

Bár Stenvik

10 INCREDIBLE INVENTIONS (10 UTRULEGE OPPFINNINGAR)

Published by Samlaget, 2020

Sample translation

CONTENTS

- 1. The Lightbulb**
- 2. The Atom Bomb**
- 3. The Pot-in-pot Refrigerator**
- 4. The Pill**
- 5. Antibiotics**
- 6. The Dishwasher**
- 7. Autotune**
- 8. Prostheses**
- 9. Kevlar**
- 10. The Scientific Method**

1. The Lightbulb

When you hear the word “inventor”, you probably imagine someone in a white coat or an old-fashioned suit, toiling away in a laboratory somewhere to come up with newfangled contraptions, like a lightbulb. So if you were to open a book about inventions, it wouldn’t be too far-fetched to find a picture of something just like that. What’s more, the man in the photograph would probably be called Thomas Alva Edison. Edison is famous for having invented both the film camera and the

lightbulb, and there are many pictures of him posing with the latter. The lightbulb has even become the definitive symbol of coming up with something clever. In cartoons, a lightbulb appears over the head of people when they have a bright idea. But is this the true story behind the lightbulb's invention? Did the idea just pop into Thomas Edison's head one day, like someone flicking a switch?

In truth, the lightbulb's story has many different starting points. One of them was in the American state of Virginia. In 1842, slavery was still very much legal in Virginia, despite it being forbidden in many states to the north. One day, the slave George Latimer had had enough of being beaten and mistreated, and made up his mind to flee. He brought his wife, a fellow slave, along with him. She was pregnant at the time, and they probably wanted their child to grow up free. The couple travelled all the way to Massachusetts, where slavery was outlawed.

George and his wife's youngest son, Lewis, had a gift for drawing. He was so talented that he was soon employed by several inventors and engineers who needed someone to sketch pictures of the inventions they created. Back then, there was no such thing as photography or computers, so these sketches were the only way people could share images of objects. Although many white people were still skeptical about whether black people were capable of working in advanced fields like technical drawing and inventing, anyone who looked at Lewis Latimer's work soon realised just how intelligent he was.

Whenever it grew dark outside, Latimer had to work with his drawings under the light of oil, gas or paraffin lamps. It would often be difficult to get a lamp strong enough, and the open flames would frequently give off soot and gas. There was also an ever-present danger of causing a fire if one wasn't careful enough. Inventors had tried to find workable ways to create electric-powered lamps since the early 1800s, but it was no easy feat.

For decades, inventors had been attempting to create a material that would glow bright enough when you ran electricity through it. The material tended to prove either too expensive, such as platinum, or it would burn up before you knew

it, like strings or wood. Inventors later discovered that you could turn sewing thread or paper into slow-burning coal by “baking” it in a stove.

While Lewis Latimer was working for the inventor, Hiram Maxim, he found out a new use for this coal-making process all by himself, and patented the method. Namely, he found a way to fasten this glowing thread to the base of the lightbulb.

Latimer was only one man in Maxim’s workforce, and Maxim was only one of many inventors trying to come up with a lightbulb good enough for people to buy. There were countless people registering patents that might solve the lightbulb problem.

The man who eventually invented the ultimate lightbulb was named Thomas Edison, who employed Lewis Latimer after he left his job working for Maxim. If you search practically anywhere on the internet, you will read that Edison “invented the lightbulb”. But he didn’t do it alone. He had a huge workshop filled with helpers, and he was building on the work of untold amounts of other inventors each improving their own works, competing with and inspiring one another. William J. Hammer collected over one thousand different light bulbs from this era, and his collection can still be found in the Henry Ford Museum in the USA. Amongst these inventions is the one made by Lewis Latimer.

It’s rare for just one person to have invented something. Many inventions, such as the lightbulb, have come into existence precisely because so many people have been fascinated with solving the same problem, and came to it from so many different directions. When it comes to the light bulb, Lewis Latimer was one of those people.

