A new variable of the δ Cephei type, the period of which seems to vary

Hertzsprung, E.

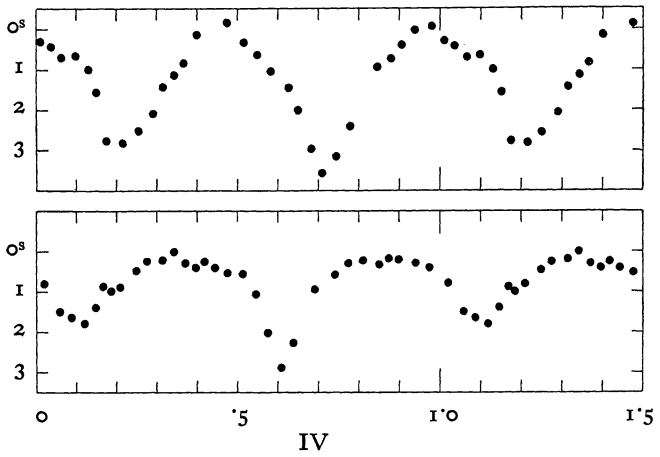
T Vel

Johannesburg P = ·21554 (J.D. — 2420000)

n	P	s
20	·0108	·782
20	·0728	·808
20	·1151	·810
17	·1672	·687
10	·2222	·342
20	·2840	·200
20	·3324	·042
20	·4434	·146
20	·5392	·337
20	·6190	·406
20	·6856	·558
20	·7394	·556
20	·7962	·736
20	·8698	·764
20	·9383	·736

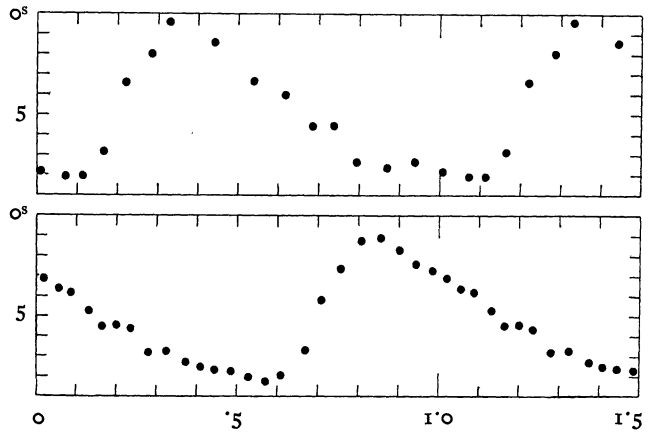
Harvard P = ·215528 (J.D. — 2400000)

n	P	s
21	·0207	·314
21	·0560	·366
21	·0876	·384
21	·1317	·472
21	·1648	·551
21	·1982	·546
21	·2351	·565
21	·2787	·682
21	·3243	·676
21	·3739	·731
21	·4099	·755
21	·4447	·766
21	·4857	·777
21	·5296	·806
21	·5718	·825
21	·6106	·798
21	·6705	·671
21	·7102	·420
21	·7572	·266
21	·8066	·126
20	·8566	·111
21	·9031	·174
21	·9451	·239
21	·9857	·276



IV

above: estimates on Johannesburg plates
below: „ „ Harvard „



T Velorum

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A new variable of the δ Cephei type, the period of which seems to vary,

by *Ejnar Hertzsprung*.

The star CPD — 47°1944, $8^m·4$, Sp. F8, $8^h7^m\ ^s·2$, — 47°19′·7 (1875) was found on Franklin-Adams plates to be sensibly brighter at J.D. $2426337^d·465$ than $24^d·902$ later.

The comparison stars used are

	C.P.D.	Jhbg plates	Harv. plates			adopted pg magn.	Sp
		m	s	s	m′	m	
a	— 47°1891	8·0	·00	·00	·00	7·84	A2
b	— 47°1894	8·4	·34	·39	·64	8·48	A
c	— 47°1910	8·8	·56	·65	1·05	8·89	Ao

J.D. means in this note: J.D. hel. M. astr. T. Grw.

The differences in provisional magnitude, m′, were determined by C. J. Kooreman from measures in the Schilt photometer on 6 plates taken with a grating in front of the objective.

The phases were computed from the formula

$$\text{phase} = {}^{d-1}·38567\ (\text{J.D.} - 2400000).$$

My estimates on 528 Harvard plates were after their reduction divided into 3 equal groups. For each of these groups and for the 345 Johannesburg plates a sinusoid was derived according to least squares to fit the lightcurve.

TABLE 1. (Harvard plates)

