TABLE 2.

number of estimates	mean phase	mean estimated brightness	number of estimates	mean phase	mean estimated brightness
	P	s		P	s
10	·004	1·4	10	·546	15·6
10	·021	1·9	10	·557	15·6
10	·040	2·4	10	·569	14·0
10	·060	2·3	10	·579	11·8
10	·082	2·4	10	·588	8·6
10	·096	2·6	10	·595	8·5
10	·116	2·2	10	·605	6·5
10	·140	1·3	10	·619	4·5
10	·163	1·6	10	·637	3·0
10	·180	2·4	10	·666	2·0
10	·188	1·1	10	·686	2·1
10	·203	1·8	10	·709	2·0
10	·224	2·2	10	·732	2·8
10	·238	1·9	10	·759	2·1
10	·251	2·7	10	·773	2·6
10	·263	1·4	10	·786	2·8
10	·276	2·7	10	·800	2·0
10	·288	2·0	10	·818	2·3
10	·308	2·0	10	·833	2·0
10	·326	2·0	10	·847	2·5
10	·346	2·5	10	·865	1·0
10	·363	·8	10	·874	2·0
10	·382	2·0	10	·886	2·1
10	·412	3·0	10	·902	2·3
10	·436	1·9	10	·918	2·4
10	·457	2·1	10	·938	1·8
10	·483	3·3	10	·961	1·9
10	·503	7·0	10	·973	1·6
10	·514	9·7	10	·983	2·0
10	·530	13·7	8	·993	2·6

TABLE 3.

n	phase counted from minimum	mean estimated brightness	n	phase counted from minimum	mean estimated brightness
	P	s		P	s
20	·006	15·6	40	·195	2·0
20	·019	13·8	40	·231	2·4
20	·032	10·2	40	·263	2·3
20	·040	9·1	40	·292	2·1
20	·051	6·7	40	·319	1·8
20	·068	3·9	40	·349	1·8
20	·090	2·5	40	·378	2·0
20	·115	2·0	40	·419	1·7
20	·137	2·6	38	·446	2·2
20	·163	2·0	40	·479	2·2

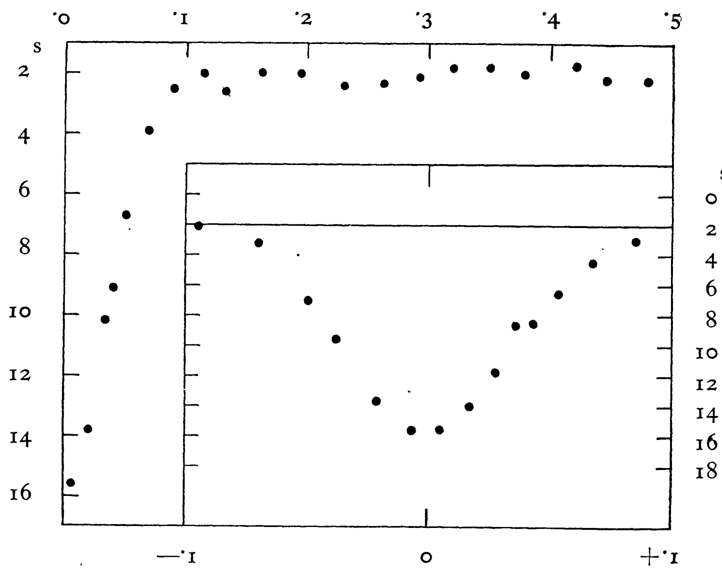
The condensed results of the estimates are given in Tables 2 and 3 and are partly graphically represented in Figure 2.

A least squares solution gave the phase of the minimum to be ^{P}·5515. The corresponding mean epoch is J.D. 2424573^{d}·574 (E = 451) with a mean error of about ± ^{d}·002. The star varies approximately from 14^{m}·7 to 15^{m}·3.

The mean error of the mean of 10 estimates outside the minimum is ± ^{s}·35 or 1^{s}·1 for one estimate. Inside the minimum the latter mean error is ± 1^{s}·6.

