REFERENCES

Allen, C. W. 1955, *Astrophysical Quantities* (University of London, The Athlone Press), p. 103.
Cook, A. F. and Millman, P. M. 1955, *Ap. J.* **121**, 250.
Eastman Kodak Company 1953, *Photographic Plates for Scientific and Technical Use*, 7th edition, p. 20.
Jacchia, L. G. 1949, *Harv. Repr. Ser.* II, no. 31, p. 5.
——. 1952, *ibid.*, no. 44, footnote p. 11.
Levin, B. Yu. 1956, *Fizicheskaya Teoriya Meteorov i Meteornoe Veshchestvo v Solnechnoy Sisteme* (Akademiya Nauk S.S.S.R., Moskva), footnote p. 114.
Millman, P. M. and Burland, M. S. 1956, *The Magnitude Distribution of Visual Meteors.* Paper presented at the 96th meeting of the A.A.S. (in press). Title in *A. J.* **62**, 98 (1957).
Millman, P. M. and Hoffleit, D. 1937, *Ann. Harv. Coll. Obs.* **105**, 601.
Whipple, F. L. and Jacchia, L. G. 1957, *Smithsonian Contr. Astrophys.* **1**, 203.

Smithsonian Astrophysical Observatory,
Harvard College Observatory,
Cambridge, Mass.,
1957 *September.*

PHOTOELECTRIC OBSERVATIONS OF THE PECULIAR VARIABLE STAR W SERPENTIS

By ALFONSO FRESA

Abstract. Eight hundred sixteen photoelectric observations of W Serpentis were made on 110 days during 1956, at the Capodimonte Observatory. The period 14.15782 days is given here only provisionally, because the author's opinion based on these observations is that this value must probably be doubled, and consequently the mean light curve has been represented with a period about 28.31 days. The secondary minimum shows a small eccentricity and a depth nearly equal to that of the primary, the sharpness of which denotes an eclipsing variable, perhaps associated with an intrinsic variability of a component, as shown by the small saddles on the light curve.

Introduction. The variability of W Serpentis = BD $-$ 15°4842 = HD 166126 Pec was discovered by Miss Cannon (Pickering 1907) during the examination of some photographic plates, and the star was classified as an eclipsing variable of the Algol type, with the period 14.15 days. Her 366 plates cover the period from March 1, 1888 to October 20, 1906. Zinner (1912), from visual observations, considered the light curve to be of ζ Geminorum type and gave the following elements: Min. = 2419223 + $14^{d}.13$. Zessewitsch (1928) adopted the period 28.307 days without specifying any reason for this doubling. McLaughlin (1929) observed W Serpentis with a Zöllner photometer and considered this variable star to be β Lyrae type, or intermediate between Algol and β Lyrae.

Joy (1927), from spectrographic observations at Mount Wilson, found the variable to be a supergiant varying between cG1 and cG4; concerning the period of the light curve, this author writes:

"The period of 14.153 days, given by Prager (1927) holds for the present observations, when referred to the date 2419322.29 as the epoch of minimum."

Later speaking about the radial velocities measured from 19 spectrograms, he affirms: "The curve might be represented by elliptical elements with small eccentricity. The γ velocity -24 km/sec is reached at the time of minimum light, as in the case of eclipsing variables. More complete photometric investigation is needed for further study of this interesting star. It is not possible with the data at hand to come to a definite conclusion as to the cause of its light variation, its velocity changes, or its peculiar spectroscopic behavior."

Joy's appeal was seized by O'Connell (1937) who, working with Voûte, made an excellent series of photographic observations of W Serpentis from July 1929 to October 1936.

Photoelectric observations at Capodimonte. On the occasion of a new, 1956, program of spectrographic observations of the same variable star at Mount Wilson by O. Struve and J. Sahade, Father O'Connell, now Director of the Specola Vaticana, proposed that I make a series of photometric observations. At Capodimonte these presented some difficulties, due to the star's faintness in relation to our 7-inch Fraunhofer refractor and the southern declination of W Serpentis. However, continued clearness of the Naples sky during the summer of 1956, associated with excellent seeing and very good transparency, permitted me to collect a long series of homogeneous observations from June 13 through October 25. The mean annual transparency coefficient p = 0.68 was found for this location near the town at altitude 159 meters above sea level from a study of atmospheric extinction made by Fichera (1956), based on stellar observations carried out with the same photometer and refractor.

