

E. The Story of Advanced Industrial *Food*

1. We now have a basic way of organizing technological history into four main parts: the long, stagnant period of “pre-industrial” history, the slowly changing period of progress that is “proto-industrial,” and the rapidly progressing periods of “industrial,” and “advanced industrial” history.
2. Let’s now look at what this means in terms of the production of *food*.
3. The theme of advanced industrial food is closely linked to the other themes of technology. The advanced age of food begins around **1945** with the “Green Revolution.”
4. This revolution has many parts. It involves the application of irrigation (water distribution) and fertilization (plant food) techniques in combination with herbicides (chemicals to kill weeds) and pesticides (chemicals to kill bugs). Together these allow us to make more food than ever before.
5. The main contributor to this Green Revolution (1945-70) was a scientist named Norman Borlaug, who won the Nobel peace prize in 1970.
6. That’s how we achieved “superabundance” in modern times, but there’s also an important background story.
7. At the beginning of history, the first “Agricultural Revolution” is when people first developed farming.
8. For thousands of years, little changed. Globalization did bring about changes in the types of food available to people around the world. Because of Columbus, corn, potatoes, and tomatoes, among other things were brought from America to Europe, and wheat and animal breeds of cattle and horses came to America.
9. The first *proto*-industrial advance to impact the amount of food available to people was called “crop rotation.” Using this method, farmers change what is grown on the land, and some plants are plowed under instead of being used so that they can be “food for food.”
10. Then came the major *industrial* advances. In 1910, a German scientist named Fritz Haber invented the “Haber Process” to create a chemical fertilizer for plants. The permitted previously unknown quantities of crops to be grown.
11. When it became easier to grow food, fewer and fewer people were needed to work on farms, and they moved to city.
12. This led to the challenge of how to transport all the food produced from the farm to them in the cities. The Frigidaire Company was among the modern industrial companies that created the electrical “refrigerator.” First train cars were refrigerated, then the coolers in stores, and then finally, in 1916, the average American family could purchase a home refrigerator to help delay the spoiling of food.
13. Industrial superabundance also led to changes in how people shop for food. With the huge increase in the quantity and variety of foods available came the rise of the modern “supermarket,” such as the Piggly Wiggly, which first opened in 1916.
14. What does it all mean for us? It means there is no good reason for anyone to starve ever again. Indeed, deaths due to famine in the world have almost dropped to zero (see the graph on the next page).



The spraying of crops with pesticides and herbicides is part of the “Green Revolution” that makes modern *super-abundance* possible.

15. On the other hand, we *do* have too much junk food and processed food, and it's harder for people to make nutritional choices today. There are a number of food-related diseases like diabetes that seem to affect us more today than any other time.
16. As a result of the challenges involved in having so many chemicals in our food, many people now choose "organic" food.
17. On the other hand, scientists continue to try to use science to improve food, and now create more and various kinds of "genetically modified organisms" or "GMOs".
18. Many people worry about scientific changes to food. At least, *thanks to the creation of modern, advanced industrial food, we have the luxury of arguing about it!*



FIGURE 3.1 GLOBAL DEATH TOLL FROM GREAT FAMINES, 1870s–2010s



Note: Each great famine killed more than 100,000 people.
Source: World Peace Foundation (2015).

Because of scientists like Norman Borlaug, famines are essentially a thing of the past in our world.