

Appendix II: Index Cards

Jaipur Foot

The Jaipur foot was made to help people in India do everyday things like sitting cross-legged. It is waterproof, so it works well in muddy and wet areas of India. It can also be made quickly with local materials. You can even paint the toenails!



Courtesy of Nadya Peek through Wikimedia Commons.

Microprocessor Leg (also called myoelectric)

Some prosthetic legs have computer parts inside them. These sensors (called microprocessors) help to ensure that the prosthetic moves to match the user's movements. This means that users don't have to control the leg themselves.



Courtesy of US Army through Wikimedia Commons.

Terry Fox's Prosthesis

The prosthesis Terry Fox used during the Marathon of Hope was not designed for running or for so much use. He had to keep his prosthesis straight and wait for it to swing in front of him, causing his unusual "hop and skip" gait. He was worried he would wear out his prosthesis on his marathon. He travelled with several backups in case one broke down.



Courtesy of the Canadian Museum of History / 2017.3.1.

Professional Runner Blade

While a running blade doesn't look like a human leg, it works like one. A running blade takes the power of the runner pushing down on the ground and releases it up and forward. Running blades are made from carbon fibre, a very strong material that can handle the constant up-and-down movements.



Courtesy of US Army through Wikimedia Commons.

Shengjindian Leg

This prosthesis was buried with the body of its user, around 2300 years ago. This wooden leg had leather straps to tie it to the user's thigh. The horse hoof at the bottom of the leg would help grip the ground. The strap left marks on the wood. These wear-marks mean the leg was well-used.



Courtesy of Turpan Museum and HaziDozen through Wikimedia Commons.

Capua Leg

Before modern medicine, people usually died after losing a limb. This is an example of an unusually old prosthetic leg. It dates to Roman times. The use of brass on the outside was likely to mimic skin colour as brass polished to a metallic tan colour.



Courtesy of Science Museum Group / A646752.

Wooden Leg

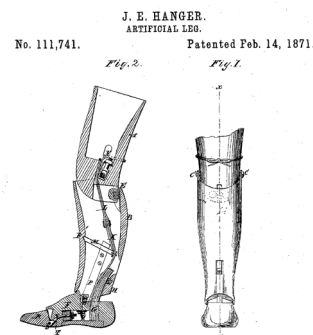
This was a very basic prosthesis. It did the job and was cheaper than one that looked more like a human leg. Many amputees said this type of prosthesis was better for walking than the more realistic-looking ones.



Courtesy of Science Museum Group / A205286/2.

Hanger Limb

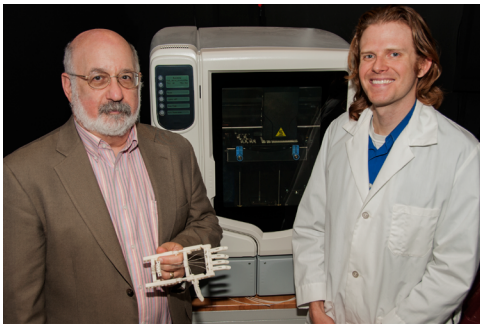
James E. Hanger was one of the first soldiers who had a leg amputated in the American Civil War. He designed his own prosthesis and created a prosthetics company that still exists today. Hanger replaced some of the wooden and metal parts of the Anglesey leg with rubber. This cushioning made it more comfortable.



Courtesy of US Patent US111741A.

3D-printed

3D printing is affordable and easy to use. The stronger the plastic used, the more expensive the prosthesis will be.



Courtesy of Food and Drug Administration through Wikimedia Commons.

Hydraulic Leg

Hydraulic technology uses pressure and liquids to transfer forces. The hydraulics inside help bend the leg, meaning less work is done by the user. The outside of the limb is plastic, making it lightweight for the wearer.



Courtesy of Science Museum Group / 10683179.

Stabilex

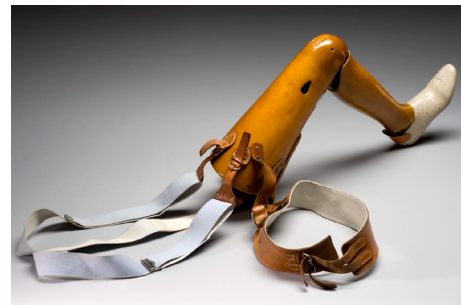
Prosthetics for soldiers who lost a leg in the Second World War were made of light metal. The limb stays straight until the user puts pressure on the toes, which causes the leg to bend.



