

OBSERVATIONS OF NOVAE, 1946-1947

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(Received 1947 May 5)

All the observations given below were made with the 30-inch Hindle reflector.

Nova Aquilae (1918)

The brightness of this nova has been sensibly constant for many years and the slight fluctuations recorded below are probably not real, but it is perhaps worth while to give the individual estimates in view of the fact that this is one of the few novae known to have been variable in light prior to the principal outburst.

Date	Mag.	Date	Mag.
1946 July 2	11.3	1946 Sept. 8	11.3
7	11.2	13	11.3
23	11.3	28	11.4
29	11.3	Nov. 25	11.3
Aug. 10	11.3		

Nova Aquilae (1925)

The field was examined on 1946 July 2, September 13, 25 and 28, but no trace of the nova could be detected. I conclude that it cannot have been so bright as 16^m.0 on the dates mentioned.

Nova Aquilae No. 5 (1936)

Seen with great difficulty under good conditions on 1946 September 28. The magnitude was estimated to be about 16.7. At the altitude of the Pole the limit of the 30-inch mirror, as tested on stars of the North Polar Sequence, is close to 17^m.0.

Nova Aquilae No. 6 (1936)

This nova has probably now reached a steady state, having faded by only half a magnitude since 1938 July, when I last observed it.

Date	Mag.	Date	Mag.
1946 July 7	15.6	1946 Sept. 25	15.8
Sept. 13	15.7	28	15.7

Nova Aquilae (1945)

The fading of this recent nova continues at a fairly steady rate. Its image is stellar but the spectrum, as seen with a small direct-vision prism, appears to be that of a planetary nebula. The colour, on the first date of observation, 1946 May 21, was noted as being greenish white,

Date	Mag.	Date	Mag.
1946 May 21	12.0	1946 Sept. 15	13.1
July 2	12.3	25	13.1
4	12.5	27	13.1
7	12.7	28	13.3
27	12.8	30	13.2
31	12.8	Oct. 3	13.2
Aug. 9	12.9	7	13.3
10	12.9	Nov. 18	13.5
17	12.8	25	13.4
25	12.9	30	13.6
29	13.0	Dec. 3	13.5
Sept. 2	13.1	7	13.6
5	13.1	10	13.6
8	13.2	12	13.7
12	13.1	17	13.7
13	13.1	20	13.8

Nova Aurigae (1891)

Observed on 1946 November 22 and 30, when the magnitude was estimated as 14.9. There has been no sensible change in light for a great many years.

Nova (T) Coronae (1866)

When observed on 1946 May 7 and 12 the nova was found to have sunk nearly to the level from which it had risen to a sudden fresh maximum three months before. On both occasions the magnitude was estimated as 9.81. The colour was sensibly white, whereas it had been markedly yellow in the years preceding the second outburst.

Nova Cygni (1876)

This is one of the definitely variable novae and the usual slight fluctuations were observed, the range in 1946 amounting to 0^m.65.

Date	Mag.	Date	Mag.
1946 July 2	14.65	1946 Sept. 12	15.00
23	14.71	13	15.00
27	14.76	15	14.96
31	14.91	25	14.60
Aug. 9	15.05	28	14.60
10	14.98	30	14.55
17	15.01	Oct. 3	14.66
25	15.11	7	14.71
29	15.11	28	14.71
Sept. 5	15.05	Nov. 18	14.71
6	15.20	Dec. 24	15.00
8	15.05		

Nova Cygni (1920)

The nova appears to have reached a steady state and there has been no fading or sensible variability for some years.

Date	Mag.
1946 May 4	15.6
21	15.7
July 2	15.6
27	15.7
Sept. 30	15.7

Nova Cygni (1942)

This nova is still fading, having dropped about a magnitude since 1945 October. It was observed on 1946 September 5, 8, 12, 13, 25 and 28, the magnitude being estimated at 15.5 on each occasion.

Nova Geminorum (1912)

Observed on 1946 November 24 and 30. Estimated magnitude 14.6. There has been no sensible change in brightness for many years.

Nova Herculis (1934)

There has been no general fading of this nova since 1945, though it is still more than a magnitude brighter than before its outburst in 1934. Under a high power it has the appearance of a planetary nebula about 3" in diameter. It is greenish in colour and appears to have a stellar nucleus. The nebulous character of the image interferes with estimates of brightness, which are particularly affected by differences of transparency and illumination of the field. I therefore attach little weight to the apparent fluctuations suggested by the figures below.

