magnesium, and probably of iron. The presence of sodium was also indicated in *Procyon* and *α Cygni*.

In no single instance have the authors ever observed a star-spectrum in which lines were not discernible, if the light were sufficiently intense, and the atmosphere favourable. Rigel, for instance, which some authors state to be free from lines, is filled with a multitude of fine lines.

Photographs of the spectra of Sirius and Capella were taken upon collodion; but though tolerably sharp, the apparatus employed was not sufficiently perfect to afford any indication of lines in the photograph.

In the concluding portion of their paper, the authors apply the facts observed to an explanation of the colours of the stars. They consider that the difference of colour is to be sought in the difference of the constitution of the investing stellar atmospheres, which act by absorbing particular portions of the light emitted by the incandescent solid or liquid photosphere, the light of which in each case they suppose to be the same in quality originally, as it seems to be independent of the chemical nature of its constituents, so far as observation of the various solid and liquid elementary bodies, when rendered incandescent by terrestrial means, appears to indicate.

III. "A Second Memoir on Skew Surfaces, otherwise Scrolls." By A. Cayley, Esq., F.R.S. Received April 29, 1864.

(Abstract.)

The principal object of the present memoir is to establish the different kinds of skew surfaces of the fourth order, or Quartic Scrolls; but, as preliminary thereto, there are some general researches connected with those in my former memoir "On Skew Surfaces, otherwise Scrolls" (Phil. Trans. vol. 153. 1863, pp. 453, 483), and I also reproduce the theory (which may be considered as a known one) of cubic scrolls; there are also some concluding remarks which relate to the general theory. As regards quartic scrolls, I remark that M. Chasles, in a footnote to his paper, "Description des Courbes de tous les ordres situées sur les surfaces réglées du troisième et du quatrième ordres," Comptes Rendus, t. liii. (1861), see p. 888, states, "les surfaces réglées du quatrième ordre . . . . admettent *quatorze* espèces." This does not agree with my results, since I find only eight species of quartic scrolls; the developable surface or "torse" is perhaps included as a "surface réglée;" but as there is only one species of quartic torse, the deficiency is not to be thus accounted for. My enumeration appears to me complete, but it is possible that there are subforms which M. Chasles has reckoned as distinct species.