The photoelectric photometer was built in 1954 in the workshop of our observatory; the photocell is an RCA 1P21. The anode current, stepped up by a Kron-type amplifier, is recorded with milliammeter made by CGS of Monza, Italy. As comparison star BD $-$ 15°4832 = HD 165945, 9.2 photographic magnitude and spectral type A0, was used. The entire series of observations, made without filters, is listed in Table I.

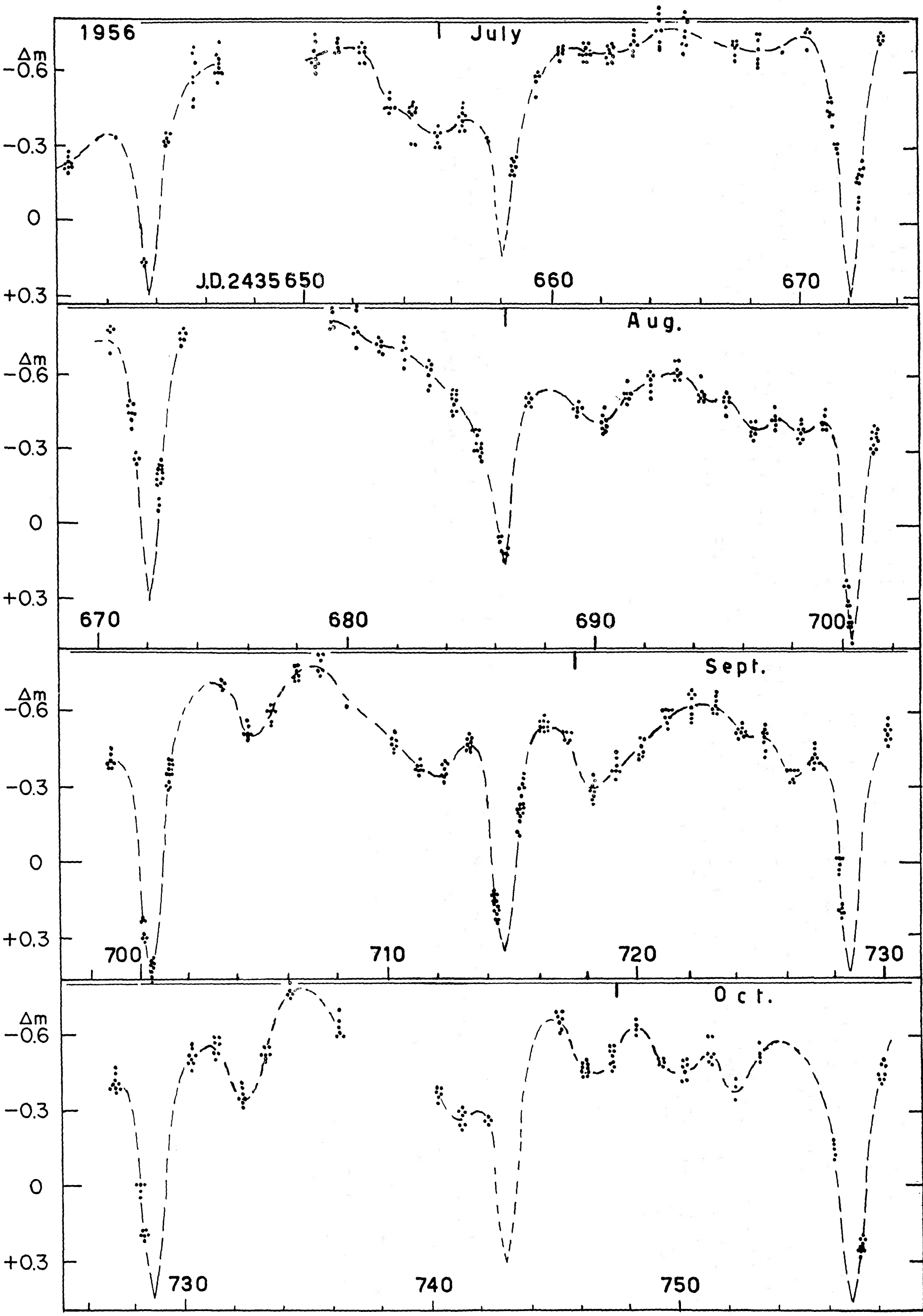

Figure 1. Individual observations of W Serpentis made at Capodimonte. Ordinates are photographic magnitude on the right and differences of magnitude on the left; abscissae are Julian days.

