

## Topic Page: [Hale, George Ellery, 1868-1938](https://search.credoreference.com/content/topic/hale_george_1868_1938)

Summary Article: **Hale, George Ellery**

From *The Hutchinson Unabridged Encyclopedia with Atlas and Weather Guide*

US astronomer. He made pioneer studies of the Sun and founded three major observatories. In 1889 he invented the spectroheliograph, a device for photographing the Sun at particular wavelengths. In 1917 he established on Mount Wilson, California, a 2.5-m/100-in reflector, the world's largest telescope until superseded in 1948 by the 5-m/200-in reflector on Mount Palomar, which Hale had planned just before he died.

He, more than any other, was responsible for the development of observational astrophysics in the USA. He also founded the Yerkes Observatory in Williams Bay, Wisconsin, in 1897, with the largest refractor, 102 cm/40 in, ever built at that time.

Hale was born in Chicago and studied at the Massachusetts Institute of Technology. The son of a wealthy father, he was able as soon as he had graduated (in 1890) to found a private observatory at Kenwood, near Chicago. Here he developed the spectroheliograph and started the studies of the Sun that were to remain his main research interest. In 1892 he became a professor of astrophysics at Chicago, and in 1895 founded the *Astrophysical Journal*, still the most important international periodical in the field.

In 1897 he persuaded C T Yerkes, a Chicago industrialist, to donate a large sum of money to build the Yerkes Observatory. Hale worked there from its founding until 1904, when he went to California in search of better observing conditions. There he organized and became first director of the Mount Wilson Solar Observatory which, in addition to its two special solar-tower telescopes, quickly acquired a 1.5-m/60-in and a 2.5-m/100-in reflector. Hale retired from the Mount Wilson Observatory 1923 but continued his solar observations at his own private observatory in Pasadena, where the Mount Wilson Observatory offices were situated and where he had been partly responsible for developing the Californian Institute of Technology from Throop Polytechnic Institute in Pasadena. In 1928 he initiated the project that resulted in the 5-m/200-in reflector on Mount Palomar. When this instrument was dedicated 1948 it was formally named the Hale Telescope. Some years later the Mount Wilson and Mount Palomar Observatory complex was renamed the Hale Observatories. Hale was the author of many scientific papers and of several semipopular books on astronomy.

Hale's work on solar spectra was the stimulus for his construction of a number of specially designed telescopes. By studying the split spectral lines of sunspots, he showed the presence of very strong magnetic fields – the first discovery of a magnetic field outside the Earth. In 1919, he showed that these magnetic fields reverse polarity twice every 22–23 years.

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## Chicago

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## Harvard

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## MLA

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