

ANNUAL REPORT OF THE DIRECTOR
30 SEPTEMBER 1973

It gives me great pleasure to present my 24th and probably final annual report as Director of the AAVSO. As in the past, each year seems to bring more expansion of our activities in the office and among the members.

During the college year, our student key-punch operators worked diligently and efficiently and, with added help of a smaller summer staff, we are now punching observations received early in 1972. Many of our observers are now punching their own observations in our standard format. This is a big help to us, and will make a sizable difference in the number of cards we will have to punch in the future.

SPECIAL REQUESTS. The U Gem-type variables are among the most popular types for study today, and while we have learned a great deal about them, there are still many unexplained problems.

A group of X-ray observers at M.I.T. were making a special survey of the Cygnus Loop and accidentally detected a source of ultra-soft X-ray emission near SS Cygni. Dr. Rappaport and others of the group contacted AAVSO Headquarters, seeking information about the optical brightness of the star. They have a record of six scans of the region by various observers between 1969 and 1973. On only two dates was the star at maximum: 19 December 1970, and 30 March 1973. The 1970 scan by Cal Tech observers was done under poor conditions, but in 1973 the M.I.T. group, with excellent conditions, detected the emission for the first time. They are also looking for pulsations when SS Cyg is at maximum, and asked to be alerted when the beginning of a rise was observed. Mrs. Mattel (who was in close communication with the M.I.T. group) arranged to have AAVSO'ers contact her at any sign of an increase in brightness. They did not detect any pulsation during the September maximum. Conditions were excellent for the early October maximum, and results are yet to be reported. The AAVSO is playing a vital part in this survey. The results of the detection of soft X-rays will be published in Astrophysical Journal Letters in the near future.

Dr. Holm of the University of Wisconsin Space Astronomy Laboratory asked for optical data on SS Cygni to correlate with ultra-violet photometry he had obtained during 1972 and 1973 with the Orbiting Astronomical Observatory. He is also searching for UBV observations of SS Cygni but has not found any. This is a good field for our photoelectric observers.

Last fall, Dr. George Wallerstein wrote from the University of Washington that there was some possibility that U Gem itself had been detected as a soft X-ray source on two occasions, and asked for AAVSO observations. On his first date, 13 December 1966, U Gem was about two days past a narrow maximum, but on his second date, 14 February 1970, the star was at minimum, about 30 days before a narrow maximum. Therefore no conclusion could be drawn, but future observations, made with AAVSO cooperation, may be very significant.

Ray Cruddace of the Space Science Laboratory at Berkeley telephoned for data on U Gem for 10 February 1973. They had rocket observations which did not detect any unusual emission, but AAVSO observations showed that U Gem was at minimum. Again our observations were of very significant value.

There are many studies underway on the bright nova (HR)

Del 1967. Miss Seitter and Mr. Dürbeck of the Hoher List Observatory of Bonn, Germany are publishing an atlas of spectra of Nova Del and wanted a complete light curve to accompany it. We sent them our material of six to seven thousand observations. When I saw them in Poland this summer they said our material was of the greatest value.

Dr. L. Kohoutek of the Hamburg Observatory also asked for our observations to use in his definitive light curve of HR Del. He thanked us saying, "AAVSO observations are very valuable for me."

Our member Stephen Burt of Wesleyan University wrote for suggestions on his thesis topic. Mrs. Mattei, who had written her Master's thesis on the T Tauri Phenomena, sent him many suggestions for future research, together with references to work already published.

Roger Facklam, a young student at the Chapman Kansas High School wrote a long letter about his proposal for using computer techniques in conjunction with observations of variables. He has access to the Kansas State University IBM 360 model 50 computer.

Dr. Paul Rybski of the University of Texas at Austin was working on the detection of calcium chloride in Mira variables and phoned to ask for visual observations of a selected list of stars between November 1970 and January 1972.

One of our members in West Germany, Erwin Heiser, is making a large survey of O-C values for the bright long period variables and wanted our dates of maxima for about 150 stars. I talked with Mr. Heiser in Hanover this summer and we are sending him copies of our plots of observations which will save him the tremendous job of plotting them himself.

