

ANNUAL REPORT OF THE DIRECTOR  
OCTOBER 1974 - SEPTEMBER 1975

It is an honor to render you my second annual report, for the fiscal year 1974-1975.

The prime project of the year was Report 30, now completed and at the printer, to be published in a couple of weeks and be distributed to the astronomical world and observers who contributed to it. It contains 132,000 observations by 495 observers, in the form of computerized 10-day-mean light curves of 446 mostly long period variables. It covers a 1,000-day interval (September, 1963 - June, 1966) and has an improved, time-saving feature of observed maxima and minima dates marked by the computer.

Along with Report 30, we have also started Report 31: light curves of the remaining variables in our program within the same interval as Report 30. About 100,000 observations are now ready for computer editing, where each one is checked for correct designation and date. Next, all observations will be listed and checked against hand-plotted light curves before the final computer plots are obtained.

This year we also tried to find a substitute for hand-plotting of the incoming observations, which increased by 20% since 1973. Our very capable student-assistant, Richard Strazdas from M.I.T., using the basic ideas of our existing program, developed a method whereby light curves are obtained as density curves in which the number of observations at specific magnitudes are printed at each date. This enables one to see the scatter in the estimates. The program will first list all observations and then plot the light curve. When this format meets all the desired requirements then all incoming data will be plotted four times a year in this fashion, observations will be edited and final light curves will be obtained at the end of each year. This new method of computerized density curves will enable us to study the plots and whenever possible notify observers whose observations do not agree with the others.

At present, the incoming observations are entered on computer cards, verified, sorted, listed, and plotted each month.

As to the earlier data that are not processed, we now have only a two months' gap in 1973 not entered on cards; otherwise, all observations since 1960 are processed. The exchange of our keypunch and a verifier for a machine that has a memory and can do both jobs, has facilitated our data processing immensely.

Another major project has been the computerization of our mailing list and labels. Thanks to Robert Fitzpatrick of the Computer Center of the Smithsonian Astrophysical Observatory, and Richard Strazdas, a program has been developed in which the individual names on our mailing list have been separated into various classes, i.e., member, observer, subscriber, etc. This method enables us to call up the names in any category for which we need labels. Another benefit of the program is the ease of adding, deleting, or changing addresses. Since February, we have been using these computerized labels in all our mailings.

SPECIAL REQUESTS: In recent years, the observations of stellar objects, particularly variables, have extended to soft x-ray, x-ray, extreme ultraviolet, and ultraviolet on one end and to infrared and radio regions on the other end of the visual spectrum. Consequently, our visual data have proven vital to astronomers for correlation, comparison, and prediction purposes. In this past year we have answered numerous special requests and assisted in several significant observing programs, the most significant of which are described below.

P. Szkody, a graduate student from the University of Washington, whose Ph.D. thesis involves U Gem and Z Cam stars, needed to know the behavior and the dates of observed maxima and minima of SS Cyg, RX And, AH Her, AB Dra, SW Uma, and Z Cam during 1973-74. All of these are well observed in our program.

Drs. S. Wyckoff and P. Wehinger from Wise Observatory have been analyzing variables spectroscopically at minimum light. To make their data complete they requested the AAVSO magnitudes of R Cyg on September 29, 1974, which was 13<sup>m</sup>7, and of o Cet on December 15, 1974, which was 8<sup>m</sup>6, along with the most recent dates and magnitudes of observed maxima and minima of these variables. Later, Dr. Wehinger also requested our recent data on TX Cam and the observations of the supernova in NGC 4414, in May and June, 1974.

Dr. D. Dunham, University of Texas, needed to know the brightness of X, Z, and W Sco during the lunar eclipse of May 25. These variables were to be occulted by the moon at that time. Our light curves and the incoming information in April indicated that these variables would all be fainter than 11<sup>m</sup>0.

Dr. C. Whitney, from Harvard University, the new editor of our Journal, used our visual light curves of 71 Mira variables in his research with Cecilia Payne-Gaposchkin on the new infrared data on Mira variables (see J.A.A.V.S.O., 4, No. 1). Dr. Payne-Gaposchkin, while getting information from our working plots, praised our light curves and records and commented on the important role we are playing in astronomy.

C. Rogers, working with Dr. R. Garrison at the University of Toronto on the spectroscopic changes of Mira, used our data between November, 1974, and February, 1975, to complement his work. Dr. Garrison, who is an authority on the spectra of long period variables, commented to me during my visit to the University of Toronto that our observations and predictions were vital to his work.

R. Braunstein and his colleagues at the University of Maryland were measuring the angular diameters of late giant variables with the Maryland amplitude interferometer. He requested us to predict the brightness of 27 variables for July, so that they could make their schedules for their observing runs on Mt. Wilson and Mt. Palomar telescopes. Using our past and present data we made "intelligent guesses", with a warning that significant variations in brightness could occur in each cycle. Later he wrote "we received your magnitude predictions for July and would like you to know that they were a tremendous help in arranging our observing program." Nine of the variables were bright enough for them to observe.

Dr. T. Barnes of the University of Texas needed our visual magnitudes for June 25 and September 29, 1972, on Mira to determine its angular diameter. He commented on the important service we are doing.

Dr. U. Fahrback, of the Max Planck Institute for Astronomy in West Germany, who has been observing variable stars since 1973 with a new infrared photometer, needed our visual data to reduce his results, and we were able to provide data on 27 of the 30 variables he observed.

Light curves since 1970, charts, and predictions for maxima and minima, were provided on R Aql, RX Boo,  $\mu$  Cep, o Cet, W Hya, R Leo, U Ori, and VX Sgr for Dr. L. Smith, of Grumman Aerospace Corp., to be used in jet flights to observe these stars in the infrared with Michelson interferometry. In his recent call for more data, he expressed his deep appreciation of our observations.

