has been to increase the percentage of stars with proper motions from $2''-5''$ a century, and diminish the number from $0''-2''$. The curve marked − − − − is a rough attempt to correct the numbers for the effect of accidental error.

The numbers given in *M.N.*, p. 594, are largely affected. But the ratios on p. 595, giving the relative density of stars of different proper motion in different galactic latitudes, are altered very little. There seems no reason to doubt the conclusion that the stars with proper motions less than $5''\cdot0$ a century show an increasing tendency to crowd towards the galaxy.

A 13th Magnitude Star in Centaurus, with the same Parallax as α Centauri.   By J. Voûte.

In Circular No. 30 of the Union Observatory in Johannesburg, the discovery by Mr. Innes was announced of a faint star in Centaurus with about $5''$ proper motion.

Its position is, for

$$1916\cdot0 \quad \text{Ep. } 1916\cdot11 \quad 14^{\text{h}}\ 23^{\text{m}}\ 54^{\text{s}}\cdot28 \quad -62°\ 19'\ 10''\cdot1,$$

measured from an astrophotographic plate, with reference to the two G.Z. Stars XIV. 1314 and XIV. 1396, near to it. As soon as more recent observations for comparison stars are available, a more accurate place can be given.

The star is near an $11\cdot5$ magnitude star. The differences in α and δ between the two stars have been observed as follows :—

$$1916\cdot11 \quad \Delta\alpha = -26''\cdot06 \quad \Delta\delta = -5''\cdot88$$
$$1917\cdot48 \quad\quad = -31\cdot09 \quad\quad = -4\cdot74$$

Assuming that the comparison star has no sensible p.m., we obtain for the star in question one year's p.m. :

$$\text{in } \alpha = -3''\cdot66, \qquad \text{in } \delta = +0''\cdot83.$$

The difference in magnitude photographically and visually is at least $2\cdot5$, viz. visually $11\cdot0$ and photographically $13\cdot5$. The star therefore must be reddish, and we may suggest it being of the Mb type.

The parallax has been determined by the same method as that described in *M.N.*, lxxvii., No. 2, for three southern binaries, but the full description will be given in the paper in which the whole photographic parallax work will be described.

Every plate gives an equation of condition between the relative shift of the star, its parallax and proper motion.

From four plates we get:—

$$\pi = +0\overset{''}{\cdot}755 \pm 0\overset{''}{\cdot}028.$$ Relative mean magnitude comparison stars 11·4.

$\mu_\alpha = -3''\cdot67.$ In good agreement with above determination.

The total motion is $3''\cdot76$; $282°\cdot7$.

Its magnitude, reduced to a distance of 10 parsecs., being 15·4 or 17·9 (visually or photographically), it may be considered at the present moment the faintest star known.

Now we have for α Centauri: p.m. $3\overset{''}{\cdot}68$, $281°\cdot4$

$$\pi = +0\cdot759 \text{ (Gron. 24).}$$

It will be seen that we get a result both as regards parallax and proper motion in close agreement with that of α Centauri, which is certainly interesting for two stars so far separated from each other (viz. $2° \ 12'$).

Are they physically connected or members of the same drift?

Royal Observatory, Cape of Good Hope :
    1917 June 27.

Photographic Magnitudes of B.D. + 56°.547.   By C. Martin and
H. C. Plummer.

1. In a former paper * the results of nearly four years' photographic observations of three variable stars in the region of χ Persei, made at Dunsink, have been communicated to the Society. Quite lately, in a letter dated 1917 June 16, Mr. J. Van der Bilt draws attention to the star B.D. + 56°.547, of which he has discovered the variability, with a reference to Harvard Bulletin, No. 625. On his suggestion this fourth variable has now been measured on the Dunsink plates, together with a set of four neighbouring comparison stars.

2. Details relating to the comparison stars are given in Table I. The magnitudes of these four stars for two plates are based on

TABLE I.

B.D. +56°.	Plate 4. m_1.	Plate 6. m_2.	$m_2 - m_1$.	Provisional Phot.-Mag.	Corr.	Final Mag.	P.E.	Range.
534	9·90	9·88	− ·02	9·89	+ ·004	9·89	± ·013	·13
557	10·00	10·00	·00	10·00	− ·003	10·00	± ·011	·11
538	10·21	10·20	− ·01	10·20	− ·005	10·20	± ·015	·16
540	10·39	10·36	− ·03	10·38	+ ·006	10·39	± ·014	·16

Schwarzschild's system for the region. The means given in the fifth column have been used in the reduction of the variable. The plate residuals furnish small mean corrections, and hence a set of final magnitudes, which differ so little from those first adopted as

* *M.N.*, lxxiv. p. 686.