

Joel Hastings Metcalf

Minister, Unitarian, Astronomer – Part One

Guest Article by Richard Didick

This is the first of a two part article by Richard R. Didick of Tauton, MA, on the life of Joel Hastings Metcalf, a New England Amateur Astronomer, Telescope Maker and Clergyman. Richard has done extensive research into the life of this man who made his mark on astronomy and society in the late 19th and the early part of the 20th Century.

Joel Hastings Metcalf was born in Meadville, Pennsylvania on January 4th, 1866, the son of Lewis Herbert and Anna (Hicks) Metcalf. Lewis H. Metcalf was a Civil War veteran, a soldier who had lost a leg at the first Battle of Bull Run and was held at Libby Prison until being exchanged and discharged.

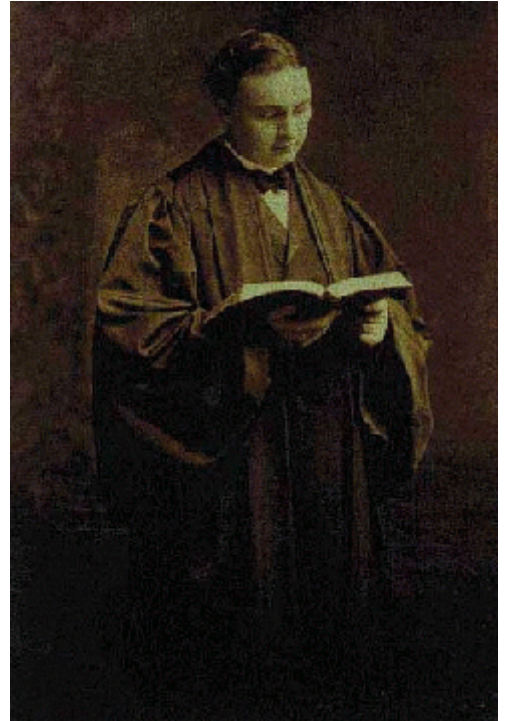
At the approximate age of 13, Joel Metcalf borrowed Richard Proctor's book, *Other Worlds Than Ours*, from his Sunday School library, leading him to an interest in astronomy. This interest was further inspired by the conjunction of Jupiter and Mars on May 7th, 1879, when the planets were slightly over one degree apart, and again on July 22nd, 1881, when the two planets were separated by only seven minutes of arc. It is said that he made his first telescope during this period, although various accounts differ about this part of his life. Though it does not give his age, this version of Joel's experience in making a telescope is taken from his own article written in "Popular Astronomy" magazine:

"The writer's first instrument consisted of a two-inch spy-glass, by a French maker, which glass he mounted equatorially. He obtained a high power (100) negative eye-piece from Alvan Clark and Sons, which showed enough planetary detail to keep up his interest. A few years after this he was fortunate enough to get a three and five eighths inch glass by Henry Fitz; this he also mounted equatorially and enjoyed for many years".

The following account, taken from a newspaper article about him when he lived in Taunton, is somewhat dubious since he actually bought and did not make the 7 inch refractor. It was actually purchased at an auction in Keeseville, New York (The newspaper is unidentified.)

"When but 14 years old he built a telescope and ground out a lens with which he was able to observe with success all the principal heavenly bodies. This was a small two inch lens. His next attempt was a three-inch lens and he later made one of three and a half inches which he subsequently sold to Harvard College. He followed up these two with a seven-inch visual instrument."

Joel Metcalf as a telescope maker has graced the astronomical world with several fine instruments: an 8-inch f/80 ("broken-backed") "comet hunter" kept at South Hero, Vermont for use during his summer vacations, a 10-inch photographic triplet now newly restored and in the possession of the Boyden Observatory, University of the Orange Free State, Bloemfontein, South Africa, a 12-inch doublet (which he used in Taunton, Mass.) now located at Oak Ridge Observatory, Harvard, Massachusetts, and a 16-inch f/5.25 doublet, also located at Oak Ridge Observatory. He was in the process of making the 13-inch triplet used in the discovery of the planet Pluto when he died in 1925. It was completed by C. A. Robert Lundin of Alvan Clark and Sons.



