

# ROYAL SOCIETY.

JANUARY, 1864.

ON THE CLUSTER  $\kappa$  CRUCIS, R.A., 12h. 43m. 36s. N.P.N., 149° 25' 31" (3435, H.) Lac. 1110 (Neb.). By FRANCIS ABBOTT, F.R.A.S. Read June 3<sup>d</sup>, 1862.

THIS delightful cluster, "which is estimated by Sir John Herschel to be formed of from 50 to 100 stars," most of which partake of well marked and varied colors, forming an object that is scarcely perceptible to the naked eye, but when under proper optical influence it is one of the most brilliant and interesting objects in the southern sky. This cluster is not only an object of interest from the extreme beauty of color and arrangement, but with respect, also to certain changes that are apparently taking place in the number, position and color of its component stars.

Some hesitation might be felt in following the author of the Cape observations, with the means he employed, were it not for the encouraging invitation that is given for other observers to note any remarkable change that may have taken place since those results were published. Having, therefore, no knowledge of any other observations being made, or popular account published of  $\kappa$  Crucis (except that at Feldhausen), I have adapted it for comparison with observations now made and given in the drawings\* for the present epoch.

The color of all the stars, where distinct color could be detected, is given on the drawing; the smaller stars, however, from the 10th to the 14th magnitude, are generalized, and all partake of nearly the same color,—Prussian blue—some with a little more or less tint of red or green mixed with the blue. The same Greek letters have, with one exception, been used in the drawing as those used for the Cape monograph, but not exactly following those used in the catalogue, the letter and number, when in combination, are grouped together in brackets, and intended to show color and position only.

The 75 stars which are given in the drawing were observed and their position laid down with a 5-foot achromatic telescope, 4½ inch object glass, of excellent quality; the power used for the purpose of laying down the position of the stars was 135; but for the colors a comet eye-piece of 27 was found preferable. The colors, as well as the positions, were afterwards checked by a 7-foot achromatic, by Dolland. The evening of the 27th of May was chosen for confirmation; it was a capital night—no moon, quite calm, and the object near the zenith. But with such a night I was not able to bring out, with the means employed, stars of the 15th and 16th magnitude, given in the Cape catalogue.

In the Cape observations  $\phi$  is laid down to the west of  $\epsilon$  and  $\delta$ ; they are now, however, all three situated in a straight line, which, when continued, reaches the star  $\zeta$ . A straight line also drawn through  $\alpha$  and  $\beta$  cuts  $\delta$ . But the two conspicuous stars in the drawing,  $\nu$  and  $\theta$ , as well as three small stars marked 12 above the belt, are not shown at all in the Cape monograph; there are also two considerable stars,  $\kappa$  and  $\lambda$ , to the far-west, which are not seen in the Cape description.

The two stars  $\alpha$  and  $\beta$  apparently retain their color, but  $\gamma$  has changed from greenish white to bluish purple;  $\delta$ , from green to pale cobalt;  $\epsilon$ , red to Indian red;  $\zeta$ , green to ultramarine;  $\phi$ , marked  $\tau$  in the drawing, from blue-green to emerald-green;  $\alpha^2$ , called ruddy, partakes now of much the same color as all the small stars of that magnitude.

P. S.—On the 25th of April, while observing the accompanying cluster  $\kappa$  Crux, at 8h. 20m. p.m., a remarkably fine meteor crossed the zenith from  $\nu$ , in the constellation Centaurus, to Neb. Major. By esti-

\* The paper was illustrated by a colored drawing.

mation the meteor was about 15' in diameter, traversing about  $60^{\circ}$  in 4 sec. of time, leaving a long and remarkable train of sparks that continued from first to last about ten minutes, which gradually contracted into an oblong form from one to two degrees in diameter, and for a time appeared to station itself a little to the west of  $\gamma$  Crux. During the time of transit the meteor gave a brilliant illumination, much more incandescent than that produced by the full moon.

A remarkable effect followed, which was apparently produced by the meteor. The night was clear, the sky brilliant with stars; so diaphanous was the state of the atmosphere that for many consecutive days Venus was seen by the naked eye, and her path traced across the sky in bright sunshine. The barometer stood at 30.124 in.; thermometer,  $56^{\circ}$ ; elastic force of vapor, 317; humidity, 70. Under these circumstances, the meteor suddenly appeared, but immediately after the clouds began to collect from all quarters and concentrate about the paths of the meteor, until the sky was covered, and not a star could be seen. This aspect lasted only for a short time, when the clouds became dissipated, and in less than an hour from commencement the sky became as brilliant with stars as before.

Private Observatory, Hobart Town,  
May, 1862.

