der Öffnung ist, ist der Fehler schon in 7′ Abstand vom Zentrum bemerkbar und hat den oben angegebenen Wert an den Ecken eines Quadrats von 25′ Seite. Eine andere sehr störende Fehlerquelle ist der Einfluß einer Fokusänderung besonders beim Reflektor. Bei zwei 90^m voneinander abstehenden Aufnahmen derselben Gegend waren wegen Fokusänderung auf der ersten Aufnahme die hellen Sterne um 0^m5 heller, die schwachen um 0^m5 schwächer als auf der zweiten.

1910 Aug. 1. *Kb.*

Mars.

In order to support the hypothesis that canals, etc., etc., do not exist on Mars the statement by M. Antoniadi has just appeared in the Nachrichten, No. 4427, that the photographs of Mars taken in America at the last opposition do not show the polar cap to be brighter than the continental regions, from which it is argued that its irradiation could not swamp any dark border the cap might have and that therefore the dark border was non-existent. As this is a misstatement of the facts I send you a positive of these photographs [1]) in which any eve can see that the polar cap is brighter than the »continents« and actually irradiates in consequence beyond the confines of the disk. This irradiation which is apparent to the eye prevents the narrow dark border of the cap from showing by swamping it in irradiation glare. Any theory must be built up on facts — not the facts denied in order to support a previously conceived theory. It may also be stated that in as much as the light by which these photographs were taken was in consequence of the screen used practically that from 5400 to 5800 with its maximum at 5600, it was substantially all concentrated in the yellow of the spectrum. The light was that of the continents which are of this color. The polar cap on the other hand, which is white, had its bluer radiations cut off by the screen and did not therefore show as bright relatively as in reality it was.

We do not know from what photographs M. Antoniadi may have got his impression. It is always possible to print or positive a negative so bright that the eye finds difficulty in distinguishing between the values of the lights. The only safe way is to judge from a print dark enough for the values to disclose themselves. One would have thought, however, that to any observer of the planet the surpassing brilliancy of its polar caps compared with its bright areas must be instantly perceptible.

July 27, 1910. *Percival Lowell.*

Aus gleichem Anlaß sendet Herr *R. Jonckheere* der Redaktion folgende Mitteilung:

Depuis la publication de mes résultats A. N. 4363 et 4398 Monsieur Antoniadi observe une bande blanche entourant la calotte polaire australe (B. S. A. F. 1910 p. 32, quatre figures) contrairement à tout ce qui avait été fait jusqu'à cette époque. En détruisant ainsi, sur ses dessins, la possibilité d'une bande sombre irrégulière et réelle, Monsieur Antoniadi détruit, en même temps, son hypothèse d'un effet subjectif et de contraste. *Robert Jonckheere.*

[1]) Die übersandte Photographie ist nicht reproduziert, da die auf Tafel 2 in A. N. Erg.-Heft 17 gegebenen Aufnahmen, wenn auch nicht ganz so deutlich, dasselbe zum Ausdruck bringen. *Red.*

Nova (96.1910) Sagittarii 2.

A new star, whose approximate position is

RA. $= 17^h52^m15^s$ Decl. $= -27°32'.3$ (1875)

was discovered by Mrs. *Fleming* in the constellation Sagittarius on October 1, 1910. It appears on 16 photographs taken at Arequipa with the 8-inch Bache and 1-inch Cooke Telescopes between March 21, 1910 and June 10, 1910. The magnitude has been estimated as varying from 7^m8 to 8^m6, between these dates. The spectrum is quite faint but shows the bright hydrogen lines $H\beta$, $H\gamma$, $H\delta$, $H\varepsilon$, $H\zeta$, and $H\eta$, with a trace of $H\gamma$ as dark on the edge of greater wavelength of the bright line $H\gamma$. The star does not appear on seventeen photographs, taken between July 23, 1889 and October 7, 1909, although most of them show stars fainter than the twelfth magnitude and one plate shows stars of the fifteenth magnitude, or fainter. An observation by *Leon Campbell* on October 3, 1910, with the 24-inch Reflector of this observatory confirms the presence of this object and gives its magnitude as about 10^m5.

Harvard College Observatory, Cambridge, Mass.,
1910 Oct. 4. *E. C. Pickering.*

1910 Ottobre 15 Grandezza 10^m4

1875.0	$17^h52^m14^s.37$	$-27°32'31''.7$
1910.0	17 54 26.28	−27 32 52.1

riferita a GZ 17^h3512 e 3532. *E. Millosevich.*

A new Variable or a Nova 97.1910 Cygni.

A star whose position is

RA. $= 19^h49^m55^s.01$ Decl. $= +36°46'57''.4$ 1900.0

appears on three photographs taken by me with the Sheepshanks Equatorial of the Cambridge Observatory on 1909 Aug. 7, 10, and 12; and does not appear on three later plates taken on 1910 Aug. 17, 19, and 26 respectively.*)

The position is deduced from the mean of the three early plates, and is referred to the four stars 8796, 8805, 8815, and 8828 of the Lund AG Zone Catalogue.