BOX

Who was the real inventor?

A common idea about inventions is that they are usually created by people searching for a smart idea that they might be able to build a business around and

make some money. Take Apple and their iPhone, for example. Yet many of these clever contraptions are actually created first and foremost by the state itself. Many of the best parts of the iPhone were invented by universities or other public institutions. Take the GPS system, for example, which the phone uses to know where it is. Or the touch screen you swipe. Or even the internet, perhaps the most important of all.

Other inventors who regretted their creations:

Mikhail Kalashnikov

Kalashnikov was a soviet army officer who invented a cheap, simple and reliable machine gun, the AK-47. The weapon became incredibly popular among terrorists and military and guerilla soldiers all over the world. Although later in life he always maintained that he was proud of his creation, he did admit how upset he was that it was employed by terrorists, and might have preferred to have created something less deadly, such as a sewing machine or a lawnmower. When he thought about all the people who had been killed by the weapon he created, he brooded over whether he was the one to blame.

Leah Perlman and Justin Rosenstein

Back in 2007, Leah and Justin were coworkers working on a project for Facebook. They were tasked with discovering a simple procedure to show quickly and efficiently that you like what someone else is doing. Which was how they came up with the “like” button. The button was a roaring success, and since then the program has been expanded to include people being able to show whether a post makes them angry or happy, or hits them right in the heart. People like “liking” so much that they constantly need to check how many *likes* they have, and become upset if it isn’t enough. These days, neither Leah nor Justin are working at Facebook, and they have learnt to distance themselves from likes and similar functions that might distract

them from their work, their friends, and other parts of their lives. "It's such a cliché. People try to create things with the best intentions," said Justin, "only for them to have negative side effects that nobody ever imagined."

Designer Babies

One day in 2018, a pair of twins named Lulu and Nana were born in China. A researcher named He Jiankui claimed that he had modified the genes in their body before they were born, so that they could never be infected with HIV. On the other side of the planet, a woman named Jennifer Doudna was greatly taken aback by the news. She was on the team of scientists who had invented the method Professor He Jiankui had used: CRISPR.

In every cell in our bodies there is a copy of something named DNA. It is a summary of every trait we inherited from our parents, and could be described as the "instruction booklet" for every cell in our bodies. A few years earlier, Jennifer had discovered that if you send a special protein from bacteria into our body, it is able to cut a sequence from our DNA like a little robot and exchange it for something else. Many people took this new technique to be a possible way of creating "designer babies", with the exact height and eye colour their parents desired.

Genes affect many parts of our body at the same time, so if one gene is changed to make a child taller, it could lead to unwanted side effects, such as the child becoming sick or sad more often. Moreover, when these changes are left behind in the DNA, they can be passed on to the child's descendants too. Which is why scientists all over the world decided never to use CRISPR on embryos. When Jennifer and her peers found out that He Jiankui had gone ahead regardless, they were furious. Even today, we still don't know whether He Jiankui actually did what he said he did, nor do we know whether the twin sisters were harmed by the attempt. Do you think he was right to attempt the operation? Are there any other things that scientists should agree not to research?

4. THE PILL

Margaret Sanger was born in 1879 and back then it was normal to have lots of children. Margaret's own mother had 18, and died at only 50 years old. At her mother's funeral, Margaret was claimed to have said to her father: "This was all your fault. Mother is dead because she had too many children." In those times it wasn't easy to make your own decisions about how many children you had. Many people were still convinced that God would be angry if you slept with someone without having children, and even if a couple wanted to sleep together without the woman getting pregnant, there weren't any actual ways to prevent it.

Another issue was the fact that men ruled the roost back then. Women didn't have the right to vote nor to have an education. Men probably didn't think it was a very pressing issue whether someone got pregnant or not, either. After all, they weren't the ones who got pregnant and had to deal with the consequences.

