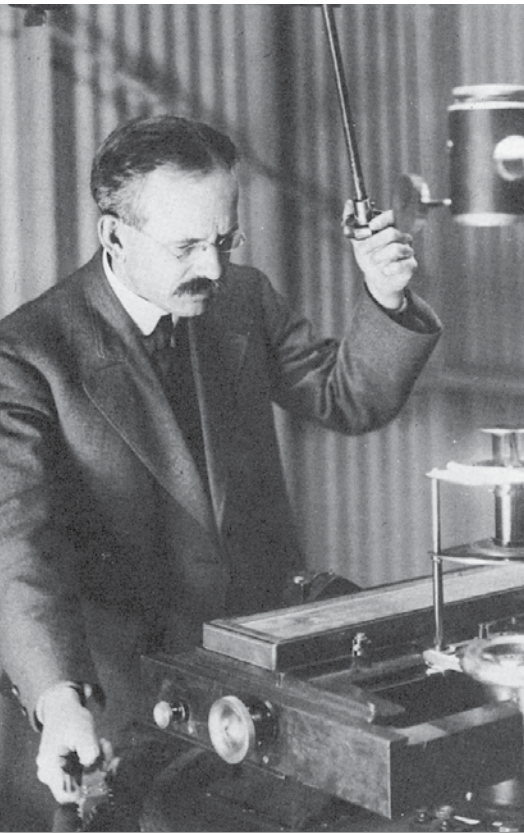


# Observatory Builder

George Ellery Hale was born in Chicago in 1868. He was the only child of wealthy parents. Hale made many contributions to astronomy. He even built an invention to study the surface of the sun. He did that while he was still in college!



Amazingly, Hale became one of the most important astronomers of the 20th century with only a basic college degree. Most top scientists of the 20th century and beyond have higher degrees. They go to school for a very long time. Not Hale. Much of what he learned, he figured out on his own.

Hale loved astronomy. He spent most of his time thinking and studying and watching objects in space. He founded a new journal about astronomy. He even invented a new word in astronomy. It is **astrophysics**. That is the study of the physics and chemical makeup of bodies in space. He called his journal the *Astrophysical Journal*.

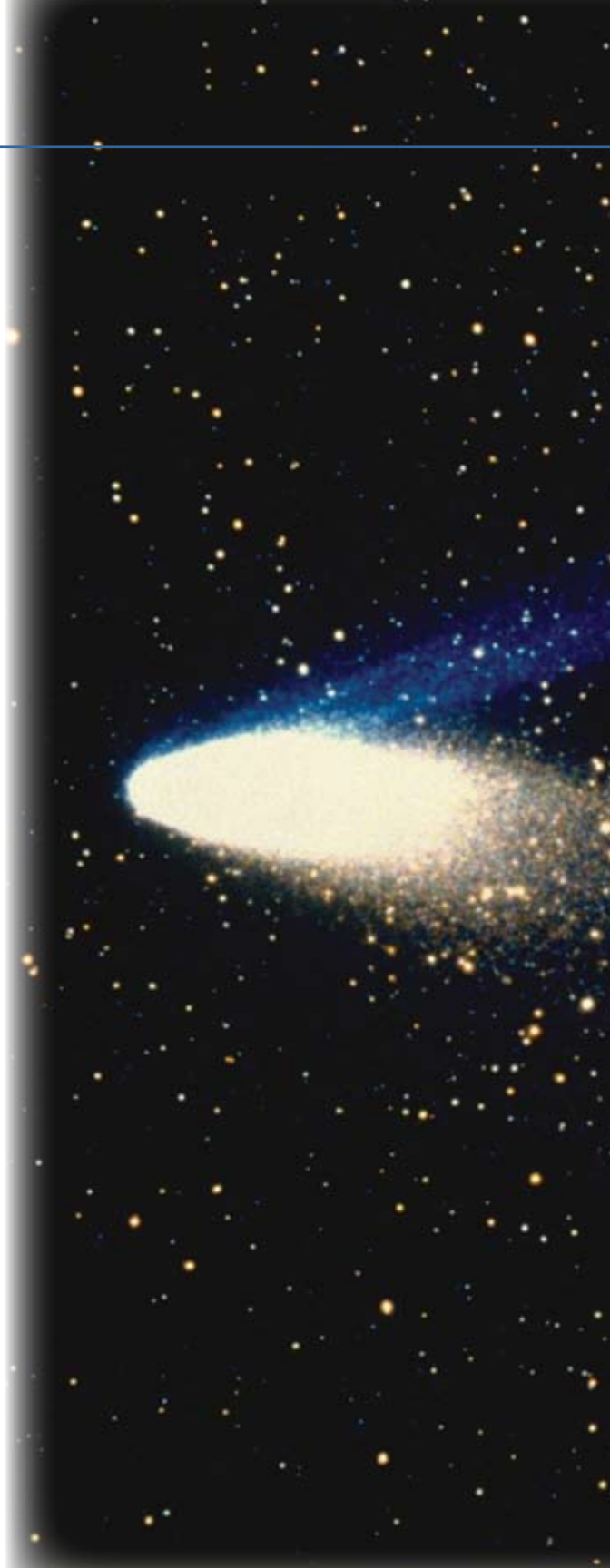
Hale's greatest achievement is not so much what he knew. It's what he did. Through hard work, persistence, and commitment, he made a big difference in astronomy. He was the founder of three great observatories.

## Miss Mitchell's Comet

[1818–1889]



Maria Mitchell was born in 1818. She began watching stars at a young age. Her father had an observatory. Mitchell helped him with his work. In 1847, Mitchell discovered a new **comet**. The comet became known as Miss Mitchell's Comet. The discovery made her famous. In fact, Mitchell recorded many "firsts." She was the first person in America to sight a comet. She was the first woman to be named to the Academy of Arts and Sciences in 1848. She was also the first woman astronomy professor.





In 1895, Hale helped design the Yerkes Observatory in Wisconsin. In 1904, he founded the Mount Wilson Observatory near Los Angeles. He then helped build the first giant reflecting telescope. That is a telescope that uses mirrors. It measured 200 inches. It was installed at the Mount Palomar Observatory in California. It was the biggest telescope in the world for 30 years. It was named the Hale Telescope in his honor.

Hale's observatories led the field of astronomy for many years. Scientists used them to learn about galaxies and what they are made of. They used them to learn new things about the sun. Discovery after discovery was made in Hale's observatories.



↑ Yerkes Observatory in Wisconsin was designed in part by Hale.

Mount Palomar Observatory →  
in California



## Carl Sagan (1934–1996)

Few people have made as big an impact on astronomy as Carl Sagan. He made astronomy popular with the general public. He wrote books about space and produced television shows about it. He worked on most of NASA's unmanned space missions. When he died, the landing site of the *Mars Pathfinder* spacecraft was renamed the Carl Sagan Memorial Station in his honor.

