THE FOUNDING OF THE AAVSO AND ITS FIRST SEVENTY-FIVE YEARS

JANET AKYÜZ MATTEI
AAVSO
25 Birch Street
Cambridge, MA 02138

Abstract

The founding of the AAVSO and the establishment and growth of its observing programs, activities, and services to the astronomical community during its first seventy-five years are discussed.

* * * * *

In 1909, William Tyler Olcott (1873 - 1936), a lawyer, amateur astronomer, and the author of several popular astronomy books, attended a meeting of the American Association for the Advancement of Science at the Harvard College Observatory. Director Edward C. Pickering (1846 - 1919) gave a talk and exhibited some light curves and charts of variable stars which fascinated Olcott. He immediately wrote Pickering to ask if he could become a variable star observer. In response, Harvard assistant and variable star observer Leon Campbell (1881 - 1951) went to Norwich, Connecticut, where Olcott lived, "to initiate Mr. Olcott in the art of variable star observing." On February 2, 1910, Olcott "succeeded in locating the field of Omicron Ceti" and made his first official variable star observation. From that date on, Olcott regularly sent observations to Professor Pickering at the Harvard College Observatory.

Pickering was very interested in having volunteers observe variable stars, and communicate their observations to him at the Harvard Observatory. The March 1911 issue of Popular Astronomy carried Olcott's article entitled, "Variable Star Work for the Amateur with Small Telescopes." The Editor of Popular Astronomy, Herbert C. Wilson (1868 - 1940), was a strong supporter of amateur activities, and in the August-September 1911 issue of Popular Astronomy he published a note, "What An Amateur Can Do," in which he asked, "Can we not have in America an association of observers with a 'Variable Star Section', a 'Jupiter Section', etc.?" Popular Astronomy stood ready to publish instructions, lists of stars to be observed, and the monthly observations. This note was promptly followed in the October issue by an enthusiastic statement from William Tyler Olcott in which he offered to take charge of all the correspondence in connection with the proposed organization of amateurs, coordinate observers, and prepare observations for publication. The nucleus of the new association would consist of all the volunteers who were already contributing observations to Harvard.

Events then moved quickly and in the November issue, Olcott, signing himself "Corresponding Sec'y," announced that an organization had already been formed and he suggested as its name, The American Association of Variable Star Observers (AAVSO). He listed six people who had indicated their desire to cooperate, and included a list of 71 stars he himself had been observing. Thus, with the founding of the AAVSO, Pickering's dream of advocating variable star observations by amateurs became a reality.

By the end of its first year over 6000 observations of 175 stars from 19 observers were published in **Popular Astronomy**. As participation increased, Olcott wanted to become better acquainted with the observers; he wrote, "I wanted to see what they look like." On

April 8, 1914, the first informal meeting was arranged in a restaurant on 42nd Street in New York.

In November, 1915, the first official meeting of the AAVSO took place at Harvard College Observatory, and the twelve observers who attended met Edward Pickering and Leon Campbell. Pickering appointed Campbell Recorder of observations, while Olcott continued as Corresponding Secretary. Campbell remained as the Recorder until 1949 (34 years) and Olcott as the Secretary until his death in 1936 (25 years).

At its meeting in November, 1917, (Photograph 1) the group decided to be organized formally and in October, 1918, the American Association of Variable Star Observers was incorporated under the laws of the Commonwealth of Massachusetts. Harvard College Observatory offered its facilities as Headquarters and further expansion of activities began.

In 1920, the first Committee - the Chart Committee - was formed. Until then, first Pickering and then Olcott had assumed the responsibility of providing finding charts to observers. Olcott made 7000 tracings from enlargements of the Bonner Durchmustering and also from photographic charts, and distributed them to the observers. By now, 80,000 observations had been contributed.

