

**ABSTRACTS OF PAPERS PRESENTED AT THE
72ND ANNUAL MEETING OF THE AAVSO HELD
IN NANTUCKET, MASSACHUSETTS
OCTOBER 21 - 23, 1983**

**THE MARIA MITCHELL OBSERVATORY:
A JUBILEE SALUTE**

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Abstract

In honor of the 75th anniversary of the dedication of the Maria Mitchell Observatory on Nantucket Island in 1908, this paper reviews the events leading up to the construction of the small red-brick building on Vestal Street to house Maria Mitchell's 5-inch Alvan Clark refractor. Primary source materials from the archives of Harvard University, Vassar College, and Nantucket, as well as annual reports and printed pamphlets, give clues about the evolution of the Nantucket Maria Mitchell Association, its development of an astronomy program, and ultimately its construction and dedication of the observatory.

Financially and administratively, the prime movers behind the association and the observatory were Maria Mitchell's younger cousins: Mrs. Mary Albertson, Miss Elizabeth Mitchell, and Mrs. Lydia Hinchman. Scientifically, the mentors behind the astronomy program were Miss Mary Whitney of Vassar and Miss Annie Jump Cannon of Harvard College Observatory. Letters and documents written by and to these leading supporters of the observatory and its astronomy program are discussed.

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THE COMET OF CHARLES V

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Abstract

Two undated newspaper clippings of probably 1858 or 1860 found in the archives of the Maria Mitchell Observatory Library referred to "the Comet of Charles V." None of the standard catalogues of comets listed any comet by this name. A search of old literature led to numerous discordances as well as interesting coincidences. Charles V of the Holy Roman Empire (1500-1558) is said to have abdicated his throne because of the superstition associated with the Comet of 1556.

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THE OLD GUARD

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Abstract

Six men who were members of the AAVSO in its formative years and who played very influential roles in its shaping comprised what was known as "The Old Guard." These six - William Tyler Olcott, David Pickering, Ernest W. Brown, Charles Godfrey, J. Ernest G. Yalden, and Charles Elmer - are described in this paper. The personalities of this close-knit, humor-filled group are sketched, and some of their contributions to the AAVSO are cited.

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INVISIBLE VARIABLE STARS

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Abstract

Mira variables are among the most luminous, reddest, and longest period variable stars known - with periods of hundreds of days, luminosities thousands of times greater than the sun's, and most of their radiation emerging in the near infrared. Modern infrared and radio detectors, including the IRAS mission currently surveying the sky, have discovered a class of variables which are even more luminous, with periods of 500 to 2000 days, and which are so red that many are not observable except in the infrared. The relation of these infrared variable sources to Miras is not yet clear - have they evolved from stars with larger masses than Miras, or are they a stage of evolution which follows the Mira stage? Are they pulsating in the same mode as the Miras, or have they switched to a different mode of pulsation? What is clear is that these are stars with very dense and massive winds, winds which are opaque and which hide these stars from view. The star inside is a Mira-like variable with a surface temperature around 3000° K; however, the surface of the dust shell, which we see, is more often a few hundred to at most 1000° K. It will be a challenge for both theoreticians and observers to discover the properties of these hidden stars.

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PHOTOELECTRIC $V \rightarrow m_v$

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Abstract

It is not widely recognized that the photoelectric V passband only approximately represents the color response of the dark-adapted eye. This paper attempts to justify the use of the following formula for translating the photoelectric measurements (V , $B-V$) into visual magnitude (m_v):

$$m_v = V + 0.182(B-V) - 0.15. \quad (1)$$

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THE PRESENT SUNSPOT CYCLE, NO. 21

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Abstract

The last Minimum in the solar activity cycle was 1976.3. After only three years, we have already had the next Maximum, in December 1979. Since then, the activity has declined very slowly until now (1983). Only recently, in September/October 1983, did we have the first essential drop in the daily sunspot numbers - and early in November 1983 the first spotless day - of the present sunspot cycle.

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THE AAVSO PHOTOELECTRIC PHOTOMETRY
PROGRAM: A PROGRESS REPORT

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Abstract

A progress report is given on the Photoelectric Photometry Program under development at AAVSO. Definite signs of progress are seen, even to being able to respond to special photometric requests from the astronomical community. This report is printed in full in the AAVSO Photoelectric Photometry Newsletter, Volume 4, Number 2, published in 1983.

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