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(b. Wald, near Mindelheim, Swabia, Germany, 25 July 1573; d. Neisse, Silesia [now Nysa, Poland], 18 June 1650)

astronomy.

Scheiner attended the Jesuit Latin school at Augsburg and the Jesuit College at Landsberg before he joined the [Society of Jesus](#) in 1595. In 1600 he was sent to Ingolstadt, where he studied philosophy and, especially, mathematics under Johann Lanz. From 1603 to 1605 he spent his “magisterium”, or period of training as a teacher, at Dillingen, where he taught humanities in the Gymnasium and mathematics in the neighboring academy. During this period he invented the pantograph, an instrument for copying plans on any scale; and his results were published several years later in the *Pantographice, seu ars delineandi* (1631). He returned to Ingolstadt to study theology, and after completing his second novitiate or “third year” at Edersberg, he was appointed professor of Hebrew and mathematics at Ingolstadt in 1610.

The following year Scheiner constructed a telescope with which he began to make astronomical observations, and in March 1611 he detected the presence of spots on the sun. His religious superiors did not wish him to publish under his own name, lest he be mistaken and bring discredit on the [Society of Jesus](#); but he communicated his discovery to his friend Marc Welser in Augsburg. In 1612 Welser had Scheiner’s letters printed under the title *Tres epistolae de maculis solaribus*, and he sent copies abroad, notably to Galileo and Kepler. Scheiner believed that the spots were small planets circling the sun; and in a second series of letters, which Welser published in the same year as *De maculis solaribus... accuratior disquisitio*, Scheiner discussed the individual motion of the spots, their period of revolution, and the appearance of brighter patches or *faculae* on the surface of the sun. Having observed the lower conjunction of Venus with the sun, Scheiner concluded that Venus and Mercury revolve around the sun.

Welser had concealed Scheiner’s identity under the pseudonym of *Apelles latens post tabulam*. Galileo, however, identified Scheiner as a Jesuit and took him to task in three letters addressed to Welser and published in Rome in 1613. Galileo claimed priority in the discovery of the sunspots and hinted darkly that Scheiner had been apprised of his achievement and was guilty of plagiarism. This criticism was unfair, for the sunspots were observed independently not only by Galileo in Florence and Scheiner in Ingolstadt, but also by [Thomas Harriot](#) in Oxford, Johann Fabricius in Wittenberg, and Domenico Passignani in Rome.

In Ingolstadt, Scheiner trained young mathematicians and organized public debates on current issues in astronomy. Two of these “disputations” were subsequently published. In the first, the *Disquisitiones mathematicae de controversiis et novitatibus astronomicis*, Scheiner upheld the traditional view that the earth is at rest at the center of the universe but praised Galileo for his discovery of the phases of Venus and the satellites of Jupiter. In the second, *Exegeses fundamentorum gnomonicorum*. Scheiner discussed the theory behind sundials and explained their construction. In the *Sol ellipticus* (1615) and the *Refractiones caelestes* (1617), which he dedicated to Maximilian, the archduke of Tirol, Scheiner also called attention to the elliptical form of the sun near the horizon, and he explained the form as the effect of refraction.

In 1616 Scheiner accepted an invitation from Maximilian and took up residence at the court in Innsbruck. The following year he was ordained to the priesthood. He performed several experiments on the physiology of the eye. In the *Oculus, hoc est: fundamentum opticum* (1619) he showed that the retina is the seat of vision.

