THE WORLD'S FOOD RESOURCES

BY

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PREFACE

In the preparation of this book the problem of statistical illustration has been peculiarly unsatisfactory. It is an attempt to consider things as they will be in the world of peace that we hope is to come. Conditions during the period 1914-18 were so disturbed that production figures would not serve as good illustrations. For this reason we had to go back to the period before the war, hence the frequent references to figures of 1911-13. In most cases they were the last normal figures available.

It is a pleasure to acknowledge the assistance I have received in the preparation of this book from my wife, Henrietta Stewart Smith, and also from my secretary, Miss Anna Y. Satterthwaite, and Mr. C. Raymond Michener. Our combined labors kept idleness far away from a mountain camp in the summer and autumn of 1918. It is to the diligent aid of these assistants that the prompt completion of this book is due, and by many facts, compilations, and suggestions have they enriched it. I am also indebted to Dr. Louis N. Robinson of Swarthmore, Pennsylvania, for valuable counsel with regard to the plan of the book, and to Mr. Robert Atkinson of Wrightstown, Pa., for material in connection with the chapter on Dairy Products.

For that great kindness, critical reading of galley proofs, I am indebted to Professors C. J. Posey of the University of Minnesota and N. A. Bengston of the University of Nebraska, and to Mr. O. E. Baker and Miss Helen M. Strong of the Bureau of Farm Management, United States Department of Agriculture.

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J. Russell Smith.

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INTRODUCTION

FOR two years the people of Europe and America have been reading about diet, studying nutrition, practising cookery, talking about food, and wondering about the food supply as never before.

Has food shortage come to stay, or is there a bounteous future ahead of us? The answer to that question depends on how man behaves. The injunction of Jehovah to Adam and Eve in the Garden of Eden still holds good. The earth is still a potential Eden with room (food possibilities) for many, many more of the children of men. We have subdued the earth far more extensively than Adam dreamed of doing. It is more completely ours than Eden was Adam's. Now as then, man's greatest enemy is himself. Food we can have in great abundance if we devote our time to the continued conquest of the earth, and to the utilization of nature, rather than to the conquest of each other. But there can be only death and starvation for millions of men if we continue to indulge in war. Nations are no longer independent. We have become dependent on a great fabric of trade; when it is destroyed, we die.

It is the object of this book to present some of the facts concerning the world's food supply and the possibilities of food supply, and to discuss the outlook for the future. The war has made us think about food—a little.

Did you ever figure out just what you would do if your food supply failed? You probably have not, but a good observer who has seen men in all stages of starvation in the Yukon wilderness has it worked out in this way: "If a man misses his meals one day, he will lie. If he misses his meals two days, he will steal. If he misses his meals three days, he will kill."

This may sound far-fetched, but in reality it is just an everyday fact that has not hitherto come up for our consideration. Having had an abundant food supply, we have never had to

consider possibilities of famine. Our world commerce, which is very new, has run so smoothly for a while that we do not understand the troubles of the past, nor as yet the vital problems of the present. Tens of millions of us depend upon a great world-wide mechanism daily to bring us food. So far as food is concerned, modern man has the independence of a bird in a cage, no more. He depends upon the continuance of world trade.

We in America have been peculiarly free from anxiety about food shortage. With us it was at worst merely the question which food we should buy. We have lived on a continent that was secure and rich—the richest in all the history of man. We have been a whole world to ourselves. Suddenly we found ourselves only a part of a bigger world—and a hungry one.

We have been lulled and dulled by the comfort and security of far-reaching trade. The world market is excellent, when it is well supplied.

For two generations we have all known that if we had the price or the credit, goods and food were ours. They came mysteriously by night from places about which we neither knew nor cared. What difference did it make to the housewife of England, or of New England, whether her flour came from the grain that waved in the fields of the next county or of another hemisphere? But in war its source determined the lives of nations.

Where does the world's food come from?

