

summits. According to what modern geology has taught us to conjecture regarding the ancient history of our atmosphere, its primitive condition, in respect to its mixture and density, must have been unfavorable to the transmission of light. When we consider the numerous processes which, in the primary world, may have led to the separation of the solids, fluids, and gases around the earth's surface, the thought involuntarily arises how narrowly the human race escaped being surrounded with an untransparent atmosphere, which, though perhaps not greatly prejudicial to some classes of vegetation, would yet have completely veiled the whole of the starry canopy. All knowledge of the structure of the universe would thus have been withheld from the inquiring spirit of man. Excepting our own globe, and perhaps the sun and the moon, nothing would have appeared to us to have been created. An isolated triad of stars—the sun, the moon, and the earth—would have appeared the sole occupants of space. Deprived of a great, and, indeed, of the sublimest portion of his ideas of the Cosmos, man would have been left without all those incitements which, for thousands of years, have incessantly impelled him to the solution of important problems, and have exercised so beneficial an influence on the most brilliant progress made in the higher spheres of mathematical development of thought. Before we enter upon an enumeration of what has already been achieved, let us dwell for a moment on the danger from which the spiritual development of our race has escaped, and the physical impediments which would have formed an impassable barrier to our progress.

In considering the number of cosmical bodies which fill the celestial regions, three questions present themselves to our notice. How many fixed stars are visible to the naked eye? How many of these have been gradually catalogued, and their places determined according to longitude and latitude, or according to their right ascension and declination? What is the number of stars from the first to the ninth and tenth magnitudes which have been seen in the heavens by means of the telescope? These three questions may, from the materials of observation at present in our possession, be determined at least approximatively. Mere conjectures based on the gauging of the stars in certain portions of the Milky Way, differ from the preceding questions, and refer to the theoretical solution of the question: How many stars might be distinguished throughout the whole heavens with