

Today's Scientific Question:

What in the world is electricity?

And where does it go after it leaves the toaster?

Here is a simple experiment that will teach you an electrical lesson:

On a cool, dry day, scuff your feet along a carpet, and then reach your hand into a friend's mouth and touch one of his dental fillings. Did you notice how your friend twitched violently and cried out in pain? This teaches us that electricity can be a very powerful force, but we must never use it to hurt others, unless, we need to learn an important electrical lesson.

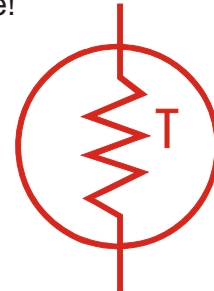
It also teaches us how an electrical circuit works. When you scuffed your feet, you picked up batches of "electrons," which are very small objects that carpet manufacturers weave into carpet so that they will attract dirt.

The electrons travel through your bloodstream and collect in your finger, where they form a spark that leaps to your friend's filling, then travel down to his feet and back into the carpet, thus completing the circuit.

An Amazing electronic Factoid: If you scuffed your feet long enough without touching anything, you would build up so many electrons that your finger would explode! But this is nothing to worry about, unless you have carpeting! Although we modern persons tend to take our electric lights, radios, mixers, etc. for granted, hundreds of years ago people did not have any of these things. This was just as well because there was no place to plug them in anyway.

Then along came the first "Electrical Pioneer", Benjamin Franklin, who flew a

kite in a lightning storm and received a serious electrical shock. This proved lightning was powered by the same force as carpets. But it also damaged Franklin's brain so severely that he started speaking only in incomprehensible maxims, such as, "A penny saved is a penny earned." Eventually he had to be given a job running the post office!



After Franklin came a herd of electrical pioneers whose names have become part of our electrical terminology: Myron Volt, Alfonzo (AKA Cap) Acitor, James Watt, Henry Coil, who incidentally worked as a conductor in the local orchestra. He dabbled i electricity and eventually became so wound up in things electrical; they named the unit of inductance (Henry) after him. Some mistakenly credit him with the invention of the Coil but this is not the case. There was no such thing as a coil. In these early times they were called inductors which we all know received their name from Sergeant Chip Westfall who was the local Army recruiter and responsible for thousands being "Inducted" into the military. And this was in spite of Sgt. Chip being opposed to all things electrical! Several generations later his great great great grandson Micro C. (Chip) who had a reputation for being extremely lazy, would combine many electrical components in

one small package. This was so that he did not have to make as many connections when he was constructing electrical devices for the government. It later was named the MicroChip in his honor. Then there was Bob Transformer, Big Francis Farad, and Mary Louise Amp. Yes, females had a part in this also. And finally Karl Carborundum who "Resisted" everything whether electrical or not.

These pioneers conducted many important electrical experiments. Among them, Galvani discovered (and this is the truth) that when he attached two different kinds of metal to the leg of a frog, an electrical current developed and the frog's leg kicked, even though it was no longer attached to the frog, which was dead anyway. Galvani's discovery led to enormous advances in the field of amphibian medicine. Today, skilled veterinary surgeons can take a frog that has been seriously injured or even killed, implant pieces of metal in its muscles, and watch it hop back into the pond -- well almost, some only make it as far as the waters edge.

But the greatest Electrical Pioneer of them all was Thomas Edison, who was a brilliant inventor. This was despite the fact that he had little formal education and lived in New Jersey just outside of Camden.

Edison's first major invention in 1877 was the phonograph, which could soon be found in thousands of American homes. It basically sat unused until 1923, when the record was invented. But Edison's greatest achievement came in 1879 when he invented the Electric Company. Edison's design was a brilliant adaptation of the simple electrical circuit: "the electric company sends electricity through a wire to a customer, then immediately gets the electricity back through another wire", then (and this is the brilliant part) sends it right back to the customer again!

This means that an electric company can sell a customer the same batch of electricity thousands of times a day and never get caught! This is because very few customers ever take the time to examine their electricity closely. In fact, the last year any new electricity was generated was 1937 just after the 4th of July.

Today thanks to men like Edison and Franklin, and frogs like Galvani's, we receive almost unlimited benefits from electricity. For example, in the past decade scientists have developed the laser. This is an electronic appliance so powerful that it can vaporize a bulldozer 2000 yards away! Yet it is so precise that doctors can use it to perform delicate operations to the human eyeball, provided they remember to change the power setting from "Bulldozer" to "Eyeball"!

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