David Pickering (1873 - 1946), a jeweler by profession and a dedicated member and the first President of the AAVSO, but no relation to Edward Pickering, was appointed as the Chairman of the new Chart Committee. Pickering introduced the charts of different scales, and different disk sizes corresponding to stellar brightness. Members such as Ernest Yalden (1870 - 1937) and D. F. Brocchi (1871 - 1955) drafted hundreds of charts, copies of which are still in use today. Dr. S. A. Mitchell (1874 - 1960) of McCormick Observatory of the University of Virginia, helped to revise many of the magnitude sequences, and Dr. Bernhard Dawson (1890 - 1960) extended the work for the southern hemisphere.

In 1919, Professor Edward C. Pickering, the Director of Harvard College Observatory for 42 years, died. In a tribute to Pickering's memory, Olcott wrote, "In our brief association with him we received the rare gift of the inspiration of the truly great, and we will ever recall with gratitude the interest he took in our organization and be thankful for the privilege of the friendship of one of the few great men of the age."

A young, dynamic astronomer from Mt. Wilson Observatory, Harlow Shapley (1885 - 1972), arrived at the Harvard College Observatory, and in 1921, he was appointed the Director. Shapley, keenly interested in variable stars, fully supported the AAVSO and its activities throughout his Directorship from 1921 to 1953. He and Mrs. Shapley hosted the AAVSO Annual Meetings at Harvard College Observatory.

One of the major issues facing the founders of the Association had been the establishment of the AAVSO as a permanent research institution for amateur astronomers. This could only be done if the AAVSO were to become financially independent. Upon Pickering's death, the Association launched its first fund-raising campaign to establish a permanent fund in Pickering's memory to promote research in variable star astronomy. With the approval of Shapley, the Pickering Memorial Fund was initiated in 1926, with a goal to raise \$100,000. The members responded enthusiastically. When \$7,000 was raised, Shapley, who saw great potential in the AAVSO, suggested transferring the money to the Harvard College Observatory's Development Fund which, together with other contributions, would provide the goal of \$100,000. By 1931 the Pickering Memorial Fund was established, providing the salary of the Recorder, who was to be called the Pickering Memorial Astronomer.

When the AAVSO celebrated its 25th Anniversary in 1936, half a million observations had been compiled, and the Association had 350 members. Contributed observations soon became so voluminous that **Popular Astronomy** could no longer handle them. Shapley offered to have them published in the **Harvard Annals**. He also provided office space for the AAVSO to carry on its work along with a housing in the dome atop Building A for the 6-inch Post telescope donated to the Association by the the widow of Mr. Post (1844 - ?).

The steep growth of the Association continued until 1941, when there was a noticable decrease in the number of observations while most of the members were occupied with World War II work. Nonetheless, by the 35th Anniversary of the AAVSO in 1946 the one-millionth observation had been made, by William Holt (d. 1946). See Figure 1.

During the war, information on solar activity and sunspot numbers was difficult to obtain from Zurich, where solar data had been regularly compiled. Since this information was important for communication, the U.S. government asked Harvard College Observatory to monitor sunspots and obtain an independent, American-based relative sunspot index. This responsibility was delegated to the AAVSO, and the Solar Division was established in 1946 with Neal Heines (1893 - 1955) as its Chairman. This Division soon engaged itself not only in monitoring sunspots but also monitoring solar granulation, colors of spots, spot configuration, and foreshortening of sunspot groups.

In 1948, a truly pioneering activity was launched at the AAVSO when John Ruiz (1895 - 1978) began photoelectric photometry.

In 1949, the end of an era occurred when Leon Campbell, Recorder since 1915, retired. In a celebration honoring him, Past President Charles W. Elmer said, "Mr. Campbell has graced astronomy, and given inspiration to thousands.... The old era has now passed, but a new and brighter era lies ahead for the AAVSO, thanks to the firm foundation laid down over the years by Leon Campbell." An AAVSO member and Harvard astronomer, Margaret Walton Mayall (1902 -), who had worked with Miss Annie Cannon (1863 - 1941) in the preparation of the Henry Draper Catalogue, succeeded Mr. Campbell. Under the management of Margaret Mayall new systems of correlating and publishing the observations were established. Instead of publishing reports in the Harvard Annals, the Association would now publish data in its own Quarterly Reports. Also, the predictions of maxima and minima of long period variables would be published annually, rather than bi-monthly.

