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Bernini's Cosmic Eagle

IT is a commonplace of the literature on Bernini that he was a supreme realist. He observed aspects of the visible world — movement, expression, texture, effects of light — and recorded or evoked them in marble or bronze as had no previous sculptor. This unprecedented sensitivity to and analysis of the physical world parallels the revolutionary achievements in scientific thought and observation that took place during the artist's lifetime. Yet, as far as we know, Bernini was not directly concerned with these great developments — unlike the painter Cigoli, for example, who was a friend of Galileo's and represented a telescopic view of the moon in one of his paintings.¹ Bernini had a close association with one of the lesser known scientists of the day, however, the Jesuit Nicolo Zucchi, author of a two-volume treatise on optics, the *Optica Philosophia*, published at Lyons in 1652–56.² For this work Bernini designed a frontispiece, engraved by François Poilly (Fig. 1), which has received almost as little attention from art historians as Nicolo Zucchi and his treatise have from historians of science. The study by William Ashworth appearing on the preceding pages of this volume helps

¹ Recently, H. Feigenbaum Chamberlain has attempted to establish Bernini's use of Galileo's theory of gravity in solids, 'The Influence of Galileo on Bernini's *Saint Mary Magdalen* and *Saint Jerome*' *Art Bulletin* LIX, 1977, 71–84; on Cigoli and Galileo, see E. Panofsky, *Galileo as a Critic of the Arts*, The Hague, 1954.

² *Optica Philosophia Experimentis et Ratione a Fundamentis Constituta*, 2 vols., Lyons, 1652–56; the frontispiece appears in both volumes. The engraving was first noted by H. Brauer and R. Wittkower, *Die Zeichnungen des Gianlorenzo Bernini*, Berlin, 1931, 151, n. 3, and first reproduced by M. and M. Fagiolo dell'Arco, *Bernini. Una introduzione al gran teatro del barocco*, Rome, 1967, No. 136; see recently *Bernini in Vaticano*, exh. cat., Rome, 1981, 86 f., No. 63.

to place Bernini's composition against the background of the illustrated frontispieces and title pages included in comparable scientific publications of the period.³ It might be objected that Bernini's attitude toward the scientific study of nature is too large a theme to be explored in so modest a work as this engraving, a mere book illustration and one not even executed by his own hand. Such a misconception is belied, however, by a remarkable passage in Baldinucci's biography of the artist: 'In his works, whether large or small, Bernini did his utmost in order that there should shine forth that beauty of concept which the work itself made possible, and he said that it was his wont to devote as much study and application to the design of a lamp as to that of a statue or a noble building.'⁴ Evidence of the truth of this statement lies in the inordinately large number of extant preparatory studies by Bernini for another book illustration, the engraving of *Saint John the Baptist Preaching* which he designed for a 1664 edition of the sermons of his close friend Giovanni Paolo Oliva, head of the Jesuit order.⁵

From the prints considered by Ashworth it is clear that the frontispiece to Zucchi's optical treatise is quite unlike the kinds of illustrations such works had received previously. Instead of an elaborate hieroglyphical-allegorical-symbolical conglomeration of motifs, Bernini portrays one coherent subject: An enormous eagle clutching a lightning bolt flies high above the earth while looking back toward the sun, whose rays stream down. The appropriateness to a book on optics of an image of an eagle staring at the sun seems obvious, except that the motif had evidently not been used before in a scientific context. Indeed, while it expresses the subject of vision with stunning force, the design conveys nothing of the actual content of the treatise. The fact is that although the basic ingredients of the frontispiece may be found among its predecessors in scientific texts, the conception stems in large part from a different tradition and has a largely different significance.

³ W. Ashworth, "Divine Reflections and Profane Refractions: Images of a Scientific Impasse in Seventeenth Century Italy," in I. Lavin, *Gianlorenzo Bernini. New Aspects of His Art and Thought. A Commemorative Volume*, University Park PA, and London, 1985, 179–208.

