stark veränderten. Es ist also nicht ganz sicher, dass ein Fortschleudern der Materie selbst stattfindet.

Eben so gut als an eine Fortbewegung der Materie könnte man vielleicht an eine Fortpflanzung einer Explosion denken, und es wäre verführerisch zu glauben, dass hier vor unseren Augen das Experiment einer Weltbildung durch eine Knallgasexplosion, welche durch das Eindringen der Nova verursacht wäre, ausgeführt würde.

Die Bewegung des fast genau südlich von der Nova

Heidelberg, 1901 Nov. 21.

PS. vom 26. Nov. Flammarion's Aureole um Nova Persei hat stark ihren Durchmesser verändert. M. W.

liegenden Schalentheiles betrug in der Zeit vom 23. August bis zum 17. November etwas mehr als eine Bogenminute; der — besonders stark entwickelte — Theil genau südöstlich von der Nova hat sich dagegen — in radialer Richtung gemessen — etwas über $1\frac{1}{2}$ Bogenminuten fortbewegt.

Eine genauere Ausmessung und Beschreibung des Nebels und der Bewegungen hoffe ich in einiger Zeit geben zu können.

Max Wolf.

New Variable Star 96.1901 Cygni.

BD. +29°4231 $\alpha = 20^h 49^m 21^s$ $\delta = +29^\circ 51' 8''$ (1855).

Most of the observations of this star are photographic. In order to reduce these uniformly, the magnitudes of six stars of intermediate brightness were carefully determined from seven plates by sequences of steps, and on the assumption that the photographic magnitude of BD. +29°4237 (9^m3) is 9.2; and that the faintest stars shown on the plates taken with a 4.4 inch portrait lens and an exposure of about an hour, are 12^m0. On this scale the photographic magnitude of BD. +29°4233 (9^m5) is 9.81; and that of a star (*g*) about 45" n. p. the variable is 11.80.¹⁾ The brightness of the variable was then estimated from the seven comparison stars in the usual way after the method of Argelander. The resulting magnitudes of the variable are: 1901 Sept. 21, 10.81; Oct. 7, 10.26; Oct. 14, 9.79; Nov. 1, 9.88; Nov. 3, 10.47. These indicate a maximum for 1901, Oct. 21, the photographic magnitude being 9.7. This corresponds to

a visual magnitude of 9.0, since observations made on two of the nights when photographs were taken, show that the star is 0^m7 brighter visually than it is photographically.

The variable is absent altogether from plates taken on the undermentioned dates, and must therefore have been fainter than 12^m, 1899 Oct. 6 and 9, 1900 Oct. 26 and 27, and Nov. 15. It is about 11.8 on a photograph by Prof. Max Wolf dated 1891 July 13 and 14; and on another one²⁾ dated 1895 Nov. 21, it is 11.62. In the first of these (with exposure 5 hours) the variable forms one elongated spot with the comparison star *g*, so that the exact brightness is difficult to determine, though it can hardly differ greatly from that of *g*. In the second photograph the two stars are sharply defined and well separated. The magnitude of the variable in the BD. is 9.5. Its period is uncertain at present.

Hove, 1901 Nov. 22.

A. Stanley Williams.

¹⁾ Visually the star *g* is brighter than this, about 11^m.

²⁾ I take this opportunity to state my indebtedness to Prof. Max Wolf, who, by kindly sending me copies of a number of his earlier photographs, has greatly helped my variable star work.

Elements of Asteroid 1900 GA and Ephemeris for the Opposition of 1901-1902.

By Armin O. Leuschner and Adelaide M. Hobe.

Asteroid 1900 GA was discovered June 28th 1900 by the late Director James E. Keeler of the Lick Observatory. The observations are published by Director W. W. Campbell in A. N. 3708. Although the asteroid was photographed on four nights, the available data for a determination of the orbit consist only of three positions which lie very nearly in the same great circle.

The problem of determining the orbit of the asteroid presents many points of interest and has led to the derivation of a »Short and general method of determining orbits from three observations« which will soon be published by the University of California.

The elements were computed from the following three places:

1900 Gr. M. T.	α app.	δ app.
June 28.792359	18 ^h 3 ^m 17 ^s 70	— 22° 29' 24".9
» 30.820341	18 1 52.71	— 22 53 13.1
July 2.803450	18 0 32.81	— 23 16 30.0

The first of these represents the position of the middle of the trail of June 28th. It was derived by taking the mean of the coordinates of the termini and of the corresponding times. The places for June 30th and July 2nd were derived

by combining the coordinates of the middle of the trail with the coordinates of the point-image observed on the same date, the latter coordinates being given twice the weight of the former.

Elements.