In 1952, Harlow Shapley, one of the greatest encouragers of variable star observation and the AAVSO, retired as Director of Harvard College Observatory. Dr. Donald Menzel (1901 - 1976), a solar astronomer, became the Observatory's Director. Menzel was not a stranger to the AAVSO - he had been a member of the AAVSO since his student days, and was a constant visitor to the Campbell home.

Menzel, as Director of Harvard College Observatory, found himself faced with old buildings that needed repair, and limited financial resources. Since repair seemed impractical, he decided to tear down and rebuild. Among the buildings to be destroyed was the one housing the AAVSO Headquarters, Building A. In addition, the AAVSO's one financial resource, the Pickering Memorial Fund, was taken over by the Observatory and in 1953 Harvard University asked the AAVSO to leave the grounds of Harvard College Observatory. All but the original \$7000 of the Pickering Memorial Fund, after much discussion and many legal battles, was diverted to solar research at Harvard College Observatory. This was a hard blow to the AAVSO. The Association had no place to move to, and no money. Many decisions had to be made quickly in the summer of 1953. Legal counsel advised the AAVSO to establish itself as an independent, non-profit organization.

In January, 1954, the AAVSO began a new era when it opened its one-room Headquarters at 4 Brattle Street in Harvard Square. 1954-55 was the most trying period for the Association. If it had not been for the efforts of Margaret and Newton Mayall (1904 -), and the loyalty of the members, the AAVSO would probably have ceased to exist in 1954. Margaret Mayall volunteered her services in order to keep on with the work and to stretch out the meager funds. Slowly, financial support began to flow in from government agencies and private establishments such as the National Science Foundation, the Office of Naval Research, the National Bureau of Standards, and the Astronomical Society of the Pacific.

It was at this time that a milestone decision was made by the Council of the AAVSO. An endowment fund which would support the work of the Association was established.

In 1957, with the launching of the Russian satellite, Sputnik, the activities of the Association also took off. AAVSO's first involvement with space research took place with participation in satellite tracking; the Solar Division expanded its activity to monitor solar flares through radio astronomy techniques; the first paper by an AAVSO member, John Ruiz (1895 - 1978), on photoelectric observations of a variable star, entitled, "A Photoelectric Light Curve of u Herculis," was published in the Publications of the Astronomical Society of the Pacific (Vol. 69, pp. 261 - 264. 1957); the membership reached 600; and a new publication, the AAVSO Abstracts, was begun to publish scientific papers and reports presented at meetings. Also at this time, the title of "Recorder" of the AAVSO was changed to "Director."

By the time of the 50th Anniversary in 1961 (Photograph 2), the Association was rising like a nova. The involvement of observers in professional research increased. The International Astronomical Union, at its General Assembly in 1961, suggested that the AAVSO become the central repository for all variable star observations. However, it was felt that it was still too early for the AAVSO to handle observations from all over the world, so no action was taken on the IAU recommendation.

In 1962, the two-millionth observation was received from Leslie C. Peltier, only 16 years after the one-millionth in 1946. Increasing numbers of requests came from professional astronomers for AAVSO data as special interest in flare stars, eclipsing binaries, cataclysmic and nebular variables, and extragalactic supernovae accelerated and observations of variable stars expanded beyond the optical region of the electromagnetic spectrum with instruments aboard balloons and planes.

As the AAVSO kept growing, the one-room Headquarters at 4 Brattle Street became increasingly inadequate; Margaret Mayall wrote, "Each year's accumulation of records and books made us feel as if we were trying to push out the walls." In July of 1965 the AAVSO moved to 187 Concord Avenue, located one block from Harvard College Observatory.