⁴ 'Nell'opere sue, o grandi, o piccole ch'elle si fussero, cercava, per quanto era in se, che rilucesse quella bellezza di concetto, di che l'opera stessa si rendeva capace, e diceva, che non minore studio ed applicazione egli era solito porre nel disegno d'una lampana, di quello, ch' e' si ponesse in una Statua, o in una nobilissima fabbrica' (F. Baldinucci, *Vita del cavaliere Gio. Lorenzo Bernino*, Rome, 1682, 71).

⁵ Cf. I. Lavin, et al., *Drawings by Gianlorenzo Bernini from the Museum der bildenden Künste, Leipzig, German Democratic Republic*, Princeton, 1981, 254 ff., Nos. 65–77.

Nicolo Zucchi was born in Parma in 1586 and he died in 1670 in Rome.⁶ He taught rhetoric, philosophy, theology, and mathematics at the Jesuit College in Rome and served for seven years as Apostolic Preacher, delivering sermons to the Pope and the papal court (an office subsequently also held for many years by Zucchi's good friend and advisee, Giovanni Paolo Oliva).⁷ His prowess as an orator was eloquently attested by Bernini, who reported that when Zucchi preached one felt oneself completely alone with the speaker.⁸ Zucchi wrote numerous devotional tracts, and in 1682 one of his fellow Jesuits, Daniele Bartoli, published a biography that focused mainly on Zucchi's religious and ascetic activities. Apart from the fact that he met and sought to convert Kepler during a visit in 1623 to the court of the Hapsburg Emperor Ferdinand II at Prague, Zucchi appears in the literature of science for two reasons: He claimed to have had the idea for a reflecting telescope as early as 1616, and to have discovered the spots of Jupiter in 1630. He dedicated his magnum opus in science, the *Optica Philosophia*, to Archduke Leopold William, son of Ferdinand II. Leopold

⁶ For most of what follows see: A. de Backer and C. Sommervogel, *Bibliothèque de la Compagnie de Jésus*, 12 vols., Brussels, 1890–1960, VIII, cols. 1525–1530; *Enciclopedia cattolica*, 12 vols., Florence, 1948–1954, XII, cols. 1827 f.; P. Riccardi, *Biblioteca matematica italiana*, 2 vols., Milan, 1952, II, cols. 671 f.; *Dictionary of Scientific Biography*, 16 vols., New York, 1970–1980, XIV, 636 f.; P. Redondi, *Galileo eretico*, Turin, 1983 (cf. index).

See also the following references, kindly brought to my attention by Professor Ugo Baldini: H. Weyermann, 'Nicholas Zucchi und sein Spiegelfernrohr,' *Die Sterne*, XXXIX, 1963, 229 f.; M. D. Grmek, 'Getaldić, Prodanelli et le télescope catoptrique à Dubrovnik,' *Actes du symposium international 'La géométrie et l'algèbre au début du XVIIe siècle' à l'occasion du quatrième centenaire de la naissance de Marin Getaldić*, Zagreb, 1969, 175–84; U. Baldini, in G. Micheli, ed., *Storia d'Italia. Annali 3*, Turin, 1980 (index); *idem*, 'Una lettera inedita del Torricelli ed altre dei gesuiti R. Prodanelli, J. C. della Faille, A. Tacquet, P. Bourdin e F. M. Grimaldi,' *Annali dell' Istituto e Museo di Storia della Scienza di Firenze*, V, 1980, 15–37.

⁷ Cf. L. von Pastor, *The History of the Popes*, 40 vols., St. Louis, 1938–1952, XXXI, 126; A. Neri, 'Saggio della corrispondenza di Ferdinando Raggi agente della repubblica genovese a Roma,' *Rivista europea*, V, 1878, 663, 668, 675.

⁸ 'E sopra cio solea dire il Cavalier Bernini, huomo di grande ingegno, e d'altrettanto giudicio, che gli altri Predicatori, hora parlauan seco, hor nò, ma ò con niuno, o non sapeua con chi: Ma il P. Zucchi del primo salir che faceva in pergamo, gli si poneua a faccia a faccia dauanti, e staua seco parlando a lui solo, quanto duraua il predicare a gli altri. Egli poi veramente commosso moueua, e acceso infiammaua, e con le lagrime sue ammolliua il cuore de gli ascoltanti' (D. Bartoli, *Della vita del P. Nicolo Zucchi della Compagnia di Giesu*, Rome, 1682, 146).