New member Dr. Philip Steffey of Santa Monica, California has asked for help in setting up an elaborate observing program for all types of variables.

Dr. Richard Wolff of Columbia University asked for AAVSO assistance with observations of ρ Per. He was planning to make rocket observations of β Per and to examine the X-ray structure of the Perseus Cluster, and needed to know the magnitude of the irregular variable ρ Per in order to separate it from β Per in the tracking process. A group of AAVSO observers have been asked to observe ρ Per.

Numerous other requests have been received from individuals, both professional and amateur, and from college and high school groups.

I would like to emphasize once again the importance for observers to send their monthly reports promptly to Headquarters. We should receive the originals at the same time copies are sent to the Circular. Official reports on the activities of the variables must come from the complete up-to-date plots kept at Headquarters.

MEMBERSHIP. During the 1972-73 year we elected 129 new Annual Members and one new Sustaining: Leo J. Gugliotto. In addition, four Annual Members changed to Sustaining: Gerald A. Bilodeau, Charles S. Morris, Robert Spalding, and Robert N. Whitehurst. The membership roll is not growing as rapidly as it appears, for we had to drop about 100 members who were more than two years in arrears with their dues. We were saddened by the deaths of ten of our members: Leah B. Allen, A. R. Ball, G.O. Rawstron, Russell Hubbard, Charles Johnson, Alfred Joy, John Polgreen, Roy Seely, Harlow Shapley, and Russell Sullivan.

SUBSCRIPTIONS TO PUBLICATIONS Forty-three observatories and libraries subscribe to our publications, and several others have subscriptions to individual items.

PUBLICATIONS. Two numbers of the Journal of the AAVSO, Volume 1, Number 2, and Volume 2, Number 1, were published during the year. The Journal incorporates many of the smaller publications we formerly distributed, in addition to the papers presented at meetings. The Solar Bulletin is published monthly, and is now edited by Carolyn Hurlless. It contains notes on solar activity and reproductions of recordings of solar flares. American Sunspot Numbers are determined for NOAA and are also published monthly in Sky & Telescope.

We decided not to have a general distribution of a 1973 membership list, but to supply a Xerox copy to anyone who wrote for it. We received few requests and will probably continue this practice in the future. The Julian Day Calendar for 1973, and News Notes, edited by Carolyn Hurlless, and a list of officers and committee members, were distributed.

Bulletins and Ephemerides for the eclipsing binaries and RR Lyrae stars, prepared by Marvin E. Baldwin and Donald C. Livingston, were published bi-monthly.

Predictions of dates of variable star maxima and minima for 1973 were published in Bulletin 36. Based on these predictions we also published Bulletin 36A, prepared by Clinton B. Ford, a graphical method of showing when the variables were expected to be fainter than magnitude 13, and Bulletin 36B, prepared by John E. Bortle, showing when they would be brighter than 11th magnitude. Special predictions for some of the bright variables were made for Sky & Telescope and for the Observer's Handbook of the Royal Astronomical Society of Canada.

Report 29 was published, containing light curves of irregular and semi-regular variables and data on other variables which were not suitable for mean curves. It covers the same time interval as Report 28, October 1961 to September 1963.

The AAVSO Circular, edited and published by John E. Bortle, Wayne M. Lowder, and Charles E. Scovil, although not containing official results from Headquarters, serves a useful purpose in getting some indication of activities of the variables to the observers at an early date.

REQUESTS FOR INFORMATION. During the year we received about 350 requests for information about the work of the AAVSO and its specialized committees.

ANNUAL SUMMARY OF OBSERVATIONS. A record number of observers, 373, sent in 1791 reports during the year. The observers came from 19 countries and 43 states, and reported a total of 121,889 observations.

The observer with the greatest number of observations this year was Mario Vattuone, with 6,640. He was followed by Wayne Lowder, with 5,594 and Thomas Cragg, with 4,614. Five observers, Hurlless, Hiatt, Baldwin, Scovil, and Mayer, made between three and four thousand each. Sixty-two observers made 7,317 "Inner Sanctum" observations. The greatest number, 1,393, was made by Charles Scovil. Next was Ernst Mayer, with 1,004; then Cragg, 877; Hurlless, 861; and Ford, 640. Howard Landis made photoelectric observations and Charles Scovil and H.E.M. Specht did photometric work.