We were able to correlate the flares detected in the spectrum of SS Cyg by a group of astronomers from M.I.T. observing at Kitt Peak, with reports from J. Morgan and E. Mayer alerting me that SS Cyg was at maximum. Upon receiving this information, Dr. D. Hearn of M.I.T. changed the scheduled observations on the x-ray satellite to observe SS Cyg at maximum and confirmed the detection of soft x-rays from SS Cyg at maximum. This was the only confirmation of soft x-ray emission from SS Cyg since Dr. S. Rappaport's detection (see J.A.A.V.S.O., 3, No. 2, p.47).

Dr. R. Viotti from Space Research Laboratory in Holland, who is interested in the interpretation of the intensity of emission lines of the interesting southern star RR Tel, requested information about its photometric history. He wrote "your association represents the best opportunity to get all available information on it." We provided him with a copy of our light curve from 1930 to the present, along with a light curve published in Sky & Telescope June, 1970, p.369, by Margaret Mayall showing its variation from discovery to the late 1950's. Recently, while I was in Budapest, Dr. E. Ney from the University of Minnesota, also requested our light curve of RR Tel and my technical assistant Josefa Manella very efficiently supplied it.

Light curves of VX Sgr, VY CMa, V UMa, and S Aur were sent to our member H. Smith, at Yale, for his investigation of beat phenomena in their variations.

Dr. P. Wood of the University of Sussex, England, requested observed dates and brightness of maxima of 44 Mira variables for the past 25 years. This immense compilation job was done by MaryJane Taylor. These data, which were most appreciated by him, along with the data in the Studies of Long Period Variables by L. Campbell, were used as the sole observational material for his review paper on Mira variables at the I.A.U. Colloquium 29.

Şenel Yıldızoğlu, graduate student from Istanbul University, used our unpublished light curves of CI Cyg and Z And in her Ph.D. thesis on symbiotic stars, with our permission.

Dr. R. Thompson of the University of Arizona requested the phase of U Cyg, R Cyg, RS Cyg, V CrB, RR Her, V Hya, V Oph, SS Vir, all N and S type LPV's, for May 27 and 28, to be used for his spectral analysis in the infrared region between  $1\mu$  and  $2.5\mu$ .

T. Soifer, of N.A.S.A., needed to know the brightness of R Cas and V Cyg, two very red variables with interesting light curves, in order to determine whether the flying telescope of N.A.S.A. could observe them on October 6, 1975, in the infrared. Again, using the present and past data, we determined their brightness to be  $9^m5 \pm 0^m5$  and  $12^m5 \pm 0^m5$ , respectively, for October 6, which put them within the observational range of the flying telescope.

Along with special requests, it was very gratifying to receive follow-up letters or preprints from astronomers to whom we supplied data. Cynthia Irvine wrote, "A rather interesting result of my research is that Mira and semi-regular variables possessing secondary periods which are carbon stars are peculiar." Preprints of articles submitted for publication in astronomical journals, and containing acknowledgements for AAVSO data, arrived from T. Barnes, et al., on "Stellar Angular Diameters and Visual Surface Brightness in Late, Intermediate and Early Spectral Types", R. Patterson, et al., on "Spectrophotometry of R CrB During the Minimum in 1974" and J. Grindlay, et al., on "Observations of X-rays From Flare Stars With ANS".

In addition to requests for our data, we received pleas from astronomers for simultaneous ground-based observations of objects they were observing in the x-ray, extreme UV, and IR. For these, five Alert Notices were sent out to observers who could observe them.

An Alert Notice was put out to observe SS Aur, SY Gem, U Gem, SU UMA, Z Cam, and SW UMA in mid-November, 1974, when Dr. Allen Levine and his colleagues at M.I.T. were monitoring these dwarf novae in the soft x-ray region with sounding rockets. We had very good coverage; but none of the above variables had outbursts, and no soft x-ray emission was detected at that time.

On the same Alert, a standing request came from astronomers of Space Science Department of Sterrenkending Laboratorium in the Netherlands to observe twenty-two U Gem, Z Cam, and Z And stars, so that observations with the Astronomical Netherlands Satellite (ANS) can be compared with visual observations.

Recently, flare stars have been observed in the radio, optical, and x-ray regions. Considerable attention has been given to them by Dr. J. Grindlay and his colleagues at Smithsonian Astrophysical Observatory and in Netherlands, in order to detect x-ray flares during optical flares. Simultaneous flares in these two spectral regions had been detected in YZ CMi. This year there was an international campaign to observe UV Cet, between January 3 and 8 in the radio, optical, and x-ray regions. In response to the Alert, there was excellent worldwide coverage by our observers, although no flares were observed. However, a very large optical flare was observed by W. Kunkel and E. Groth and a few small ones by K. Ichimura simultaneously with x-ray flares detected by the satellite. These results suggest that x-ray flares often accompany optical flares.

In July and October, two other Alerts were sent to monitor UV Cet and YZ CMi optically for the same reasons as above, at the request of Dr. Grindlay. I wish to extend to all our observers who participated in these alerts Dr. Grindlay's "deep appreciation and enthusiastic thanks".

In early April Dr. M. Cohen from the University of California was planning to observe some U Gem and Z Cam stars in the infrared at Mount Lemmon in Arizona. He requested us to predict outbursts during his observing run. Predictions are not possible for these dwarf novae; however one can make "intelligent guesses" by analyzing past and most recent data. In doing so, the guess was that four of these stars would be at maximum during his run. We kept him informed of their activities. Later, requesting our data for correlation, Dr. Cohen wrote "...First let me thank you and AAVSO for providing me such efficient service. I was able to observe four stars you alerted me on at what seemed to be maximum or close to it, thanks to your phone calls to Arizona." My thanks to J. Bortle, E. Mayer, and C. Scovill for their valuable contribution to this research.

