1893 gleich 12ᵐo. In Folge der zwanzigjährigen Zwischen- zeit und der erwähnten Bahnunsicherheit kann der Planet dem für 1893 nach meinen Elementen berechneten Ephe- meridenort sehr wohl 1ʰ vorangehen und gegen 8° südlicher stehen oder umgekehrt nördlich folgen. Da zu den bis- herigen Methoden der Aufsuchung in letzter Zeit sich die Photographie mit vielversprechendem Erfolge gesellt hat,

darf man der Hoffnung Raum geben, dass die Wiederauf- findung der Aethra in nicht zu ferner Zeit gelingen werde. Es dürfte sich empfehlen, wenn schon im Sommer 1892 möglichst ausgedehnte Aufnahmen in der Nähe des Ortes, wo der Planet im Sommer 1893 voraussichtlich in Oppo- sition kommt, gemacht und im Sommer 1893 wiederholt würden.

Düsseldorf 1892 Mai 21.   *Wilhelm Luther.*

A simple and rapid method of detecting changes on celestial photographs due to motion or variability of the celestial bodies.

By *E. E. Barnard.*

The general adoption of photography to the charting of the heavens, suggests the desirability of some means of facilitating the comparison of photographs of any one region on different dates for the detection of change or variability.

The most careful inspection of such plates by the ordinary methods would be laborous and would scarcely reveal changes unless they were very striking—repeated mea- surements of every object being out of the question.

In thinking this matter over, it would seem that an admirable and almost instantaneous method is appliable where the photographs have been made with the same in- strument — the scale remaining unaltered.

Suppose two such photographs to have been made on different dates. From one of these negatives, say number one, make a glass contact positive. Superpose this upon negative number two — film to film. Since the scale in each case is the same the superposed negative number two will completely blot out every image on the positive from number one, if in the mean time none of the objects have moved. If however any change has occurred, the images of the moving objects on the positive will not be obscured, and by holding the two plates, so superposed, to the light the eye will instantly detect the fact by the unobscured image of the object on the positive from plate

number one. Now if the interval between the dates of the two photographs is not so great that the moving object has left the region photographed, it can be easily found on plate number two by making a positive of that plate and superposing it on negative number one; the position of the object again being made evident by the unobscured image.

It would seem that this method would be about the only one at all applicable to a photographic search for any planet exterior to Neptune, as the slow motion of such an object would prevent its trailing on the plate, and it could not possibly be distinguished from the multitudes of small stars on the photographs by ordinary inspection.

Photographs made with an interval of a few years and thus compared would at a glance reveal displacements due to proper motions of the stars — assuming that the scale suffered no change in the mean time.

Comparisons thus made would also readily reveal the presence of variable stars.

In superposing two negatives of the same region of the sky, correctly oriented to each other, very singular and interesting systems of circles &c. are formed. These change their positions and extent with every slight shifting of one of the negatives from exact coincidence with the other.

Mount Hamilton 1892 May 6.   *E. E. Barnard.*

A New Nebulous Star, and Corrections to Dreyer's NGC.

By *E. E. Barnard.*

In a photograph which I have made 1892 May 31 of that remarkable region in the milky way, 18ʰ 10ᵐ —20°, is shown a heretofore unknown nebulous star. This object is BD. —19°4953 which is called 7ᵐ6 in Schoenfeld's BD. It is shown on the photograph to be nearly symmetrically surrounded with a faint diffused nebulosity about 15' in dia- meter. Perhaps this nebulosity is a little denser and more extensive following. Visually with the 12 inch, I cannot be certain of seeing the nebulosity on account of the bright-

ness of the central star. It is unmistakable however in the photographic plate and is further verified by a photograph which I made of this same region July 28, 1889. The position of this nebulous star for 1860.0 is 18ʰ 9ᵐ23ˢ2 —19° 42ʹ7. The picture of the present year was given an exposure of 3ʰ 20ᵐ with the 6 in. Willard lens strapped on to the 6¹/₂ in. Equatorial. An examination of this plate, and a verification with the telescope, shows also that an inaccuracy exists in Dreyer's NGC. at this point. According

to the catalogue there should be three nebulae in the immediate region of BD. $-19^\circ4953$, viz: 6589, 6590 and 6595. The first two of these are attributed to Swift, and

Nr.	RA. 1860.0	NPD. 1860.0
6589	$18^h 7^m 59^s$	$109^\circ 50'.3$
6590	18 8 1	109 55.3
6595	18 8 47	109 55.1

An examination of the plate and with the 12 in. shows that Swift's two objects are erroneously located in right ascension, and that his second one (6590) is identical with 6595. The nebula 6590 is therefore to be stricken out as the position of 6595 is essentially correct.

