bers of solar spots (Hevelius observed a group of this kind on the 20th of July, 1643, which covered the third part of the

gis domestico, conscripti, p. 58. These annals were originally ascribed to a Benedictine monk (p. 28), but subsequently, and correctly, to the celebrated Eginhard, Charlemagne's secretary.—See *Annales Einhardi*, in Pertz, *Monumenta Germaniæ Historica*, Script., tom. i., p. 194. The following is the passage referred to: "DCCCCVII. Stella Mercurii xvi. kal. April, visa est in Sole qualis parva macula nigra, paululum superius medio centro ejusdem sideris, *quæ a nobis* octo dies conspicata est; sed quando primum intravit vel exivit, nubibus impedientibus, minime notare potuimus." "On the 15th of March, DCCCCVII., Mercury appeared to be a small black spot on the Sun, a little above his center, and was visible to us in that position for eight days; but, owing to the obstruction offered by the clouds, we were not able to see either when it reached or left that place." The so-called transit of Venus recorded by the Arabian astronomers, is noticed by Simon Assemanus in the Introduction to the *Globus Cælestis Cufico-Arabicus* Veliterni Musei Borgiani, 1790, p. xxxviii.: "Anno Hegyræ 225, regnante Almootasemo Chalifa, visa est in Sole prope medium nigra quædam macula, idque feria tertia die decima nona mensis Regebi . . . . ." This appearance was believed to be the planet Venus, and the same *black spot* (macula nigra) was supposed to have been seen for 91 days (probably with intermissions of twelve or thirteen days?). Soon after this, the reigning Calif Motassem died. I have selected the following seventeen examples from a large number of facts collected from the historical records derived from popular tradition, as to the occurrence of a sudden decrease in the light of the Sun:

45 B.C. At the death of Julius Cæsar: after which event the Sun remained pale for a whole year, and gave less than its usual warmth; on which account the air was thick, cold, and hazy, and fruit did not ripen.—Plutarch in *Jul. Cæs.*, cap. 87; *Dio Cass.*, xliv.; Virg., *Georg.*, i., 466.

33 A.D. The year of the Crucifixion. "Now from the sixth hour there was darkness over all the land till the ninth hour." (St. Matthew, xxvii., 45.) According to St. Luke, xxiii., 45, "the Sun was darkened." In order to explain and corroborate these narrations, Eusebius brings forward an eclipse of the Sun in the 202d Olympiad, which had been noticed by the chronicler, Phlegon of Tralles. (Ideler, *Handbuch der Mathem. Chronologie*, bd. ii., p. 417.) Wurm has, however, shown that the eclipse which occurred during this Olympiad, and was visible over the whole of Asia Minor, must have happened as early as the 24th of November, 29 A.D. The day of the Crucifixion corresponded with the Jewish Passover (*Ideler*, bd. i., p. 515–520), on the 14th of the month Nisan, and the Passover was always celebrated at the time of the *full moon*. The Sun can not, therefore, have been darkened for three hours by the Moon. The Jesuit Scheiner thinks the decrease in the light might be ascribed to the occurrence of large Sun-spots.

358 A.D. A darkening continuing two hours, on the 22d of August, *before* the fearful earthquake of Nicomedia, which also destroyed several other cities of Macedonia and Pontus. The darkness continued from two to three hours: "nec contigua vel adposita cernebantur." "Without either contiguous objects or those in juxtaposition being discernible."—*Ammian. Marcell.*, xvii., 7.