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(*b.* Vico Equense, Italy, between 3 October and 15 November 1535; *d.* Naples, Italy, 4 February 1615)

natural philosophy, mathematics.

The modest fortunes of the Porta family, who belonged to the ancient nobility of Salerno, were improved when Nardo Antonio della Porta, father of Giambattista, entered the service of Emperor Charles V in 1541. From that year the family residence alternated between a villa in Vico Equense and a house in Naples. Giambattista was the second of three sons. Only two of his teachers are known: Antonio Pisano, a royal physician in Naples, and Domenico Pizzimenti, a translator of Democritus. The nature of his formal education is unknown, but early accounts of his life suggest that he was self-taught. His informal education, however, was clearly the convivial, and sometimes profound, discussion of scientific and pseudoscientific topics.

Porta was examined by the Inquisition some time prior to 1580, and in 1592 all further publication of his works was prohibited. This ban was not lifted until 1598. In the same period his religious activity is first mentioned. By 1585 he had become a lay brother of the Jesuits, and his participation in the charitable works of both the Jesuits and the Theatines in Naples demonstrates his devotion to the ideals of the Catholic Reformation. The relationship of this overt piety to his difficulties with the Inquisition and to his personal relations with Fra [Paolo Sarpi](#) in Venice after 1579 and with Campanella in Naples in 1590 cannot easily be determined.

Nothing is known of Porta's marriage except that it produced his only child, a daughter, about 1579. He suffered from various psychosomatic ailments, which by his own account were cured when his anxiety was relieved. His most frequent illness was a persistent fever, which on occasion confined him to bed for several months.

Porta's relationship to the academies of late Renaissance Italy is of great importance. The Académies of Naples were closed under suspicion of political intrigue in 1547 and began to reopen only after 1552. In the following decade the Altomare was the outstanding literary academy of Naples, and several of Porta's close friends were members. Porta himself established the Accademia dei Segreti (Accademia Secretorum Naturae) some time prior to 1580. It met in Porta's house in Naples; was almost certainly founded on the model of the earlier literary Acad#x00E9;emies; and was devoted to discussion and study of the secrets of nature. It seems to have been closed by order of the Inquisition and may have been the cause for Porta's original process by the Inquisition.

This early academy was but a vague anticipation of the Accademia dei Lincei, founded at Rome in 1603 by Federico Cesi and three friends. The relationship of Porta to the Lincei is difficult to establish. In 1604 Cesi traveled to Naples and often visited Porta. In the same year Porta wrote a compend of the history of the Cesi family. Cesi, who wrote the constitution of the Lincei, known as the *Lynceographum*, acknowledged that the idea of such an academy preceded the fact; and he seems to have known of Porta and his academy. The documented meeting of Cesi and Porta in 1604 was followed by a respectful correspondence which culminated in the enrollment of Porta among the Lincei on 6 July 1610. Porta's reputation among his contemporaries was second only to that of Cesi, but the enrollment of Galileo on 25 April 1611 soon overshadowed Porta and gave a new direction to the academy. It is significant, however, that the choice of the lynx with the motto "Auspicit et Inspicit" for the Lincei was derived from Porta's *Phytognomonica* (Naples, 1588). In 1611 Porta was enrolled among the Oziosi in Naples, then the most renowned literary academy.

Porta's first book, published in 1558 as *Magiae naturalis*, was a treatise on the secrets of nature, which he began collecting when he was fifteen. The secrets are arranged in four books, and the conception implied in the title is that natural magic is the perfection of natural philosophy and the highest science. This small collection of secrets constituted the basis of a twenty-book edition of the *Magiae naturalis* published in 1589, which is Porta's best-known work and the basis of his reputation. It is an extraordinary hodgepodge of material representing that unique combination of curiosity and credulity common in the late Renaissance. But combined with the author's insatiable desire for the marvelous and apparently miraculous is a serious attempt to define and describe natural magic and some refined application of both mathematical and experimental techniques in science. Book XVII, on refraction, is the basis of the attribution of priority to Porta in inventing the telescope and demonstrates his involvement with both theory and practice.