In 1620 the University of Freiburg im Breisgau was entrusted to the Jesuits; Scheiner was one of the first seven Jesuits to be assigned to the university, but the following year he was recalled to Innsbruck. In 1622 he accompanied the Archduke Charles, the bishop of Neisse, to that city; and in 1623 Scheiner was appointed superior of the Jesuit College to be erected there. In 1624 he left with the Archduke Charles on a journey to Spain; but they parted ways at Genoa, the Scheiner proceeded to Rome to settle matters concerning in Rome until March 1633. When not occupied with administrative problems, he busied himself with astronomical observations and the writing of his major work, the *Rosa ursina sive sol*, which was printed at Bracciano between 1626 and 1630. In the *Rosa ursina*, Scheiner confirmed his method and criticized Galileo for failing to mention the inclination of the axis of rotation of the sunspots to the plane of the ecliptic, which Scheiner determined as $7^{\circ}30'$ (modern value $7^{\circ}15'$).

Scheiner does not appear to have played an active role in the trial and condemnation of Galileo, and his refutation of the [Copernican system](#), *Prodromus de sole mobili et stabili terra contra Galilaeum*, was published only posthumously in 1651.

From 1633 to 1639 Scheiner lived in Vienna and then in Neisse, where he was active in pastoral work until his death in 1650.

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I. Original Works. Scheiner's works include *Tres epistolae de maculis solaribus scriptae ad Marcum Velsorum...* (Augsburg, 1612) and *De maculis solaribus et stellis circa Jovem errantibus, accuratior disquisitio...* (Augsburg, 1612), which were reedited as an appendix to Galileo Galilei, *Istoria e dimostrazioni intorno alle macchie solari...* (Rome, 1613).

See also *Disquisitiones mathematicae de controversiis et novitatibus astronomicis* (Ingolstadt, 1614), written with his pupil Johann Georg Locher; *Sol ellipticus; hoc est novum et perpetuum solis contrahi soliti phaenomenon* (Augsburg, 1615); *Exegeses fundamentorum gnomonicorum* (Ingolstadt, 1615), written with his pupil Johann Georg Schoenberg; *Refractiones caelestes, sive solis elliptici phaenomenon illustratum* (Ingolstadt, 1617); *Oculus, hoc est: fundamentum opticum...* (Innsbruck, 1619; 2nd ed., Freiburg im Breisgau, 1621; 3rd ed., London, 1652); *Rosa ursina sive sol ex admirando facularum et macularum suarum phaenomeno varius necnon circa centrum suum et axem fixum, ab occasu in ortum annua, circaque quasi menstrua, super polos proprios, libris quatuor mobilis ostensus* (Bracciano, 1626–1630); and *Pantographice, seu ars delineandi res quaslibet...* (Rome, 1631; Italian eds: Padua, 1637; Bologna, 1653).

Two sets of lecture notes are preserved in the Bayerische Stadtbibliothek in Munich: *Commentarius in Aristotelis libros de caelo et de meteorologicis*. 1614–1615, pg. 128 (*Catal. MSS latin. Monach.*, n. 11878); and *Euclidis liber V dictatus an. 1615* (*ibid.*, n. 12425). There are also unpublished letters of Scheiner in the Bibliothèque Nationale in Paris.

II. Secondary Literature. On Scheiner and his work, see Augustin and Alois de Backer, *Bibliothèque de la Compagnie de Jésus*, VIII (Louvain, 1960), cols. 734–740; Anton von Braunmühl, *Christoph Scheiner als Mathematiker, Physiker and Astronom* (Bamberg, 1891); Bellino Carrara, “*L'unicuique suum*” a Galileo, Fabricius e Scheiner nella scoperta delle macchie solari (Rome, 1900); Stillman Drake, *Galileo Studies* ([Ann Arbor](#), 1970); Antonio Favaro, “Oppositori di Galileo. III. Cristoforo Scheiner,” in *Atti del R. Istituto veneto di scienze, lettere ed arte*, **78** (1919), 1–107; Johann Schreiber. “P. [Christoph Scheiner](#), S.J. und seine Sonnebeobachtungen”, in *Natur und Offenbarung*, **48** (1902), 1–20, 78–98, 145–158, 209–221; and William R. Shea, “Galileo, Scheiner, and the Interpretation of Sunspots”, in *Isis*, **61** (1970), 498–519.

William R. Shea