

# Galileo and the Specter of Bruno

*The two men are often honored as martyrs to science, but for Bruno astronomy was a vehicle for politics and theology. Galileo was tried partly because his aims were mistakenly identified with those of Bruno*

by Lawrence S. Lerner and Edward A. Gosselin

In 1633 Galileo Galilei was brought before the Roman Inquisition and charged with teaching that the earth moves. The ensuing trial engaged the full authority of the Roman Catholic Church in a scientific and theological dispute with the most important scientific figure of the day. As is well known, Galileo was forced to recant his scientific convictions publicly on the grounds that he had defended the Copernican view of the universe, a position condemned as "false and opposed to Holy Scripture" in 1616. The incident is now universally regarded as a critical event in the birth of modern science.

In 1600, well within living memory at the time of Galileo's trial, Giordano Bruno had also met his fate at the hands of the Roman Inquisition. Bruno too was a celebrated Copernican, but his penalty was much severer: he was burned at the stake. The careers and persecutions of Galileo and Bruno have been linked in two kinds of myth, which tend to confuse the two figures in curiously opposite ways. According to the first myth, both men challenged an ignorant and obscurantist Catholic church in a modern spirit of freedom, and both were martyred to their cause. In this context Bruno was seen as a kind of proto-Galileo, or perhaps a Galileo analogue. He was a proto-Galileo simply because he too espoused the Copernican system and suffered an extreme version of Galileo's fate. He was a Galileo analogue in that, lacking Galileo's scientific insight and genius, he resorted to speculative mysticism. There is a kernel of truth to this myth, as there is to many others, but the historical record yields a much richer and more elaborate tale.

The second myth is almost the converse of the first: that Galileo was a kind of resurrected Bruno in that he, like Bruno, was perceived as a religious and political revolutionary. The

second myth must not simply be dismissed as wrongheaded. Indeed, our investigations have convinced us that an understanding of its role in early 17th-century beliefs is essential to a more complete understanding of what might be called the climatological prehistory of the trial of Galileo. We shall argue that Galileo's troubles came about in part because his contemporaries distorted his novel way of thinking into the more traditional and better-understood categories articulated by Bruno.

The first myth, depicting Bruno as a failed Galileo, was popular in the 19th century and well into the 20th; its moral was congenial to the world view of the 19th-century liberal. The myth lends support to the appealing legend that when Galileo recanted his Copernican position, he was heard to mutter, "Eppur si muove" ("And yet it moves"). There is no evidence to support that incident, and the real Galileo is a poor fit in such a heroic role. He is grossly miscast as a Nathan Hale or a William Tell.

What about Bruno? How does he fit the first myth that he was a martyr to science? For simplicity we shall confine our discussion mainly to his first and most important work on the Copernican system, *La Cena de le ceneri* ("The Ash Wednesday Supper," or *Supper* for short). It was written in Ital-

ian in 1584. At the time Bruno was a member of the London household of the French ambassador to England.

If one regards the work as an exposition of the Copernican system together with some other scientific topics, one can only puzzle over its notoriety. It appears to be a compendium of gross sense—a disorganized display of error connected by incomprehensible passages. Bruno has the Copernican model of the solar system wrong. He demonstrates total ignorance of the most elementary ideas of geometry, let alone geometric optics. He throws in scraps of pseudoscientific argument, mostly garbled, and proceeds to highly speculations that seem disconnected from the preceding or subsequent arguments. Even the diagrams do not always correspond to the accompanying discussions in the text.

But there must be more to it, and that deeper significance must have been evident to Bruno's contemporaries. If Bruno had merely been a fool, he might have met with laughter and derision but not violent enmity and vehement official response. The Roman Inquisition would surely not have gone to the trouble it did to silence, and repress him; he was imprisoned for eight years and subjected to innumerable hearings and interrogations. In fact he was finally executed.

Bruno repeatedly makes it clear that the *Supper* is really not about the Co-

PORTRAIT OF GALILEO by the 17th-century painter Ottavio Leoni depicts Galileo at the age of about 60. The time was one of great intellectual hope for Galileo and his followers; about a year earlier, in 1623, Matteo Cardinal Barberini, a fellow Florentine, scholar and lover of the arts, had been elected Pope Urban VIII. A tapestry in the Vatican pictures Barberini declaring a doctoral dissertation involving the accepted Ptolemaic can pictures Galileo's investigations of the Copernican model of the astronomy, but he had followed Galileo's investigations of the Copernican model of the solar system with keen interest. The two men held a series of long conversations in May and June of 1624. Nine years later their friendship had changed to enmity, and Urban forced Galileo to recant his scientific convictions. The trial of Galileo was a political expedient for the pope, in part because in the public consciousness Galileo had come to resemble Giordano Bruno, a theological and political revolutionary and an early proponent of Copernican ideas, who was convicted of heresy and burned at the stake in 1600.