As the activities of the Association continued to increase, five new committees were established: Eclipsing Binaries, RR Lyrae variables, Cepheids, Supernova Search, and New Charts Committees. The AAVSO observing program expanded as hundreds of finding charts, known as "preliminary charts," of "new" variable stars added to the Program were prepared by the New Charts Committee.

In 1967, another milestone was passed when Margaret decided to change the method of handling data from recording by hand on ledger sheets to computerization using an IBM system. With the help of Owen Gingerich (1930 -), Barbara L. Welther (1938 -), and Leon Campbell, Jr., (1906 -) at the Harvard College Observatory, computer programs

were developed to enable the AAVSO to compile observations on computer cards, starting with observations from 1960.

In 1971, when the AAVSO celebrated its 60th Anniversary, an incredible boost to its Endowment Fund was received through "the munificent bequest" from Walter B. Ford (1894 - 1971), the father of a long-time devoted member and the Secretary of the Association, Clinton B. Ford (1913 -). This generous bequest insured a secure future for the Association and allowed Headquarters to lease muchneeded additional space in the adjacent office. Two new publications the AAVSO Circular, containing monthly were begun at this time: preliminary results of observations of interesting stars, and the Journal of the AAVSO, which replaced the AAVSO Abstracts. During this year, the three-millionth observation was received from Ernst H. Mayer, only nine years after the two-millionth in 1982. Also, one million observations had been computerized at Headquarters. In June 1972, I became Margaret's assistant. I had been a Maria Mitchell Observatory summer assistant, and had just received my Master's degree in Astronomy from the University of Virginia. Six months later I married an AAVSO member, Michael Mattei (1940 -), whom I had met at an AAVSO meeting in Nantucket in 1969.

After 24 years as Director, having had to fight for the survival of the Association and having brought the AAVSO to its high level of achievement, Margaret Mayall decided to retire. A search committee was appointed by members of the Council to find and elect a new Director. At the Annual meeting of the Association in 1973 Margaret Mayall retired and I was elected unanimously by the Council to be the third Director. See Photograph 3.

In 1974 a major project was launched: the preparation of the **AAVSO Variable Star Atlas**, an Atlas much needed by observers, particularly to locate variable stars and other astronomical objects. Charles E. Scovil (1928 -), who had envisioned the project, took on the responsibility of preparing the Atlas, with the financial support of Clinton Ford.

That same year, in honor of Margaret Mayall, contributions from the membership established the Margaret W. Mayall Assistantship to provide variable star research opportunities at AAVSO Headquarters.

The entry on computer cards of observations made during the 1960's continued. However, storage of the cards and observers' records in the AAVSO Headquarters became a real concern, since there were no backups or duplicates of these records and since the Headquarters offices were located in an old, wood-frame building with residental apartments overhead.

In 1976, all the observations on cards were written onto magnetic tapes, copies of which were made to be stored at different locations. During this year, the computerization of incoming observations was given top priority to facilitate the dissemination of current data. To improve the efficiency of the processing of increasing numbers of observations, students from Harvard University and the Massachusetts Institute of Technology (MIT) worked part-time at the AAVSO to develop computer programs to check, sort, and merge observations. The computerization of the backlog of data from the 1960's continued as funds were available.

AAVSO observations started to play a vital role in space research on variable stars, particularly cataclysmic variables, when a group of MIT astronomers surveying the Cygnus Loop with a sounding-rocket accidentally detected ultra-soft x-ray emission from SS Cygni on 30 March 1973. AAVSO observations indicated that this star was having an outburst at that time. From then on, both ground-based and space

research on these close binary systems accelerated and the AAVSO collaborated extensively with astronomers. The participation of AAVSO observers was sought in almost all of the satellite and ground-based observing runs on cataclysmic variables. AAVSO's collaboration through observers' closely monitoring target stars and alerting astronomers to observed activity played an important role in the success of these sophisticated observing programs. Requests from astronomers for AAVSO data increased exponentially and the vital contributions of AAVSO observers were acknowledged in numerous astronomical papers. These successes led to grants from the National Science Foundation, the National Aeronautics and Space Administration, the Perkin Fund, and the Kenilworth Fund. In 1978, the four-millionth observation was received from Philip Steffey, only seven years after the three-millionth one.