Metcalf was graduated from Meadville Theological Seminary in 1890, and continued his education at Harvard Divinity School. He obtained a Ph.D. at Allegheny College in 1892. and married Elizabeth S. Lockman, of Cambridge, Massachusetts in September of 1891. They had two children: a son, Dr. Herbert E. Metcalf of San Leandro, California, and a daughter, Rachel Metcalf Stoneham, who wrote a wonderful article about her life with "father" in the January, 1939 issue of "Popular Astronomy," which was later republished in the September, 1979 issue of "Yankee" magazine.

Starting out in his ministry he served in Burlington, Vermont (1893-1903) where it appears his interest in grinding lenses began extensively. Below is a letter written to Prof. John M. Schaeberle who in Ann Arbor, MI. discovered Comets 1880 GI and 1881 NI. It was written on this letterhead: First Congregational Church Burlington, Vermont Rev. Joel H. Metcalf, Pastor)
Prof. J. M. Schaeble

Dear Sir:

I am interested in grinding lenses and have read with pleasure what you have written on the subject in Popular Astronomy. Knowing that you have spent much time in this direction I take the liberty of asking you a few questions. 1st: Does the Pub. of Astronomical. Society of the Pacific No.42. + 44. contain an account of the details of grinding your mirror? If so where can I apply to get the numbers?

2nd: Is there anything written which shows the modification of the curve of a lens by the change of motion in grinding? That is, what kind of motion ought to produce a spherical parabolic $xc(+e?$ or $?)$?

3rd: Can you tell me in a few words what the effect is of a change of amplitude of motion is where the tool and lenses are both the same size? My trouble is that my lenses come out short formed on the middle and I am not sure what the cause is. My spherical aberration is always over corrected. (a Refractor) I am sorry to trouble you, but any hints you might give me would be very gratefully received. And if you know any literature on the subject that I could obtain, a reference to it would be very acceptable. Yours Truly- Joel H. Metcalf

He interrupted his ministry for a year in 1902 to attend Oxford University where he is said to have attended an average of twenty-five lectures weekly on philosophy and religion. He was also given the keys to the observatory by Professor Turner, spending much time on astronomical problems. After Oxford, being at risk of a nervous breakdown, he took a year off to rest before returning to the ministry at the First Congregational (Unitarian) church in Taunton, Massachusetts (1904/5-1910). Taunton at that time was one of, if not the largest, manufacturer of silver products in the United States. It's streets are still lined with the many Victorian style homes, with long and extended porches where the residents would sit and pass away the day conversing with the passers-by. It was from Taunton that most of his relationships with professional astronomers began, in cooperation with Harvard Observatory where he later became a member of the Visiting Committee. He was also a member of the Visiting Committee for Brown University's Ladd Observatory in Providence, Rhode Island. One of the problems that he sought to follow up on from his time at Oxford was that of comparing and recording measurements from photographic plates taken "Schurs" of the Praesepe Cluster in Cancer with new photographs taken from Lick Observatory. He proposed this to Prof. Campbell of Lick observatory, in a letter dated August of 1904.

*34 Wendell St.
Cambridge, Mass.*

*Prof. Campbell
Director Lick Observatory*

Dear Sir:

I am making preparations to measure a series of plates of the Praesepe Cluster in Cancer which I took last winter at Oxford Observatory with the Astrographic telescope. All the work on the cluster since Schurs has, so far as I know, been based upon his positions and other absolute positions taken. In thinking the problem over it seemed to me that the results would be much more valuable if one could start afresh and base the work on the best meridian observations obtainable today. To this end, after talking over the matter with Prof. Pickering, I turn to the Lick

Observatory. Would it be possible for you to put all or some part of Schurs' 45+ stars (or any stars within a degree of the center of the cluster) on your working list this winter so I might have from three to 5 observations of each? Prof. Pickering tells me that you are expected to be in St. Louis during the forthcoming meeting. Would it be too much to ask you to talk the matter over with him and with Prof. Turner with whom I had the pleasure of working last winter and whose method I propose to follow in the work.

*Very truly yours,
Joel H. Metcalf*

(To be continued in the next issue)