The highlight of the Alert Notices was the participation in the Apollo-Soyuz extreme-ultraviolet (EUV) experiments. Dr. B. Marston telegraphed

in April to request data on X Per for the past year due to intriguing UVB results he had obtained. After receiving our data, he invited us to participate in the Apollo-Soyuz EUV experiments where UV Cet, VW Hyi, Z Cha, DQ Her, AE Aqr, SS Cyg, EV Lac, DO Cep, and FL Vir were to be observed. We were requested to monitor these optically and alert them if any had outbursts. About 200 Alerts were sent to observers worldwide and there was a most enthusiastic and excellent coverage and a real contribution to this pioneering experiment. The day the EUV observations started, SS Cyg had an outburst! We immediately alerted Dr. Margon who was in Houston, Texas, monitoring the experiments. Upon our call, in order to observe SS Cyg at this opportune time, the crew changed their observing schedule and concentrated on SS Cyg much more than planned. However, much to everyone's surprise, the initial preliminary data indicated no EUV emission from SS Cyg at maximum. The explanation of these findings still remains a mystery!\* My heartfelt thanks go to all observers who participated in this and the other Alert Notices and contributed very valuable data to the experiments.

I would like to express my deep appreciation and thanks to those observers, particularly J. Morgan, E. Mayer, C. Scovil, G. Kelley, P. Taylor, M.J. Taylor, J. Bortle, C. Hurlless, C. Sullivan, P. Goodwin, G. Johnson, R. Annal, and L. Hiett, who call or drop me a line alerting me to the most recent activity of U Gem stars. It is due to this very close cooperation of our observers that I am able to give very valuable first-hand information to astronomers when they need it.

My sincere thanks to all the committee chairmen for their very fine job of informing observers of their activity, reducing the data they receive, and answering special request. Here, special thanks are due to M. Baldwin for his excellent chairmanship. The data reduced and published by him on eclipsing binaries have been praised by astronomers attending the I.A.U. Colloquium 29.

MEMBERSHIP: During the 1974-75 fiscal year, 115 annual and 3 sustaining members were elected. In addition, eight changed from annual to sustaining membership. Lists of the above may be found in J.A.A.V.S.O. 3, No. 2; and 4, No. 1.

We elected Margaret Mayall an Honorary Member. We are grieved by the deaths of six members among whom there was one of our oldest members, Radha Chandra and our young member, Patric Morrison.

PUBLICATIONS: Journal of A.A.V.S.O. Vol. 3, No. 2, and Vol. 4, No. 1, were published this year. Our members were informed in the Vol. 3, No. 2, issue of our Journal that Dr. William H. Glenn, the conscientious editor of the Journal had resigned and that Dr. C. Whitney was now our new editor. Dr. Whitney is an astronomer at Harvard University; he appreciates and uses the work of the amateur astronomer and is keenly interested in them. My thanks to Dr. Glenn for his services as the first editor of our Journal, and our best wishes and thanks to Dr. Whitney, C. Scovil, and the editorial board for this very fine publication. Here, I would like to relate to our members that many favorable comments were made to me by astronomers about the contents of our Journal at the I.A.U. Colloquium 29.

The AAVSO CIRCULAR continues to be edited and published by J. Bortle, W. Lower, and C. Scovil. Although it does not contain the complete, official AAVSO data, it serves a very useful purpose in giving the preliminary data about the activity of the eruptive and some interesting variables soon after they are observed. It is a good medium for me to reach some of our active observers with a list of variables that need more observations. The response to my requests for these neglected variables has been excellent! My thanks to John, Wayne, and Charles for their very fine work in putting out our Circular.

Predicted dates of maxima and minima of long period variables for 1975 were published in Bulletin 38. This bulletin also contained the preliminary predictions extended to January and February, 1976, to aid our observers, while next year's predictions are in preparation during those months. We have received favorable remarks for this extension, both from observers and astronomers who use our predictions. A Supple-

\*In the recent meeting of the High Energy Astrophysics Division of the American Astronomical Society, Dr. S. Bowyer, the principal investigator of the EUV experiment, announced that more careful analysis of the EUV data did show weak EUV emission from SS Cyg!

ment and Special Supplement to Bulletin 38 were also issued, giving lists of stars that need more observations for the Northern and Southern Hemisphere observers, respectively. Based on the predictions of Bulletin 38, Bulletin 38-A prepared by C. Ford which shows schematically times when some variables are going to be fainter than  $13^m$ , and Bulletin 38-B, prepared by P. and MJ Taylor, showing when variables are going to be brighter than  $11^m$ , were published and issued to observers.

Special predictions of maxima for some bright stars were made for Sky & Telescope, and annually for Observer's Handbook of R.A.S.C., along with descriptions of variable types and the AAVSO light curve of R CrB. This year, for the first time, we sent predictions of maxima for 1976 of bright variables to be published in Aarde & Kosmos, a monthly Dutch scientific magazine, upon the request of Carl E. Koppeshaar, the editor.

Variable Star Notes in the Journal of R.A.S.C. were published bimonthly on "Peculiarities in the Light Curves of Long Period Variables and Novae in 1974"; "The Behavior of SS Cygni and Other U Gem and Z Cam Type Stars" (these two notes appeared in combined form in Vol. 4, No. 1 of our Journal); "Nova Per and the Recent Minimum of R CrB"; "Novae Sct, Aql, and Cyg of 1975"; and reports of Annual and Spring meetings. Along with the articles, monthly totals of individual observers were also given.