Table I lists the 19 countries in which we had contributing observers and Table II lists the 43 states in the USA. All

observers who contributed observations during the fiscal year 1972-1973 are listed in Table III. The list is in alphabetic order and gives the observer's code initials, name and geographic location, and his total number of observations, followed by the number of "Inner Sanctum" observations (fainter than 14th magnitude).

PERSONNEL. We have been very fortunate to have Florence C. Bibber continue as AAVSO Assistant, and Janet A. Mattei as Assistant to the Director. They are both dedicated AAVSO'ers and are a great help in operating Headquarters.

Our special thanks go to the Smithsonian Astrophysical Observatory for allowing time to the AAVSO on their computing machines and to Owen Gingerich for his help in negotiating it. Barbara Welther continues to give her time and advice in setting up new programs and in revising the old ones.

The officers and members of the AAVSO have continued to give us financial and observational support and I would like to thank them all personally.

Respectfully submitted,
Margaret W. Mayall

TABLE I - COUNTRIES

Country	No. Observers	Total Obs.	Country	No. Observers	Total Obs.
Argentina	5	8032	Mexico	6	2292
Australia	2	252	Norway	6	74
Canada	19	3405	Rhodesia	1	68
Dominican Rep.	1	26	South Africa	3	2356
France	2	494	Switzerland	2	2435
German Dem. Rep.	3	1751	Taiwan	1	75
Greece	4	1260	U.K.	25	1857
Hungary	17	2839	U.S.A.	247	76600
Italy	3	328	Uruguay	1	452
Japan	5	1463	West Germany	20	15830
				<u>373</u>	<u>121889</u>

TABLE II - UNITED STATES

	No. Observers	Total Obs.		No. Observers	Total Obs.
Alabama	1	35	Nebraska	1	96
Arizona	4	526	New Hampshire	1	10
Arkansas	2	128	New Jersey	7	2142
California	28	9114	New Mexico	2	201
Colorado	3	841	New York	22	14071
Connecticut	12	7235	North Carolina	7	1748
Delaware	2	144	Ohio	34	11534
Florida	17	6990	Oklahoma	1	2
Georgia	3	173	Oregon	1	17
Hawaii	1	9	Pennsylvania	9	1410
Illinois	7	1408	Puerto Rico	1	9
Indiana	3	1225	Rhode Island	1	92
Iowa	1	75	South Carolina	6	105
Kansas	1	138	Tennessee	4	1404
Louisiana	1	90	Texas	12	958
Maine	3	13	Utah	1	39
Maryland	4	375	Vermont	1	2
Massachusetts	3	325	Virginia	6	5204
Michigan	8	1568	Washington	3	426
Minnesota	4	912	West Virginia	1	1190
Missouri	8	2187	Wisconsin	7	1989
Montana	3	440		<u>247</u>	<u>76600</u>