The Great War with its starvation made nations see, really see, what a century of world trade had done for them by giving them the whole world from which to feed themselves. In the matter of food supply there has been far more change since the days of George Washington than there was in all the time between George Washington and Caesar or Nebuchadnezzar, or Cheops, who built the pyramids of Egypt. In 1786 a Massachusetts farmer wrote a pamphlet telling just how he supported his family.* With the wheat and corn and buckwheat that grew in his fields he furnished the family bread. The chickens, pigs, sheep, and an occasional beef that he slaughtered furnished the meat. His garden furnished all the vegetables and his orchard all the fruits, many of which, along with garden vegetables, were

* See MacMaster, J. B.: *History of the People of the United States*, Vol. I.

dried for winter use. Thus the farm produced the family food. For clothing, his wife spun the wool which he sheared from the sheep; and the flax that grew in the corner of a field was made into linen. The skin of the meat animals was tanned and made into the family's shoes, and thus were they clothed. The trees from his wood lot furnished the boards to build his house, and the logs for his fire, and the rails for such fences as were not of stone. He himself, like most farmers of that time, was a fairly good worker in wood, and had a little blacksmith shop, so that he made practically all of his own tools on rainy days and in

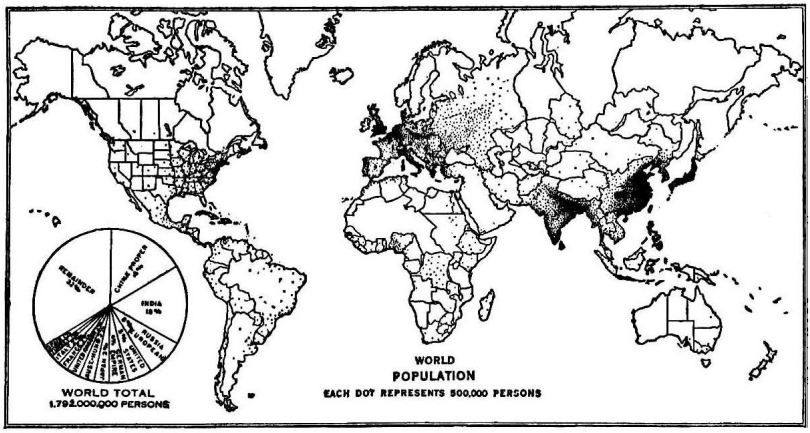

FIG. 1.—The distribution of people is remarkable in its unevenness. (Finch and Baker, *Atlas of the World's Agriculture.*)

snowy winter weather. Only a few things were needed from the outside world, such as salt, pepper, a little lead and gunpowder, and iron for his little forge. These outside products cost him altogether $10 a year, permitting him to save $150 out of the $160 received for the wheat and cattle that he sold.

In that day trade was confined to luxuries. The countries of the world like the colonial farmer tended to be economically independent. They had to be so. The locality that could not furnish most of the materials for man's food, clothes, shelter, and fire, remained unused. Men clustered along the shores of the sea and navigable rivers in that comparatively small part of the world where resources were reasonably complete. If crops were

short, men went hungry. If crops failed, men starved, as they did in England in Shakespeare's time. For many centuries the month of May was called in England the starving time, because it was the last month before the beginning of the first new food crop, and therefore the period of greatest scarcity. Most of the central parts of all the continents save Europe were empty, because of the absence of even the small trade that went in the sailing vessel and the river boats of those days.

In the United States, only in the last few decades have Iowa, Kansas, and the Dakotas become important granaries of the world. Canada is but beginning; and in South America the plains of the Argentine were the possession of savages and wild animals when man invented the locomotive and the steamship, although the white man had been in possession of the shores of both Americas for at least three centuries. He could go far inland only on rare and venturesome exploring trips, such as the journey of Lewis and Clark to Oregon in the first decade of the last century.

