

Impact Statement

Kelly Heo, Grade 11

Harvesting Knowledge and Feeding the World, 2025

Colored pencil, watercolor on paper, 11 x 15 inches

Longmeadow High School, Longmeadow, MA

Teacher: Kyunghee Lee, Independent Study

Unsung Hero: Justus von Liebig

Since when did people start to care about having different menu options on their dining tables? Menu choices were scarce well into the 19th century. Such food diversity and affluence are often taken for granted. Yet, this privilege was made possible thanks to a dedicated scientist like Justus von Liebig from the 19th century. His name is hardly known in many regions of the Western world. Yet, he was a genuine hero who formulated organic chemistry, not to mention revolutionizing modern agricultural practice. He discovered the critical components of plant growth and facilitated scientific research into soil and agricultural produce. Unlike many other chemists, Liebig's work was much more than an intellectual curiosity; he shouldered responsibility as an intellectual and a scholar. Knowledge was meant to be a tool for changing lives and solving the problems many people confronted.

In the 19th century, Europe saw a rising food crisis because of the unprecedented speed of industrialization and urbanization. Feeding an exponential number of workers surging into big cities became one of the most pressing challenges of the time. During this era, farmers relied heavily on conventional farming methods. Liebig's discoveries revolutionized farming and contributed to the mass production of crops, thereby liberating many from abject poverty. He knew that science was not about inputs and outputs in laboratories; it was about bettering the lives of many people. Hungry workers, farmers who frequently struggled with meager farm production, and starving children in big cities were the reasons for Liebig's investigation. Science, to him, was not simply an intellectual pleasure but a social responsibility. Had it not been for him, agricultural technology would have depended on traditional methods; thousands of people might have suffered from starvation and malnutrition. Liebig's discovery laid the groundwork for healthy and rich lives amidst the increasing world population.

What makes Liebig a true hero is the way he put his discovery to good use. He never solely pursued wealth and reputation. Rather, he founded Justus Liebig University in Giessen where he fostered chemists and introduced educational experimentation in school settings. Therefore, Justus Liebig should never be remembered only as a great scientist. He must be honored as a hero who fought against starvation through knowledge and scientific research. He exemplified that science could shine when it is used to save lives rather than endanger them. Liebig invented a method to deposit a

thin layer of metallic silver onto glass through a chemical reduction process. This made earlier methods that used mercury obsolete, thus making mirrors safer, more durable, and clearer than before. His mirror-making innovation was proof that he paid close attention to ordinary people's lives and their predicament.

When we gather around the dinner table full of bread, rice, vegetables, and fruit, we must remember that Liebig's scientific dedication made our food choices more diverse and plentiful. When we brush our teeth and look into a mirror, we should remember that we owe greatly to his knowledge and innovation. It was Liebig who helped liberate human civilization from the chains of hunger and more.