

COMMISSION 27 OF THE I. A. U.
INFORMATION BULLETIN ON VARIABLE STARS

Number 2082

Konkoly Observatory
Budapest
1982 February 4

HU ISSN 0374-0676

o And: A NEW ACTIVE EPISODE?

After the shell episode of July 1975 (I.A.U. Circ.No. 2802) we have performed continuous photoelectric observations of the shell star o And, beginning in the October of the same year (Bossi et al., 1976, Guerrero and Mantegazza, 1978, Bossi et al., 1980).

In Table I abc we report the results of new photoelectric observations taken in 1980 and 1981. The Δm_B values (the comparison star is 2 And) are also represented in Figure 1 compared with all those obtained since 1978. In the same figure the bars indicate, in magnitude, the range covered during the period of the observations, no bar refers to the nights in which the observations were of short duration.

In addition to the lasting short period light variations, we immediately remark a considerable light decrease after the maximum reached in 1979, moreover the behaviour of the light curve suggests a future similar trend.

Such a behaviour which can indicate an activity (Bossi et al., 1980), induced us to get some blue and red grating spectra of this star (with a dispersion of 35 and 18 $\text{\AA}/\text{mm}$). Figure 2, in which the transparency of the photographic emulsion is plotted, shows the H_α profile obtained from a red spectrum of November 28, 1981, in which a strong absorption core is flanked by two weak emission components. Moreover, in the blue spectra we observed a remarkable shell absorption superimposed on the other hydrogen photospheric lines.

Table I a

Photoelectric V observations

Hel. J.D.			Hel. J.D.		
2400000+	ΔV	σ	2400000+	ΔV	σ
44473.424	1.503	.005	44540.267	1.444	.002
44484.341	1.529	.008	.301	1.464	.003
44490.465	1.519	.002	.330	1.467	.002
.499	1.524	.002	44541.220	1.497	.002
.524	1.528	.001	.264	1.498	.004
.550	1.521	.001	.321	1.511	.005
44506.306	1.519	.004	.365	1.501	.003
.316	1.517	.003	.404	1.502	.008
.333	1.522	.002	44862.329	1.420	.004
.366	1.526	.004	.393	1.456	.003
.396	1.515	.003	44865.342	1.496	.002
.424	1.514	.002	44891.341	1.440	.003
.452	1.519	.002	44892.253	1.446	.004
44540.222	1.441	.001	44915.237	1.468	.003

Table I b

Photoelectric B observations

Hel. J.D.			Hel. J.D.		
2400000+	ΔB	σ	2400000+	ΔB	σ
44473.421	1.678	.007	44540.311	1.630	.002
44484.356	1.702	.003	.339	1.646	.003
44490.456	1.692	.002	44541.233	1.678	.003
.490	1.694	.002	.272	1.673	.002
.517	1.700	.001	.335	1.689	.005
.541	1.696	.003	.372	1.687	.005
44506.343	1.692	.004	.417	1.671	.004
.376	1.696	.003	44862.347	1.614	.006
.416	1.689	.004	44865.373	1.650	.002
.443	1.686	.002	44891.357	1.601	.002
44540.234	1.618	.004	44915.258	1.639	.003
.277	1.621	.007			

Table I c

Photoelectric U Observations

Hel. J.D.			Hel. J.D.		
2400000+	ΔU	σ	2400000+	ΔU	σ
44490.441	2.315	.016	44540.289	2.190	.002
.478	2.280	.005	.320	2.222	.003
.508	2.301	.005	44541.244	2.260	.003
.531	2.279	.004	.286	2.238	.005
.558	2.271	.010	.378	2.249	.004
44506.356	2.288	.004	.329	2.241	.007
.386	2.268	.002	44862.370	2.202	.002
.406	2.267	.003	44865.395	2.252	.011
.433	2.260	.003	44891.399	2.173	.001
.464	2.268	.005	44915.270	2.214	.003
44540.245	2.184	.002			

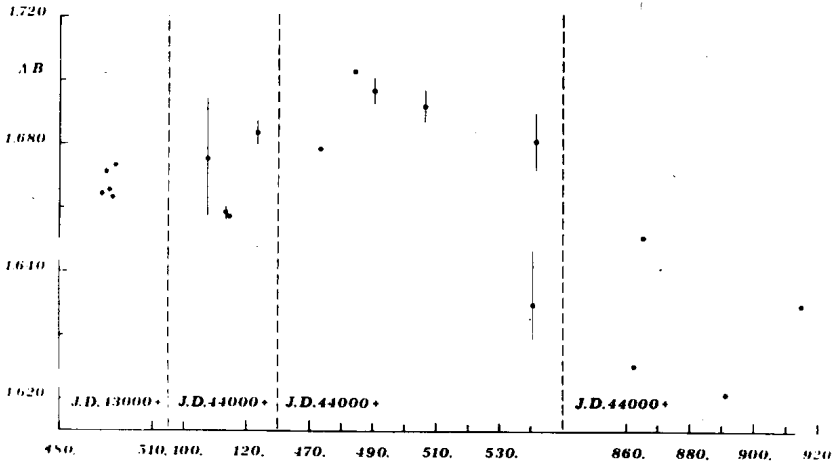


Figure 1

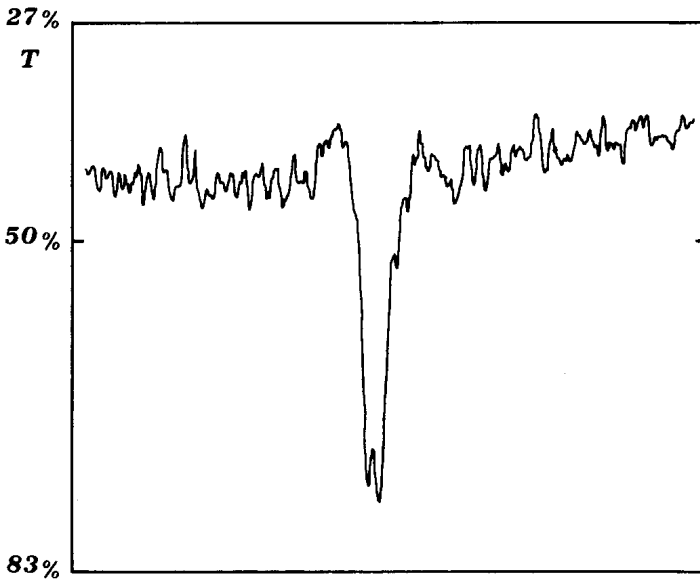


Figure 2

This incipient shell episode is very interesting, since it could contradict a supposed 26-29 years periodicity of the phenomenon (Fracassini et al., 1977, Harmanec and Koubsky, 1981).

M. BOSSI, G. GUERRERO, L. MANTEGAZZA, M. SCARDIA

Osservatorio Astronomico di Brera
via E. Bianchi n. 46
22055 Merate
Italy

References:

- Bossi, M., Guerrero, G., Mantegazza, L., 1977: *Astron. Astrophys. Suppl.* 29, 327.
 Bossi, M., Guerrero, G., Mantegazza, L., Scardia, M., 1980: *Astrophys. Spa. Sci.* 72, 433.
 Fracassini, M., Pasinetti, L.E., Pastori, L., 1977: *Astrophys. Spa. Sci.* 49, 145.
 Guerrero, G., Mantegazza, L., 1978: *Astron. Astrophys. Suppl.* 36, 471.
 Harmanec, P., Koubsky, P., 1981: *Proceedings I.A.U. Symp.* No. 98, Munnich, in press.