



Here's the equipment used for AC/DC generation experiments. The swing has a coil so it is moving with an electromagnet if the current is flowing. Let's turn the handle on your left slowly then you will see the swing is moving. In an AC generator, the direction and strength of the current output change with rotation. Therefore, the N and S poles of the electromagnet also change with rotation, so the swing moves. What about the DC generator on your right? In a DC generator, the direction and strength of the output current are constant, so the swing stays on one side. So what's the differences between AC and DC? There are two generators in the case below. Please look from the front. Both are the same mechanism which is a coil turning in between permanent magnets. But if you look from the top of the box, you may notice a tiny difference of the two. Did you find it? A hint will be two silver parts touching the shaft which is gold. Gold part is an electrode and extracts electric current at these two silver parts. The position of these touching parts is a difference. On your left, the silver parts are settled back and front, and it is called AC. On your right, they are settled at the center, and it is called DC. If the current generated in the coil is taken out as it is, it becomes an alternating current. On your right, using a mechanism called a commutator, alternating current is changed to direct current. With settling the silver part at the center, it is made to touch another electrode in the middle of rotation. This system is called commutator (a device for changing the direction in which electricity flows) which is invented by Pixii in 1832. Even today a commutator is used for generators or motors. It is also used for Siemens' train. #8 will be about Edison's electric light bulb.