TABLE I. INDIVIDUAL OBSERVATIONS OF W SERPENTIS

JD Hel. 2435000+	Δm	JD Hel. 2435000+	Δm	JD Hel. 2435000+	Δm	JD Hel. 2435000+	Δm	JD Hel. 2435000+	Δm	JD Hel. 2435000+	Δm
638.434	-0.63	652.470	-0.64	662.365	-0.64	672.526	-0.22	686.347	+0.05	697.326	-0.42
.450	0.62	.474	0.71	.374	0.67	.530	0.23	.442	0.12	.328	0.44
.456	0.61	.479	0.71	.380	0.68	.535	0.24	.444	0.11	.330	0.47
.462	0.58	.486	0.72	.386	0.71	673.342	0.74	.448	0.10	.332	0.43
.470	0.61	.492	0.64	.389	0.72	.347	0.74	.451	+0.09	.334	0.43
.477	0.61	.498	0.69	.393	0.66	.349	0.75	687.338	-0.50	698.335	0.42
.484	0.55	653.436	0.46	.396	0.71	.351	0.77	.341	0.53	.337	0.43
.493	0.61	.443	0.50	.399	0.70	.354	0.75	.343	0.51	.339	0.34
.507	0.63	.449	0.55	663.377	0.72	.359	0.71	.345	0.50	.341	0.37
.515	0.58	.454	0.44	.380	0.74	679.394	0.80	.347	0.51	.344	0.35
639.421	0.25	.461	0.46	.386	0.76	.397	0.81	.351	0.49	.346	0.35
.433	0.31	.465	0.46	.389	0.71	.401	0.87	.353	0.49	.348	0.38
.439	0.25	.476	0.46	.394	0.71	.404	0.85	689.352	0.47	.350	0.38
.456	0.27	654.389	0.32	.396	0.68	.407	0.79	.354	0.47	699.322	0.44
.471	0.30	.397	0.46	.401	0.67	.413	0.78	.356	0.50	.324	0.40
.478	0.35	.402	0.46	664.346	0.84	680.333	0.79	.359	0.47	.326	0.39
.483	0.33	.412	0.45	.349	0.82	.337	0.77	.361	0.45	.328	0.39
.490	0.26	.419	0.32	.352	0.71	.340	0.70	.364	0.44	.330	0.41
.495	0.33	.425	0.45	.355	0.72	.343	0.86	690.322	0.44	.332	0.40
640.464	0.25	.432	0.47	.358	0.77	.347	0.88	.325	0.47	.334	-0.46
.470	0.27	.438	0.48	.362	0.77	.351	0.76	.327	0.42	700.322	+0.25
.474	0.26	.444	0.44	.367	0.70	681.437	0.69	.329	0.43	.323	0.28
.484	0.23	655.429	0.35	.369	0.86	.440	0.68	.332	0.41	.325	0.24
.492	0.22	.433	0.40	665.385	0.82	.444	0.71	.334	0.38	.327	0.33
.500	0.24	.446	0.32	.388	0.75	.448	0.73	.336	0.37	.329	0.33
.507	0.22	.450	0.31	.393	0.67	.452	0.72	.338	0.38	.331	0.32
.513	0.20	.454	0.36	.397	0.72	.456	0.74	691.319	0.53	.334	0.25
.518	0.21	.459	0.36	.400	0.83	682.338	0.76	.322	0.49	.399	0.43
.525	0.23	.464	0.31	.403	0.77	.342	0.74	.325	0.52	.408	0.40
642.494	-0.34	656.444	0.37	.410	0.73	.344	0.65	.327	0.58	.415	0.47
643.507	+0.16	.449	0.40	.414	0.85	.346	0.62	.329	0.53	.417	0.44
.514	0.16	.454	0.39	667.407	0.72	.350	0.70	.332	0.52	.420	0.43
.520	0.15	.467	0.42	.410	0.73	.352	0.71	.334	0.53	.423	0.38
.532	+0.17	.474	0.44	.415	0.68	.356	0.70	692.317	0.60	.425	0.40