TABLE III - AAVSO OBSERVERS 1972-73

AAR H. Aarrestad, Norway	4	?	DIK W. Dickinson, Va.	28
ADA G.L. Adamoli, Italy	62	?	DCK R.M. Dickson, Colo.	12
AD R.M. Adams, Mo.	1468-	279	DHD D. Diedrich, Ohio	12
AH P. Ahnert, German D.R.	661		DHG G. Diedrich, Ohio	16
AML L.S. Ambard, Cal.	7		DRG R. Diethelm, Switz.	842-
AMB K.S. Ambrose, Ohio	23		DLP S.R. Dunlop, U.K.	5
AJ J.A. Anderer, Ill.	35		DKF M. Dürkefälden, W.Ger.	52
ANB B. Anderson, N.J.	23		DUR M.V. Duruy, France	134-
AC C.E. Anderson, Minn.	832-	10	ECK C. Eckert, W.Ger.	107
AJR J.R. Andress, Ohio	386-	3	ELD D.P. Elias, Greece	44
ANN R.J. Annal, Cal.	1404-	20	ENG K.J. England, U.K.	9
ARI R. Ariaail, S.C.	28		FRW W.B. Farrar, Va.	115
ATW P.F. Atwood, Conn.	64		FEG F. Pegyverneki, Hung.	120
BEY G.D. Bailey, S.C.	21		FRR R. Fera, Cal.	1
BLY G.E. Bailey, Canada	8		FE C.F. Fernald, Fla.	371
BM M.E. Baldwin, Germany	3636		FER Y.A. Fernandez, Uruguay	452-
BRM R.M. Bales, Ore.	17		FD C.B. Ford, Conn.	2418-
BLN T. Balonek, N.Y.	11		POS D.W. Foster, Ohio	9
BJ J. Banks, N.C.	897		FRB E.M. Frank, Mass.	12
BTE J.O. Battle, Tex.	4		FRV V.J. Freeman, U.K.	12
BAU J. Bauer, W. Germany	1567-	1	FN D. Friedman, N.Y.	30
BBA B.B. Beaman, Japan	41		FRI L.A. Frigon, Cal.	124
BKO R.L. Beck, Canada	15		FR E.E. Friton, Mo.	76
BLL I. Bell, Del.	52		FLR D.B. Fuller, Md.	52
BIL G. Bilodeau, Cal.	135-	30	GLA G.A. Galassi, Argent.	112
BSV S.V. Bishop, Ohio	4		GAD D. Galdun, Ohio	3
BLO A. Blouch, Penn.	6		GAC C.I. Gale, Ga.	11
BOH D. Böhme, German D.R.	853		GAJ J. Garcia, Argent.	982-
BOG G. Borsos, Hungary	1		GSR R. Geschwind, Ohio	580-
BRJ J.E. Bortle, N.Y.	2738-	269	GLF F. Glenn, N.Y.	458
BWL C. Bowland, Ill.	14		GLW W.H. Glenn, N.Y.	486
BRV W. Breville, Mo.	30		GLG G.W. Gliba, Ohio	140
BRB B. Brown, Penn.	2		GNC C. Gondell, Argent.	267
BRH D. Brown, Ohio	139		GGH G. Gough, U.K.	16
BRT T. Brown, Ariz.	123		GAS E.R. Grasshof, Tex.	8
BRJ J.T. Bryan, Tex.	28-	5	GRI J.W. Griesel, Conn.	107-
BUC J. Buchanan, Ohio	23		GRF G. Griffin, Mo.	1
BUO A.T. Bueno, Cal.	386		GRO T. Grönningaeter, Nor.	15
BUW R. Buhrow, Ariz.	1		GUL L.J. Gugliotto, N.Y.	169
BGS G. Burgess, Maine	4		HK E.A. Halbach, Wisc.	963-
BMO R. Burnham, Canada	57		HAL R. Hall, S.C.	12
BTM M.E. Burnstein, Argent.	31		HMR R. Ham, Colo.	797
BUT R.J. Butler, U.K.	2		HP W.R. Hampton, Conn.	63
CDE J.B. Calder, Canada	4		HAN J. Hannon, Conn.	187
CAJ J.L. Carawan, N.C.	11		HAR R.W. Harnois, Maine	7
CAR R.P. Cassidy, N.H.	10		HRW W. Hartmann, W.Ger.	170
CF F. Chapman, N.Y.	5		HZL L. Hazel, N.Y.	1125-
CKE K.E. Chilton, Canada	241		HY A.S. Heasley, Ohio	93
CHP D.P. Christensen, Cal.	17		HEE E. Heiser, W. Ger.	1015-
CST G.J. Christensen, Cal.	498		HNG G.W. Henry, Ohio	138-
CHS J. Christensen, Cal.	7		HED D. Hensel, W.Ger.	7
CLK W. Clark, Mo.	14		HEN C. Henshaw, U.K.	232
CCR H.F. Cochran, Tex.	14		HEH H. Hernandez C., Mexico	1
CNS M.G. Connors, Canada	39		HEJ J. Hernandez C., Mexico	4
COK R.D. Cook, N.M.	23		HWK K. Hewitt-White, Ohio	64
CRN D. Cortner, Tenn.	216-	1	HE L. Hlett, Va.	3808
CSD D. Costanzo, N.C.	47		HIL R.L. Hill, N.C.	28
CR T.A. Cragg, Cal.	4614-	877	HIR Y. Hirasawa, Japan	224
CRR R.E. Crumrine, N.Y.	240		HDE J.A. Hodge, S.C.	4
CSG G. Csapó, Hungary	5		HDG R.G. Hodgson, Iowa	75
CRY J.D. Curry, Ohio	177		HOF J. Hoffman, N.Y.	54
CUT B.D. Cuthbertson, Tex.	33		HGM M.E. Hogan, Canada	22
CZZ Z. Czuprik, Hungary	1		HLC C. Holton, Maine	2
DLT J.E. Dalton, Conn.	41		HOP U. Hopp, W.Ger.	2920
DV G. Davidson, Kans.	138		HRB P.W. Hornby, U.K.	36
DAV H.H. Davis, Canada	33		HSF C. Hossfield, N.J.	254
DAR R.J. Davis, Ohio	25		HOW I.D. Howarth, U.K.	167-
DK R.P. deKock, S.Africa	65		HBE E. Hubbard, Mich.	150