It is only in the last hundred years, the century of steam and a sea clear of pirates, that man has begun to possess and utilize the earth to any great extent, and we are yet only at the beginning of the possibilities of such utilization. It is largely sea trade that has made this new epoch of comfort, and it is by sea trade that an enriched future must be fed. Sea trade, the great sea trade, is new. It has made population increase greatly and suddenly, the result of ships and a safe sea. This century of steam, a free sea, world trade, and abundant food, has enabled the struggling settlements along the shores of America to increase their numbers twenty-fold within a little more than a century. Europe has also gained enormously in population, as have South America, Africa, Asia, and Australia. Because of this world-wide ship business connecting with the railways and permitting a world-wide food supply, men have clustered in places where it was good to live. No longer dependent on their own garden spots, they could eat and increase, regardless of local harvests. During this golden age of the larder, food always came from some far place if it was not produced at home. Men have been able to cluster so closely that they could no

longer live upon the produce of the land in which they dwelt, so that England and Scotland, Holland and Norway, Italy, the Rhine-land, in fact all of western Europe from Norway to Greece, became dependent upon the sea trade. Without it they would not have enough to eat. Even their cows depended partly upon antipodean hay; witness the export of baled alfalfa from Chile to Britain, and of corn, bran, and oil-cake from America to Holland and Scandinavia.

America and Japan have also entered into the world's trade and are becoming increasingly dependent upon sea trade. New England could no more feed herself than could old England, and the United States finds itself using each year more and more products from overseas.

Compare the food and clothes of the Massachusetts farmer of 1786 with those of the American reader of this book. The man of today starts his breakfast with an orange from California or Florida, or a banana from Central America, or an apple from Oregon, Virginia, or New York. He takes a shredded wheat biscuit made in Niagara Falls from Dakota wheat. He sugars it with the extract of Cuban cane. He puts Wisconsin butter on bread baked of Minneapolis wheat flour mixed with Illinois corn flour. He has a potato. In June it comes from Virginia, in July from New Jersey, in November from New York, Maine, or Michigan. If he indulges in meat, it is a lamb chop from a frisky little beast born on the high plains near the Rocky Mountains, and fattened in an Illinois feed lot before going up to Chicago to be inspected, slaughtered, and refrigerated. He warms and wakes himself up with a cup of coffee from Brazil (called Mocha perhaps) or tea from Ceylon or Japan, or cocoa from Ecuador or the coast of Guinea.

So much for the breakfast of today. Our other meals are equally far-reaching, and our clothing also is a collection of stuffs from the far ends of the world.

This development of *dependence* had gone so far before the war that England produced but a fifth of the food she ate, Italy two-thirds, and Germany four-fifths.

In both Europe and North America there is, facing the Atlantic, a region of dense populations—city dwellers and manufacturers in districts that cannot raise enough food for local

needs. Inland from this region, still farther from the Atlantic, is the zone of food surplus and export.

In America the chief region of food surplus is the Corn Belt and the Great Plains. In Europe it is chiefly the East, including Russia, Rumania, Serbia, Hungary, and also Denmark and Sweden.

On both continents there have for years been heavy shipments of food from the agricultural back-country to the cities on the Atlantic. New England furnishes an illustration.

Massachusetts produces two and one-half pecks of corn per person, and not enough wheat to feed the hens of the chicken fanciers. She has but four cows and three hogs per hundred people. In Wisconsin there are, per hundred people, 67 cows; in Iowa 453 hogs; and in Kansas 106 beef cattle.

Massachusetts spreads the butter of Wisconsin on the bread of Dakota, eats the meat of Kansas, and feeds the horse, born in Iowa, with the corn of Illinois. She would starve more quickly, far more quickly, than Belgium; so would New York, so would eastern Pennsylvania and New Jersey, but for the supplies that continuously roll in from the West.

