

from 1786 to 1802, and the above-named great exploration of the heavens published by his son in the *Philos. Transact.* of 1833; and *b.* to the portion of the *southern* heavens visible at the Cape of Good Hope, according to Sir John Herschel's African Catalogues, nebulae and clusters of stars are set down indiscriminately together. I have, however, deemed it best, notwithstanding the natural affinity of these objects, to enumerate them separately, in order to indicate a definite epoch in the history of their discovery. I find that the *Northern Catalogue\** contains 2299 nebulae and 152 clusters of stars; the *Southern* or Cape Catalogue, 1239 nebulae and 236 clusters of stars. We have, therefore, 3538 for the number of the nebulae throughout the firmament which were given in these catalogues as not yet resolved into clusters. This number may, perhaps, be increased to 4000, if we take into account 300 or 400 seen by Sir William Herschel,† but not again determined, and the 629 observed by Dunlop at Para-

\* The data on which these numbers are based require some explanation. The three catalogues of the elder Herschel contain 2500 objects, viz., 2303 nebulae and 197 clusters of stars. (Mädler, *Astr.*, p. 448.) These numbers were altered in the subsequent and far more exact exploration made by Sir John Herschel (*Observations of Nebulae and Clusters of Stars made at Slough with a twenty-foot reflector, between the years 1825 and 1833, in the Philosophical Transactions of the Royal Society of London for the year 1833, p. 365-481*). About 1800 objects were identical with those of the three earlier catalogues; but 300 or 400 were temporarily excluded, and more than 500 newly discovered were determined according to Right Ascension and Declination. (Struve, *Astr. Stellaire*, p. 48.) The *Northern Catalogue* contains 152 clusters of stars, consequently  $2307 - 152 = 2155$  nebulae; but, in reference to the *Southern Catalogue* (*Observations at the Cape*, p. 3, § 6, 7), we have to subtract from the  $4015 - 2307 = 1708$  objects, among which there are 236 clusters of stars (see *Op. cit.*, p. 3, § 6, 7, p. 128), 233, viz.,  $89 + 135 + 9$ , as belonging to the Northern Catalogue, and observed by Sir William and Sir John Herschel at Slough, and by Messier in Paris. There remain, therefore, for the Cape observations,  $1708 - 233 = 1475$  nebulae and clusters of stars, or 1239 nebulae alone. We have, however, to add  $135 + 9 = 144$  to the 2307 objects of the Northern Slough Catalogue, which increase its numbers to 2451 objects, in which, after subtracting 152 clusters, there remain 2299 nebulae, a number which is not, however, very strictly limited to the latitude of Slough. When numerical relations are to be given in the topography of the firmament of both hemispheres, the author feels that although such data are from their nature variable, owing to the differences in the epochs and the advances of observation, he is bound to have regard to their accuracy. In a sketch of the Cosmos, it must be endeavored to delineate the condition of science appertaining to a definite epoch.

† Sir John Herschel says, in his *Observations at the Cape*, p. 134, "There are between 300 and 400 nebulae of Sir William Herschel's Catalogue still unobserved by me; for the most part, very faint objects."