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pernican system at all: it is only peripherally a work on natural science and it is emphatically not to be taken literally. In accordance with the title, its central subject is the nature of the Eucharist: the Christian ceremony of Communion. Bruno praises Coperni-

cus in a qualified way as the light before a new dawn. He heaps scorn, however, on the anonymous author of the preface to Copernicus' work *De revolutionibus orbium coelestium*, for Bruno clearly recognizes that the preface is spurious: in a fit of caution it suggests

Copernican astronomy should be understood as a theory for calculation only and not as an account of physical reality. (Today scholars know it was written by Andreas Osiander, a Lutheran theologian who was one of Copernicus' students.)

For Bruno the value of the Copernican system lies not in its astronomical details but instead in its scope as a poetic and metaphoric vehicle for much wider philosophical speculation. The Copernican replacement of the earth by the sun at the center of the solar system is for Bruno a symbolic restoration of what he calls the ancient true philosophy; according to him, it is to this philosophy one must turn in order to understand the true meaning of the Eucharist.

The "ancient true philosophy" was Bruno's brand of Hermetism, a mystic view based on Neoplatonic writings of the second and third centuries A.D. In Bruno's day it was widely believed the author of these writings was the semidivine Hermes Trismegistus, said to be a contemporary of Moses. The Hermetic philosophy had supposedly been handed down through Orpheus, Zoroaster, Pythagoras, Plato and the later Greek philosophers, and separately through the Judeo-Christian tradition. In the process the "ancient true philosophy" had become debased and corrupted, which for Bruno accounted for the lamentable state of worldly affairs.

According to the Brunonian Hermetic view, man shares in divinity and is therefore at least potentially in constant communion with God. The universal divine principle is extended to the entities that make up the macrocosmic universe as well as to man. Thus both stars and planets (Bruno does not make a distinction) are animate and endowed with souls; they can be operated on magically to effect social and political change. Rediscovered and refurbished by Bruno, the "ancient true philosophy" would unfetter the divine essence within all men. Its power could heal religious and political wounds and give birth to a new golden age.

It is important to understand that Bruno's adoption of natural science to foster broader theological, ethical, social and political purposes was entirely characteristic of the Renaissance world view. For the people of the Renaissance science was literally a branch of philosophy, often called on to illuminate or illustrate a nonscientific issue. Intelligent and well-educated people often saw explicit and highly anthropocentric parallels between



GIORDANO BRUNO is depicted in this anonymous engraving made in the early 17th century, about two decades after Bruno was executed by the Roman Inquisition. It is the earliest rendering of Bruno known, but no source contemporaneous with Bruno's life is known; the likeness is probably spurious. Bruno is shown in the habit of the Dominican order to which he belonged, a connection he acknowledged to varying degrees at different times in his life. Bruno's Dominican name on the inscription is in its Latin form. (His given name was Filippo.) "Nolanus" refers to his birthplace, Nola, a suburb of Naples.

scientific knowledge and the other aspects of life. Bruno is typical of contemporary Hermetists in leaping to conclusions about the relation of human beings to God based on theories about the workings of the macrocosm—and vice versa.

As Bruno saw it, one inevitable consequence of a return to the "true philosophy" would be the recognition of the essential unity between the liberal Protestants in England and the liberal Catholics in France. The theme of unity is sounded throughout the *Supper*; for example, in the Ptolemaic system there is a fundamental distinction between the earth, which was considered stationary, and the planets and stars, which were supposed to move within concentric spheres above the earth. On the other hand, once the Copernican view is accepted, the moving earth and the moving stars enjoy a similar status. Indeed, Bruno populated an infinite universe with an infinite number of stars, all in motion and central to their surroundings in an equivalent way. In like manner, he proposed a framework in which the liberal Protestant and Catholic views on the Eucharist could be seen as essentially equivalent.

What were the implications of this view for contemporary politics? To maintain the balance of power, England had traditionally allied itself with either France or Spain, whichever was weaker. In the late 16th century Spain was strong and religiously orthodox. France was in the throes of a violent and protracted religious civil war, in which Spain supported the orthodox Guisard party against the Protestants. The moderate French king Henry III and his adherents were caught in the middle. Nevertheless, an alliance between the French moderates and England, which seemed desirable to both parties, was blocked by an official commitment of France to Catholicism. A bridge over religious differences would therefore have been of great value in fostering the alliance.

Bruno was convinced that a monarch inspired and enlightened by Hermetism could lead the world into a golden age under the guidance of the "true philosophy." His candidates for this role were successively Henry III, Elizabeth I of England and finally Henry IV of France. Indeed, two years after the publication of the *Supper* he confided to Guillaume Cotin, the librarian of the Abbey of St. Victor in Paris, that from 1582 to 1585 he had been a kind of intellectual ambassador from the liberal Catholics of Henry III to the liberal Protestant court of Elizabeth I. Bruno's later enthusiasm for

the prospects of Henry IV was so great that in 1591 he imprudently interrupted his wanderings across Europe to return to Italy. His ultimate aim in returning seems to have been the conversion of the pope himself to Brunonian Hermetism.

