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ELIHU THOMSON'S QUARTZ TELESCOPE MIRROR

1853–1937

This undated photograph shows Thomson with a fused quartz mirror. The caption on the back reads, "The mirror shown in photograph is 22" diameter. A 60" diameter mirror is now being completed. Subsequently a 200" diameter mirror is to be made."

made of quartz for a telescope is one solid example of failure in a near perfect career.

In Thomson's day, interest in astronomy was strong, and his own interest was roused early. At 4 a.m. on November 15, 1867, 14-year-old Elihu and his siblings were woken up by their mother and ushered out of the house to watch a meteor display until dawn. Later in life, Thomson attributed his love for the sky to this experience. As an adult, Thomson continued with this tradition of nocturnal expeditions and traveled thousands of miles to witness solar eclipses. An interest in optics was also present at an early age. While still a boy, Elihu made: magnifying lenses from the bottoms of old pharmacy jars, a microscope from melted glass thread, and a camera, of sorts. He graduated to the making of fine lenses and in 1878 published a paper describing a simple method to shape the surface of an astronomical mirror. In 1900, he built a 10-inch (25 cm) telescope for his own private use. In Thomson's time, large telescopes were coming into being, and astronomers were busy looking at the planets, the Sun, and the stars. Mars held a particular fascination, and observations of canal-like lines on this planet's surface led to a scientific debate over their possible significance to the question of a Martian race of humanoids. True to form, Thomson dismissed the idea in favor of a more parsimonious explanation involving patterns of vegetation.

The universal desire to see farther and farther into space drove the need for larger and larger telescopes. The fundamental function of a telescope is to gather light and focus it. The first telescopes were made with refractive lenses — a series of glass pieces shaped to gather light entering from space and focus it. Size has always mattered when it comes to telescopes, as the larger the area that is gathering light, the farther into space one can see and the better the detail of the pictures from closer celestial bodies. Carefully positioned mirrors could do the same job of gathering and focusing light, with the advantage that only the surface of the mirror is interacting with the light, rather than the light passing through a thickness of glass. This results in less opportunity for distortion of the