644.468	-0.32	.479	0.45	.418	0.65	683.355	0.65	.320	0.62	.429	+0.45
.474	0.33	.488	0.44	.423	0.71	.358	0.64	.324	0.54	701.311	-0.37
.484	0.31	.501	0.46	.428	0.73	.362	0.63	.326	0.60	.315	0.38
.490	0.36	.513	0.48	.432	0.72	.366	0.54	.328	0.56	.317	0.39
.497	0.32	.518	0.37	668.356	0.76	.369	0.60	.331	0.50	.326	0.35
.504	0.36	657.464	0.35	.364	0.69	.372	0.66	.335	0.59	.328	0.38
645.501	0.58	.473	0.34	.370	0.66	.377	0.56	693.333	0.66	.331	0.30
.524	0.50	658.448	0.22	.375	0.65	684.335	0.54	.335	0.63	.338	0.30
.531	0.47	.451	0.23	.378	0.64	.338	0.54	.337	0.60	.345	0.35
.540	0.56	.455	0.27	.382	0.76	.341	0.53	.340	0.61	.349	0.36
.546	0.65	.460	0.20	.385	0.74	.345	0.53	.343	0.66	.352	0.39
.552	0.71	.465	0.23	669.432	0.68	.349	0.52	.345	0.61	.361	0.35
.558	0.69	.469	0.24	670.409	0.78	.353	0.48	.346	0.58	.365	0.29
646.493	0.60	.474	0.21	.415	0.79	.357	0.44	.348	0.58	.368	0.32
.497	0.60	.478	0.25	.421	0.78	.362	0.51	694.323	0.53	703.341	0.72
.504	0.55	.483	0.26	.426	0.68	.367	0.45	.325	0.54	.344	0.69
.509	0.73	659.378	0.60	671.351	0.44	.371	0.44	.327	0.53	.347	0.70
.526	0.67	.383	0.50	.356	0.43	.376	0.45	.330	0.60	.358	0.73
.536	0.60	.387	0.57	.360	0.49	.380	0.51	.332	0.51	704.308	0.50
.544	0.62	.391	0.58	.363	0.50	685.324	0.33	.335	0.50	.310	0.55
.548	0.63	.403	0.56	.368	0.49	.327	0.30	.337	0.50	.312	0.51
.553	0.65	660.345	0.64	.373	0.44	.330	0.30	695.314	0.44	.314	0.51
650.378	0.76	.348	0.67	.376	0.44	.332	0.36	.318	0.48	.317	0.51
.381	0.69	.352	0.68	.380	0.38	.336	0.39	.321	0.53	.319	0.48
.384	0.63	.358	0.69	.512	0.30	.339	0.39	.323	0.51	.321	0.54
.388	0.64	.366	0.71	.515	0.25	.343	0.39	.325	0.51	705.319	0.55
.399	0.65	.371	0.71	.519	0.26	.450	0.30	.328	0.53	.322	0.54
.403	0.59	.374	0.70	.522	0.26	.453	0.32	.331	0.54	.325	0.62
.409	0.67	661.346	0.71	672.333	0.18	.456	0.32	696.322	0.34	.328	0.59
.414	0.73	.351	0.67	.335	0.06	.459	0.28	.325	0.42	.330	0.59
.419	0.64	.356	0.65	.339	0.09	.461	0.29	.327	0.38	.333	0.59
.425	0.68	.362	0.67	.342	0.16	.465	0.33	.330	0.36	706.312	0.71
651.340	0.71	.365	0.67	.345	0.10	.468	-0.26	.332	0.42	.314	0.76
.358	0.68	.371	0.72	.348	0.16	686.331	+0.05	.333	0.37	.316	0.75
.364	0.70	.378	0.72	.511	0.26	.334	0.10	.335	0.39	.319	0.71
.367	0.68	.384	0.67	.516	0.21	.337	0.14	.337	0.36	.321	0.75
.374	0.73	.389	0.65	.518	0.20	.340	0.07	697.321	0.40	.323	0.78
652.464	0.69	662.353	0.64	.523	0.20	.344	0.10	.323	0.43	.325	0.78

