

the nebulous bodies of the southern hemisphere, than of those which were visible in Europe. Lacaille, moreover, successfully attempted to divide nebulae into classes according to their apparent configuration; he also was the first to undertake, though with little result, the difficult task of analyzing the heterogeneous contents of the Magellanic Clouds (*nubecula major et minor*). If we subtract the 14 nebulae, which, even with instruments of low powers, were perfectly resolved into true clusters of stars, from the other 42 isolated nebulous spots which Lacaille observed in the southern heavens, there remain only 28, while Sir John Herschel, by the aid of more powerful instruments, as well as greater skill and superior powers of observation, succeeded in discovering under the same zone, and also independently of clusters, as many as 1500 nebulous spots.

Devoid of personal knowledge or experience of the subject, and originally ignorant of each other's attempts, although both had very similar aims in view,* Lambert (from 1749) and Kant (from 1755) speculated with admirable sagacity on nebulous spots, detached galaxies, and sporadic nebulous and stellar islands scattered singly through the realms of space. Both inclined to the nebular hypothesis, and to the idea of a perpetual development in the regions of space, and even of a star-formation from cosmical vapor. The great traveler, Le Gentil (1760–1769), long before his voyages, and his unsuccessful observations of the transit of Venus, had imparted animation to the study of nebulae by his observations on the constellations of Andromeda, Sagittarius, and Orion. He made use of an object-glass of Campani's, 37 feet in focal length, which was in the possession of the Paris Observatory. In entire opposition to the views of Halley, Lacaille, Kant, and Lambert, the intellectual John Michell declared (as Galileo and Dominique Cassini had done) that all nebulae were stellar clusters, aggregations of very minute or very remote telescopic stars, whose existence would undoubtedly be some day revealed by means of more perfect optical instruments.†

* On the community and difference of ideas between Kant and Lambert, as well as in reference to the period of their publications, see Struve, *Etudes d'Astr. Stellaire*, p. 11, 13, 21, notes 7, 15, and 33. Kant's *Allgemeine Natur-Geschichte und Theorie des Himmels* appeared anonymously, and was dedicated to Frederick the Great, 1755. Lambert's *Photometria*, as already remarked, appeared in 1760; and his *Sammlung kosmologischer Briefe über die Einrichtung des Weltbaues*, in 1761.

† "Those nebulae," says John Michell in 1767 (*Philos. Transact.*, vol.