ABSTRACTS OF PAPERS PRESENTED AT THE 74th ANNUAL MEETING OF THE AAVSO HELD IN SOUTH HADLEY, MA NOVEMBER 1 - 2, 1986

SOLON I. BAILEY AND THE NUMBER

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Abstract

This historical paper describes Solon Bailey's estimate of the total yield of galactic novae throughout the sky each year. A discussion of the validity of this number and its implication for the thoroughness of nova patrols, ancient and modern, is given. Also included is background on the career of Bailey, one of the more colorful of the Harvard College Observatory astronomers, and his work in Peru.

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GATHERING, ANALYZING, REPORTING, AND ENJOYING

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Abstract

After a brief look at my backyard merry-go-round observatory, I will describe how I have developed my observing program of cataclysmic variables using my 17.5-inch Dobsonian telescope and Atari 800XL computer.

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OBSERVING HALLEY'S COMET FROM MEXICO - AN INVITATION TO AAVSO MEMBERS

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Abstract

AAVSO members are invited to join members John Griese and Chuck and Ann Cole on an inexpensive trip to observe Halley's Comet from Cozumel Island, Mexico, April, 1986. The itinerary, travel arrangements, and an introduction to Cozumel Island will be presented.

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ASTRONOMY AND PSYCHOPHYSICS

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Abstract

A historical perspective on attempts to determine the relationship between physical or objective magnitudes of a stimulus and corresponding psychological or subjective magnitudes is presented. Experimental research on reaction time, absolute and differential thresholds, and stimulus rating (magnitude estimation) will be discussed.

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THE 1985 LIGHT CURVE OF P CYGNI

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Abstract

P Cygni (34 Cygni, HR 7763, HD 193281, B2pe, **V** = 4.81) is one of the most luminous stars in our galaxy. Between 1600 and 1700, it varied in brightness from visual magnitude 3 to 6, but since then it has been relatively constant. Its spectrum shows characteristic line profiles: strong but not especially broad emission lines, with violet-shifted absorption components ("P Cygni profiles"). These indicate that the star is losing mass at a significant rate.

Different authors have claimed that P Cygni varied in brightness on time scales ranging from hours to decades, but their claims were generally based on sporadic observations. The star is now being observed systematically as part of an international photometric campaign on bright Be stars, organized by three of us (PH, JH, and PK). In addition, a special request was made in the July 1985 issue of the **AAVSO Photoelectric Photometry Newsletter.** The star is also observed visually by the AAVSO in order to detect any large variability such as occurred between 1600 and 1700.

The present paper describes photoelectric observations made from June to October of 1985 with telescopes at the University of Toronto, Hvar Observatory in Yugoslavia, and Rolling Ridge Observatory in Pennsylvania. Overlapping observations are in good agreement. The star varied on a time scale of weeks, but not on time scales of days or hours.

The observed time scale is consistent with the "period"-luminosity-

temperature relation derived by Andre Maeder from observations of the variability of other supergiants. The implications of this result will be discussed.

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SHAPLEY IN WASHINGTON: A SCIENTIST AMONG POLITICIANS

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Abstract

Harlow Shapley, the Director of Harvard College Observatory from 1921 to 1952, is an interesting figure not only as a scientist, but perhaps even more so as a Harvard professor who got burned for espousing his political views in the 1940's.

Seventy years ago Shapley-the-astronomer revolutionized his colleagues' conservative views on the size of our galaxy and placed our sun-earth system far from the galactic center. His subsequent work in the 1920's and 1930's brought him almost every astronomical honor and medal awarded at the time.

In the 1930's and 1940's Shapley-the-humanitarian became absorbed in the fate of his colleagues in war-torn Europe and took steps to rebuild their libraries and observatories there and to find places for refugees here. His affiliation in some organizations such as The Russian-American Institute and the Anti-Fascist Refugee League brought him under the scrutiny of the FBI. However, after World War II he was allowed to visit Moscow for an astronomical meeting and to view the devastation of Pulkova Observatory.

In the early 1940's Shapley was called to Washington by a Senate committee to serve as an expert on scientific issues. Next, he was called in 1945 to report on his postwar visit to Russia. Both of these occasions were cordial. In 1946, however, as Chairman of the Independent Citizens Committee of the Arts, Sciences, and Professions (ICCASP), Shapley was called before John Rankin of the House Committee on Un-American Activities (HCUA) for questioning about the organization's alleged illegal contributions to a political campaign in Fall River, MA. Rankin ultimately cited Shapley with contempt but dropped the charge the next day because Rankin had illegally banished Shapley's lawyer from the interrogation.

One benefit of the 1946 ordeal was that Shapley essentially won the right for himself and for others to have counsel present at Senate investigations. However, a negative result was that he was on an FBI list of Communist sympathizers and was again called before the HCUA in 1949. In his same capacity as Chairman of the ICCASP, Shapley had sponsored an ill-fated "Peace Conference" at the Waldorf-Astoria Hotel in New York that included Russian artists and scientists. Perhaps he was unaware that with the election of Truman as President in 1948 the political tide had suddenly turned from "let's have peace" to "let's get tough with Russia." Anyway, some thousands of pickets surrounded the hotel to protest the conference and created much chaos, controversy, and confusion. Ultimately, Shapley was vindicated of charges, but he was damaged by the unfortunate smear.

This presentation is drawn from Shapley's Personal Papers in the Harvard Archives.

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SHAPLEY'S STANDARD CANDLES

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Abstract

In 1918, when Harlow Shapley first published his composite Period-Luminosity (P-L) diagram for some five dozen Cepheids in the systems of five globular clusters, the Small Magellanic Cloud (SMC), and the Milky Way (MW), the points on his plot showed remarkably little scatter from the well-defined curve that he extrapolated from Henrietta Leavitt's work on the SMC Cepheids. In fact, the points for the eleven galactic Cepheids with which Shapley calibrated the P-L relationship for absolute magnitude all fell neatly on the curve like beads on a string.

Contrariwise, in 1921, when Shapley and Heber D. CUrtis published their opposing views on the scale of the universe in the **Bulletin** of the National Research Council, Curtis presented a P-L diagram on which he had drawn the same curve and plotted points for the same eleven galactic Cepheids as Shapley had done previously. However, Curtis showed that the points for the eleven Cepheids and for additional galactic Cepheids were considerably scattered on the diagram and, indeed, did not fall on the curve at all!

This paper examines the two disparate diagrams for the Period-Luminosity relation that Curtis and Shapley had each derived and shows how and why Shapley refined the data so that his points for the eleven galactic Cepheids all fell on the P-L curve.

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WILLISTON OBSERVATORY

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Abstract

The scientific equipment at Mount Holyoke's John Payson Williston Observatory will be discussed with emphasis on their use for teaching and research.

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