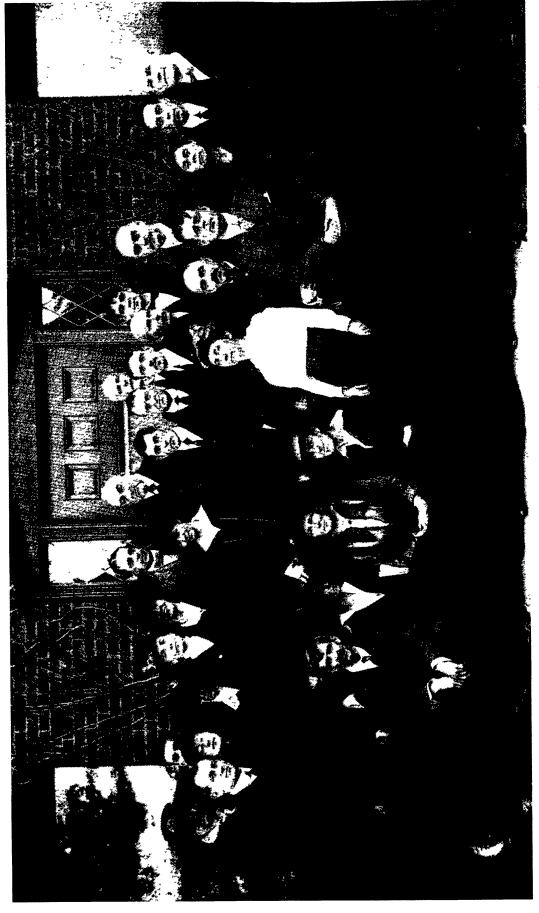
By 1981, the entry on computer cards of observations from 1961 to date was completed. Although the data were written onto magnetic tapes, the computer cards were still kept at Headquarters, where every spare inch of space was taken over by computer cards. It was at this time that a grant from Research Corporation enabled the Association to purchase microcomputers and replace computer cards with diskettes for the entry of observations. This momentous change ended the space-consuming computer card era at AAVSO Headquarters. In 1982, AAVSO Report 38, light curves of 446 long period variables, was published using Headquarters' computers.

The annual total of observations, rising steadily, increased dramatically (Figure 2). In 1983, the five-millionth observation was received from Paul Vedrenne, only three years after the the four-millionth.

In 1984, to keep up with the AAVSO's expanded activities, and in particular to computerize the two million observations from 1911 to 1961 and to publish long-term light curves in the form of a monograph series, the Council initiated a fund-raising Campaign. The membership responded enthusiastically and the two priority projects were undertaken.

Then in the summer of 1985, a "miracle" occurred. Dedicated member and Vice President of the Association, Keith Danskin (1943 -), located a building ideally suited to the needs of the AAVSO. Clint Ford with his extreme generosity provided the means to make this building the permanent home of the Association. The AAVSO purchased the building on October 30, 1985, one day before the 74th Annual Meeting at Mt. Holyoke College. The members rejoiced at this marvelous news. In January, 1986, AAVSO Headquarters was moved from 187 Concord Avenue, which was bursting at the seams, to its new, permanent home - The Clinton B. Ford Astronomical Data and Research Center - as preparations were begun to celebrate the 75th Anniversary of the Association at the Annual Meeting in August.