Annual ephemerides for eclipsing binaries and RR Lyrae stars, made available by M. Baldwin and D. Livingston, were published. I would like to express our special thanks to D. Livingston, who has computerized the ephemerides and has been doing an excellent job in preparing them yearly.

Solar Bulletin which contains brief information on solar activity and data on solar flares was competently prepared monthly by C. Hossfield and published by C. Hurlless, the editor. Sudden Ionospheric Disturbance (S.I.D.) activity has been coordinated capably by R. and B. Ammons.

The Julian Day calendar for 1975 was prepared at Headquarters, and published by Unitron Scientific Inc., gratis.

A list of books available from Headquarters was distributed to members and received a very good response.

REQUESTS FOR INFORMATION: 545 requests for information about AAVSO were received during the year. The "Information Kit" which summarizes the activities of the AAVSO and gives the list of useful books and atlases for observing was mailed to all. To 137 who showed special interest, the Manual for Observing Variable Stars was also sent. We have also set up observing programs in several colleges and high schools and have been receiving good data from several participants.

#### INTERNATIONAL COLLABORATION WITH OTHER VARIABLE STAR OBSERVERS GROUPS:

I am very happy to report that this year we have extended our collaboration with other international groups. Our member D. Overbeek, now director of the Variable Star Section of the Astronomical Society of Southern Africa, continues to contribute significant data on southern variables; Ole Klinting, of Astronomisk Selskab, continues to provide valuable data on SS Cyg obtained by his members each year. F. N. Traynor, in charge of the Australian Variable Star Section of the B.A.A. continues to furnish important data on southern variables. B. Szentmártoni, the director of Albireo Amateur Astronomy Club in Hungary, continues to send observations from his members. During my stay in Budapest I had the pleasure of meeting Mr. Szentmártoni and had the opportunity to discuss further collaboration of the AAVSO and the Albireo Club. Upon my return, we mailed a large number of charts to him for distribution to his members, so that observations can be standardized. Recently, thanks to J. Bortle, who opened the way for discussion, we have further strengthened our communications with the French variable star observers association A.F.O.E.V. M. Duruy, Honorary General Secretary of A.F.O.E.V., and a very enthusiastic astronomer, contributed and is contributing valuable predawn observations. During Mr. Bortle's visit to Japan, we were able to increase collaboration with the Japanese Astronomical Study Association. Last, but not least, during my attendance at the I.A.U. Colloquium 29, I had the pleasure of meeting F. Bateson, the director of the Royal Astronomical Society of New Zealand, Variable Star Section, and agreed upon very constructive collaboration of the two groups which involves exchange of publications and charts and of observations of stars south of  $-30^\circ$ . The exchange of observations between the two groups (to be used but not published by the other group) is an important step which will help the precision of the predictions of maxima and minima for the southern variables.

ASTRONOMICAL TRIPS AND MEETINGS ATTENDED BY THE DIRECTOR: Through the kind invitation of the Astronomy Department of the University of Toronto and the Toronto Centre of the R.A.S.C., I went to Toronto in March to give a Colloquium at the Department on T Tauri stars and a talk on the AAVSO to the R.A.S.C. I would like to express my thanks to the Toronto members of R.A.S.C. and the Astronomy Department, particularly to Drs. C. Coutts and J. Percy, for their invitation and hospitality.

I attended the I.A.U. Colloquium 29 on Multiperiodic Variable Stars, held in Budapest, Hungary, in September. The Colloquium embodied theoretical and observational reviews, and short papers on variables that show multiperiodicity, such as dwarf novae, Cepheids, Mira variables, RR Lyrae stars, binaries,  $\delta$  Scuti and  $\beta$  Canis Majoris, Magnetic and Ap variables. Dwarf novae were of particular importance to astronomers who have detected rapid variations (of minutes and seconds) as well as regular outbursts. Once again I assure our members of the importance of our high quality visual data, which astronomers depend on and praise.

SUMMARY OF OBSERVATIONS: During the fiscal year 1974-75 we received 1850 reports from 373 observers, 55 of whom sent reports every month, 12 missed only one month and 15 missed two months.

99,703 observations came from observers in 37 states, and 53,390 came from those in 23 countries, giving the all time record of 153,093 observations for the year.

Table I lists the number of observers from each country and their astronomical contributions, and Table II from each state in the U.S.A. Table III is an alphabetical list of our observers, giving their observing initials, name, location, total of their observations, and the "inner sanctum" observations, which are those 13<sup>th</sup> or fainter and/or "fainter than" observations of 14<sup>th</sup> and fainter.

This year we passed another landmark in our observations when our new observer, P. Goodwin, in his sixth observing month made the 3.5 millionth observation for the AAVSO, observing V Hya in April. Our congratulations to Paul!

During the year, 18 observers made between 1,000 and 2,000 observations; six between 2,000 and 3,000; R. Annal, T. Cragg, E. Oravec, between 3,000 and 4,000; M. Baldwin, L. Hiatt, U. Hopp, C. Hurless, and S. Sharpe between 4,000 and 5,000. As our top observers, U. Surawski made 5,032 observations, E. Mayer 5,458, M. Kiehl 5,782 and W. Lowder 7,115. E. Mayer, one of the most productive observers, who goes after faint and hard-to-observe stars that need attention, leads the inner sanctum with 1,991 observations, followed by C. Hurless with 947 and T. Cragg with 761. K. Krisciunas, H. Landis, H. Louth, and R. Mitchell contributed valuable photoelectric data and C. Scovil and H. Specht provided photovisual data this year.

I would like to stress once more that what is needed is quality, not quantity in observations!!

With the immediate processing of the incoming data and the computer plotting, it is most essential to receive the monthly reports on time. I would like to make a very strong plea to our observers to try to send their observations as early as possible following the month they are made.