*) Die beiden Aufnahmen Nr. 919 und 920 von 1896 Juli 13 der Po ph enthalten den Stern nicht. *Red.*

The magnitudes of the star were

1909 Aug. 7 $10^m.4$, Aug. 10 $10^m.2$, Aug. 12 $10^m.5$

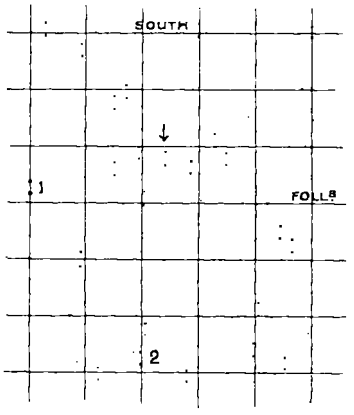
These magnitudes were determined photographically, by reference to a scale of which the standardization is provisional. The zero for each plate was obtained from the mean of 12 stars, whose magnitudes were adopted from the Lund Catalogue; their mean magnitude was $8^m.5$. The above magnitudes are extrapolated and are not to be considered definitive.

The plates of Aug. 17 and 26 show stars down to about magnitude $12^m.5$, but no trace of the variable. A visual search on 1910 Sept. 19 and 26 showed no star so bright as 13^m in the place.

The plate of 1909 Aug. 12 has been reduced to that of Aug. 7, and the places of the variable agree on the two plates within $0''.1$.

I have been unable to find the star in any catalogue of known variables, or recent announcement of discoveries. I shall therefore be glad to receive any information as to the appearance of this star on photographs which may have been taken elsewhere.

Diagram for identification (1 Reseau square = 3').



Star 1 is BD $+36°3750$, Star 2 is BD $+36°3754$.

Cambridge Observatory, 1910 September 29. *Arthur R. Hinks.*

On the Cause of the Variability of certain Satellites of the Planets of the Solar System.

The observed variability in the brightness of certain satellites of the solar system has long been a source of perplexity to astronomers, and although several explanations of the phenomenon have been offered, probably none of them can be proved to rest on a true physical cause. The distance of the satellites is so great that in all probability our own moon is the only one of these bodies which can ever be observed with much detail. Our moon always shows the same surface towards the earth, and the same relationship seems to hold true for the principal satellites of Jupiter and Saturn. As pointed out in A. N. 4343 these small bodies probably never had much axial rotation, but even that little has been destroyed by tidal friction of the central planet which now governs their motions. As an illustration of the variation of the light of the satellites, it will suffice to refer to the case of the Saturnian satellite Iapetus. Soon after its discovery by Cassini, in 1671, it became so faint that it was lost, and not recovered until the following year. Cassini then found that it regularly became invisible in the following half of its orbit, and his early conclusions were verified by Sir Wm. Herschel, in 1792 (Phil. Trans., 1792, p. 14), and are familiar to all modern observers. This regular fluctuation in the brightness has been explained by the circumstance that the satellite presents always the same face towards Saturn, just as the moon does towards the Earth; and by the additional circumstance that different areas on the surface of the satellite are of very different degrees of brightness. But what is the cause of extreme dullness in certain areas, and great brightness in others? To answer this question it is sufficient to recall the dark areas on the moon. According to my theory (Pop. Astr. 18.137) these so-called maria are level plains, in which the inequalities of surface have been obliterated by the heat of collision with satellites of large size. Considerable sized areas have thus been melted, and now reflect but very little light.

A similar cause has been at work on the surface of Iapetus, and it thus happens that the face turned towards the following side is unusually dark. The darkness is no doubt similar to that presented by the maria on the moon, and there is no reason why most of it should not be on one side. In fact, our moon itself as seen from a distance would be slightly variable. Under the circumstances it is not remarkable that the larger satellites of Jupiter, as well as those of Saturn should exhibit unmistakable variability depending on the conjunctions with their planets, as carefully investigated by Dr. Paul Guthnick in A. N. 4023, 4098.

The brighter sides of these satellites are very rough and covered by craters such as we find abundantly on the moon, while the darker sides have a preponderance of maria, and the result is the fluctuation in brightness found by observation.

U. S. Naval Observatory, Mare Island, California, November 24, 1909. *T. J. J. See.*

Komet 1906 VII (1906 g) (H. Thiele). Stud. phil. *E. Waage*, Babenburgerstr. 7, Graz, hat die definitive Bahnbestimmung dieses Kometen übernommen und bittet um Mitteilung noch unveröffentlichter Beobachtungen.

Geschlossen 1910 Okt. 21. Herausgeber: H. Kobold. Druck von C. Schaidt (Georg Oheim, Alfred Oheim). Expedition: Kiel, Moltkestr. 80.