often disfigure the very best catalogues. The disappearance of a heavenly body from the place in which it had before been distinctly seen, may be the result of its own motion as much as of any such diminution of its photometric process (whether on its surface or in its photosphere), as would render the waves of light too weak to excite our organs of sight. What we no longer see is not necessarily annihilated. The idea of destruction or combustion, as applied to disappearing stars, belongs to the age of Tycho Brahe. Even Pliny, in the fine passage where he is speaking of Hipparchus, makes i a question: Stellæ an obirent nascerenturve? The apparent eternal cosmical alternation of existence and destruction is not annihilation; it is merely the transition of matter into new forms, into combinations which are subject to new processes. *Dark cosmical bodies* may by a renewed process of light again become luminous.

PERIODICALLY VARIABLE STARS.—Since all is in motion in the vault of heaven, and every thing is variable both in space and time, we are led by analogy to infer that as the fixed stars universally have not merely an apparent, but also a proper motion of their own, so their surfaces or luminous atmospheres are generally subject to those changes which recur, in the great majority, in extremely long, and, therefore, *unmeasured* and probably *undeterminable* periods, or which, in a few, occur without being periodical, as it were, by a sudden revolution, either for a shorter or for a longer time. The latter class of phenomena (of which a remarkable instance is furnished in our own days by a large star in Argo) will not be here discussed, as our proper subject is those fixed stars whose *periods have already been investigated and ascertained*. It is of importance here to make a distinction between three great sidereal phenomena, whose connection has not as yet been demonstrated; namely, variable stars of known periodicity; the instantaneous lighting up in the heavens of so-called *new* stars; and sudden changes in the luminosity of long-known fixed stars, which previously shone

(Deneb) is little inferior in brilliancy to Lyra (Vega Lyræ). Ptolemy classes Vega among stars of the first magnitude, and in the Catasterisms of Eratosthenes (cap. 25), Vega is called λευκὸν καὶ λαμπρὸν. Considering the many inaccuracies of a poet, who never himself observed the stars, one is not much disposed to give credit to the assertion that it was only between the years 272 and 127 B.C., *i. e.*, between the times of Aratus and Hipparchus, that the star Vega Lyræ (*Fidicula* of Pliny, xviii., 25) became a star of the first magnitude.