Then came the war, in which Germany sought to win world dominion by the simple plan of throwing the commerce of a part of Europe back a hundred years. She would use the submarine blockade and destroy this nineteenth century world trade in food for Britain and France. The world would then be hers. If the German plan had worked as quickly as they hoped, England might now be a German vassal. Nor was America left entirely out of the plan. New England shares with old England the possibility of conquest by starvation, and such was a part of the reported German plan for the conquest of America. This plan provides for bisecting this country along the easily held line that nature has made by the Potomac River, the Blue Ridge Mountains, the Susquehanna and Hudson rivers, with the addition of Lake George and Lake Champlain. The map shows how easy it seems.

In Europe we have seen the continent cut in two and the starvation process working. In the prosperous times of recent peace, England and Belgium, and to a lesser extent France and Italy, lived like Massachusetts and New York. A steady pro-

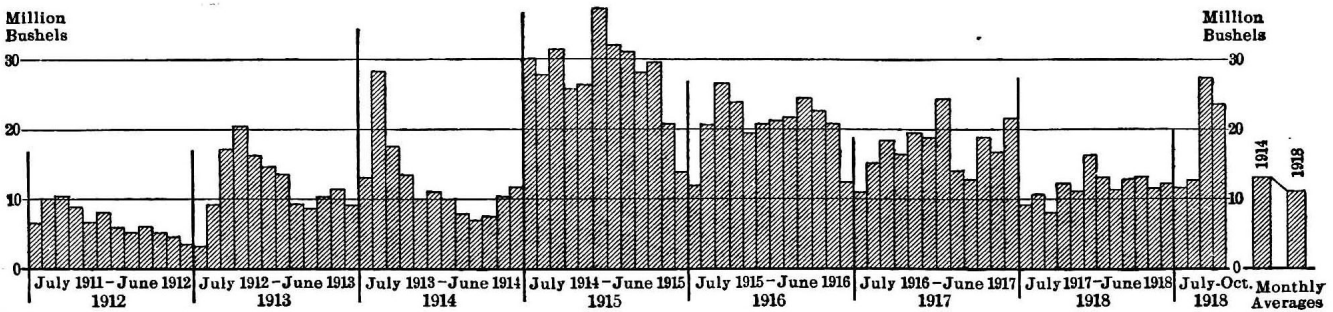

FIG. 2.—United States exports of wheat and wheat flour by months. The influence of the great crops of 1914 and 1915 followed by normal crops is plainly to be seen. (*The American Trade Balance and Probable Tendencies, National Foreign Trade Council.*)

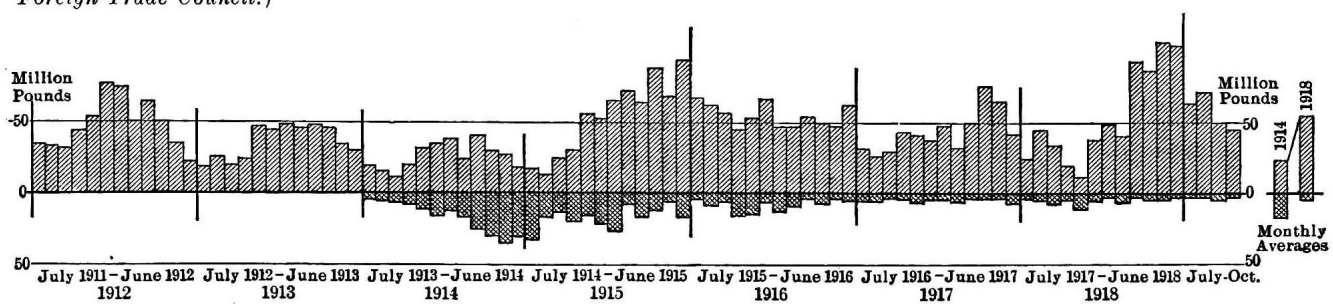

FIG. 3.—United States exports of beef and beef products and cottonseed oil shown above the 0 line. Imports of beef and veal shown below the 0 line. Note the reduction in import and comparatively small increase in export when compared to pork, Fig. 4. (*National Foreign Trade Council.*)

cession of ships and trains with wood, wheat, oats, rye, barley, corn, butter, eggs, and meat streamed westward from north Europe and the White Sea, from middle Europe and the Baltic Sea, from southeastern Europe and the Black Sea.

