Remark on the period of SW Lacertae

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COMMUNICATIONS FROM THE OBSERVATORY AT LEIDEN.

Remark on the period of SW Lacertae by *Ejnar Hertzsprung*.

In Harvard Circular 207 Miss LEAVITT announces the discovery by Miss ASHALL of the interesting short period eclipsing variable $BD + 37° 4717 = SW$ Lacertae, and discusses all the Harvard observations available of this star. Miss LEAVITT arrives at the conclusion, that there has been a marked change in the period about J. D. 2420000. Interested to test the evidence of such a change, I have examined the observations given and found that, supposing the J. D. to be correct, the phases between J. D. 2421200 and 2421600 have been given $^d.01$ too large.

I have therefore made a redetermination of the period, separately from 1. the observations made on the descending and ascending branches of the light curve and 2. the observations near minimum light.

All magnitudes marked ? have been disregarded.

1. When the magnitude of the variable has been found to be between 9.4 and 9.65 incl., we may in every one of the present cases with the aid of a preliminary ephemeris decide, whether the observation has been made during decreasing or increasing light. On the light curve given by Miss LEAVITT (*l. c.*) the normal difference in time between the magnitudes mentioned and the minimum light may be read off. These differences are as follows:

$9^m.4$	9.43	9.5	9.55	9.6	9.65
$\pm\ ^d.036$	.034	.028	.025	.022	.019

From 27 observations of this kind the following formula was found expressed in J. D. helioc. M. T. Grw.

$$\text{Min. at } 2418961^d.3532 + {}^d.16035662.\ E = C_1,$$
$$\pm .0016 \pm .00000012 \text{ (m. e.)}$$

2. The J. D.'s when the variable was found to be of magnitude 9.9 or fainter have simply been taken as epochs of minimum light. The formula derived from 24 observations of this kind is:

$$\text{Min. at } 2418297^d.8000 + .16035636.\ E = C_2$$
$$\pm .0017 \pm .00000010 \text{ (m. e.)}$$

mag. 9·4 — 9·65			mag. 9·9 and fainter	
derived minimum J. D. hel. M. T. Grw.	obs. mag.	$O-C_1$ unit $^d.001$	epoch of observation adopted as minimum J. D. hel. M. T. Grw.	$O-C_2$ unit $^d.001$
	^{m}			
2414883·652	9·50	+ 7	2413857·685	— 8
5679·651	9·6	— 4	4587·646	+ 11
6093·544	9·5	+ 9	4932·549	— 12
6322·847	9·65	+ 2	5613·764	+ 9
6460·588	9·5	— 4	5658·502	+ 7
6683·812	9·6	+ 4	5717·504	— 2
6794·614	9·65	— 1	5721·523	+ 8
7198·548	9·5	— 5	5978·730	+ 4
7232·554	9·50	+ 6	6675·800	+ 5
8230·602	9·6	— 6	6719·728	— 5
8540.743	9·5	+ 5	7891·605	— 12
8943·703	9·5	— 11	8106·812	— 4
8977·551	9·5	+ 2	8640·628	— 14
9717·587	9·6	— 8	9237·814	+ 5
20034·620	9·6	0	9777·558	— 10
0034.611	9·50	— 9	20034·619	— 1
0038.611	9·50	— 18	1126·808	+ 1
0449·456	9·4	— 7	1133·535	— 7
0449·624	9·50	+ 1	1133·555	+ 13
0485·537	9·43	— 6	1164·495	+ 4
1137·571	9·4	+ 18	1193·512	— 3
1137·554	9·6	+ 1	1262·479	+ 11
1183·571	9·6	— 4	1484·719	— 3
1193·516	9·55	— 1	1494·665	+ 1
1193·525	9·50	+ 8		
1240·507	9·6	+ 5		
1617·836	9·50	+ 15		

The results are given in the accompanying table. In both series the differences $O-C$ show no sensible run. The mean error of the epoch of a single minimum is for both kinds of observations $\pm\ ^d.0081$ or $\pm$ 12 minutes.