Epoch 1900 June 30.817165 Gr. M. T.

$$\begin{aligned}
 M &= 350^{\circ} 22' 16''.9 \\
 \omega &= 196 \quad 8 \quad 5.5 \\
 \Omega &= 97 \quad 36 \quad 55.6 \\
 i &= 6 \quad 56 \quad 23.1 \\
 \varphi &= 16 \quad 22 \quad 55.0 \\
 \mu &= 1122'' 174 \\
 a &= 2.154257 \\
 P &= 1154^d 901
 \end{aligned}
 \left. \vphantom{\begin{aligned} M \\ \omega \\ \Omega \\ i \\ \varphi \\ \mu \\ a \\ P \end{aligned}} \right\} 1900.0$$

The magnitude of the asteroid was estimated by Mr. Palmer to be between 15 and 16.5. Adopting 15.75 we find $g = 16.1$ and $m_0 = 18.1$. The asteroid is therefore the faintest so far observed.

According to our elements the next opposition will take place 1902, January 4.3 Gr. M. T. The magnitude of the asteroid at opposition will be 19.5 ± 0.75 . It is therefore extremely unlikely that the asteroid will be observed at this opposition. The following ephemeris has been computed by Miss *Hobe* to aid astronomers who have the necessary equipment in searching for this interesting object.

Ephemeris for 12^h Greenwich.

1901-02	α app.	δ app.	$\log r$	$\log A$	1902	α app.	δ app.	$\log r$	$\log A$
Nov. 30	7 ^h 33 ^m 1	+21° 38'	0.4341	0.2822	Jan. 1	7 ^h 2 ^m 7	+23° 42'	0.4382	0.2460
Dec. 8	27.8	22 5	4353	2678	9	6 53.0	24 11	4390	2479
16	20.7	22 36	4364	2553	17	43.7	24 37	4396	2545
24	12.2	23 9	4374	2489	25	35.4	24 58	4402	2654
Jan. 1	7 2.7	+23 42	0.4382	0.2460	Febr. 2	6 28.7	+25 15	0.4406	0.2797

University of California, Berkeley, California, October 1901.

Elements of Planet 1901 GV.

From the observations made at Rome by Prof. E. Millosevich on the 12th, 16th and 20th October (A. N. 3746), I have deduced the following approximate elements of the planet 1901 GV. The small intervall of the times renders the determination of the elements very uncertain.

Epoch 1901 Oct. 16.0 Berlin M. T.

$$\begin{aligned}
 M &= 264^{\circ} 18' 4'' \\
 \omega &= 1 \quad 2 \quad 31 \\
 \Omega &= 138 \quad 7 \quad 24 \\
 i &= 8 \quad 57 \quad 29
 \end{aligned}
 \left. \vphantom{\begin{aligned} M \\ \omega \\ \Omega \\ i \end{aligned}} \right\} 1901.0
 \begin{aligned}
 \varphi &= 9^{\circ} 28' 6'' \\
 \mu &= 654'' 9 \\
 \log a &= 0.489218
 \end{aligned}$$

Observations of this planet are respectfully requested.

Ponta Delgada, Açores, 1901 Nov. 16.

Manoel Soares de Mello e Simas.

Zusatz des Herausgebers. Aus den vorstehenden Elementen hat Dr. *E. Strömberg* für die weitere Verfolgung des Planeten eine Ephemeride gerechnet, welche mehreren Sternwarten direct zugegangen ist. Nach einer später eingegangenen Mittheilung von Prof. *Bauschinger* ist der Planet identisch mit (202) Chryseis.

Kr.

Observations of Minor Planet 1901 GV

made at the Vassar College Observatory, Poughkeepsie, N. Y., by *Mary W. Whitney*.

1901	Gr. M. T.	$\Delta\alpha$	$\Delta\delta$	Vgl.	α app.	$\log p \cdot \Delta$	δ app.	$\log p \cdot \Delta$	Red. ad l. app.	*
Oct. 18	15 ^h 17 ^m 45 ^s	-1 ^m 36 ^s 08	+1' 32" 3	7.4	1 ^h 53 ^m 14 ^s 39	9.284 _n	-1° 10' 23" 3	0.776	+4 ^s 38 +22" 3	1
Nov. 3	17 11 0	+0 30.65	+3 16.9	10.6	1 41 22.91	9.205	-2 21 40.0	0.786	+4.45 +22.3	2
6	17 23 46	-1 32.69	-6 12.2	10.6	1 39 19.56	9.316	-2 31 9.4	0.786	+4.44 +22.0	2

Mean Places of the Comparison Stars.

*	α (1901.0)	δ (1901.0)	Authority
1	1 ^h 54 ^m 46 ^s 09	-1° 12' 17" 9	AG. Nicolaiew 395
2	1 40 47.81	-2 25 19.2	Yarnall 845

Planet (442) Eichsfeldia. Die Position für 1901 Nov. 12 ist in Nr. 3750 p. 116 falsch angegeben. Der richtige Werth lautet: $\alpha = 4^h 53^m 6$ $\delta = +13^{\circ} 23'$. *Wolf*.

Planet 1901 HK. Die bisher noch nicht mitgetheilte Grösse des Planeten ist 13.0 bis 13.5. *Wolf*.

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