Suddenly Germany stopped it all. She controlled the Baltic, and when she got Turkey into the conflict the Black Sea was closed and Russia and Rumania were shut up as tightly as the United States and Canada would be if every Atlantic port were closed, every Gulf port closed, and every Pacific port closed except San Diego, California.

The conspicuous thing about America's foreign trade for ten years before the war was the decline in the export of foodstuffs. Then suddenly the countries of western Europe were cut off from their other great source of supply in eastern Europe. Next, the war reduced Allied home production. Consequently America had the bag to fill.

Another biting fact in the early part of 1918 was that supplies of wheat and corn in Argentina and of wheat in Australia, although paid for and lying in the warehouses, might as well have been in the moon. There were great piles of wheat lying in Australia, one report put it at two hundred million bushels; but from England to Australia by sea is three times as far as to America. Ships to carry the Australian wheat did not exist. Such ships as could be found had to be supplied almost exclusively from the short-journey place—the United States, 3,000 miles—rather than Argentina, 6,000 miles, or Australia, 10,000 miles away. For several years the fate of the Great War hung on the Allies' oversea food supply.

If the issue of this war hung on the question of food supply, what about the past? If it is a key to present history, is it not also a key to the past? History is like a Punch and Judy show. The real things are the forces that work the puppets. An empty stomach is not the least of these, and one to which historians have given too little heed. Huntington * claims that the fall of Rome was due to vast droughts in central Asia. The droughts diminished the grass supply. This shortage cut down the flocks and the food supply of pastoral peoples. Should they sit at home and starve, or go forth and fight their way to new lands,

* Huntington, Ellsworth: *Climate and Civilization.*

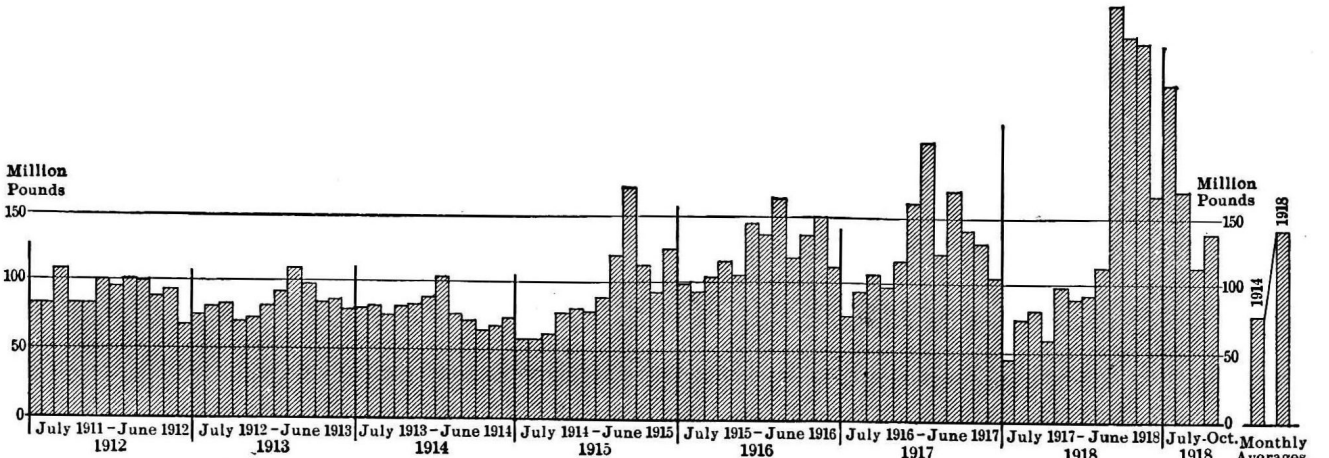

FIG. 4.—United States exports of pork and pork products. The increase in export shows the result of the remarkable ability of swine to increase. (*National Foreign TradeCouncil.*)