There is no evidence of a secondary minimum. A comparison between even and odd minima did not bring out any systematic difference between them. The duration of the minimum is ^{d}·33 or ^{P}·2.

FIGURE 2.



The total range appears to be about ^{m}·6, so that for this reason a doubling of the period is not excluded. If the period is 3^{d}·35 and the two components are identical, the corresponding density is about ·15 times that of the sun.

I am grateful to Prof. HERTZSPRUNG, who made it possible for me to work at the Leiden Observatory for a few weeks.

New observations of the variable ω Centauri No. 1, by *W. Chr. Martin.*

The brightest variable in ω Centauri was classified by BAILEY as a δ Cephei variable, possibly somewhat irregular, of 29^{d}·34 period (cf. *H.A.* **38**).

Measurements on plates taken with the 26″ Yale telescope at Johannesburg in 1931 and 1935 revealed that the light curve of this star showed the peculiarities of the RV Tau type variables. In maximum the variable is about 10^{m}·7. In 1931 the variable showed two alternating minima of respectively 12^{m}·6 and 11^{m}·7. In 1935 the minima were about equally deep viz. 12^{m}·1 (cf. *B.A.N.* No. 312).

To follow up the further behaviour of this variable the writer has taken new plates of ω Centauri with the new Leiden twin astrograph erected in 1938 on the grounds of the Union Observatory, Johannesburg.

The astrograph consists of two triplets of 40 cm aperture and 230 cm focal length; 1 mm on the plates corresponds to 89″·5. As the variable is 8′·4 distant from the centre of ω Centauri it is a suitable object for the new telescope.

TABLE.

J.D.— 2420000	m	n	phase	J.D.— 2420000	m	n	phase
d	m		p	d	m		p
9340·439	11·96	8	·814	9433·262	12·16	12	·396
59·380	11·27	23	·137	34·291	12·13	12	·413
61·368	11·42	16	·171	35·276	12·12	12	·430
62·398	11·41	16	·188	36·325	11·88	8	·448
63·315	11·50	16	·204	37·240	11·68	12	·463
65·475	11·64	8	·241	38·307	11·28	12	·482
71·421	12·21	8	·342	39·350	10·88	12	·499
71·528	12·16	12	·344	41·225	10·81	12	·531
75·449	12·19	8	·411	42·207	10·84	12	·548
80·375	11·12	8	·495	43·253	10·98	12	·566
81·458	10·90	12	·513	44·215	11·08	12	·582
82·289	10·99	8	·527	46·262	11·25	12	·617
85·293	11·02	8	·578	48·255	11·24	12	·651
86·395	11·16	8	·597	50·184	11·33	12	·684
87·344	11·16	16	·613	51·188	11·40	6	·701
88·305	11·21	16	·630	53·360	11·39	5	·738
89·274	11·19	8	·646	62·200	12·26	12	·889
89·412	11·29	8	·649	63·190	12·20	12	·905
90·275	11·26	8	·663	64·326	12·06	12	·925
91·408	11·30	8	·683	65·187	11·95	12	·939
92·305	11·32	8	·698	66·206	11·59	12	·957
94·361	11·43	12	·733	67·189	11·39	12	·974
95·226	11·49	8	·748	69·189	10·84	12	·008
95·501	11·48	8	·752	70·189	10·88	12	·025
96·444	11·58	12	·768	71·194	10·93	12	·042
97·249	11·60	12	·782	73·299	11·15	12	·078
97·423	11·68	12	·785	74·368	11·23	12	·096
98·288	11·64	8	·800	75·190	11·27	12	·110
99·297	11·75	8	·817	76·245	11·29	12	·128
99·343	11·84	16	·818	77·212	11·18	12	·144
9401·334	11·88	12	·852	78·272	11·30	12	·162
02·282	11·90	12	·868	79·344	11·42	12	·181
03·355	11·87	12	·886	80·332	11·47	12	·197
06·304	11·79	12	·936	82·306	11·50	12	·231
06·315	11·86	12	·937	84·238	11·78	12	·264
07·351	11·68	12	·954	85·248	11·82	12	·281
07·361	11·67	12	·954	86·203	11·98	12	·297
09·364	11·36	11	·989	88·210	12·18	12	·332
10·326	11·07	12	·005	90·262	12·25	12	·367
10·355	11·11	16	·005	92·212	12·23	12	·400
11·293	10·93	12	·021	93·207	12·16	12	·417
12·302	10·95	12	·039	94·200	11·97	12	·434
14·396	11·12	12	·074	95·204	11·70	12	·451
15·257	11·27	12	·089	97·254	10·96	12	·486
15·384	11·20	12	·091	99·243	10·76	12	·520
16·298	11·29*	10	·107	9500·214	10·82	12	·536
17·313	11·35	12	·124	01·248	10·98	12	·554
18·352	11·32	12	·142	04·206	11·24	12	·604
19·286	11·34*	16	·158	07·207	11·29	12	·655
20·353	11·42	12	·176	08·209	11·32	12	·672
21·357	11·37	12	·193	09·208	11·42	12	·689
22·337	11·47	12	·210	14·219	11·78	12	·775
23·361	11·48	12	·227	18·210	12·24	8	·843
25·252	11·61	8	·259	19·232	12·35	8	·860
27·230	11·79	12	·293	20·207	12·25	8	·877
27·281	11·73	12	·294	21·205	12·26	8	·894
28·308	11·95	12	·311	22·207	11·94	8	·911
29·354	12·00	12	·329	25·208	11·41	7	·962
30·298	12·08	12	·345	26·205	11·10	4	·979
31·240	12·15	12	·361	28·211	10·85	4	·013
32·250	12·20	12	·378	29·205	10·85	4	·030

