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Pulsars

Pulsars were first discovered by Jocelyn Bell Burnell in 1967. A pulsar is a very dense, highly magnetized neutron star that seems to blink on and off. The name pulsar comes from this pulsating effect. However, neutron stars don't give off any light, so we don't actually see this happen.

What astronomers do receive are radio signals that seem to fade in and fade out at periodic intervals. You might wonder what would make a star emit this kind of signal, and the answer is that it doesn't! It only sounds that way to astronomers on Earth because the star is spinning. Since the radio waves are coming from the north and south magnetic poles of the star, astronomers only receive signals when these poles face Earth. This is similar to how the signal from a lighthouse appears to a boat at sea. The lighthouse appears to flash on and off, but this is just an optical illusion caused by a rotating light.

Because pulsars blink on and off in set intervals, they can be used as a kind of astronomical clock. For example, the pulsar known as the Crab pulsar rotates about 30 times per second. Because both the north and south poles emit signals, this means the Crab pulsar blinks about 60 times per second. With clocks like this spread throughout outer space, who ever needs to buy a watch?