My heartfelt thanks to all our observers for their efforts, interest, enthusiasm, and contribution of very valuable observations this year.

GIFTS: Our special thanks to our members and friends who have contributed to the Margaret Mayal Assistantship, which now has \$2,212 in its account. Although it is still not sufficient to get our first assistant, we are confident that we will have assistants before too long.

We are touched and thankful for being remembered by the late Richard W. Hamilton in his will. He donated to the AAVSO a large selection of valuable astronomical books, correspondence, and documents concerning AAVSO, a 3-inch Alvan Clark refractor and a 9.6-inch reflector.

Our sincere thanks to Clinton Ford for his generous contribution, which made it possible to undertake and continue the AAVSO Variable Star Atlas project.

Many thanks to all those members who donate to the general and endowment funds along with their dues.

PERSONNEL: Florence C. Bibber, a devoted member and indispensable AAVSO assistant continued her very valuable service at Headquarters.

Carla Holm joined our full time staff as my assistant when Carl Ericson left in February. She is hard-working, conscientious and meticulous.

I am very happy to announce that we have added another full time member, Josefa Manella to the staff at Headquarters, as an assistant to the Director. Maria Mitchell Observatory assistant in summer 1974, and with a major in astronomy from Smith College, Josefa is very capable, hardworking and dedicated. I am particularly thankful to Josefa and Carla for the fine job they did with the operations of HQ and data handling, especially of Nova Cyg, while I was in Budapest.

MaryJane Taylor, our very competent contributing observer who spent three weeks at HQ was very helpful in compiling data for Dr. P. Wood, working on the extension of Studies of Long Period Variables, and clarifying the behaviour of SX Lib and the comparison star C<sup>1</sup>, in the field.

We had several very capable part-time student assistants who helped us with data processing. Richard Strazdas did an excellent job in modifying our programs for Report 30, preparing our mailing labels, and density curve plotting programs, along with keypunching and verifying incoming observations. He is an indispensable member of our data processing staff. Robert S. Hill from Harvard University handled our keypunching and verifying very capably during the year. Marilyn Bibeau and Eugene Shao were a big help in the general operations of the office and as assistant chart curators. Debbie Ross, 4th generation Campbell, offered her services to AAVSO during her holidays. Our new member and an enthusiastic observer, Linda Blizard, who read that we were understaffed at Headquarters, volunteered her valuable services. She is very capable, dedicated, and a wonderful help in the office.

ACKNOWLEDGEMENTS: Our sincere thanks to Smithsonian Astrophysical Observatory of the Center for Astrophysics for their support of our computer activities and to Dr. Owen Gingerich for making this possible. Our special thanks to Barbara Welther for always offering her help with our computer programs and data processing at large.

My thanks and appreciation to Margaret Mayall, who has given very generously of her time and knowledge to help us with Reports 30 and 31, proofreading, checking, and anything else we need help with.

Our special thanks to Stamford Museum for allowing C. Scovill to use their 22-inch telescope for our chart work, for making available the facilities of the Museum for the preparation of our Journal and Circular and the mailing of our Circular.

My heartfelt thanks to my husband for his encouragement, understanding, and support.

My sincerest thanks and gratitude to all the officers, committee chairmen, members and observers for your efforts, enthusiasm, cooperation, and for financial and valuable astronomical contributions. Let us all keep up the good work!

Respectfully submitted,  
Janet Akyüz Mattei

TABLE I - COUNTRIES

Country	No. Observers	Total Obs.	Country	No. Observers	Total Obs.
Argentina	1	19	Japan	6	1703
Australia	4	374	Mexico	2	663
Austria	1	375	Netherlands	1	744
Brazil	1	355	Norway	7	238
Canada	31	9018	Rhodesia	1	511
Czechoslovakia	1	263	Saudi Arabia	1	2
England	8	1114	South Africa	7	2631
France	2	414	Switzerland	2	514
German Dem. Rep.	2	920	Uruguay	1	29
Greece	2	686	U.S.A.	267	99703
Hungary	11	4225	Venezuela	1	148
Italy	1	632	West Germany	12	27812
			TOTAL	373	153093

TABLE II - UNITED STATES

	No. Observers	Total Obs.		No. Observers	Total Obs.
Arizona (AZ)	5	718	Nebraska (NE)	2	464
Arkansas (AR)	5	556	New Hampshire (NH)	10	59
California (CA)	28	11214	New Jersey (NJ)	11	977
Colorado (CO)	4	1724	New Mexico (NM)	7	1950
Connecticut (CT)	15	7879	New York (NY)	22	14985
Delaware (DE)	1	36	North Carolina (NC)	1	170
Florida (FL)	14	8314	North Dakota (ND)	1	22
Georgia (GA)	3	185	Ohio (OH)	20	12851
Illinois (IL)	10	1139	Oklahoma (OK)	1	2
Indiana (IN)	4	5157	Oregon (OR)	2	437
Iowa (IA)	1	81	Pennsylvania (PA)	13	1901
Kansas (KS)	3	1314	South Carolina (SC)	2	622
Louisiana (LA)	2	1569	Tennessee (TN)	5	702
Maine (ME)	3	400	Texas (TX)	7	1495
Maryland (MD)	4	2642	Virginia (VA)	5	7105
Massachusetts (MA)	13	1517	Washington (WA)	5	361
Michigan (MI)	5	1823	West Virginia (WV)	3	1872
Minnesota (MN)	3	266	Wisconsin (WI)	15	4385
Missouri (MO)	12	2809	TOTAL	267	99703