Yet it was in this period that women started to get more power. In 1917, Margaret met a woman named Katharine Dexter McCormick. Katharine was rich, and she was also the second ever American woman to be educated at the renowned university, the Massachusetts Institute of Technology. She was a biologist, and both she and Margaret considered themselves to be feminists, by which they meant that women should have the right to decide over themselves and their body, just the same as men.

Together, the pair of them decided to work on a project they referred to as "birth control", which would allow people to decide for themselves how many children they wanted. Yet for hundreds of years it had been men that laid down the law, and it was men that declared Margaret's project as illegal. She was sent to prison, but took up the cause right away upon her release.

Margaret met a scientist named Gregory Pincus at a party in 1951. A few years later in his laboratory, he managed to create a rabbit embryo in a petri dish. An

embryo is a cluster of cells that will later grow into a child in someone's belly. When people first found out what Pincus had done, some were impressed. Others, however, realised that his invention might suggest that human scientists in the future would be able to insert these **embryos** into women's wombs, without men. This was a scary thought for many people, who thought that women would begin making children on their own and make men obsolete. No-one would get married any more, and the idea of a family would disappear entirely.

Both Gregory and Margaret knew there was growing concern over what would happen if women secured more political power. Luckily, they had received financial support from Katharine for their research. Gregory teamed up with another scientist, by the name John Rock, whose personal objective was to help barren women have children. The opposite to Gregory, Rock effectively wanted to make pregnancy easier, not harder. Yet whether the goal was for people to have more children or fewer, the two scientists had one thing in common: finding a way to control the process.

Together the pair of them discovered a solution: a hormone named progesterone. A hormone is a substance in the body which sends messages to various organs to tell them what to do. This particular hormone sends a signal to say "don't get pregnant". They managed to condense the chemical into a pill, and just like that had created a tool that gave women the ability to decide whether they wanted to be pregnant or not.

The pill was an instant success. Across the entire world, women were rushing to buy it. Yet certain parts of society were still concerned. Young women didn't have to be afraid about getting pregnant after sleeping with someone anymore. The opposition believed this would make them sleep with far more men than before. This would be a very bad thing indeed for protesters, as they thought it was wrong for a women to have too much sex.

The pill would change the lives of countless women. Most importantly, because

they were now able to plan their own lives and receive an education. Before the 1970s, most western women stayed at home looking after the children while their husbands were out working. The common thought was: "There's no point getting an education if it ends up being thrown down the drain when I get pregnant and have to quit." Indeed, in many parts of the world, society didn't let women go to school or get a job because "they would only get pregnant and have to quit." Yet after the pill, women weren't just going to suddenly and unexpectedly fall pregnant. Which meant that women could start working and becoming educated, just like men.

Today it seems obvious that women should have the autonomy over their own body and finances, and that they should be able to receive an education and work in the job they want. The pill was one invention that helped make this possible. The story behind its invention, however, tells us that the first leg of the journey needed someone to change the world and for them to have the money and freedom to express themselves and carry out their research.

This birth control movement is far from over. Politicians are still trying to affect how many children people have. Several countries, Norway included, do this by providing subsidies to citizens who have children. In America, a group of politicians are attempting to get rid of a law that makes employers pay for their employees' birth control pills. A large number of voters would probably prefer it if the pill had never been invented. Do you think the pill could be banned if it has enough opposition? Would it be the right decision?

BOX

Politics changes which inventions are made

People don't just start using a new invention because someone invented it. The political and social context also play a crucial role. A modern example would be electric cars. The technology behind electric cars has existed alongside petrol engines for decades, but few people have bought any, and their **development** has gone slowly. Now that many people have begun to get worried about the environment,

and the oil running out. For this reason, Norwegian politicians decided to create laws that make it cheaper and easier to drive electric cars. These days, half of new cars made in Norway will soon be electric thanks to this political situation. As car producers began to notice the interest in buying these cars, they put more effort into improving them, for example finding faster ways of charging their batteries.

Sample translation by Bruce Thomson
Rights: www.hagenagency.no post@hagenagency.no