an opinion of the connection of forms in the universe, analogous to the frequently misemployed doctrine of transition in organic nature, was shared by Immanuel Kant, one of the greatest minds of the eighteenth century. At two epochs, twenty-six and ninety-one years after the *Naturgeschichte des Himmels* was dedicated to the great Frederick by the Königsberg philosopher, Uranus and Neptune were discovered by William Herschel and Galle; but the orbits of both planets have a less degree of eccentricity than that of Saturn; if even the latter is 0·056, so, on the contrary, Neptune, the outermost of all known planets, moves in an orbit whose eccentricity is 0·008, nearly the same as that of Venus (0.006). In addition to this, Uranus and Neptune present none of the predicted cometary characters.

As, in more recent times (since 1819), the discovery of Encke's Comet was gradually followed by those of five *interior* comets, forming, as it were, a peculiar group, the semi-major axis of whose orbits for the most part resembles those of the small planets, the question was raised as to whether the group of *interior* comets may not, as is conjectured by Olbers, in his hypothesis respecting the small planets, originally have formed a single cosmical body; whether the large comet may not have been separated into several by the influence of Mars, in the same way that such a separation, as it were a bipartition, took place under the eye of the observer in the year 1846, on the occasion of the last return of the interior comet of Biela. Certain similarities in their elements have induced Professor Stephen Alexander, of the College of New Jersey, to institute investigations* as to the possibility

Kant, "the last planets beyond Saturn would gradually pass into comets, and so the last species would be connected with the first. The law according to which the eccentricity of the planetary orbits is proportionate to the distances of the planets from the Sun, supports this conjecture. The eccentricity increases with the distance, and, consequently, the more distant planets approach nearer to the definition of comets. The last planet and the first comet may be called that body which in its perihelion intersects the orbit of the adjoining planet, perhaps that of Saturn. Our theory of the mechanical formation of the cosmical bodies is also *clearly proved* by the magnitudes of the planetary masses which increase with the distance from the Sun." — Kant, *Naturgeschichte des Himmels* (1755), in his *Sämmtliche Werke*, th. vi., p. 88 and 195. At the commencement of the fifth section (p. 131), he speaks of the former *cometary nature* which Saturn was supposed to have possessed.

* Stephen Alexander, "On the Similarity of arrangement of the Asteroids and the Comets of short period, and the possibility of their common origin," in Gould's *Astronom. Journal*, No. 19, p. 147, and No