TABLE III - AAVSO OBSERVERS 1974-75

ADA G.L. Adamoli, Italy	632		DAJ J. Davis MD	30	
ADJ J.E. Adams, NJ	163		DEP P. Del Cotto, NY	9	
AD R.M. Adams, MO	1807-	341	DEA R. DeMartino, CT	223-	4
ADW W. Adams, CT	32		DEV D. DeVoe, OH	67	
AH P. Ahnert, Gem.Dem.Rep.	324		DRG R. Diethelm, Switz.	267-	1
AJ J.A. Anderer, IL	36		DIL W.G. Dillon, VA	691	
AC C.E. Anderson, MN	40		DRA A.V. Dralle, PA	76	
ANK K. Anderson, Canada	2		DUF R.D. Dufur, WA	3	
ANJ J. Andette, MO	73		DUK K. Durston, Canada	2	
AJR J.R. Andress, OH	89		DUR M.V. Duruy, France	118-	12
ANN R.J. Annal, CA	3594-	596	ECK C. Eckert, W.Germany	524-	5
ARI R.B. Ariail, SC	446-	2	EGA A. Egri, Hungary	60	
ATW P.F. Atwood, CT	681		EL J. Ellerbe, Saudi Arabia	2	
AWE B. Awe, WI	46		ELW S.J. Elwin, Australia	84	
BAI J.A. Bailey, U.K.	122-	1	EM G.P. Emerson, CO	2	
BAG G. Bakos, Hungary	34		ERC C.A. Ericsson, MA	4	
BM M.E. Baldwin, IN	4848		ESM M. Estes, NH	4	
BLN T.J. Balonek, MA	23		FRW W.B. Farrar, NM	676-	1
BAK K.P. Barr, KS	12		FEN A. Fenyesi, Hungary	701	
BBS R. Bass, TX	105		FRR R. Fera, CA	2	
BAF F. Bateman, S. Africa	37		FEA A.M. Ference, PA	54	
BAU J. Bauer, W.Germany	1900-	25	FEH H. Ferguson, NH	34	
BBA B.B. Beaman, IL	147		FE C.F. Fernald, FL	152	
BKO R.L. Beck, Canada	7		FER Y.A. Fernandez, Uruguay	29-	4
BIL G. Bilodeau, CA	151-	75	FET T.I. Fetterman, NJ	26	
BKG G.A. Birkhimer, WV	39		FIE R.K. Field, S. Africa	7	
BKN A. Birkner, IL	92		FIN B. Finke, MO	14	
BLH W.J. Blake, NY	3		FON W. Fontana, NY	1	
BZZ M.R. Blizzard NY	58		FD C.B. Ford, CT	1741-	478
BLU B. Blundell, NY	22		FT G.L. Fortier, Canada	97	
BOH D. Böhme, Gem.Dem.Rep.	596		FRB B.M. Frang, MN	7	
BRJ J.E. Bortle, NY	2746-	342	FRI L.A. Frigon, CA	85-	4
BZC C. Borzelli, NJ	28-	1	FR E.E. Friton, MO	72	
BRD R.M. Braid, IL	29		GAD D. Galdun, OH	3	
BMS P.J. Bremseth, Norway	84		GAN B. Ganiere, WI	62	
BTB T.C. Bretl, OH	38-	2	GAA P. Garey, MO	25	
BLP P. Brlas, Hungary	585		GAP P. Garnavich, MD	531	
BKS S. Brooks, NY	9		GER R. Geszler, Hungary	267	
BRZ L. Brown, AR	3		GHO L.H. Ghio, Argentina	19	
BRT T. Brown, AZ	113		GLF F. Glenn, NY	132	
BRY J.T. Bryan, NE	430-	84	GLW W.H. Glenn, NY	138	
BRQ N. Bryuildsen, Norway	24		GO K. Gomi, Japan	2	
BUO A.T. Bueno, CA	97		GJT J.T. Goodwin, MA	32	
BUW R. Buhrow, AZ	248-	34	GOP P.N. Goodwin, LA	690-	5
CDE J. Calder, Canada	91		GJI J.I. Grafath, OK	2	
CWA W. Campney, Canada	226-	1	GRK K. Graham, CT	425	
CAH H. Carney, FL	85		GRL B.H. Granslo, Norway	98	
CE C. Carpenter, CA	54-	39	GAS E.R. Grasshoff, TX	41	
CAM M.A. Cavanaugh, NJ	32		GRW D.W.E. Green, NC	170	
CHL J.H. Chappell, NH	3		GRB B. Grenig, OH	6	
CHF R.H. Chase, ME	144		GRI J.W. Griesé CT	480	
CHC J. Chesman, TN	51		HK E.A. Halbach, WI	838-	86
CHM M. Chesman, TN	51		HAC C.D. Halverson, CA	56-	7
CHK E. Chipman, CO	35		HMR R. Ham, CO	1643-	1
CHI R. Chipman, MA	7		HAN J. Hannon, CT	14	
CHP D.P. Christensen, OR	11		HRR P. Harrington, CT	326-	3
CST G.J. Christensen, OR	426		HAT P.M. Hartigan, MN	219	
CLK W. Clark, MO	175		HRV D.A. Harvey, NE	34	
COL P.L. Collins, MA	55		HRJ J. Harvin, FL	538	
CNS M.G. Connors, Canada	5		HWL W. Hawley, NH	4	
COT N. Cort, MA	28		HAY E.R. Hayden, CT	547-	177
CRN D. Cortner, TN	376		HZL L. Hazel, NY	626-	195
CSD D. Costanzo, VA	252		HY A.S. Heasley, OH	70	
CR T.A. Cragg, CA	3958-	761	HEI J. Heintz, NH	2	
CUN D. Cunningham, Canada	18		HEE E. Heiser, W. Germany	465-	25
DS J.M.L. daSilva, Brazil	355		HEL K. Helbak, Norway	4	
DV G. Davidson, KS	17		HNG G.W. Henry, OH	310	
DAV H.H. Davis, Canada	8		HES C. Hesseltine, WI	44	

TABLE III, AAVSO OBSERVERS, cont.

