ArtiFactsheet 4

Algonquin Radio Telescope

Background Information

For a moment, think of your eyes as a pair of small telescopes. You can see very well during the day, but it's difficult to see things at night. That's because our eyes only work well when there is enough light. The same is true for optical telescopes — they require sufficient light from a star in order to display that star's image. Bigger telescope mirrors or lenses allow telescopes to gather more light — this is why telescopes have grown in size since they were first invented.

Now think about your ears. Your ears actually gather more information about your immediate environment than your eyes do — in the light, or in the dark! In the 1930s, an engineer named Karl Jansky discovered that the Sun emits radio waves — not just visible light and infrared light. He built the very first devise to "listen" to the Sun, called a radio telescope.

Radio telescopes collect radio waves from far off stars, and focus them into a detector. With the help of these instruments, astronomers began to build a completely different view of the universe. They discovered all kinds of new, exciting objects such as radio stars, radio galaxies, quasi-stellar objects (now called *quasars*), and black holes. All of these celestial objects were invisible, or appeared very ordinary, when examined with optical telescopes.

Fun Fact

The Long Baseline Interferometer is a proud Canadian achievement. The team involved in this research was awarded two Rumford Medals, gold and silver respectively, by the American Academy of Arts and Sciences for this remarkable achievement.

Artifact Details

This model illustrates the National Research Council's radio telescope that was located in Algonquin Park. This telescope played an important part in one of the most significant achievements carried out with radio telescopes.

In 1968, astronomers combined radio signals received at two large radio telescopes: this telescope in eastern Ontario, and another located thousands of miles away in Penticton, B.C. Together, these two telescopes formed a new instrument called a Long Baseline Interferometer.

By combining the telescopes' signals, astronomers could examine celestial objects in rich detail — a thousand times more detail than any optical telescope would achieve until the Hubble Space Telescope was launched in the 1990s.

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