

For the star <i>p</i> .				
	$\Delta\alpha$	$\Delta\delta$	$\Delta\alpha$	$\Delta\delta$
	Struve	+ 60 ^{''} 6	+ 57 ^{''} 9	Differences from Struve.
	Wilson	+ 56 ^{''} 6	+ 60 ^{''} 1	+ 4 ^{''} 0 - 2 ^{''} 2
1894	Barnard	+ 57 ^{''} 9	+ 60 ^{''} 3	+ 2 ^{''} 7 - 2 ^{''} 4
For the star <i>d</i> .				
	Struve	+ 152 ^{''} 5	+ 12 ^{''} 8	
	Wilson	+ 151 ^{''} 5	+ 16 ^{''} 6	+ 1 ^{''} 0 - 3 ^{''} 8
1894	Barnard	+ 153 ^{''} 2	+ 16 ^{''} 1	- 0 ^{''} 7 - 3 ^{''} 3
1898	„	+ 153 ^{''} 4	+ 16 ^{''} 8	- 0 ^{''} 9 - 4 ^{''} 0
For the star <i>i</i> .				
	Struve	+ 238 ^{''} 2	+ 71 ^{''} 5	
	Wilson	+ 232 ^{''} 9	+ 74 ^{''} 3	+ 5 ^{''} 3 - 2 ^{''} 8
1898	Barnard	+ 236 ^{''} 1	+ 75 ^{''} 8	+ 2 ^{''} 1 - 4 ^{''} 3

My measures have not been reduced to the epoch of Struve's observations.

These differences certainly imply change of some sort if the early measures can be relied on. But if we examine *Phil. Trans.* vol. 151, part iii, it will be seen that in the observations of these stars very few direct measures of distance were made, the distances being computed from the observed angles along with a few measured distances. This is an unsatisfactory method and liable to many errors. It does not therefore seem certain that these discordances are due to motion in the observed stars.

Yerkes Observatory, Williams Bay, Wisconsin:
1902 March 22.

Notes on Nebulæ observed at the Royal Observatory, Cape of Good Hope.

(Communicated by Sir David Gill, K.C.B., F.R.S., H.M. Astronomer.)

By Mr. J. Lunt.

Five new nebulæ were picked up with the 18-inch telescope during a search for Brorsen's Comet in 1900. Their positions are (1900)—

R.A.		Dec.
h	m	° / '
22	3 ^{''} 5	-47 40
22	5 ^{''} 2	-46 36
22	8 ^{''} 3	-46 24
22	15 ^{''} 2	-46 34
22	25 ^{''} 5	-46 30

These are near the nebulae h 3924, h 3931, and h 3932 (N.G.C. 7213, 7232, and 7233).

New (1900) $10^{\text{h}} 56^{\text{m}} 28^{\text{s}}.2$, $-64^{\circ} 42'.7$.

A stellar nebula found visually with the 24-inch o.g. prism. Mag. 10-11.

Immediately N.p. C.P.D. $-64^{\circ} 1588$.

Spectrum on plate 159 (12/6/1901), chart on plate 164 (14/6/1901).

New (1900) $17^{\text{h}} 49^{\text{m}} 6^{\text{s}}.6$, $-21^{\circ} 47'.0$.

A stellar nebula found visually with the 24-inch o.g. prism. Mag. 12-13.

Immediately S.f. C.P.D. $-21^{\circ} 6502$. The nebula is $2^{\text{s}}.5$ pr. a slightly brighter star of the same declination.

Photographed on plates 178 and 182 (24/6/1901 and 8/7/1901).

By Mr. R. T. A. Innes.

h 2518 (N.G.C. 1269). Not visible in the 7-inch. (3/12/1901.) This is perhaps the same as $\Delta 487$ (N.G.C. 1291), observed by h on the same night. h gives for the latter exactly the same declination and description as for h 2518.

$\Delta 487$ was well seen on the night that h 2518 could not be found.

h 3443 (N.G.C. 4815). It is doubtful if this (which h calls a cluster) is resolvable in the 7-inch. It is involved with, but to the S of, the two stars C.P.D. -64° , 2088 and 2090. Place of latter (1875), $12^{\text{h}} 50^{\text{m}} 16^{\text{s}}.5$, $-64^{\circ} 16'.5$.

h 3546 (N.G.C. 5357). There is no nebula visible in the 7-inch in h 's position. There is a small elliptical nebula near two 10th mag. stars at (1860) $13^{\text{h}} 49^{\text{m}}.8$, $-28^{\circ} 38'$. This is 1° different from h 's declination.

New (1875) $13^{\text{h}} 28^{\text{m}}.6$, $-61^{\circ} 25'$.

This is a small round nebula about $1'$ in diameter, brighter towards the centre.

h 3563 (N.G.C. 5530). As seen with the 7-inch. This is a fine nebulous star. h has !, vF, pmE, e s v m b M * 12.

Cordoba D.M. -43° , 9005. (1875) $14^{\text{h}} 14^{\text{m}} 30^{\text{s}}.8$, $-43^{\circ} 34'.2$.

As seen with the 7-inch on 14/8/1901 this is a fine planetary nebula, 10 mag., about $20''$ in diameter. Examined

on the same night with the 18-inch telescope, it appeared dumb-bell-shaped. Mr. Lunt, with the 24-inch o.g. prism, found the spectrum to be that of a gaseous nebula. This nebula also appears on several *Carte du Ciel* plates. Plate 3689, with 1^h exposure, shows two very elongated spindle-shaped nebulae of the same length, parallel to each other, and in contact at their points of greatest condensation or brightness. Angle of elongation = 80°.

The different appearances shown by the different instruments is instructive.

This nebula was also found at Arequipa. See *Harvard Circular*, No. 60, received here 22/8/1901.

New (1875) 17^h 34^m.8, -64° 37'.

A faint oval nebula 1' in diameter, N. p. η *Pavonis*.

Found with the 7-inch.

Royal Observatory, Cape of Good Hope :
1902 February 20.

Cape Double Star Results, 1901. By R. T. A. Innes.

(Communicated by Sir David Gill, K.C.B., F.R.S., H.M. Astronomer.)

The year generally was unfavourable for double star work. All the measures were made with the Repsold micrometer on the 18-inch refractor. In the cases of a few newly discovered pairs estimates only have been secured : these were generally made with the 7-inch refractor.

It was found that an arithmetical error had been made in the determination of the screw-value used in the reduction of the measures made in 1900. Further observations for the determination of screw-value were also made. A perplexing difference between the value derived from slow-moving stars and from differences of declination has been brought to light. It is shown below :—

1ST METHOD.

Differences of Declination of Stars whose Relative Positions have been Determined with the Heliometer.

Date.	Revs.	Diff. Dec.	Value.	Stars.	Heliometer.
1899 Dec. 2-3-4	14.2993	251''63	17''598	ζ_1 & ζ_2 Reticuli	Cape
1901 Dec. 13	20.0658	353.76	.605	19 ,, 20 Tauri	Yale
„ „ 23	16.4273	288.89	.586	16 ,, 20 „	„
1902 Jan. 7	82.9516	1462.28	.610	19 to 27 „	„
„ „ 8	17.0838	300.98	.618	Dist. Atlas & Pleione	„