n	P	O	C	O—C
	J.D. from 2414940 to 17712 mean 16501			
11	·0285	s ·476	s ·478	s —·002
11	·0925	·503	·518	— 15
11	·1571	·600	·545	+ 55
11	·1998	·547	·555	— 8
11	·2584	·531	·555	— 24
11	·3275	·548	·535	+ 13
11	·3965	·492	·500	— 8
11	·4524	·445	·461	— 16
11	·5270	·429	·409	+ 20
11	·6023	·325	·363	— 38
11	·6761	·385	·335	+ 50
11	·7284	·331	·329	+ 2
11	·7900	·326	·337	— 11
11	·8705	·355	·371	— 16
11	·9215	·417	·403	+ 14
11	·9641	·415	·432	— 17
	$C = {}^{s}\cdot443 + {}^{s}\cdot113 \sin 2\pi P + {}^{s}\cdot015 \cos 2\pi P$ range: $2 \times {}^{s}\cdot114$			
	max. at phase ·729 ± ·014 (m.e.); J.D. 2416500·45 ± ·036 (m.e.) E = 0			
	J.D. from 2417864 to 20992 mean 19625			
11	·0226	s ·592	s ·595	s —·003
11	·0814	·545	·612	— 67
11	·1345	·661	·613	+ 48
11	·2095	·654	·591	+ 63
11	·2634	·556	·561	— 5
11	·3782	·473	·474	— 1
11	·4460	·354	·423	— 69
11	·5040	·380	·389	— 9
11	·5498	·406	·370	+ 36
11	·6257	·369	·361	+ 8
11	·6993	·374	·379	— 5
11	·7303	·407	·394	+ 13
11	·7785	·441	·424	+ 17
11	·8297	·455	·462	— 7
11	·8894	·525	·510	+ 15
11	·9578	·525	·559	— 34
	$C = {}^{s}\cdot487 + {}^{s}\cdot082 \sin 2\pi P + {}^{s}\cdot097 \cos 2\pi P$ range: $2 \times {}^{s}\cdot127$			
	max. at phase ·612 ± ·014 (m.e.); J.D. 2419624·58 ± ·036 (m.e.) E = 1205			
	J.D. from 2420994 to 24198 mean 22124			
11	·0266	s ·613	s ·603	s +·010
11	·0972	·567	·602	— 35
11	·1561	·624	·584	+ 40
11	·1980	·598	·561	+ 37
11	·2373	·513	·535	— 22
11	·2969	·493	·489	+ 4
11	·3662	·455	·433	+ 22
11	·4336	·355	·388	— 33
11	·4895	·350	·360	— 10
11	·5437	·331	·348	— 17
11	·5855	·346	·348	— 2
11	·6374	·375	·361	+ 14
11	·7551	·475	·430	+ 45
11	·8508	·515	·507	+ 8
11	·9248	·514	·560	— 46
11	·9779	·574	·587	— 13
	$C = {}^{s}\cdot476 + {}^{s}\cdot049 \sin 2\pi P + {}^{s}\cdot119 \cos 2\pi P$ range: $2 \times {}^{s}\cdot129$			
	max. at phase ·563 ± ·014 (m.e.); J.D. 2422124·00 ± ·036 (m.e.) E = 2169			

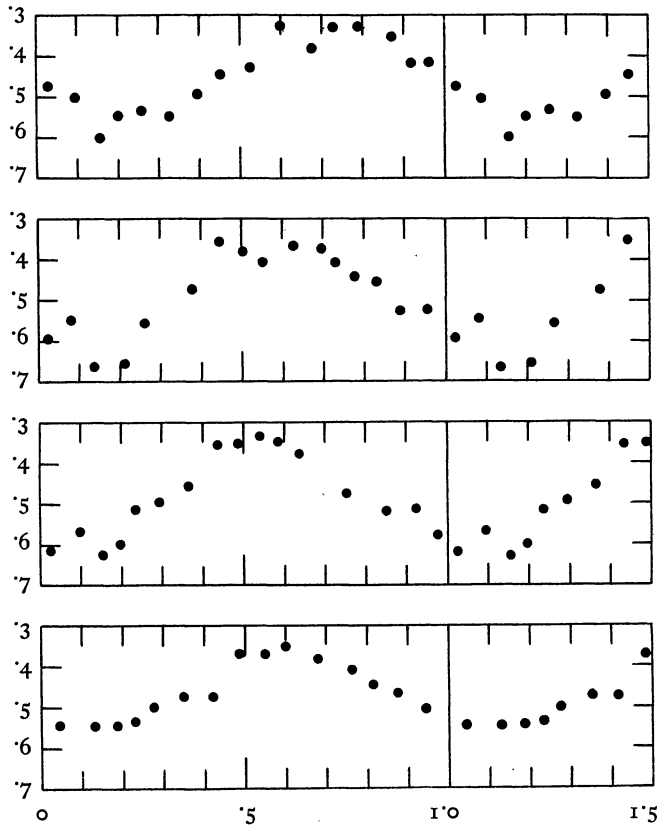

FIGURE 1.
mean J.D. of the diagrams:
2416501, 19625, 22124 } Harvard plates
26367 Johannesburg plates

TABLE 2. (Johannesburg plates)

n	P	O	C	O—C
	J.D. from 2425709 to 27811 mean 26367			
23	·0437	s ·545	s ·547	s —·002
23	·1299	·547	·556	— 9
23	·1857	·546	·547	— 1
23	·2306	·536	·532	+ 4
23	·2776	·500	·511	— 11
23	·3513	·473	·469	+ 4
23	·4166	·473	·431	+ 42
23	·4859	·370	·396	— 26
23	·5513	·371	·374	— 3
23	·6007	·351	·368	— 17
23	·6760	·381	·375	+ 6
23	·7653	·408	·407	+ 1
23	·8145	·446	·433	+ 13
23	·8751	·465	·468	— 3
23	·9435	·509	·507	+ 2
	$C = {}^{s}\cdot462 + {}^{s}\cdot062 \sin 2\pi P + {}^{s}\cdot071 \cos 2\pi P$ range: $2 \times {}^{s}\cdot094$			
	max. at phase ·614 ± ·009 (m.e.); J.D. 2426366·10 ± ·024 (m.e.) E = 3805			

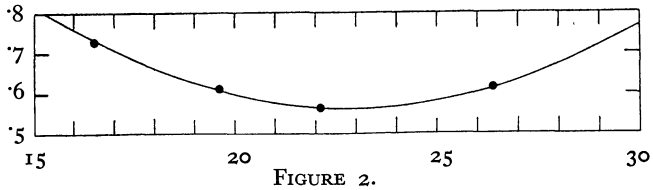

FIGURE 2.
abscissa: ·001 (J.D. — 2400000)
ordinate: phase of maximum