

the simultaneous occurrence of perturbations, and the frequency and duration of *magnetic storms*.

Let me be permitted here to touch upon a few points connected with discoveries, whose importance can only be estimated by those who have devoted themselves to the study of the physical sciences generally. Examples chosen from among the phenomena to which special attention has been directed in recent times, will throw additional light upon the preceding considerations. Without a preliminary knowledge of the orbits of comets, we should be unable duly to appreciate the importance attached to the discovery of one of these bodies, whose elliptical orbit is included in the narrow limits of our solar system, and which has revealed the existence of an ethereal fluid, tending to diminish its centrifugal force and the period of its revolution.

The superficial half-knowledge, so characteristic of the present day, which leads to the introduction of vaguely comprehended scientific views into general conversation, also gives rise, under various forms, to the expression of alarm at the supposed danger of a collision between the celestial bodies, or of disturbance in the climatic relations of our globe. These phantoms of the imagination are so much the more injurious as they derive their source from dogmatic pretensions to true science. The history of the atmosphere, and of the annual variations of its temperature, extends already sufficiently far back to show the recurrence of slight disturbances in the mean temperature of any given place, and thus affords sufficient guarantee against the exaggerated apprehension of a general and progressive deterioration of the climates of Europe. *Encke's comet*, which is one of the three *interior comets*, completes its course in 1200 days, but from the form and position of its orbit it is as little dangerous to the earth as *Halley's great comet*, whose revolution is not completed in less than seventy-six years (and which appeared less brilliant in 1835 than it had done in 1759): the interior comet of *Biela* intersects the earth's orbit, it is true, but it can only approach our globe when its proximity to the sun coincides with our winter solstice.

The quantity of heat received by a planet, and whose unequal distribution determines the meteorological variations of its atmosphere, depends alike upon the light-engendering force of the sun; that is to say, upon the condition of its gaseous coverings, and upon the relative position of the planet and the central body.