-back myth" (*Dolchstoßlegende*) that swelled the National Socialist ranks between the two wars. It remains difficult to put a figure on the number of victims of hunger during the Great War, especially since in Germany the data from the 1920s were used to attribute responsibility for deaths to the Allied blockade. Various studies estimate that several hundred thousand Germans and Austrians died as a direct or indirect consequence of food shortages. Some of them contracted tuberculosis, pneumonia, or Spanish flu in 1918, while children and

adolescents suffered from stunted growth.[62] In the former Russian Empire, which entered into revolution in 1917, chaos and civil war led to a famine that claimed between 5 and 10 million lives.[63] In terms of food practices and cultures, the First World War played a decisive role in the industrialization of the agri-food sector and in the discovery of alternative food cultures. It also established models for rationalization and food aid that would remain in place, for example in Eastern Europe, until the 1920s. These models would be reused during the crisis of the 1930s and especially during the Second World War, when Europe had to face a much more terrible shortage in the context of the widespread plundering of resources by the Nazis and the systematic starvation of certain populations such as the Jews.

Emmanuelle Cronier, Université de Picardie-Jules Verne

Notes

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External Links

- Food Conservation, film by the U.S. Food Administration, ca. 1917 - 1918 (US National Archives) (Primary Source)
- "Food for Belgium", Bulletin of the Commission for Relief in Belgium, New York 1915 (Internet Archive) (Primary Source)
- How Did We Can? The Evolution of Home Canning Practices (United States Department of Agriculture, National Agricultural Library) (Online Exhibition)
- Sow the Seeds of Victory! Posters from the U.S. Food Administration During World War I, poster collection (National Archives) (Article)
- War Fare: A Culinary Exploration of World War I (National World War I Museum at Liberty Memorial) (Online Exhibition)

Metadata

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Thematic Section(s)

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Violence

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Economy > War economy > Black market, smuggling
Economy > War economy > Food and nutrition
Economy > War economy > Mobilisation, economic
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Politics, law > Domestic policy > Domestic mobilisation
Politics, law > Institutions > Governments
Politics, law > Institutions > Ministries and departments
Politics, law > International relations > Alliances, alliance systems
Politics, law > International relations > Colonialism, imperialism
Politics, law > International relations > War aims
Society > Everyday life, civilian war experience > Famine and starvation
Society > Everyday life, civilian war experience > Rationing and shortages
Society > Everyday life, civilian war experience > Relief organisations
Society > Family, generation > Children and youth
Society > Social groups > Population, rural
Society > Social groups > Population, urban
Society > Social groups > Working classes
Warfare and the military > Battles, battlefields and campaigns > Battles, battlefields and campaigns, Western Front
Warfare and the military > Command and control > Occupation, military

Warfare and the military > Command and control > Officers
Warfare and the military > Crimes, atrocities > Genocide
Warfare and the military > Crimes, atrocities > Looting, devastation
Warfare and the military > Military infrastructure > Equipment and supplies
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Warfare and the military > Soldiers, experiences and attitudes > Everyday life
Warfare and the military > Soldiers, experiences and attitudes > Humour
Warfare and the military > Trauma and medical care > Diseases
Warfare and the military > Warfare, naval > Blockades
Warfare and the military > Warfare, naval > Submarine warfare

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LC Subject Headings
World War, 1914-1918 ; Food supply

Rameau Subject Headings
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Author(s)
Emmanuelle Cronier

Article Type
Handbook Article

Classification Group
Survey Article (Thematic)

Articles That Link Here

Health, Disease, Mortality; Demographic Effects; Post-war Economies (South East Europe); Union of South Africa; Negotiating and Mediating Conduct of War; Warfare 1914-1918 (Canada); Moral Norms and Values; The Netherlands; Refugees; Foreign Policy (The Netherlands); Siam; United States of America; Military and Strategy (Sweden); Discussion: Humanitarianism; International Committee of the Red Cross; Wartime and Post-war Societies (Norway); Switzerland; Non-European Soldiers; Social Costs of War; Pre-war Military Planning (Great Britain); Food and Nutrition (Austria-Hungary); Labour Movements, Trade Unions and Strikes; Food and Nutrition (East Central Europe); Transportation and Logistics; Economic Planning before 1914; Urban Societies and Cities; Between Acceptance and Refusal - Soldiers' Attitudes Towards War (Canada); Occupation during and after the War (Austria-Hungary); Social Conflict; Red Cross; Occupation during and after the War (Germany); Atrocities; Transportation and Logistics; Life and Death of Soldiers; Responses to the War (India); Domestic Politics and Neutrality (Sweden); Occupation during and after the War (South East Europe); Food and Nutrition (Australia); Literature (Africa); Pre-war Military Planning; Propaganda at Home and Abroad; Atrocities; Propaganda at Home and Abroad; Centenary (Internet); Internees (Switzerland); Bulgaria; Post-war Societies (Czechoslovakia); Rural Society; Lascar; Smoking and Cigarette Consumption; The Everyday as Involved in War; Humanitarianism (Spain); Pope Benedict XV; Organization of War Economies; Wartime Emotions: Honour, Shame, and the Ecstasy of Sacrifice; Brändström, Elsa; Hospitals; Censorship; Commemoration, Cult of the Fallen (South East Europe); Sea Transport and Supply; Prisoners of War; Naval Warfare; Warfare 1914-1918; Animals; Naval Blockade (of Germany); Animals; Warfare 1914-1918; Lviv/Lemberg; Children and Youth; Women War Reporters; Governments, Parliaments and Parties; Exile and Migration (Sweden); Lemberg; Schools and Universities; War Finance and Monetary Consequences: The German Case Revisited; Resettlement; Townshend, Charles Vere Ferrers, Sir; Philippines; Foreign Policy (Sweden); Social Conflict and Control, Protest and Repression (New Zealand); East and Central Africa; Wartime and Post-war Economies (Sweden); Wartime and Post-war Economies (Denmark); Luxembourg; Food and Nutrition (Germany); Organization of War Economies (Africa); Organization of War Economies and War Finance (South East Europe); Norway; Food and Nutrition (Portugal); Supreme War Council; Rationing (USA); The Soldier's Sister; Centenary (Serbia); Labour (Portugal); Wartime and Post-war Economies (China); Post-war Societies (South East Europe); Social Conflict and Control, Protest and Repression (Portugal); Prager, Robert; Wartime and Post-war Societies (Denmark); Wartime and Post-war Societies (Sweden); Prisoners of War and Internees

(South East Europe); War Requirement Acts; Provincial Capitals (Japan); Christmas Truce; Historiography 1918-Today (Switzerland); Swiss Companies in World War One (Switzerland) and Foreign Policy (Norway)