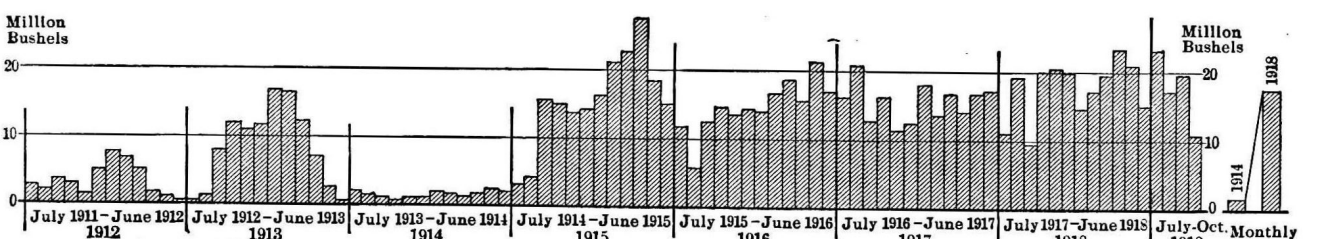

FIG. 5 —United States exports of corn, oats, buckwheat, barley, rye, and meal of. This chart shows combined exports of wheat substitutes and forage grains—great increase. (*National Foreign Trade Council.*)

to fresh pastures—the only things they knew as a source of food? Of course they chose action rather than death, and so they broke into Europe with a power that could not be stayed. Rome fell before them.

A well-known economist has called the French Revolution a bread-riot, and the fall of the Russian Empire and of Kerensky's government had many of the marks of being another. For months the Czar's government had been handing out bread every day to the hungry people in Petrograd. One day the bread-line waited in vain, and the people went hungry to bed. The next morning they started to riot. The soldiers of the Petrograd garrison were ordered to fire on the mob. These soldiers happened to be Petrograd men, and they did not think well of firing on their own kin. Instead of shooting the people, their people, they fraternized with them. The mob and the army became one, and Nicholas was no longer Czar of all the Russias.

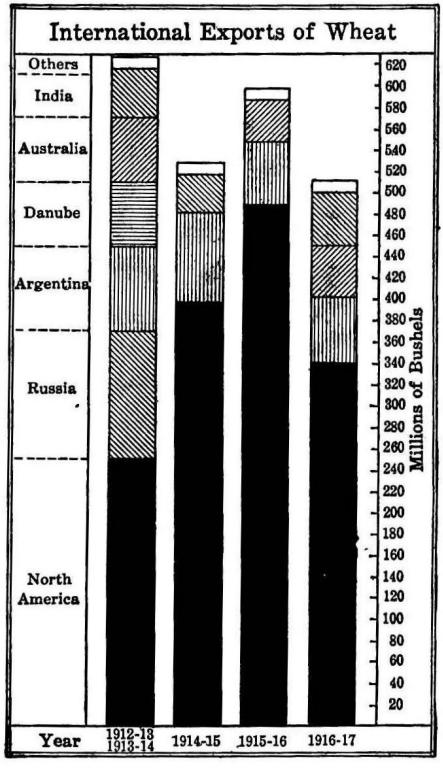

FIG. 6.—The total wheat trade shows the important part played by North America in supplying food for the war. (*United States Crop Reporter.*)

Then Kerensky ruled in Petrograd as long as his bread held out. The soldiers liked Kerensky, they wanted to stand by him, but man must have food. One morning the bread did not come. All day the soldiers waited for their breakfasts. They held a meeting and sent word to Kerensky that they would give him until 7 P.M. to deliver the bread. This he could not do,

and the army went over to the Reds. Kerensky followed the Czar.

The food supply is the first necessity of mankind; and a satisfactory food supply is a necessity of advancing civilization: for, as President Wilson recently put it, " Hunger does not breed reform."