In his diary of Bernini's visit to Paris in 1665, Chantelou remarks on the artist's close friendship with Zucchi, from whom Bernini received a letter reporting a grave illness of his wife (P. F. de Chantelou, *Journal du voyage du Cavalier Bernin en France*, ed. L. Lalanne, Paris, 1885, 158).

William, a devout and orthodox Catholic, was then actively engaged in the effort to suppress the Jansenist movement in Flanders, of which he was governor.⁹

Zucchi's dedication begins on the page facing the engraving, with two lines of Latin verse that explain the underlying meaning of Bernini's image: *Parvos non aquilis fas est educere foetus/ante fidem solis iudiciumque poli*: 'Eagles may not rear their young without the sun's permission and the good will of heaven.' These are the first two verses of Claudian's panegyric on the third consulship of the Emperor Honorius, and their significance emerges in the subsequent lines of the poem.¹⁰ Claudian tells about the extreme trial to which young eagles are put by their elders. The parent bird carries its offspring aloft and bids him look directly at the sun; if the fledgling cannot bear the sight, he is immediately cast down to the earth; if he can, he is nurtured to be the king of birds, heir to the thunderbolt, destined to carry Jove's fiery weapon. The eagle of the engraving, identified as the imperial bird by the lightning bolt held in its claws, refers to Leopold William's imperial heritage; the story depicted refers to the prince's worthiness of that heritage; and the motto inscribed below, between Bernini's and the engraver's names — *UTROQUE POTENS*, 'powerful in both' (realms) — refers to the prince's spiritual and terrestrial achievements, which are also extolled in the text of the dedication.¹¹ The image and its motto together form an ingenious conceit incorporating an encomium of this particular patron with an allusion to the theme of this particular book.

It is clear that in devising their invention Zucchi and Bernini turned primarily to works that invoked Hapsburg patronage. The three basic components of the frontispiece had appeared in the illustrations of earlier Jesuit scientific texts published under the imperial aegis: Scheiner's treatise of 1619 on the eye, dedicated to Ferdinand II (Fig. 2); and Kircher's 1646 work on light and shade, dedicated to Archduke Ferdinand III (Fig. 3).¹² The two earlier designs are conceived as a panoramic landscape view with an eagle appearing between the sun and the earth as part of the allegorical

⁹ Pastor (as in n. 6), XXX, 312 ff.

¹⁰ The source of the lines was printed in the margin in Zucchi's second volume. Cf. *Claudian*, ed. M. Platnauer, 2 vols., Cambridge, Mass., and London, 1956, I, 268 f.

¹¹ *Heroicae virtutis, & eximiae Pietatis Ferdinandi II. Imperatoris Haeres, in Solem eductus, rebus piè fortitérque gestis, dignum te tanto Parente filium Christiano Orbi, hostibus autem Imperij luminis & fulminis Arbitrum comprobasti . . .* (Zucchi, *Optica*, dedication).

¹² Discussed by Ashworth (as in n. 3), 181 ff., 187 f.



1. Gianlorenzo Bernini, Frontispiece of N. Zucchi, *Optica Philosophia*, 2 Vols. (Lyons, 1652–56), engraving by F. Poilly.

apparatus. Both birds are identified with the Hapsburgs: in the first case by the famous motto *PLVS VLTRA*, 'further beyond,' inscribed above; in the second case by the double head.

In neither case, however, is the bird specifically identified as the imperial eagle. Nor is there any direct link between sun, eagle, and earth, whereas the relationship between these three elements is the focus of Zucchi's and Bernini's conception. These differences stem in part from a tradition of verbal and visual conceits that had contributed many individual motifs to the composite allegories illustrating the scientific texts, the emblem or *impresa*. In this mode, a coherent, overriding idea was expressed aphoristically in a combination of words and picture, often as a personal or family device. The story of the eagle's trial by the sun — well known from ancient sources and in the later bestiary literature — is the subject of many such devices.¹³ Several appear, for example, in Giovanni Ferro's *Teatro d'impresse*, published in Venice in 1623 with a dedication to one of Bernini's greatest patrons, Cardinal Maffeo Barberini, who became Pope Urban VIII that same year (Fig. 4).¹⁴