Natural magic is no longer quite so pretentiously conceived as in the first edition. It presumes an orderly and rational universe into which the magician-scientist has insights that are revealed to him because of his virtue and his study. Natural magic entails a survey of the whole of nature, but with a modicum of modesty Porta acknowledges that it may merely be the practical part of

natural philosophy. The 1589 edition represents in part the work, discussions, and experiments that took place at Porta's academy—hence the emphasis on experimentation and application in his definition of natural magic.

Behind Porta's conception of natural magic lie the Hermetic and Neoplatonic traditions given new life in Renaissance philosophy, and these traditions present Porta with the possibility of an intellectual synthesis founded on the conviction that rational orderliness exists behind all the marvels and prodigies of nature that he has collected. In this belief he is a philosophical, if not a religious, mystic. But natural magic is the art and practice of such mysticism. Natural magic is not simply philosophy or religion; it is both of these brought into practice and subjected to experiment. And experiment is merely refined experience. The contribution of Porta's conception and practice of natural magic to the emerging idea of science is not merely rational or theoretical or contemplative. Rather, science must represent theory and contemplation coming to practical and experimental expression. Such a conception of natural magic as science is ideally represented in his work on concave and convex lenses. His theoretical and experimental work prepared the way for the invention of the telescope.

The range of Porta's scientific and literary interests is easily demonstrated by his works. The first published after the *Magiae* was a treatise on cryptography, *De furtivis literarum notis*, in 1563. It was followed in 1566 by *Arte del ricordare*, a book on the art of memory and mnemonic devices. Both reveal his fascination with hidden and marvelous things. In the 1570's Porta composed his first plays and wrote a treatise on the physiognomy of hands. The latter, based on his observations in the prisons of Naples, is often cited as a precursor of criminal physiognomy. The plays were not published until much later, and the treatise on the physiognomy of hands did not appear until after his death.

The early biographies of Porta suggest that his writing of drama was occasioned by the Inquisition's scrutiny of the activity of his academy, and Porta himself says that he turned to comedy as a diversion from his more serious studies. In 1584 and in 1585 he published treatises on horticulture and agriculture that were based on careful study and practice. In 1586 he published a treatise on human physiognomy. *De humana physiognomonia*, in which he clearly established the doctrine of the correspondence between the external form of the body and the internal character of the person. The doctrine of signatures—that the external form of a plant indicates its medicinal properties—is worked out in Porta's treatise on the physiognomy of plants, *Phytognomonica* (1588), in which he established the claim that physiognomy of plants is the theoretical part of agriculture. His work on physiognomy attracted the attention of the Inquisition, and a proposed Italian edition of his treatise on human physiognomy was prohibited in 1593.

In the same year, Porta published *De refractione optices*, an expansion of book XVII of the *Magiae* of 1589 on the properties of refracting lenses. In 1601 he brought out a curious treatise on celestial physiognomy, in which, after a prefatory denunciation of astrology, he proceeded to develop a theory of astral signatures that he had confirmed by experience and observation. Also in 1601 he published a small book on the mechanics of water and steam and another on the elements of curved lines in which he addressed, with some finesse, the ancient topic of squaring the circle. In 1605 he issued a translation of book I of Ptolemy's *Almagest* together with the commentary of Theon of Alexandria. In 1608 there appeared his short treatise on military fortification and a longer study on the alchemical technique of distillation (*De distillatione*). The last book published during Porta's lifetime was a treatise on meteorology (1610). Among his many special studies, those on agriculture and refraction have received the highest praise from both his contemporaries and posterity. The others are modest, even though careful study usually reveals that they are not devoid of merit.