TABLE I. (*continued*)

JD Hel. 2435000+	Δm	JD Hel. 2435000+	Δm	JD Hel. 2435000+	Δm	JD Hel. 2435000+	Δm	JD Hel. 2435000+	Δm	JD Hel. 2435000+	Δm
707.315	-0.83	715.317	-0.20	722.290	-0.55	731.263	-0.53	746.278	-0.49	757.265	+0.26
707.318	0.75	.362	0.29	723.277	0.60	.266	0.58	.281	0.44	758.234	-0.44
.321	0.75	.364	0.32	.280	0.60	.268	0.50	.284	0.49	.236	0.44
.324	0.74	.366	0.34	.282	0.65	.270	0.57	.288	0.46	.239	0.43
.327	0.83	.369	0.29	.284	0.62	.275	0.59	.291	0.48	.241	0.41
.334	0.80	.371	0.31	.287	0.66	.277	0.53	747.268	0.45	.243	0.43
708.340	0.62	.373	0.20	.289	0.67	.279	0.56	.271	0.46	.245	0.47
710.299	0.48	.375	0.24	.291	0.62	732.283	0.34	.274	0.51	.248	0.48
.301	0.47	716.287	0.54	.294	0.64	290	0.35	.276	0.47	759.243	0.48
.304	0.46	.289	0.53	724.277	0.50	292	0.35	.279	0.55	.247	0.54
.306	0.44	.291	0.52	.279	0.53	294	0.39	.282	0.54	.252	0.58
.308	0.49	.293	0.53	.281	0.50	296	0.41	.285	0.55	.255	0.58
.311	0.45	.295	0.53	.283	0.52	298	0.32	.292	0.50	.263	0.49
.313	0.52	.297	0.52	.285	0.51	300	0.36	.294	0.54	760.242	0.35
711.348	0.37	.299	0.54	.287	0.52	733.285	0.52	748.288	0.62	.245	0.36
.351	0.38	.301	0.52	.289	0.53	.288	0.52	.294	0.60	.247	0.38
.353	0.36	.303	0.56	.291	0.55	.290	0.52	.299	0.64	.250	0.42
.358	0.37	.306	0.54	.293	0.52	.293	0.50	.311	0.66	.259	0.41
.360	0.36	717.288	0.51	725.308	0.44	.296	0.51	749.272	0.49	761.250	0.50
.362	0.39	.295	0.46	.311	0.40	.301	0.55	.278	0.48	.253	0.48
.364	0.36	.299	0.51	.316	0.50	.303	0.55	.281	0.47	.255	0.40
.366	0.35	.303	0.46	.319	0.49	734.260	0.75	.289	0.47	.258	0.40
.368	0.36	.308	0.51	.323	0.53	.267	0.82	.294	0.48	.264	0.48
712.296	0.36	.313	0.47	.327	0.54	.271	0.77	.303	0.49	.267	0.49
.298	0.32	.318	0.47	.331	0.52	.273	0.74	750.241	0.45	762.249	0.57
.300	0.37	718.288	0.24	.334	0.52	.276	0.75	.244	0.42	.252	0.60
.302	0.34	.294	0.22	726.276	0.36	736.280	0.70	.248	0.42	.254	0.56
.304	0.34	.299	0.28	.278	0.36	.282	0.65	.251	0.49	.257	0.54
.306	0.35	.304	0.33	.281	0.36	.284	0.60	.255	0.49	.265	0.60
.308	0.37	.309	0.26	.283	0.32	.287	0.64	.257	0.47	763.236	0.66