On June 3 I measured these nebulae with respect to BD. $-19^\circ4953$ with the 12 inch, with the following results.

$$* - 6589$$
$$\varDelta\alpha = -0^m 47^s.87 \ (2 \text{ obs.}) \quad \varDelta\delta = -6' 12''.6 \ (2 \text{ obs.})$$

$$* - 6595$$
$$\varDelta\alpha = -0^m 34^s.64 \ (2 \text{ obs.}) \quad \varDelta\delta = -11' 27''.4 \ (2 \text{ obs.})$$

The $\varDelta\alpha$ measured direct.

The following component of the so called double star in 6595 was the object measured in the observations of that nebula.

Applying these differences to the place of BD. $-19^\circ4953$ the following positions for 1860.0 result

6589	$18^h 8^m 35^s.3$	$109^\circ 48'.9$
6595 (= 6590)	18 8 48.6	109 54.2

which corrects also the position of 6589 as given in the catalogue.

The »double star« in the center of 6589 is a 10^m star with a 12^m star $25''\pm$ sp. There is visually and on the photograph, a maximum density of the nebulosity $1'$ following the star.

Mount Hamilton 1892 June 5.

PS. Referring to Swift's original observations as published in Vol. I Pub. Warner Obs. I find his descriptions of NGC 6589 und 6590 thus

6590 (= No. 62 Swift's Cat. II). A nebulous D $*$; p F; sf. of 2. A D $*$ in center of a p F, p L circular atmosphere each $*$ of the 8.5 mag. and about $20''$ distant. A wonderful object, not diff.

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the last is h 2002. These are given in NGC as follows for 1860.0:

	Description
D	$*$ in center of e F, p L neby.
D	$*$ in center of p F, p L, R neby.
F, p L, c E, $**$ inv.	

The wide double star in 6595 is H 2827. Herschel found the angle $254^\circ.8$ and estimated the distance to be $15''$, about 1830.

On June 3 and 4 I measured this star with the 12 inch, and June 4 Mr. *Burnham* measured it with the 36 in.

My measures are

1892.422	$252^\circ.8$	$20''.08$
1892.425	253.0	20.05

Mr. *Burnham* has kindly supplied me with all the measures of this star, including his own recent one.

Following is the list, to which I have added my own observations:

1879.46	$253^\circ.0$	$19''.82$	β 3 n
1880.58	251.5	20.16	Cin 1 n
1892.42	252.9	20.06	B 2 n
1892.42	252.4	20.07	β 1 n

Mr. *Burnham*, at his previous observations, estimated the magnitudes of the two stars as $10^m - 10^m$ and at the observation this year $10^m.3 - 10^m.3$. I estimated the preceding star to be $0^m.1$ or $0^m.2$ magnitude fainter than the other. This double star is BD. $-19^\circ4946$, the magnitudes as one star being given as $9^m.4$.

It is evident that there is no change in the relative positions of these two stars, and the only interest attached to them is their position in the center of a diffused nebulosity.

E. E. Barnard.

6589 (= No. 63 Swift's Cat. II). Another D $*$ star in center of an e F, p L nebulosity; np. of 2. Except the inequality of the stars and the excessive faintness of the nebula, it would resemble the preceding.

These descriptions and the absence of any objects at the position, assigned in NGC. identify the above beyond question with the objects I have observed.

Neither nebula is at all faint.

E. E. B.

Berichtigung zur Bonner Durchmusterung. Der Stern BD. $+53^\circ1622$ $6^m.3$ $13^h 21^m 10^s.1$ $+53^\circ 29'.8$ ist in AR. $+1^m$ zu corrigiren. Dieselbe Correction findet auf die Bonner Sternkarten Nr. 29 und 30 Anwendung.

Karlsruhe 1892 Juni 1.   *F. Ristenpart.*