TABLE III - AAVSO OBSERVERS, cont.

HUB R.S. Hubbard, Wash.	379		MAT M. Matson, Tex.	1	
HUJ J.R. Hughes, Cal.	11		MYR E.H. Mayer, Ohio	3120-1004	
HUN I. Hunyadi, Hungary	2		MOM M. McConnell, N.Y.	33	
HR C.J. Hurless, Ohio	3851-	861	MCA R. McLauray, Okla.	2	
ISH T. Ishihara, Japan	1048		MP C.A. McPherson, Mont.	39	
ILS J.E. Isles, U.K.	5		MED K.J. Medway, U.K.	17	
IYO M. Ito, Japan	82		MEN P.T. Menoher, Conn.	279	
JKS C.J. Jackson, U.K.	29		MER L. Méro, Hungary	176	
JAR R. Jackson, Ark.	9		MEZ C. Mezosi, Hungary	1179	
JEN C. Jenkins, S.Africa	432		MHL E. Michaels, Tex.	30	
JT R.B. Johnston, Canada	262		MIR R. Mieir, Ohio	24	
JNM M.I. Jones, Cal.	193-	1	MIJ J. Mile, Hungary	2	
JOR R. Jones, Cal.	52-	26	MIL J. Miller, Cal.	10	
JRD D. Jordahl, Md.	305		MTL R. Milton, Cal.	12	
KLN J. Kalen, N.Y.	5		MOR R.L. Monske, Penn.	311-	1
KNC A. Kancsura, Hungary	1		MJ A.C. Montague, Mich.	1150-	17
KEE B. Keel, Tenn.	4		MAJ A.J. Morehouse, Mich.	6	
KEL A. Keil, W.Ger.	186		MOB B. Morell, U.K.	26	
KLY G.W. Kelley, Va.	1071-	40	MM F.P. Morgan, Canada	517	
KNY M.J. Kenney, N.Y.	13		MOJ J.E. Morgan, Ark.	119-	2
KSZ A. Keszthelyi, Hungary	651		MOG G.M. Morin, Mich.	4	
KIR P.E. Kirby, Ohio	260		MRM R. Moriya, Japan	68	
KBS H.T. Kirby-Smith, N.C.	538		MRR C.S. Morris, Mich.	109-	2
KLK K. Klebert, W.Ger.	565		MRE E.H. Morris, Ala.	35-	2
KPL P. Kneipp, La.	90		MB A. Morrisby, Rhodesia	68	
KOJ O.J. Knox, U.K.	470-	27	MRO P.D. Morrison, Mass.	17	
KPP P. Knupp, Mont.	374		MOY R. Moyer, Penn.	9	
KHJ H.J. Koller, Canada	282		MRD J. Muirden, U.K.	1	
KOG G. Kovacs, Hungary	45		MUN C.R. Munford, U.K.	86	
KIS G. Krisch, W. Germany	209		MUR P. Murn, Wisc.	813-	89
KRK K.L. Krisciunas, Ill.	292		NGY A. Nagy, Hungary	84	
KRO B. Krobusek, Ohio	230		NAY R. Nagy, Hungary	68	
LND H.J. Landis, Ga.	126*		NEW M.V. Newberry, Mich.	12	
LGH H.A. Lange, Canada	361		NN R.A. Norden, Va.	6	