.310	0.38	.314	0.34	.285	0.32	.289	0.61	.260	0.47	.240	0.64
713.289	0.44	.319	0.29	.287	0.36	.293	0.60	751.244	0.51	.243	0.64
.291	0.48	.323	0.28	.290	0.33	740.291	0.37	.246	0.47	.248	0.72
.294	0.49	719.286	0.36	727.293	0.38	.293	0.39	.248	0.52	767.234	0.51
.296	0.44	.290	0.34	.296	0.40	.295	0.39	.251	0.48	768.220	0.56
.299	0.45	.297	0.36	.298	0.47	.297	0.36	.257	0.52	.222	0.59
.302	0.47	.300	0.37	.300	0.45	.301	0.33	.260	0.58	.227	0.61
.305	0.52	.304	0.42	.302	0.42	.303	0.37	752.244	0.31	.230	0.66
.307	-0.46	.307	0.36	.304	0.39	741.256	0.30	.256	0.39	.233	0.63
714.292	+0.17	.310	0.43	.306	0.40	.258	0.24	.261	0.42	769.229	0.46
.295	0.16	720.282	0.49	.308	0.39	.260	0.24	753.256	0.57	.231	0.46
.297	0.15	.286	0.44	.310	0.39	.262	0.23	.259	0.52	.234	0.41
.300	0.13	.290	0.46	728.274	0	.263	0.30	.262	0.53	.236	0.42
.303	0.14	.293	0.44	.276	0	.265	0.32	.265	0.48	.239	0.46
.305	0.14	.302	0.45	.278	- 0	.267	0.29	756.255	0.10	.241	0.43
.307	0.19	.306	0.43	.280	+0.03	742.303	0.26	.257	0.11	.243	0.47
.310	0.12	.309	0.48	.282	0.01	.307	0.26	.259	0.17	770.224	0.27
.390	0.25	721.289	0.56	.284	0.06	.318	0.25	.261	0.16	.226	0.25
.393	0.19	.292	0.54	.325	0.20	.330	0.27	.263	0.10	.227	0.23
.395	0.25	.294	0.60	.328	0.22	745.266	0.61	.265	0.15	.229	0.26
.397	0.20	.296	0.57	.332	0.19	.270	0.63	.268	-0.15	.231	0.25
.399	0.21	.299	0.60	.337	0.20	.273	0.68	757.230	+0.26	.233	0.20
.401	+0.20	.302	0.60	.339	0.20	.275	0.69	.233	0.21	.235	0.26
715.297	-0.15	.305	0.60	.341	+0.18	.286	0.67	.236	0.25	771.223	0.17
.300	0.11	.308	0.57	730.265	-0.48	.289	0.65	.238	0.23	.229	0.20
.302	0.18	722.272	0.57	.267	0.52	.292	0.69	.241	0.24	.238	0.18
.304	0.20	.275	0.67	.271	0.51	.295	0.60	.244	0.26	.244	0.25
.306	0.19	.277	0.68	.273	0.45	746.263	0.50	.247	0.29	.248	0.19
.308	0.19	.279	0.66	.275	0.52	.266	0.46	.253	0.22	772.227	0.78
.310	0.21	.282	0.62	.278	0.55	.269	0.45	.257	0.25	.229	0.81
.312	0.20	.284	0.58	.280	0.56	.272	0.48	.261	0.26	.231	0.83
.315	0.12	.287	0.67	.282	0.48	.275	0.44				