HEV Z. Hevesi, Hungary	18		MTM M. Mattei, MA	10	
HE F.L. Hiett, VA	4570		MTZ O. Matzek, Austria	375	
HIG E. Higgs, NH	4		MYR E. Mayer, OH	5458-1991	
HIR Y. Hirasawa, Japan	336		MCB R. McCallum, Canada	215-	9
HIK K. Hirose, Japan	309-	2	MCT A. McCright, MO	4	
HOO G. Hoogeveen, Holland	744		MCJ R. McCutcheon, VA	20	
HOP U. Hopp, W. Germany	4959		MCI B.J. McInnerny, U.K.	288	
HOU D. Hough, NJ	158		MED K.J. Medway, U.K.	175	
HU W.S. Houston, CT	71		MEI R. Meier, Canada	70-	6
HUK K.C. Huber, IL	33		MEN P.T. Mencher, CT	216	
HR C.J. Hurless, OH	4176-	947	MEZ C. Mezosi, Hungary	231	
HUR G.M. Hurst, U.K.	180-	5	MTC R.C. Mitchell, WA		9-PEP2
ING S.F. Ingate, Australia	96		MGJ J. Mogelinski, NJ	232	
ISH T. Ishihara, Japan	196		MOR R.L. Monske, PA	740	
ITO M. Ito, Japan	28		MNG G. Montag, CA	2	
JEN C. Jenkins, S.Africa	182-	4	MJ A.C. Montague, MI	1453-	18
JOG G.E. Johnson, MD	428-	5	MM F.P. Morgan, Canada	448	
JT R.B. Johnston, Canada	277		MOJ J.E. Morgan, AZ	283-	4
JOR R. Jones, CA	61-	39	MB A. Morrisby, Rhodesia	511	
JRD D. Jordahl, PA	93		MRO P.D. Morrison, MA	655	
KL L.G. Kalish, CA	40		MOW W.C. Morrison, Canada	918	
KLK G.W. Kelly, VA	1572-	79	MUN C.R. Munford, U.K.	117-	1
KEK K. Kelly, NM	10		MUR P. Murn, WI	512-	44
KIM M. Kiehl, W.Germany	5782		MUM M.J. Murphy, NM	207-	2
KIR P.E. Kirby, OH	742		MDT D.T. Murray, PA	11	
KLK K. Klebert, W.Germany	1950-	1	MYE K.J. Myers, IN	180	
KS J. Knowles, NY	23		NGY A. Nagy, Hungary	9	
KHJ H.J. Koller, Canada	151		NEU G. Neuman, Canada	4	
KRS R.S. Kolman, IL	55		NEW M.V. Newberry, MI	311-	14
KLP D. Kolpanen, PA	59		NBY J. Nordby, ND	226	
KRD T.N. Kridlo, PA	250		OF A. Oberstatter, France	292-	4
KRK K. Krisciunas, CA	59	PEP	OCN S.D. O'Connor, Canada	1573	
KIS G. Krisch, W.Germany	949		OME S. O'Meara, MA	29	
KRO B. Krobusek, OH	56		OV E.G. Oravec, NY	3039	
KRP P. Kroner, OH	2		OB M. Overbeek, S.Africa	2183-	59
KRU J. Kruta, Czech.	263		OZR R. Ozer, CA	3	
KUH J.L. Kuhns, GA	156		PAS S. Padilla, CA	151-	8
KUW T. Kuwabara, Japan	832		PKJ J.A. Parker, TX	11	
KWD C.F. Kwadrat, PA	7		PSP P.F. Pastore, NY	77-	1
LAM D. Lam, Canada	17		PAA A.M. Pattee, NY	7	
LAD R. Lamond, NJ	2		PAC C. Patterson, PA	28	
LND H.J. Landis, GA	21	PEP	PAR R.H. Patterson, NY	106	
LGH H.A. Lange, Canada	331		PAX G. Paxton, S.Africa	17	
LUT T.R. Lauer, NJ	134-	2	PN A. Pearlmutter, MA	248	
LWS M. Lawson, TX	4		PTI N. Peattie, CA	19	
LEK R. Lervik, Norway	4		P L.C. Peltier, OH	1313-	299
LEV A.J. LeVeque, CA	47		PFA J. Pfannerstill, WI	41	
LVY D.H. Levy, Canada	6		PFF G.Pfeiffer, W.Germany	2333	
LWC C.W. Lewis, NJ	155		PRC C. Price, PA	1	
LNB G.G. Lindbloom, PA	443		PFJ F.J. Price, NY	149	
LK K. Locher, Switz.	247-	1	PRI L.E. Price, ME	5	
LOT H. Louth, WA	83	PEP	PRO D.J. Prosocki, MO	16	
LX W.M. Lowder, NY	7115		PYE D.W. Pye, U.K.	180-	113
LOW J.K. Lown, FL	50		RAG T. Rago, NH	2	
LKS R. Lukas, W.Germany	2055		RAI P.J. RAIMONDI, IL	4	
LUN R. Lunde, Norway	16		REH D. Rehner, OH	98	
LUO R.J. Luoma, NY	37		RNT C.C. Reinhart, OH	45	
MDD P.J. Madden, LA	879-	82	RNN T. Renner, WI	136-	16
MGR D.M. Magor, FL	10		REV C. Revercomb, NH	3	
MAN C.P. Mahnkey, Mexico	623		RQ C. Ricker, MI	14	
MAB R. Malenko, Canada	1		RIP M. Rippel, NM	27	
MLT A. Mallama, OH	6		ROR D.A. Rodger, Canada	51	
MCO M. Marcario, CA	125-	31	ROM J. Romanucci, CA	6	
MAF G.R. Marshall, S.Africa	53		ROJ J.M. Roney, Canada	82-	2
MAE C.J. Martin, Canada	38-	2	ROK K. Ronn, WI	11	
MRX H. Marx, W.Germany	1829		RB D.W. Rosebrugh, FL	677	
MIE R. Mathieu, DE	36		ROG G.M. Ross, MI	15	
MTT J.A. Mattei, MA	3		ROR R.E. Royer, CA	160	
			RPH H. Rumball-Petre, CA	36	

TABLE III, AAVSO OBSERVERS, cont.

