

—an apparent distribution which must not, however, be confounded with their actual distribution through the regions of space. We now, therefore, proceed to the consideration of the remarkable differences presented by their individual forms, which are either regular (globular, more or less elliptical, annular, planetary, or resembling the photosphere surrounding a star) or irregular, and almost as difficult to classify as those of the aggregated aqueous vapor of our atmosphere—the clouds. The elliptical (spheroidal) form* has been regarded as the normal type of nebulæ; this form is most readily resolved into clusters of stars when it assumes a globular shape in the telescope; but when, on the other hand, with instruments of equal powers, it appears much flattened, elongated in one dimension, and discoidal, it is less easy of resolution.† Gradual transitions of form from the round to the elongated, elliptical, or awl-shaped form, are of frequent occurrence in the heavens. (*Philos. Transact.*, 1833, p. 494, pl. ix., figs. 19–24.) The nebula is always condensed around one or more central points (nuclei). It is only by a discrimination between round and oval *nebulæ* that we recognize *double nebulæ*; for as no relative motion is perceptible among the individual nebulous bodies, either in consequence of its absence or its extreme slowness, we are deficient in a criterion by which to

p. 79.) This early recognition of binary systems, long before that of ζ Ursæ Maj. (*Cosmos*, vol. iii., p. 185), is the more remarkable, as Lacaille, seventy years later, did not describe α Crucis as a double star; perhaps (as Rümker conjectures), because the main star and the companion were then not sufficiently distant from each other. (Compare Sir John Herschel, *Observations at the Cape*, § 183–185.) Richaud also discovered the binary character of α Centauri almost simultaneously with that of α Crucis, and fully nineteen years before the voyage of Feuillée, to whom Henderson erroneously attributed the discovery. Richaud remarks “that, at the time of the comet of 1689, the two stars which form the double star α Crucis were at a considerable distance from each other; but that in a twelve-foot refractor both parts of α Centauri could be distinctly recognized, and appeared to be nearly in contact.

* *Observations at the Cape*, § 44, 104.

† *Cosmos*, vol. iii., p. 140, and note. As we have already remarked in reference to clusters of stars (*Ibid.*, p. 143), Mr. Bond, of the United States, succeeded, by means of the great space-penetrating power of his refractor, in completely resolving the very elongated, elliptical nebula of Andromeda, which, according to Bouillaud, had been already described before the time of Simon Marius in 985 and 1428. It has a reddish light. Near this celebrated nebula lies the still unresolved, but very similarly shaped nebula, discovered on the 27th of August, 1783, by my honored friend, Miss Caroline Herschel, who died at an advanced age, universally esteemed. (*Philos. Transact.*, 1833, No. 61 of the Catalogue of Nebulæ, fig. 52.)