LAT L.J. Latzel, Nehr.	96		NBY J. Nordby, Minn.	52	
LUT T.R. Lauer, N.J.	12		OF A. Oberstatter, France	360-	9
LAW P. Lawrence, Ohio	63-	3	OCN S.D. O'Connor, Canada	847	
LWS M. Lawson, Tex.	49		OLS K.V. Olsson, N.Y.	8	
LEI T. Leigh, Cal.	11		OV E.G. Oravec, N.Y.	2544	
LMA D. Lemay, Canada	153		ORW R.W. Ortel, Vermont	2	
LEM M.T. LeMere, Minn.	1		ODA D. Ortwein, N.Y.	33	
LEK R. Lervik, Norway	33		OB M. Overbeek, S.Africa	1859-	37
LEV A.J. LeVeque, Cal.	75		OD P.H. Quadt, N.J.	618	
LVI D.H. Levy, Canada	78		PAS S. Padilla, Cal.	349-	10
LWC C.W. Lewis, N.J.	231		PPM M. Papatthanassiou, Gr.	119	
LEW D. Lewis, Ga.	36		PKJ J.A. Parker, Tex.	224	
LIK G. Likert, Mich.	9		PAR R.H. Patterson, N.Y.	22	
LIM R. Lima, Fla.	77		PN A.E. Pearlmutter, Mass.	296	
LMB G.G. Lindbloom, Penn.	863		PTI N. Peattie, Cal.	123	
LK K. Locher, Switz.	1593-	14	P L.C. Peltier, Ohio	1280-	354
LOU L. Loukakis, Greece	54		PRZ A. Perez A., Mexico	3	
LX W.M. Lowder, N.Y.	5594-	57	PET R.M. Peterson, Fla.	67	
LOW J.K. Lown, Va.	176		PFA J. Pfannerstill, Wis.	13	
LS D. Lucas, Ohio	219-	28	PFF G. Pfeiffer, W.Ger.	568	
LKS R. Lukas, W.Germany	2874		PIC D.A. Pickup, U.K.	62	
LUR T. Lura, Norway	3		PIL N. Pilugin, Wisc.	2	
MDD P.J. Madden, Ind.	1072		POA A. Porter, R.I.	92	
MGR D.M. Magor, Fla.	12		POT M. Porter, U.K.	7	
MAN C.P. Mahnkey, Mexico	2121		PRI L.H. Price, Hawaii	9	
MJE E.R. Major, Conn.	29		PTF K.E. Ptacek, Ohio	45	
MLT A. Mallama, Ohio	21		PYE D. Pye, U.K.	103-	66
MND F.J. Mandujano O, Mex.	3		RNE E.G. Raynor, Fla.	110	
MCO M. Marcario, Cal.	342-	2	RNR L.O. Raynor, Fla.	494	
MHA P.A. Marchena, Dom.Rep.	26		RNT C.C. Reinhart, Ohio	13-	1
MAG G. Mark, Ill.	150		RNN T. Renner, Wisc.	178-	28
MRX H. Marx, W.Germany	1179		RQ C.L. Ricker, Mich.	128	
MSY P. Massey, Cal.	65		RTE V. Ritter, W.Ger.	86	
MIE R. Mathieu, Del.	92		ROM J. Romanucci, Cal.	37	

TABLE III - AAVSO OBSERVERS, cont.

