riation during the greater part of the increase is at the rate of one and a third magnitudes a day; which is exceeded, I think, only by *U Geminorum* and a few stars of the *Algol* type. The decrease is at the daily rate of 0.35 mag., only. Observations made during the star's increase are therefore admirably adapted for determining the period with great precision.

Taking the difference between the observed light and that computed from the elements and light-curve, for each of the 57 observations, we get the sum of the squares of the residuals 42.89. Calling 6 the number of the arbitrary constants, we have $\pm$ 0.61 steps, or $\pm$ 0.067 mag., as the probable error of a single observation. This includes, besides the uncertainty of the observation itself, the effect of any departure from perfect regularity in the light-variations themselves, and of any errors in the period, etc. The mean deviation for the observations during the first month is $\pm$ 0.055, during the second month is $\pm$ 0.056, and for the remainder, $\pm$ 0.074. This shows that the probable error is not factitiously reduced by unconscious bias of the observer, since during the first weeks after discovery of variability, the knowledge of the law of variation, which might exert such a prejudicial influence, is entirely wanting.

The observations afford a hint of a phenomenon which has manifested itself in some other stars, namely, a greater range of discordance near minimum than near maximum. Thus the sum of the squares of the residuals for 18 observations within half a day of minimum is 20.29, while for an equal number within half a day from maximum it is only 4.79. Whether this is due to actual oscillation of the minimum brightness, or to subjective causes, must be decided hereafter. It may be due, in the case of this star, to the near equality of the variable at maximum with the comparison star *b*, which permits a nicer discrimination in the light-perception.

1886 September 22.

A NEW VARIABLE OF SHORT PERIOD.

$18^h\ 14^m\ 2^s$; $-18°\ 54'.8$ (1875.0)

By EDWIN F. SAWYER.

I beg to announce that I have discovered the star 57 (U. A.) *Sagittarii* to be a variable of short period. The star was first observed some four years ago (1882 September 5), in connection with my revision of a portion of the *Uranometria Argentina;* but no suspicion of its variability was entertained until 1886 September 22, on which date its faintness struck my attention. Observations on Sept. 24 and 29 fully established variability.

A preliminary reduction of my observations so far obtained indicates that the period cannot exceed six days. The range of fluctuation is from 5.6 mag. to 6.6 mag. In the field glass no trace of color can be discerned.

The comparison-stars used and the preliminary light-scale adopted are given below;—the positions being for the mean equinox of 1875.0.

In the *Uranometria Argentina* the star is 6.0 mag.

Uran. Argent.		α	δ	U. A. Mag.	Sawyer	Light Scale
		h m s	° ′			
65	*Sagittarii*	18 17 54	− 20 36.3	5.1	5.1	17.1
43	"	18 7 46	− 20 45.8	5.8	5.75	12.6
42	"	18 6 45	− 21 44.7	6.0	6.15	10.0
74	"	18 22 51	− 18 48.3	6.0	6.2	6.6
45	"	18 8 10	− 18 41.9	6.5	6.25	4.6
71	"	18 20 39	− 17 52.5	6.6	6.55	3.7
50	"	18 9 54	− 17 24.9	6.4	6.45	2.1

From the above light-scale the following light-values for the variable have been determined:

		h	m	Light			h	m	Light
1882,	Sept. 5	8	45	7.8	1886,	Oct. 7	7	0	8.4:*
1886,	22	8	0	2.4		8	7	0	7.2:*
	24	7	15	7.0		9	6	30	4.8:*
	29	7	05	2.5		16	6	15	2.0
	30	6	45	11.8		19	6	10	7.5
	Oct. 1	7	0	11.6		20	6	10	4.9
	2	7	10	7.3		21	6	35	1.8
	3	6	30	5.2:*					

* Moonlight.

Cambridgeport, Oct. 1886.

OBSERVATION OF THE SOLAR ECLIPSE OF AUGUST, 1886.

By Prof. JOHN N. STOCKWELL.

The sun being hidden from the observatory, at the hour of the eclipse, by intervening buildings, I observed from the top of my house, using a transit-theodolite.

The instrument was made by Wurdemann and magnifies about 14 times. I did not succeed in observing the first contact, but obtained a very good observation of the time of last contact, as follows:

Local mean time of last contact, Aug. 28, $18^h\ 5^m\ 45^s.5$.

Longitude of station, $5^h\ 26^m\ 37^s$ W. from Greenwich.

Latitude, $+41°\ 29'\ 47''$.