Today the AAVSO stands strong on the foundation built by such giants as William Tyler Olcott, Edward C. Pickering, Leon Campbell, David Pickering, Margaret and Newton Mayall, and Clinton Ford, and the thousands of dedicated members and observers. The Association is international in scope with its 1300 members worldwide, and, with its 5,500,000 observations, has the largest data bank on variable stars in the world. The AAVSO is rightly a source of pride to all who have contributed to what it is today.



Photograph 1. First official Annual Meeting of AAVSO, October, 1917. At this meeting, it was decided to formally incorporate the Association. Attendees are identified in the accompanying key. Photo: AAVSO Archives.



Photograph 2. 50th Annual Meeting of AAVSO, 1961. Attendees are identified in the accompanying key. Photo: AAVSO Archives.



Photograph 3. Annual meeting of AAVSO, 1974. A special celebration was held honoring Margaret Mayall for her services to the AAVSO and Astronomy. Attendees are identified in the accompanying key. Photo: Dennis DiCicco, Sky Publishing Corp.

Formal Organization Meeting of the American Association of Variable Star Observers, Cambridge, Massachusetts, November 10, 1917.



⑨

- 1. Miss B. H. Vann
- 2. F. H. Spinney W. J. Delmhorst
- 4. Miss D. W. Block
- 5. Mrs. E. T. Brewster
- 6. L. Campbell
- 7. Professor A. S. Young
- 8. Miss S. Raymond
- 9. Miss L. Allen
- 10 J. J. Crane 11. Miss D. Reed
- 12. Miss A. J. Cannon13. Professor E. C. Pickering
- 14. E. S. McColl
- 15. Miss H. S. Leavitt
- 16. E. T. Brewster
- 17. Professor S. I. Bailey
- 18. W. T. Olcott
- 19. Miss I. E. Woods 20. Rev. T. C. H. Bouton
- 21. D. H. Wilson
- 22. H. R. Schulmaier
- 23. M. J. Jordan
- 24. A. B. Burbeck
- 25. Miss I. F. Conant 26. F. L. Ducharme
- 27. W. H. Reardon



Harvard College Observatory, Cambridge, Massachusetts AAVSO 50th Anniversary Meeting, October 12 - 15, 1961

- 1. Franklin Marsh
- Carl Anderson
- 3. William Cleaver
- Clifford Seauvageau
- Leif Robinson
- Charles Good
- 7. Margaret Harwood 8. Joel Levine
- 9. Ísabel Williamson
- 10. Leonard Solomon
- 11. Constantine Papacosmos12. Percy W. Witherell

- 13. Roger Kopp14. Anthony Hull15. Helen S. Hogg
- William De Forge 17. Mrs. Charles Good
- 18. Casper Hossfield
- 19. Charles Giffen 20. Duncan Macdonald
- 21. John J. Ruiz

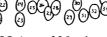
- 23. Charles Ortner 24. Helen Federer
- 25. Ralph Buckstaff
- 26. James Baker
- 27. Arthur Pearlmutter
- 28. Florence C. Bibber
- 29. Mrs. A. Sharpless
- 30. R. Newton Mayall
- 31. Kenneth Glickfeld
- 32. Owen Gingerich
- 33. Valfrids Osvalds
- Peter O'Keefe
- 35. Stephen Burt
- 36. Albert Sharpless 37. Dorrit Hoffleit
- 38. George Lovi
- 39. DeLorne Diedrich
- 40. Edgar Paulton 41. Donald Hurless
- 42. George Diedrich
- 43. Virginia McK. Nail
- 44. Edward De Gennaro

- 45. A. G. P. Velghi46. Richard H. Davis47. Frank DeKinder

- 48. Carolyn Hurless
- 49. Edward G. Oravec
- 50. Marjorie Williams
- 51. Cyrus F. Fernald
- 52. Claude Carpenter
- 53. Walter Scott Houston54. H. Corwin Miller
- 55. Robert M. Adams
- 56. Albert Ullmann
- 57. Margaret W. Mayall
- 58. Emily Fernald 59. G. P. Burns
- 60. Richard Hamilton
- 61. Leon Campbell, Jr.
- 62. Clinton B. Ford
- Sandra Crino
- 64. Roy Seely
- Annie Laurie Buckstaff
- 66. Gretchen Luft













