



HIGH TECH

for the **HUMAN BODY**



Susan Rose Simms

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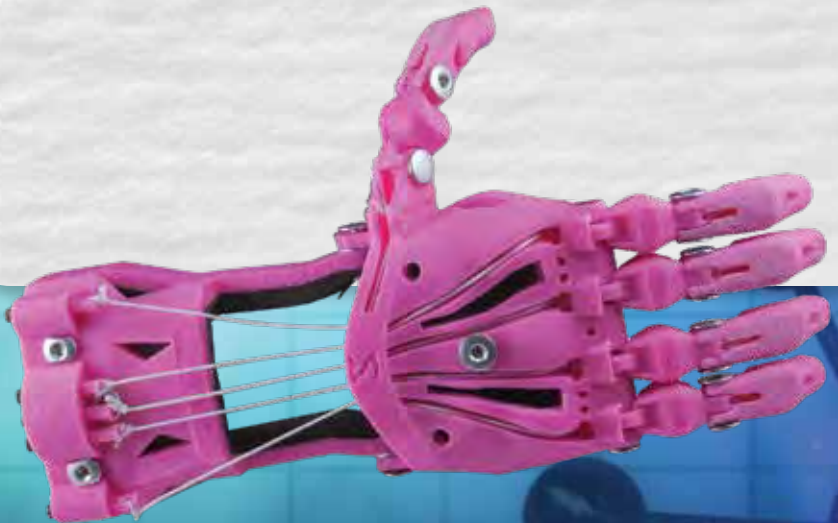
Susan Rose Simms



high noon books

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HAND HOOKS AND WOODEN LEGS

When you hear the word *pirate*, do you picture a man with a wooden leg? In place of his hand, do you picture a metal hook?

There really weren't many pirates with wooden legs and hooks for hands. They were mostly made up by writers long ago.



HIGH-TECH FACT

About 2,200 years ago, the Roman general shown on this coin lost his hand in a war. He had a new one made of iron so he could hold his shield. Then he returned to fight.



Wooden legs and hook hands are **artificial** (ar•tih•FIH•shul), or made by people. Another word for these is **prosthetic** (prahss•THET•ik). They take the place of real body parts.

Prosthetic body parts were first made in Egypt thousands of years ago.





*These prosthetic arms
are made of wood.*

In the year 2000, a toe made of wood and leather was found in Egypt. It was 3,000 years old. The daughter of a priest wore it.



This prosthetic toe from Egypt is 3,000 years old.



The people of Egypt needed sandals to walk on the hot desert sand.

The people of Egypt walked in sandals on the hot desert. That would be hard without a big toe! So someone made a big toe for the priest's daughter.

Later prosthetic pieces were made of iron or steel. These were heavy. They also cost a lot. In 1700, people began to use light wood.



This prosthetic arm made of iron is from the late 1500s.



This Civil War soldier has lost a foot. He has a prosthetic foot that fits on his leg.

In 1861, the Civil War began. Soldiers were hurt in the war.

Cannons blew off arms. Rifle shots destroyed legs. Many soldiers needed new body parts.

ARMS AND HANDS

Cyborg is a comic super-hero. His body has prosthetic parts.

The parts are **mechanical** (meh•KAN•ih•kull). This means they have to do with machines.

They allow him to move. They even give him super-powers.

People can have mechanical body parts, too.



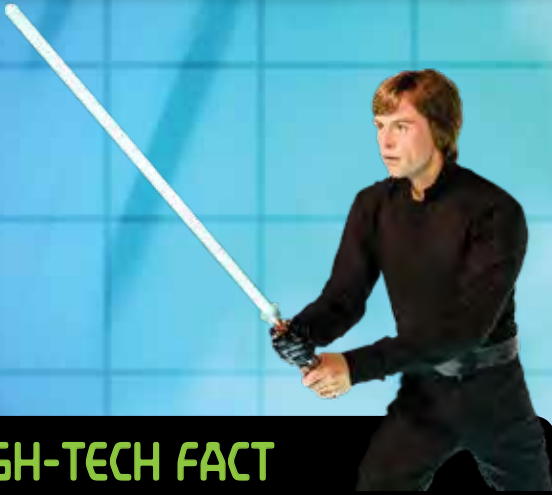


A boy is fitted with a prosthetic arm.

In real life, a baby can be born without a hand. A person can lose an arm in an accident. Prosthetic parts can replace the missing parts.

Many types of prosthetic hands and arms are used. An older type of arm used wires to make the hand move.

A newer one has fingers that can move, feel, and pick things up. Muscle signals are sent through the skin with **electrodes** (ih•LEK•trodes). Electrodes are pieces that carry electricity.



HIGH-TECH FACT

One prosthetic arm was named after Luke Skywalker from the *Star Wars* movies. It allows the user to feel objects.



This prosthetic hand is made of carbon fibers.

Prosthetic parts are now made with light plastics. They also use **carbon fibers**. Such fibers are strong, light materials made up of carbon threads.

The piece that connects the prosthetic part to the remaining arm or leg is called the **socket**. It's made using a plaster cast of that remaining **limb** (LIMM).

Next, the **pylon** is made. That's the inside frame of the part. The outside of the part may have a cover. The cover can be the shape and color of a real limb.



Sockets like these connect prosthetic legs to the remaining parts of the limbs.



The cover of this prosthetic arm is the shape and color of a real arm.

Now, **3-D** printers are used to make hands and fingers. A 3-D printer creates a three-dimensional object. This is an object that has length, width, and height.

The printer doesn't print on paper. It makes a model out of metal and plastic or other materials.



3-D printers can make prosthetic arms like this one.



The Cyborg Beast prosthetic hand was made to look like a robot's hand.

One scientist (SYE•en•tist) created a hand that could be 3-D printed. Then his young son said, “Children want a hand that looks like a robot.” So the scientist made a new hand. He named it the Cyborg Beast!