RUO D. Ruokonen, WI	29-	1	TB D. Taboada, Mexico	40	
RYA A. Ryan, Norway	8		TVN V. Tangney, WI	20	1
SAH G. Samolyk, WI	1686		TYR M.J. Taylor, FL	1624	
SNL J.G. Sandel, SC	176		TLA M.D. Taylor, U.K.	34	
SRN T.M. Sarna, IL	286		TAY P.O. Taylor, FL	2032	
SCC J.D. Scarl, NJ	7		TAT T. Taylor, CA	2	
SCK B. Schaefer, CO	44		THM J.V. Thomas, TN	12	
SHU E. Schauer, W.Germany	34		TPR R.R. Thompson, Canada	181	
SMJ J.F. Scholl, NY	418		THS R.S. Thompson, FL	646	
SCE C.E. Scovil, CT	2519-	995 pg	TWN A.W. Townsend, TN	212	
SEA J. Searles, OH	48		TFN F.N. Traynor, Australia	60	
SEI D. Seidenschwarz, AR	74	2	TUB V. Tuboly, Hungary	80	
SEE E. Seifert, AZ	17		TUL M.K. Tulloch, Canada	4	
SES L. Sessions, AR	34		TUC C. Turk, S.Africa	152	
SDA D. Sharpe, FL	208-	3	TYS R.L. Tyson, NY	241	
SHS S.B. Sharpe, Canada	4025-	3	UL A. Ullmann, NY	21	
SSA A.P. Sharpless, FL	19		UND E. Underhay, CA	265	
SHH P. Shelton, Canada	1		VER B. VanDer Ende, Canada	1	
SHB C. Sherrod, AR	311-	13	VLM M. Villanueva, CA	10	
SRC R.Shinkfield, Australia	134		VIS G.P. Visocki, IL	440	
SID D.R. Simmons, CA	23		WTH T.H.N. Wales, MA	11	
SKL K. Simmons, FL	1109-	1	WKR T.D. Walker, CA	3	
SPN A.P. Simpson, NM	202		WAW W. Walker, WV	10	
SLB B.F. Small, FL	929		WLL H.J. Walls, TX	191	
SMI A.L. Smith, U.K.	18		WRT T. Ward, OH	24	
SHA H.A. Smith, CT	479		WRN R. Warden, PA	38	
SJ J.R. Smith, TX	458	68	WRG R.G. Watson, IN	82	
SLD L.D. Smith, NM	14		WBB W.V. Webb, OH	236	
STL M.B. Smith, NM	814		WEB J.W. Weber, WA	17	
SOU R.G. Southwick, WA	249		WER R.J. Weber, KS	1285-	1
SH H.E.M. Specht, CT	11 pg		WED G. Wedemayer, WI	864	
SPC C.S. Spell, GA	8		WEI D.D. Weier, WI	29	
STY J. Stafil, WI	12		WEL D.L. Welch, Canada	136	16
STR R.H. Stanton, CA	277-	194	WEA A. Wells, MA	412	
STU W.E. Staruk, CT	114		WES R. West, IN	47	
STI P.C. Steffey, CA	1928-	14	WI D.B. Williams, IL	17	
SET C. Stephan, OH	64		WLM T.R. Williams, TX	685	
STF G.Stefanopoulos, Greece	228		WIF C. Willis, NH	1	
STQ N. Stoikidis, Greece	458		WJA J.A. Wilson, MO	541	
STO P.M. Stone, MO	55		WSN T.W. Wilson, WV	1823-	31
STZ R. Stout, AR	134	6	WNB B. Wingate, NJ	40	
STX F. Streeter, NH	2		WNZ J.E. Winzer, Canada	32	
SUN M. Sulkanen, MI	30		WTN B.C. Witten, AZ	57	
SUL C.E. Sullivan, MD	1653-	2	WOO M. Woolbright, MO	5	
SUR U. Surawski, W.Germany	5032		YOU K. Young, IA	81	
SVN P. Sventek, ME	251		YON R.R. Young, PA	101	
SWR R. Sweetsir, FL	235		ZAF J. Zaffi, Venezuela	148	
SWO A. Swoboda, MO	22		ZAG G. Zajacz, Hungary	1265	
SZC B. Szentmartoni, Hungary	975		ZT R. Zit, WI	55-	3
SZF B. Szilagy, NY	8				

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## Errata:

Captions for Figures 2 and 3 on page 9 of Vol. 4, No. 1 should read:

Figure 2. Minimum of V Sge observed on June 8/9, 1975. Time scale contains heliocentric correction. Minimum = JD 2442572.699 (4 hrs. 46.4 min. G.M.A.T.)

Figure 3. Minimum of V Sge observed on June 6/7, 1975. Time scale contains heliocentric correction. Minimum = JD 2442570.647 (3 hrs. 31.3 min. G.M.A.T.)

page 7: The address of E. Mayer should read 1485 Ries St.