63rd AAVSO Annual Meeting Williamstown, Massachusetts October 19, 1974

16. Jeremy Knowles

- Marjorie Williams
- 2. Eric Johansson
- 3. Charles Scovil
- Marguerite Risley Leith Holloway
- Helen Sawyer Hogg
- Dorrit Hoffleit Carla Holm

- Florence Bibber Clinton Ford 5. Edward Oravec
- 10. Mrs. Harold Brock
- Janet Akyüz Mattei

- Harold Brock

- Chip Cohen 18. Herbert Luft 19.

27

- 20. Lawrence Hazel 21. Hilde Luft
- 22. Carolyn Hurless 23. Margaret Mayall 24. Chris Martin
- Arthur Stokes 26. Douglas Welch
- 28. Marvin Baldwin 29. Pamela Owensby 30. Horace Smith

Charles Good

- Florence Glenn
- 32. Peter Taylor
- 33. Thomas Williams
- 34. William Glenn
- 35. Carl Ericson 36. MaryJane Taylor
- 37. Roy Lee
- 38. Louise Good
- 39. Michael Mattei 40. Priscilla Bibber
- 41. Barbara Fortier 42. Arthur Pearlmutter 43. John Bortle

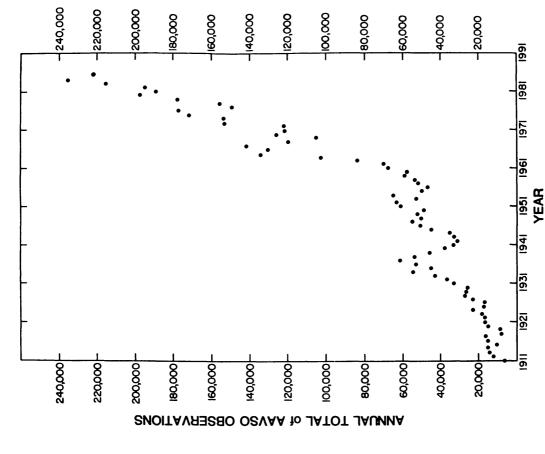


Figure 1. Total of observations received by AAVSO, 1911 - 1986. Observers who made milestone observations (1,000,000; 1,500,000; etc.) are indicated on the graph.

Observations received each year by AAVSO,

Figure 2. Ot 1911 - 1986.

122

OBSERVATIONS RECEIVED AT AAVSO SINCE 1911 (One Year

-2 500 000 Carolyn Hurless

3 500 000 Paul Goodwin

-3 000 000 Ernst Mayer

4 000 000 Philip Steffey

-2 000 000 Leslie C. Peltier

-1 500 000 Curtis Anderson

-1 000 000 Wm. Holt

. 500 000

4 500 000 Dietmar Böhme

-5 500 000 George Knight

-6 000 000

- 5 000 000 Paul Vedrenne

PEOPLE CITED IN THE PRECEDING THREE PAPERS on early history of variable stars and the history of the AAVSO

(a = amateur)

