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GRADUATE THESES AND DISSERTATIONS

Public skies: telescopes and the popularization of astronomy in the twentieth century



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Abstract

Sputnik and the 'Space Age' have been cited as major factors in the growth of amateur astronomy in the 20th century. Although the growth of popular astronomy magazines, public planetaria, and the popularity of science fiction contributed to the popularization of astronomy, I contend that the greatest growth in amateur astronomy coincides more with the availability of inexpensive telescopes. Circa 1900, the average purchaser of an amateur-grade astronomical telescope was a wealthy doctor, lawyer, or the like. Hand-crafted refracting telescopes were the ideal, but even relatively small instruments of 3-inch aperture cost the equivalent of \$3,000 in today's terms.

A series of articles appeared in *Scientific American* in 1926 providing detailed instructions on making Newtonian reflecting telescopes. The articles, the work of two 'technological cheerleaders', Russell Porter and Albert Ingalls, proved popular. The resulting home-made telescopes were effective instruments, but cost a fraction the price of a commercial telescope of similar size. By 1940 there were at least 30,000 active amateur astronomers and 'ATMs' (amateur telescope makers), of diverse social classes, in America.

The Second World War created an opportunity for ATMs. Modern war requires all kinds of optical instruments, and the government was eager to find skilled workers to produce them. World War II became an 'advanced school' of telescope making where ATMs learned mass-production methods. ATMs founded a host of new telescope making companies in the 1950s using mass-production techniques to produce modestly-priced astronomical telescopes: Newtonian telescopes in the 3 to 4-inch range sold for as little as \$25 (\$150 today). These telescopes were marketed in the same way as automobiles, TVs, and other consumer products. Countries outside the United States never experienced the 'ATM movement' in any major way, nor shared American production techniques. Only Japan adopted the same methods as American commercial telescope manufacturers, huge numbers of small, mass-produced telescopes were being exported from Japan by the late 1950s, and hundreds of thousands of average Americans were involved in amateur astronomy by 1960.

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