Date	Mag.	Date	Mag.
1946 May 3	13.2	1946 July 2	13.0
4	13.2	23	13.3
12	13.2	27	13.2
21	13.2	31	13.3
28	13.2	Sept. 15	13.3

Nova Lacertae (1910)

There has been no significant change in the light of this nova for many years. It was observed on 1946 August 10 and September 28, the estimates being 14.4 and 14.5 respectively.

Nova Lacertae (1936)

General fading appears to have ceased and there is little if any real fluctuation in brightness.

Date	Mag.	Date	Mag.
1946 July 2	14.8	1946 Sept. 13	14.8
23	14.7	28	14.9
Aug. 10	14.8	Nov. 18	14.8
29	14.7		

Nova Lyrae (1919)

The nova appears to have reached a steady state and there has been no significant change in brightness for many years past.

Date	Mag.
1946 May 21	15.3
July 2	15.5
4	15.5
Sept. 28	15.5

Nova Ophiuchi (1848)

This nova has long been known to be slightly but definitely variable in light. Though stellar in appearance and comparatively bright, it has always been a

difficult object to observe photometrically by visual means, the estimates being more than usually affected by the presence of twilight or haze.

Date	Mag.	Date	Mag.
1946 May 21	12.1	1946 July 31	12.5
July 2	12.7	Aug. 17	12.6
4	12.5	25	12.7
7	12.6	Sept. 13	12.4
23	12.3	15	12.3
27	12.3	28	12.7

Nova Persei (1901)

This is the most markedly variable of all the old novae. A maximum range of $2^m.2$ has been observed within the past twenty years, though the total range in any one year is generally a good deal smaller. In 1946 it amounted to a little less than one magnitude. The nebulosity that was formerly visible close to the nova on its south-preceding side was looked for on several of the best nights, but no trace of it could be detected. A few years ago it was an easy object in a much smaller telescope.

Date	Mag.	Date	Mag.
1946 July 2	12.64	1946 Nov. 17	12.84
23	12.69	18	13.10
27	12.69	22	13.05
31	12.89	24	12.74
Aug. 9	12.94	25	13.05
10	13.00	30	13.05
17	12.46	Dec. 2	13.05
29	12.80	3	13.15
Sept. 2	12.74	4	13.05
5	12.80	10	13.05
6	12.84	12	13.31
13	13.41	17	12.95
15	13.05	18	13.00
24	13.21	20	13.05
25	13.41	24	12.95
26	13.26	28	13.05
27	13.20	30	13.26
28	13.20	31	13.10
30	13.10	1947 Jan. 2	13.20
Oct. 3	13.26	5	13.05
7	13.25	9	13.41
18	13.10	13	12.84
28	13.00	16	13.05
29	13.26	17	12.95
Nov. 4	13.31	22	12.95

Nova Sagittae (1913)

The magnitude of this nova is said to have been steady at about 15 since it ceased to fade from the maximum of 1913. It underwent a second outburst in the summer of 1946 and reached $8^m.1$ on June 29. By the time it was observed with the 30-inch telescope it had faded by about six magnitudes, and thereafter only a slight fall in brightness was noted, as shown by the figures below. The nova is preceded at a distance of a few seconds of arc by a star of nearly the same

brightness. The following estimates are based on the assumption that the magnitude of this star is 14.0.

Date	Mag.	Date	Mag.
1946 Aug. 17	13.8	1946 Nov. 25	14.1
25	13.8	30	14.15
Sept. 6	13.8	Dec. 3	14.2
26	13.8	12	14.2
30	13.95	20	14.25
Nov. 18	14.05		

Nova Vulpeculae (1670)

A few observations were made of the faint star found in 1934 close to the supposed site of this nova.* No certain variability was shown by the observations, and Humason has given reasons for doubting the identity of this star with the nova of 1670.†

Date	Mag.
1946 July 2	15.6
23	15.6
27	15.6
31	15.5
Sept. 28	15.5

Cambridge :

1947 May 3.

* *M.N.*, **95**, 78, 1934-1935.

† *Ap. J.*, **88**, 228-243, 1938.