Although Zucchi's and Bernini's conceit is clearly rooted in the basic tradition represented by the emblems in Ferro's compilation, there are important differences: The earth appears not as a landscape but as a segment of a globe; the eagle is now the imperial bird, identified by the lightning bolt in its claws; and both the motto and the bird's action — flying toward the right while looking back over its shoulder — convey the eagle's pivotal role between the two celestial spheres. I have found no single prototype that incorporates these features. All but the first, however, were surely evolved from a merging of two emblems reproduced in a great collection of papal, imperial, and royal devices published at Prague at the turn of the century. The author, Jacob Typotius, was a court humanist of Rudolph II and the

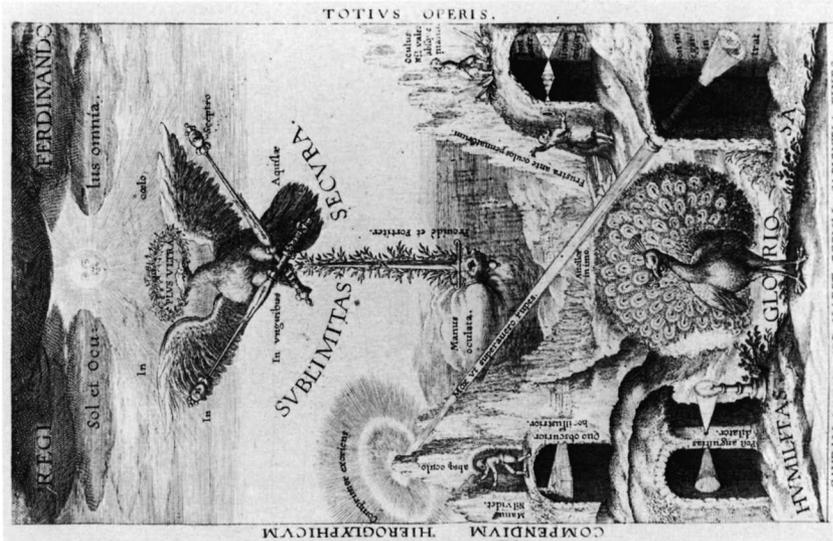
¹³ Cf. M. Goldstaub and R. Wendriner, *Ein tosco-venezianischer Bestiarius*, Halle, 1892, 384 f.

¹⁴ Pt. 2, p. 82, upper two and middle-right emblems.