Period and mean light curve. These observations furnish, in the interval of 134 days, nine epochs of minima out of ten (Table II); the value in brackets is an epoch extrapolated from observations made on the preceding evening. The tenth epoch was obtained when the star was at lower altitude. Excluding the eighth and tenth epochs, the following elements were determined by least squares:

$$M_I = \text{J.D. } 2426625.241 + 14.15782 \text{ E}.$$

In order to obtain an accord between my observations at Capodimonte and those of O'Connell who gave elements 2419322.29 + 14.1536 E,

TABLE II. W SERPENTIS: EPOCHS OF TEN SUCCESSIVE MINIMA

Epoch No.	JD 2435000+	Δ	Epoch No.	JD 2435000+	Δ
1	643.7	$14^d.3$	6	714.7	$14^d.0$
2	658.0	14.05	7	728.7	(14.3)
3	672.05	14.35	8	(743.0)*	(13.85)
4	686.4	14.05	9	756.85	14.05
5	700.45	14.25	10	770.9	

* Obtained by means of extrapolation of the values of the foregoing evenings.

I referred 22 epochs of minima observed by O'Connell to a recent epoch of minimum observed by myself at Capodimonte (2435686.4). By means of least squares, the following elements resulted from the 22 above-mentioned minima: 2435686.558 + 14.1563 E, in very good agreement with the photometric elements given by A. Ya. Filin, referred to by Struve (1953).

Using all my observations I have constructed the mean light curve shown in Figure 2a.

Probable double period and relative mean light curve. From an examination of the epochs of minima in Table II, we note that the differences Δ appear to present alternate values, a suggestion which should be confirmed by further accurate photoelectric observations. Noting also the sharpness of the minima, we can consider W Serpentis an eclipsing variable of small eccentricity with double the previously given period and a secondary minimum.

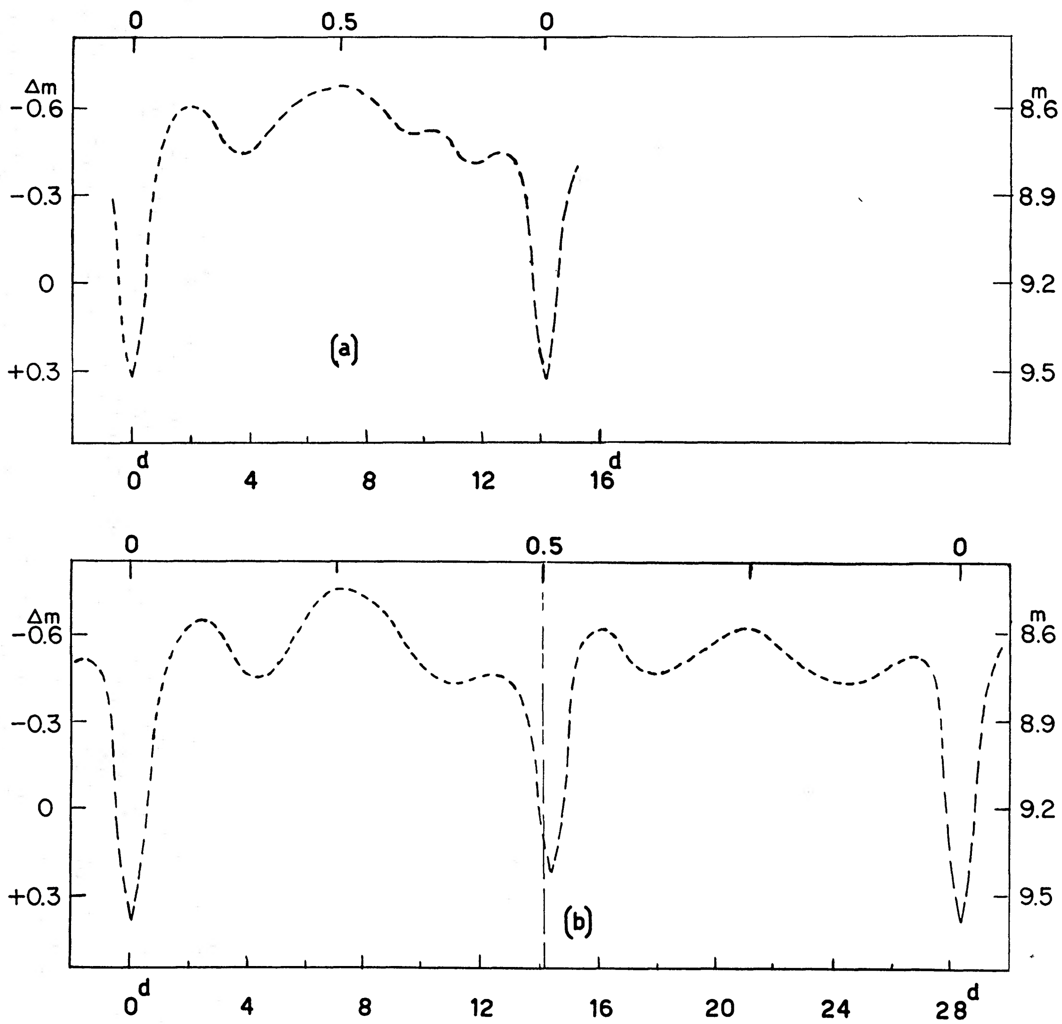

Figure 2. (a) Mean light curve of W Serpentis from observations at Capodimonte using period 14.15782; (b) mean light curve using double period, 2426639.4 + 28.31452 E.