* From estimates on plates taken with the Yale telescope.

From 1939 March 17 to September 22 354 exposures were taken on 113 nights. The exposure times range from two to six minutes. As a rule three exposures of respectively 3, 4 and 6 minutes were taken each night. The plates were taken ^{mm}·8 out of focus.

The variable was estimated twice on all plates with the aid of the comparison stars given in Table 1 of *B.A.N.* No. 312, pg. 291; magnitudes were taken from the last column of that table. The first series of estimates was done with the sequence e, b, a, c, d and g_1, the second one with the sequence e, h, e_1, f_1 and g_1.

The two light curves resulting from the two estimates show the same features. However, the difference first estimate minus second one shows a small systematic change with the hour angle. From + ^{m}·01 in the meridian it varies gradually to — ^{m}·03 at 4^h western hour angle and it is about — ^{m}·08 at 5^h western hour angle. Large eastern hour angles did not occur.

The average of the estimates of a night are given in the table. The first column gives the heliocentric Julian Date. The second column contains the average magnitude *m* and the number *n* of the estimates used for the average.

The mean error of one average of 12 estimates is about ± ^{m}·035. The third column gives the phase computed with the formula: phase = $^{d-1}$·017035 × (J.D.—2400000). The reciprocal period corresponds to the period 58^{d}·7027, which is twice the apparent period.

The magnitudes plotted against their phases show that the minimum which was 12^{m}·6 in 1931 and 12^{m}·1 in 1935 is 12^{m}·2 in 1939; the minimum which was 11^{m}·7 in 1931 and about 12^{m}·1 in 1935 is 11^{m}·9 in May 1939 and 12^{m}·25 afterwards. So the minima have not yet definitely interchanged. It is interesting that in 1939 the rising branch comes about ^{P}·025 or 1^{d}·5 later than predicted by the period as determined from the observations of 1895 to 1935. This might be due to a rather sudden change in the period. Analogous changes in the period have been observed for other RV Tau variables according to GERASIMOVIČ (*H.C.* No. 341).

ERRATUM.

In the 4th line under the figure in *B.A.N.* No. 312, pg. 290, read 1937 in stead of 1938.