

Sun's disk) have always been accompanied by numerous faculæ, I am not much disposed to ascribe to nucleoid spots those

360 A.D. In all the eastern provinces of the Roman empire, "per Eoos tractus," there was obscurity from early dawn till noon; "Caligo a primo auroræ exortu adusque meridiem," *Ammian. Marcell.*, xx., 3; but the stars continued to shine: consequently, there could not have been any shower of ashes, nor, from the *long duration* of the phenomenon, could it be ascribed to the action of a total eclipse of the Sun, to which the historian refers it. "Cum lux cœlestis operiretur, e mundi conspectu penitus luce abrepta, defecisse diutius solem pavidæ mentes hominum æstimabant: primo attenuatum in lunæ corniculantis effigiem, deinde in speciem auctum semenstem, posteaque in integrum restitutum. Quod alias non evenit ita perspicue, nisi cum post inæquales cursus intermenstruum lunæ ad idem revocatur." "When the light of heaven, suddenly and wholly concealed, was hidden from the world, trembling men thought the Sun had left them for a very long time; at first it assumed the form of a horned moon, then increased to half its proper size, and was finally restored to its integrity. But it did not appear so bright until, after all irregular motions were over, it returned." This description entirely corresponds with a true eclipse of the Sun; but how are we to explain its long duration, and the "caligo" experienced in all the provinces of the East?

409 A.D. When Alaric appeared before Rome, there was so great a darkness that the stars were seen by day.—Schnurrer, *Chronik der Seuchen*, th. i., p. 113.

536. Justinianus I. Cæsar imperavit annos triginta-octo (727 to 565). Anno imperii nono deliquium lucis passus est Sol, quod annum integrum et duos amplius menses duravit, adeo ut parum admodum de luce ipsius appareret; dixeruntque homines Soli aliquid accidisse, quod nunquam ab eo recederet." "In the ninth year of the reign of Justinian I., who reigned thirty-eight years, the Sun suffered an eclipse, which lasted a whole year and two months, so that very little of his light was seen; men said that something had clung to the Sun, from which it would never be able to disentangle itself."—Gregorius Abu'l-Faragius, *Supplementum Historiæ Dynastiarum*, ed. Edw. Pocock, 1663, p. 94. This phenomenon appears to have been very similar to one observed in 1783, which, although it has received a name (Höhenrauch),\* has in many cases not been satisfactorily explained.

567 A.D. "Justinus II. annos 13 imperavit (565–578). Anno imperii ipsius secundo apparuit in cœlo ignis flammans juxta polum arcticum, qui annum integrum permansit; obtexeruntque tenebræ mundum ab hora diei nona noctem usque, adeo ut nemo quicquam videret; deciditque ex aëre quoddam pulveri minuto et cineri simile." "In the second year of the reign of Justinian II., who reigned thirteen years, there appeared a flame of fire in the heavens, near the North Pole, and it remained there for a whole year; darkness was cast over the world from three o'clock until night, so that nothing could be seen; and something resembling dust and ashes fell down from the sky."—Abu'l-Farag., l. c., p. 95. Could this phenomenon have continued for a whole year like a perpetual northern light (magnetic storm), and been succeeded by darkness and showers of meteoric dust?

\* A kind of thick, yellowish fog, common in North Germany.