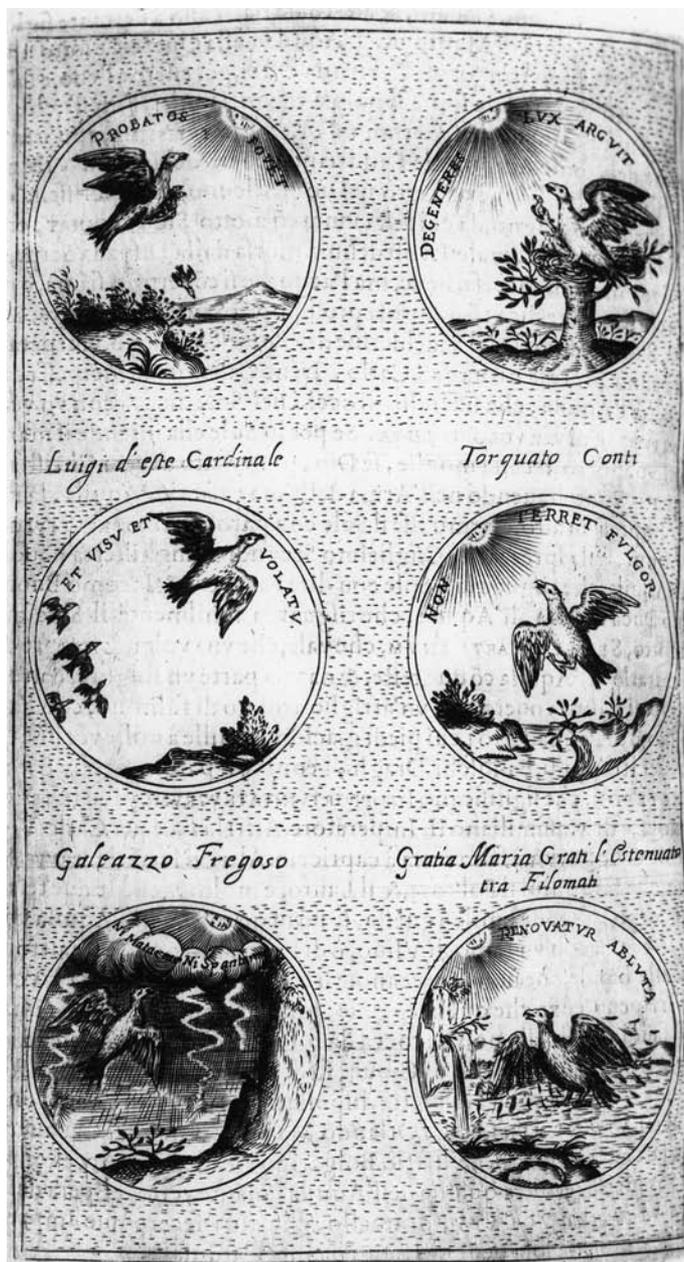
For a survey of eagle emblems, see A. Henkel and A. Schöne, *Emblemata. Handbuch zur Sinnbildkunst des XVI. und XVII. Jahrhunderts*, Stuttgart, 1967, cols. 757 ff.; on this theme in particular, D. W. Jöns, *Das 'Sinnen-Bild.'* *Studien zur allegorischen Bildlichkeit bei Andreas Gryphius*, Stuttgart, 1966, 148 f.



2. Frontispiece for Athanasius Kircher, *Ars Magna Lucis et Umbrae* (Rome, 1646); "Petrus Miorte Burgundus Sculp".



2. Frontispiece for Christoph Schreiner, *Oculus* (Innsbruck, 1611); unsigned.



4. Eagle emblems from G. Ferro, *Teatro d'impresse* (Venice, 1623), Pt. 2. 82.



5. Emblem of Rudolph II from J. Typotius, *Symbola divina & humana*, I (Prague, 1601), 56 (detail).

6. Emblem of Philibert II, Duke of Savoy, from Typotius, *Symbola*, III (Prague, 1603), 25 (detail).



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7. Medal of Ferdinando Gonzaga (d. 1626).
London, British Museum.



8. Medal of Carlo Spinelli, 1564.
London, British Museum.



9. Medal of Carlo Gonzaga, 1628.
London, British Museum.



10. Andrea Sacchi, allegory of Divine Wisdom.
Rome, Palazzo Barberini.



11. Detail of Fig. 10.

engraver was Aegidius Sadeler.¹⁵ A binary motto appears with the bicephalic Hapsburg eagle in an emblem of Rudolph II himself (Fig. 3) inscribed *VTRVNQUE*, 'both,' or 'each' (head). Typotius explains that the bird perched atop the mountain represents the emperor enthroned; the two heads are his Power and Prudence, one looking up to the sun, the other looking down toward a swarm of serpents crawling up the summit.¹⁶ An emblem of Philibertus II of Savoy inscribed *PRESTANTIOR ANIMVS*, 'the spirit is superior,' illustrates the eagle's solar test and imparts a dual action to the bird (Fig. 6). The explanatory text, following Pliny, cites the eagle story without imperial allusion; the emblem is said to refer to the superiority of Philibertus's spirit, which aspires to the sun but relinquishes its upward path and descends earthward, owing to the body's weaknesses.¹⁷

In amalgamating these two prototypes, Zucchi and Bernini introduced a number of critical changes. The new inscription (*utraque potens*) combined the duality of the first motto (*utrunque*) with the aggressiveness of

¹⁵ *Symbola Divina & Humana Pontificum Imperatorum regum*, 3 vols., Prague, 1601–3 (repr. Graz, 1972); on this work, cf. M. Praz, *Studies in Seventeenth-Century Imagery*, 2 vols., Rome, 1964–1974, I, 518 f.; R. W. Evans, *Rudolf II and His World. A Study in Intellectual History 1576–1612*, Oxford, 1973, 128 f., 170 ff.