It is therefore possible to construct another mean light curve using the elements: 2426639.4 + 28.31452 E, the secondary minimum of which is nearer maximum_{II} than maximum_{I} and its depth is 0.15 mag. less than that of the primary minimum. Lesser minima which we observe before and after each of the maxima may arise from intrinsic variability of a component of the eclipsing system. With this hypothesis according to the Capodimonte observations, the secondary wave has a period about 7 days, its maxima coinciding with primary and secondary eclipsing minima, as well as with maximum_{I} and maximum_{II}.

Figure 2b suggests that maximum_{II} may be lower than maximum_{I}. The double period also removes from consideration the apparent hump which appears at phase 0.75 in the single-period curve of Figure 2a.

A more accurate discussion will be possible only when we know the spectrographic results obtained at Mount Wilson, however I think that W Serpentis merits further photoelectric observations, especially using filters. With the Capodimonte refractor it is not possible to use filters for this variable but I propose to continue systematic photoelectric observations of W Serpentis and also to furnish later a refined value of the period.

REFERENCES

Fichera, E. 1956, *Contr. Astr. Capodimonte*, Serie II, **4**, 19.
Gaposchkin, S. 1937, *Ann. Harv. Coll. Obs.* **105**, 509.
Joy, A. H. 1927, *Pub. A. S. P.* **39**, 234.
McLaughlin, D. B. 1929, *A. J.* **39**, 85.
O'Connell, D. J. K. 1937, *Ann. Bosscha Stw. Lembang*, **8**, 22.
Pickering, E. C. 1907, *A. N.* **175**, 169.
Prager, R. 1927, *Katalog und Ephemeriden Veränderlicher Sterne.*
Struve, O. 1953, *Pub. A. S. P.* **65**, 81.
Zessewitsch, W. 1928, *Roczn. Astr. Obs. Krakowsk, Supl. Astr. Cracow* **6**, 69.
Zinner, E. 1912, *A. N.* **190**, 383.

Naples Astronomical Observatory,
Capodimonte, Italy,
1957 *March.*

NOTE ON THE AUTOCORRELATION ANALYSIS OF THE LIGHT CURVE OF THE RV TAURI VARIABLE R SCUTI

By E. A. Kreiken

Abstract. In order to explain the peculiarities in the light curves of the RV Tauri variables, C. Payne-Gaposchkin, V. K. Brenton and S. Gaposchkin suggest the interaction of a "fundamental" period and its overtones. In order to test this hypothesis the light curve of R Scuti is analyzed by the autocorrelation method. The result is indeterminate.

In their study of the RV Tauri variables, Payne-Gaposchkin *et al.* (1943) conclude that the classical period can hardly be considered as the true period of the variable. This classical period is the time between two successive similar minima. From the relationship of the velocity curve to the light curve it appears that the period of pulsation is half the classical period. To explain the alternate minima of unequal depth Payne-Gaposchkin *et al.* introduce the fundamental period.

Because of its small amplitude this fundamental period hardly affects the light curves and velocity curves. Their shapes result from overtone pulsations. This assumption is based on the theoretical work of Miss Kluyver (1936, 1938), Schwarzschild (1941) and others. Using the standard model of a star these authors have carried out computations of overtone pulsations. The ratios of the fundamental period and the periods of the overtones appear to be related to the ratio of the specific heats. The numerical results obtained by Schwarzschild indicate that when the ratio of the specific heats is between 1.43 and 1.67 the ratio of the fundamental and the first overtone is between 0.554 and 0.738. It is therefore represented by the ratio of two non-integer numbers.

Payne-Gaposchkin *et al.* tentatively suggest that with the RV Tauri stars the period of the first overtone is half the classical period. The classical period itself results from the interference of the first overtone and the fundamental period. It would be interesting to test this assumption, but it is evident that the fundamental can only be revealed by a careful analysis of the light curve. For the analysis of semiregular and irregular variables Ashbrook *et al.* (1954) have introduced a valuable method. As a first step the light curve is analyzed by the autocorrelation method introduced by Kendall (1951). The autocorrelation method has the tendency to mask