RMI C. Romoli, Italy	209	SZO E. Szoboszlai, Hung.	3
RB D.W. Rosebrugh, Fla.	469	TE D. Taboada R., Mexico	160
RR R.E. Royer, Cal	178-	TLT D.L. Talent, Mo.	6
RPH H. Rumball-Petre, Cal.	19	TNV V. Tangney, Wisc.	5
RML F. Rümmler, Ger.D.R.	237	TYL L.R. Taylor, N.C.	225
RRT R. Rutan, Ohio	19	TLA M.D. Taylor, U.K.	15
SNL J.G. Sandel, S.C.	9	TYR M.J. Taylor, Fla.	1094
STC G.E. Santacana, P.R.	9	TAY P.O. Taylor, Fla.	1459
SAW D.R.B. Saw, U.K.	429-	THO A. Thomas, W.Ger.	3
SCC J.D. Scari, Conn.	20	THF F.O. Thomas, Ind.	150
SHU E. Schauer, W. Ger.	2	TJ J. Thomas, Ohio	409- 198
SLG R. Schlesinger, N.Y.	249	THM J.V. Thomas, Tenn.	93
SLJ J. Schmidt, W. Ger.	400	TPR R.R. Thompson, Canada	191
SHJ J. Schmidt, Hungary	33	THS R.S. Thompson, Fla.	197
SDM E.J. Schwendeman, Penn.	19	TWN A.W. Townsend, Tenn.	1091
SWI M.T. Schwitters, Colo.	32-	TFN F.N. Traynor, Austr.	38
SCE C.E. Scovil, Conn.	3616-1393+	TRO O. Trondal, Norway	11
SEL C.R. Sealey, N.C.	2	TUL M.K. Tulloch, Canada	33
SEE E. Seifert, Ariz.	106	TYS R.L. Tyson, N.Y.	149
SSL M. Seslar, Fla.	24	UL A. Ullmann, N.Y.	4
SDA D. Sharpe, Fla.	40	UND E. Underhay, Cal.	387
SHS S.B. Sharpe, Canada	213	VBN D.Van Buren, N.Y.	101
SSA A.P. Sharpless, Fla.	146	VAM M. Vattuone, Argent.	6640
SSC C.A. Shelley, Utah	39	VIS G.P. Visocki, Ill.	435
SRC R.C. Shinkfield, Aust.	214	WLE J.S. Walder, Cal.	43
SKL K. Simmons, Fla.	470-	WAA A.R. Walker, Tex.	117- 3
SPN A.P. Simpson, N.M.	178	WLL H.J. Walls, Tex.	243
SKT P.N. Skottogard, Pa.	57	WRN R. Warden, Penn.	130- 5
SLB B.F. Small, Fla.	1889	WBD D.F. Weber, Ohio	4
SMI A.L. Smith, U.K.	98	WEB J.W. Weber, Wash.	31
SMH C.J. Smith, Canada	49	WES R.F. West, Ind.	3
SHA H.A. Smith, Conn.	357	WNS D. Wiens, Minn.	27
SJ J.R. Smith, Tex.	207-	WI D.B. Williams, Ill.	6
SOM C. Somogyi, Hungary	268	WLM T.R. Williams, N.J.	585
SOU R.G. Southwick, Wash.	16	WJA J.A. Wilson, Mo.	531
SH H.E.M. Specht, Conn.	54+	WSN T.W. Wilson, W.Va.	1190- 26
SPO J. Spongsveen, Norway	8	WNJ W.J. Wilson, U.K.	14
STR R.H. Stanton, Cal.	8-	WNB B. Wingate, N.J.	419
SRS R. Steer, U.K.	2	WWR W.R. Winkler, Md.	6
SET C. Stephan, Ohio	60	WIN G. Winstanley, U.K.	1
STF G.Stefanopoulos, Gr.	1043	WIE J.D. Wise, U.K.	13
SDJ D.J. Stevens, S.C.	31-	WTN B. Witten, Ariz.	296- 2
SGL M. Stiegler, W.Ger.	76	WOS D. Wolters, Fla.	28
STO P.M. Stone, Mo.	61	YAN G. Yanulaitis, Ohio	3
SU M.C.P. Su, Taiwan	75	YEL T. Yel'in, Cal.	6
SUL C.E. Sullivan, Md.	12	YON R.R. Young, Penn.	13
SUS D.Süssman, W. Ger.	208	ZAF J. Zaffi, Italy	57
SVN P. Sventek, Ill.	476	ZAG G. Zającz, Hungary	200
SB R.F. Swanberg, Mont.	27-	ZMM D. Zimmerman, Ohio	75- 35
SWR R.A. Sweetsir, Fla.	43	ZT R. Zit, Wisc.	15- 2
SEJ J.Szewczak, Ohio	6		

* PEP Observations

+ Photometric Observations