¹⁶ *Symbola*, I, 56, No. XXXVII, I; p. 57: 'Aquila biceps, in rupe sedens, Imperatorem in fastigio exhibet; & dum altero capite Solem suspicit, altero serpentes circa rupem reptantes despicit; bona spe implet, divini auxilii, contra humanam cum vim, tum dolum. Atque haec duo sunt, quae contra duo capita erigat Imperator, necesse est. Quae illa capita? Potentia & Prudentia, mente in Deo non sole, at solo fixa.'

¹⁷ *Symbola*, III, 25, center left; p. 26: 'Quia proprium aquilae est Solem posse innoxie inspicere, propterea pullos implumes subinde cogit (ut inquit Plinius) Solis radios intueri, & si conniuentes, animaduertit, praecipitat è nido, velut adulterinos, & degeneres. Intuetur hic quidem Solem aquila: verum iter sursum institutum relinquit, ac deorsum tendit, non quod Solis radios non ferat visus, sed quod corporis vires, ut Solé petat, non sufficiant. Haec eleganter Heros iste Symbolo suo accommodavit; Ostendere enim voluit, se omnibus animi, & corporis viribus, ad res magnas, & sublimes tendere: verum ad propositam metam & scopum peruenire non posse, corporis non animi defectu, quem praestantiorem & indefesum animaduertit. Is etsi absque corpore nihil praestare, ac corpus ad nutum regere non possit, tamen subinde eius vires auget.'

*Omnia deficiunt, animus tamen omnia vincit,
Ille etiam vires corpus habere facit.*

Non tamen vires illae animi appetitui, qui infinitus est, ac satiari non potest, comparari possunt. Consulatur itaque se, quod animus promptus fuerit, etsi corpus imbecille.' (The author of the commentaries in Volume III was Anselm de Boodt.) Cf. Pliny, *Natural History*, ed. H. Rackham, *et al.*, 10 vols., Cambridge, Mass., and London, 1938–1962, III, 298 ff.

the second (prestantior), so that the eagle becomes doubly powerful, as it were. Adding the imperial lightning bolt as warranted by Claudian's account of the solar trial, while removing one of the Hapsburg eagle's heads, imbues the device with universal rather than purely dynastic significance. The movement and position of the bird are altered so as to invert the sense of its action; it alludes not to the rise of ambition and the fall of achievement, but to the heavenward route of the Archduke's Glory, which must advance 'beyond the paths of the year and the sun.'¹⁸ Rays now completely fill the background, as had occurred heretofore in emblems depicting the sun alone in the sky (Fig. 7).¹⁹ Finally, the earth is now shown as a sphere, a form employed commonly in astronomical and astrological devices (Figs. 8, 9),²⁰ lifting the whole scene into outer space. In sum, Bernini presents the conceit not as a landscape view, nor as an abstract diagram, nor yet as a complex allegory. Rather, he portrays what can only be described as a 'real' cosmic event involving a magnificent interplanetary eagle and two celestial bodies in dynamic relationship to one another. Bernini combines the quality of personal and moral metaphor with the appearance of objective reality.

It can scarcely be coincidental that a significant step in this direction had been taken twenty years earlier in a monumental composition with which Bernini was intimately familiar, involving the sun, an eagle, and a spherical earth, in a similarly cosmic design. In Andrea Sacchi's vault fresco in the Palazzo Barberini (Fig. 10), the figure of Divine Wisdom, the sun (a device of Urban VIII) emblazoned on her breast, sits enthroned in the center of the composition while the earth appears below and to the right. Personified attributes of Divine Wisdom populate the sky, accompanied by starry constellations with their corresponding emblems. The design focuses mainly on the sun and earth, and their eccentric relationship has been interpreted as an allusion to the heliocentric system.²¹ Indeed, the significance of the

¹⁸ ' . . . Gloriam . . . ita ultra anni, Solisque vias, prouchendam, votis & admiratione prosequor' (Zucchi, *Optica*, dedication).