Name	Dates	Paper
Arago, D. F. J. Argelander, W. F. A. Ashbrook, J.	1786-1853 1799-1875 1918-1980	I, II I, II, III I
Bailey, S. I. Baxendell, J. Belopolsky, A. A. Birmingham, J. Boulliau, I. Brahe, Tycho Brocchi, D. F. (a) Byrgius, J.	1854-1931 1815-1887 1854-1934 1816-1884 1605-1694 1546-1601 1871-1955 1552-1632	I I I I I III I
Campbell, L. Campbell, L., Jr. (a) Campbell, W. W. Cannon, A. J. Clerke, A.	1881-1951 1906- 1862-1938 1863-1941 1842-1907	II, III III I I, II, III I
Danskin, K. (a) Dawson, B.	1943- 1890-1960	III
Eddington, A. S.	1882-1944	I
Fabricius Fleming, W. P. Ford, C. B Ford, W. B. (a) Furness, C.	1564-1617 1857-1911 1913- 1874-1971 1869-1936	I III III I
Gingerich, O. Goodricke, J. Gothard, E. von Gould, B.	1930- 1764-1786 1857-1909 1824-1896	III I I
Hagen, J. G.	1847-1930	I

Halley, E. Hartwig, E. Heis, E. Heines, N. (a) Herschel, John Herschel, William Hind, J. R. Hipparchus Holt, W. (a) Ho Peng Yoke Huggins, W. Humboldt, F.W.H.A.von	1656-1742 1851-1923 1806-1877 1893-1955 1792-1871 1738-1822 1823-1895 c190-120BC -1946 - 1825-1910 1769-1859	I I I I III I, II I I I I I I I I I I I
Kapteyn, J. C. Kempf, P. Kirch, G. Klinkerfues, E.F.W. Koch, J. A. Knott, G. Krüger, K. N. A.	1851-1922 1856-1920 1639-1710 1827-1884 1752-1817 1835-1894 1832-1896	I I I I II I
Leavitt, H. Lee, J. (a) Leovitius, C. Licetus, F. Lockyer, N. Ludendorff, H. Luyten, W. J. Lynn, W. T.	1868-1921 1783-1866 1524-1574 1577-1657 1836-1920 1873-1941 1899- 1835-1907	I II I I I I
Maraldi, G. F. Mattei, J. A. Mattei, M. Maupertuis, P. L. M. de Mayall, M. W. Mayall, R. N. (a) Menzel, D. H. Metcalf, J. Mitchell, S. A. Montanari, G. Muller, G. Myers, W.	1665-1729 1943- 1940- 1698-1759 1902- 1904- 1901-1976 1866-1925 1874-1960 1633-1687 1851-1925 1864-1931	I III III III III III III III III III
Newton, I. Olcott, W. T. (a)	1643-1726 1873-1936	I II, III

Packer, D.	-	I
Payne, W. W.	1837-1928	II, III
Peirce, C. S.	1839-1914	I
Peltier, L. (a)	1900-1980	III
Pickering, D. B. (a)	1873-1946	III
Pickering, E. C.	1846-1919	I, II, III
Pickering, W. H.	1858-1938	I
Pigott, E.	1753-1825	I
Plummer, C.	1875-1946	I
Pogson, N. R.	1829-1891	I, II
Pritchard, C.	1808-1893	I
Pulfrich, C.	1858-1927	I
Post, C. A. (a)	1844-	III
Riccoli, G. B.	1598-1671	I
Ritter, A.	1826-1908	I
Ruiz, J. (a)	1895-1978	III
Safarik, A.	1829-1902	I
Schmidt, J. F. J.	1825-1884	Ī
Schonfeld, E.	1828-1891	I
Schuler, W.	c1572	Ī
Schwarzschild, K.	1873-1916	Ī
Scovil, C. (a)	1928-	III
Sears, F. H.	1873-1964	I
Secchi, P.	1818-1909	I
Shapley, H.	1885-1972	I, III
van Rhijn, P.	1886-1960	I
Vogel, H. C.	1841-1907	I
V 08c1, 11. 0.	1011 170,	-
Welther, B.L.	1938-	III
Wendell, O. C.	1845-1912	I
Wilson, H. C.	1858-1940	II, III
Winlock, J.	1826-1875	I
Wolf, M.	1863-1932	I
Wolf, R.	1816-1893	I
Yalden, J. E. G.	1870-1937	III
Zöllner, J. C. J.	1834-1882	I

1986JAVSO..15..112M