

The *spots upon the sun* were first observed through telescopes by Johann Fabricius of East Friesland, and by Galileo (at Padua or Venice, as is asserted). In the publication of the discovery, in June, 1611, Fabricius incontestably preceded Galileo by one year, since his first letter to the burgomaster, Marcus Welser, is dated the 4th of May, 1612. The earliest observations of Fabricius were made, according to Arago's careful researches, in March, 1611,* and, according to Sir David Brewster, even as early as toward the close of the year 1610; while Christopher Scheiner did not carry his own observations back to an earlier period than April, 1611, and it is probable that he did not seriously occupy himself with the solar spots until October of the same year. Concerning Galileo we possess only very obscure and discrepant data on this subject. It is probable that he recognized the solar spots in April, 1611, for he showed them publicly at Rome in Cardinal Bandini's garden on the Quirinal, in the months of April and May of that year. Harriot, to whom Baron Zach ascribes the discovery of the sun's spots (16th of January, 1610), certainly saw three of them on the 8th of December, 1610, and noted them down in a register of observations; but he was ignorant that they were solar spots; thus, too, Flamstead, on the 23d of December, 1690, and Tobias Mayer, on the 25th of September, 1756, did not recognize Uranus as a planet when it passed across the field of their telescope. Harriot first observed the solar spots on the 1st of December, 1611, five months, therefore, after Fabricius had published his discovery. Galileo had made the observation that the solar spots, "many of which are larger than the Mediterranean, or even than Africa and Asia," form a definite zone on the sun's disk. He occasionally noticed the same spots return, and he was convinced that they belonged to the sun itself. Their differences of dimension in the center of the sun, and when they disappeared on the sun's edge, especially attracted his attention,

* See Arago, in the *Annuaire* for 1842, p. 460-476 (*Découvertes des taches Solaires et de la Rotation du Soleil*). Brewster (*Martyrs of Science*, p. 36 and 39) places the first observation of Galileo in October or November, 1610. Compare Nelli, *Vita*, vol. i., p. 324-384; Galilei, *Opere*, t. i., p. lix.; t. ii., p. 85-200; t. iv., p. 53. On Harriot's observations, see Rigaud, p. 32 and 38. The Jesuit Scheiner, who was summoned from Gratz to Rome, has been accused of striving to revenge himself on Galileo, on account of the literary contest regarding the discovery of the solar spots, by getting it whispered to Pope Urban VIII., through another Jesuit, Grassi, that he (the pope), in the *Dialoghi delle Scienze Nuove*, was represented as the foolish and ignorant Simplicio (Nelli, vol. ii., p. 515)