Courtesy of Science Museum Group / 1981-1709.

Anglesey

The first prosthetic to bend like a human leg was created in 1815. This type of limb uses strings inside the leg to control when it bends. The model shown is from sometime between 1915 and 1925. Artificial legs from this time were usually wooden.



Courtesy of Science Museum Group / 1999-444.

American Civil War

1861-1865

The **American Civil War** was fought between the Northern (the Union) and Southern (the Confederacy) states in the United States of America. Huge numbers of soldiers were wounded in battle. Medical care was much worse than it is now. About 60,000 men underwent amputations (one in thirteen soldiers) during the war.



Courtesy of Excel23 through Wikimedia Commons.

World Wars

1914-1918; 1939-1945

In the **First World War**, over 30 nations fought with 60 million soldiers deployed. Of the 138,000 Canadians wounded in battle in the First World War, 3,461 men and one woman had a limb amputated. As medical care and surgery improved and soldiers could be transported faster, more of them survived amputations.

The **Second World War** saw just as many amputations, with more than fifty nations in the world fighting, and more than 100 million soldiers deployed.

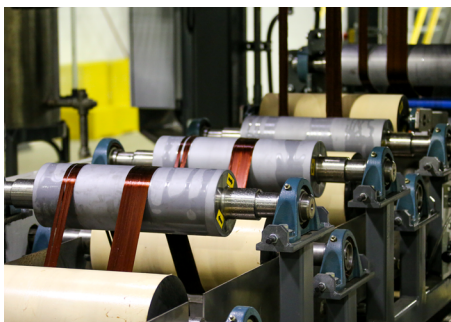


Courtesy of Library and Archives Canada / 4113911.

Aerospace Developments

1950s onwards

Materials used in space exploration need to be strong and lightweight. Carbon fibre was originally made for cars and later used for airplanes and eventually spacecraft. Better computer technology from the space industry has also helped make better prostheses.

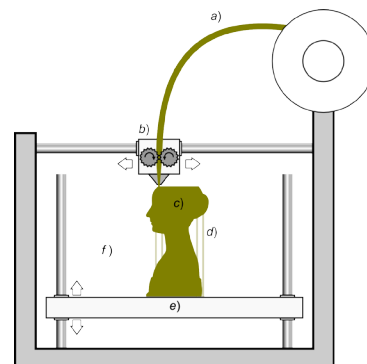


Courtesy of Oak Ridge National Laboratory through Wikimedia Commons.

Digital Age

1970s onwards

We are living in the **digital age**, a time when storing information became more important than making items you can touch. With modern computers, phones, and the internet, we can easily and instantly send information.



Courtesy of DOI:10.1111/cgf.12781.

First and Second Industrial Revolution

1760-1914

For most of history, humans made things by hand. The **Industrial Revolution** saw the creation of machines that took over this work. Steam power and later electricity allowed factories to make more things faster. Eventually, machines produced huge numbers of things at once, called mass production. Industry started using people to work on assembly lines, where they put together one part each to create a finished item.



Courtesy of Robert Stieler, BASF Werk Ludwigshafen.

Rubber Boom

1879-1912

Europeans learned about rubber from Indigenous peoples in South America. As Europeans began to see the many ways they could use rubber, they needed more and more of it. They enslaved South American and, later, African people to grow and harvest rubber plants. Eventually, Europeans took seeds to other colonized territories such as India and set up large farms called plantations.



Courtesy of M.arunprasad through Wikimedia Commons.

Terry Fox's Marathon of Hope

1981

Terry Fox's **Marathon of Hope** and the trouble Fox had with his prosthetic leg inspired change. Inventors created a much better model. It had a knee joint, springs, and shock absorbers. If he'd had a leg like that on his run, Fox wouldn't have had to use the tiring "hop and skip" motion. Modern prosthetic legs are much lighter, too. Fox's weighed 4 kg, while a modern one weighs around 2 kg.



Courtesy of Canadian Museum of History / 2017.3.2, 2017.3.1, 2017.3.3.