

H. The Story of *Food*

1. We now have a way of organizing the history of technology into four main chapters: pre-industrial, proto-industrial, industrial, and *advanced* industrial.
2. We will now look at how the story of *food* helps us to understand these chapters more clearly.
3. The story begins at the dawn of human history, with what is sometimes called the “Agricultural Revolution” **c.3000 BC** in places like ancient Egypt. At that point in history, human beings stopped hunting and gathering food, and instead developed ways of *producing* it, i.e. agriculture.
4. From that point onward, however, for nearly *five* thousand years, there was almost no fundamental progress in food production!
5. Even in the proto-industrial period, there was little advancement. (One reason is that the steam engine was too heavy to use in agriculture.)
6. The *industrial* story of food production really only begins in **1910**, when a German scientist named Fritz Haber invented the “Haber Process” to create fertilizer for plants. This made it possible to grow a lot more plants on the same amount of land.
7. Soon, because not as many people were needed on farms, they moved to cities, and the new challenge of industrial life became how to transport all the food produced from the farm to the people in the cities without it spoiling. The Frigidaire Company was among the modern industrial companies that created the electrical “refrigerator.” First train cars were refrigerated, then the coolers and freezers in stores, and then finally, in **1916**, the average American family could purchase a home refrigerator to help delay the spoiling of food.
8. The advanced industrial chapter of this story happened because of the **Green Revolution (1945-70)**.
9. This involves the combination of irrigation (water distribution) and fertilization (plant food) with herbicides (chemicals to kill weeds) and pesticides (chemicals to kill bugs) and finally hybridization (combining different types of plants so that they make more food).
10. The person most responsible for this **Green Revolution** was an agricultural scientist named Norman Borlaug. Because of his work, countries like Mexico and India, where previously famines were normal, became self-sustaining, and in the case of Mexico became an *exporter* of food. For his work, Borlaug received the Nobel peace prize in 1970.
11. 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 plummeted almost to zero (see chart below).
12. On the other hand, superabundance comes with costs and challenges. For instance, we now have too much junk food and processed food, and it’s harder for people to make good nutritional choices today. A



Ancient Egypt, **c.3000 BC**, was one of the first cultures to develop agriculture and thus emerge as an organized civilization.



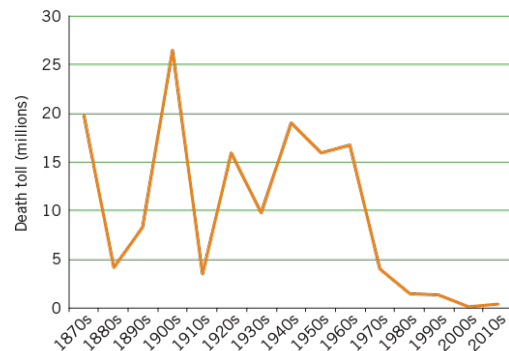
The spraying of crops with pesticides and herbicides is part of the “Green Revolution” that makes modern *super-abundance* possible.

number of food-related diseases like diabetes affect modern populations much more today than any other time.

13. As a result of the challenges involved in having so many chemicals in our food chain, many people now choose “organic” food, which started to become important in America in **1994**.
14. 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” since **1990**.
15. People sure do argue a lot about food today, but that’s because *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.