¹⁹ Medal of Ferdinando Gonzaga (d. 1626), British Museum; cf. A. Magnaguti, *Ex Nummis Historia. IX. Le medaglie dei Gonzaga*, Rome, 1965.

²⁰ Fig. 6, medal of Carlo Spinelli, 1564, British Museum; cf. A. Armand, *Les médailleurs italiens des quinzième et seizième siècles*, 3 vols., Paris, 1883–87, III, 257, G. Fig. 7, medal of Carlo Gonzaga, 1628, British Museum; cf. Magnaguti (as in n. 17), 109, No. 85.

²¹ On this point, see A. S. Harris, *Andrea Sacchi*, Princeton, 1977, 12; G. S. Lechner, 'Tommaso Campanella and Andrea Sacchi's Fresco of *Divina Sapienza* in the Palazzo Barberini,' *Art Bulletin*, LVIII, 1976, 107 ff.; A. S. Harris, 'Letter to the Editor,' *ibid.*, LIX,

juxtaposition seems emphasized by the conspicuous appearance between Divine Wisdom and the earth of the attribute Perspicacity with the Eagle constellation (Aquila), an emblem that is appropriate not only for the bird's acute vision but also for its purported ability to gaze upon the sun with impunity (Fig. 11).²² The intermediate position of the personification and her eagle, as well as their intense stares, indicate that Divine Wisdom's perspicacity consists in perceiving the 'true' relationship between the earth and its solar partner. This relationship strikingly anticipates the one shown in Bernini's engraving, as does the action of the bird facing the earth with wings spread and looking back over its shoulder to the sun. It should be emphasized that Sacchi's fresco was executed in 1629–1631, at the height of the Galilean controversy, in which Urban VIII himself participated. The pope had actually sought to resolve the conflict, not by challenging Galileo's observations, but by allowing that God in his mysterious wisdom might choose to create phenomena by means inscrutable to man and different from the apparent causes.²³

Zucchi has been classified with the opponents of Galileo,²⁴ although he takes no stand in the *Optica Philosophia*. There is no direct evidence of Bernini's opinion on the heliocentric versus the geocentric system, if he had one. In the engraving, he follows Sacchi in depicting the earth as a sphere; but he returns it to the position it had occupied in the earlier emblem tradition, on the central axis of the composition.

Perhaps the purpose was to support the conservative Jesuit view, or, indeed, mysteriously to reconcile the controversy that had inspired the illustrators of such scientific texts for more than a quarter century.²⁵ In any case, Bernini's ultimate viewpoint seems implicit in the extraordinary and characteristic achievement of his design — which suggests that virtue's heavenward flight leads out of our time and space altogether, to a loftier realm beyond.

1977, 306 ff.; Lechner, 'Reply,' *ibid.*, 309, and especially an article by D. Gallavotti Cavallero, 'Il programma iconografico per la Divina Sapienza nel Palazzo Barberini: una proposta,' in *Studi in onore di Giulio Carlo Argan* (Rome, 1984), 269–90.

²² On the attribute, see Lechner, 'Tommaso Campanella,' 99.

²³ Gallavotti Cavallero (as in n. 19) gives an account of the pope's argument.

²⁴ Cf. *Mathematical, Historical, Philosophical and Miscellaneous Portion of the Celebrated Library of Mr. Guglielmo Libri*, Pt. 1, London, 1861, No. 3235.

²⁵ Baldini ('Una lettera,' as in n. 5) emphasizes that the Jesuit position was by no means as monolithic as commonly assumed; there was considerable debate within the order, and various attempts to come to terms with Kepler and Galileo.

The complex genesis of this modest and apparently simple work recalls Baldinucci's statement quoted above, 'In his works, whether large or small, Bernini did his utmost that there should shine forth that beauty of concept which the work itself made possible. . . .' Moreover, the illustration must have been the fruit of a singularly close piece of cooperative research and imaginative cross-fertilization between author and designer. The intimate rapport that Bernini described feeling with Zucchi the orator seems to have found expression here as well.