Porta's contribution to the theory and practice of Renaissance optics is found in book XVII of the *Magiae* of 1589 and in the *De refractione* of 1593. He did not invent the camera obscura, but he is the first to report adding a concave lens to the aperture. He also juxtaposed concave and convex lenses and reports various experiments with them. But in both the 1589 and 1593 treatises he limits his purposes to clarifying the image and to a geometrical explanation of the refracting properties of such lenses. Despite his claim to priority he did not invent the telescope. His comparison of the lens in the camera obscura to the pupil in the human eye did provide an easily understandable demonstration that the source of visual images lay outside the eye as well as outside the darkened room. He thus ended on a popular level an age-old controversy. Porta's work lies conceptually and chronologically between Risner's *Opticae thesaurus* of 1572 and Kepler's *Ad Vitellionem paralipomena* of 1604. He was thoroughly familiar with the former and did not attain the geometrical certainty of the latter.

Both Porta and his position in the history of late Renaissance science are tragically revealed in two of his unpublished works. The first is a treatise known as "De telescopiis." Among the Lincei, Porta was thought to have priority in the invention of the telescope, but this treatise reveals his secondary position both in theory and in practice. He acknowledges that Galileo brought his early (1589) theory to fruition, but he fails to go beyond Galileo in any way. He returns to the elusive quest for a parabolic mirror that will permit him to see to infinity. The second treatise, known as the "Taumatologia," is an unfinished work that exists only in manuscript; but when trying to get it published, Porta claimed that it would be the consummation of his lifework. His correspondence about it reveals his return to his youthful enthusiasm for the secrets of nature and for the arcane and marvelous. It was to be another expanded version of his *Magiae*. Thus Porta devoted his last years more to discovering the philosophers' stone and the quintessence of nature than to the disciplined mathematical and experimental work of his younger contemporary Galileo. His devotion to experiment and his study of mathematics brought him in the 1580's to the verge of greatness, but he was soon overwhelmed again by the lure of the occult and the marvelous. Perhaps Porta's most compelling virtue and weakness was this youthful enthusiasm for the things of nature. There is a joy in his studies that not even the fatigue of working on the telescope and parabolic mirrors could diminish.

BIBLIOGRAPHY

I. Original Works. Porta's first published work is *Magiae naturalis libri iiiii* (Naples, 1558), repr. several times before publication of the expanded *Magiae naturalis libri xx* (Naples, 1589). There were Italian and other translations of both eds. There is an English trans., *Natural Magick* (London, 1658; repr. [New York](#), 1957). There is a convenient list of the 1st eds. of all of Porta's scientific and literary works in Louise George Clubb, *Giambattista Della Porta, Dramatist* (Princeton, 1965), 316–342. Fuller bibliographical information for all eds. and translations is in Giuseppe Gabrieli, "Bibliografia Lincei I: G. B. della Porta," in *Atti dell'Accademia nazionale dei Lincei. Rendiconti*, C1. Sc. Mr., 6th ser., **8** (1932), 206 ff.

The most important MSS of Porta are in the Library of the Accademia dei Lincei in Rome. MS Archivio Linceo IX contains an autograph copy of the index of the "Taumatologia." MS Archivio Linceo X is the MS base for Porta's book on distillation. MS Archivio Linceo XIV contains primarily the text for Porta's proposed book on the telescope. This portion of the MS has been edited and published by Vasco Ronchi and Maria Amalia Naldoni as *De telescopio* (Florence, 1962). MS Archivio Linceo XV contains the MS base for Porta's book on meteorology published in 1610. The library of the Faculty of Medicine of the University of Montpellier, MS H 169, contains parts of the "Taumatologia" as well as treatises on the magnet and the physiognomy of the hand. MS portions of the treatise on the physiognomy of the hand are also in Naples, Paris, and Toronto but are of minor importance.

II. Secondary Literature. In addition to the book by Louise G. Clubb, three articles by Giocchino Paparelli are important: "La Taumatologia di Giovambattista Della Porta," in *Filologia romanza*, **2** (1955), 418–429; "La data di nascita di G. B. Della Porta," *ibid.*, **3** (1956), 87–89; and "Giambattista Della Porta: Della Taumatologia e liber medicus," in *Rivista di storia delle scienze mediche e naturali*, **47** (1956), 1–47.

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