Bruno's rash behavior almost immediately led to disaster. He was arrested on trumped-up charges by the Venetian Inquisition and then imprisoned. A year later he was moved to Rome, where he was confined for another seven years. In prison Bruno was no real threat to the Papacy. He had no following, no money and no influence. In the normal course of events he might simply have remained in prison until he was dead or forgotten. His execution seems to have been the pope's side of a minor political quid pro quo with the Spanish Hapsburgs.

In disposing of Bruno both the Papacy and Spain were announcing to all concerned that there would be no toleration of challenges either to religious orthodoxy or to the political status quo to which orthodoxy was closely linked, a connection we shall explore further. Nevertheless, Bruno's philosophical heritage survived in the early 17th century in a loose constellation of beliefs, held by an unorganized group of intellectuals called Rosicrucians. The aims and hopes of the Rosicrucians for a return of Pythagoreanism were nurtured in 1613 by the marriage of Frederick V, elector of the Rhenish Palatinate, to Elizabeth Stuart, daughter of James I of England. The marriage, mystically called the "chemical wedding of the Thames and the Rhine," was supposed to presage a return to the golden age of Elizabeth I.

In 1618 Frederick and Elizabeth were elected king and queen of Bohemia, from time to time a center of religious liberalism and toleration. Almost immediately they were deposed by the Hapsburg Holy Roman Emperor; the incident was the opening salvo of the Thirty Years' War, which renewed the political and religious strife of the late 16th century. In the years immediately following there was a "Rosicrucian scare": a strong and irrational fear of Rosicrucian subversion in Catholic strongholds.

Such was the prevailing political and religious climate when Galileo's popular exposition of his own Copernican views, *Dialogue on the Two Great World Systems*, was published in 1632. The publication had profound significance for people whose memories of the religious conflicts of the late 16th century were fresh and detailed. In a political and religious atmosphere

# LA CENA DE le Ceneri.

DESCRITTA IN  
CINQUE DIALOGI, PER  
quattro interlocutori, Con tre considerationi, Circa doi

Suggetti,

Jordanus Bruni Nolani  
All' unico refugio de le Muse. l' Illustriss. Michel  
di Castellone, Sig. di Mauuiffier, Conuersillo, et  
di Iouilla, Cavalier del ordine del Re Christianiss. et  
Conseglier nel suo priuato consiglio. Capitano di  
50. huomini d'arme, Governator et Capitano di  
S. Desiderio, et Ambasciator alla Sereniss. Regina d' Inghilterra.



J. Ballestrero  
L' vniuersale intentione e' dichiarata nel proemio.

1584.

BRUNO'S STATEMENT of the Copernican picture of the universe is *La Cena de le ceneri* ("The Ash Wednesday Supper"); the title page from the book is shown. The work was written in Italian and published in England in 1584; an English translation by the authors of this article came out in 1977. The book is in the form of a debate centered on the Copernican system; Bruno's real objective was to extend Copernican ideas allegorically to theological and political speculation. The subtitle leads inexorably to the theme of unity emphasized throughout the work: "Described in five dialogues, by four interlocutors, with three reflections, on two subjects [dedicated] to the sole refuge of the Muses."

bearing a remarkable resemblance to that of the 1590's it was all too easy to confuse the aims of Galileo with those of Bruno. Hence the second and converse myth arises: in the public mind of 1633 Galileo became a revival, albeit an unwilling one, of the archetypal symbol of political and philosophical upheaval that Bruno had been three decades earlier.

We now know that Galileo's thinking was a radical departure from Renaissance thought. Indeed, it has often been maintained that Galileo's greatest contribution was his way of thinking about the physical universe. Unfortunately that was not necessarily clear to the great majority of his contemporaries. They were unable to understand not only his methods and his conclusions but also his aims and his intentions.

Compounding the lack of understanding was the fact that the late-Renaissance reader was predisposed to expect deliberately obscure writing.

Such obscurity was common, even when there was no external motive for it. In part its popularity is explained by a fondness for ornamentation and for elaborate elegance of expression. There was also a strong feeling that knowledge was for the initiate and that worthwhile understanding could be achieved only through much travail. The writing of Galileo's time is often full of multiple meanings, enabling the diligent reader to move from depth to depth. Such literary conceit was considered to be an appropriate reflection of the natural world, which yields pro-

gressively deeper secrets to the diligent and gifted. Needless to say, Bruno employed this approach extensively.

Galileo emphatically did not write in such a manner, but it is much easier to appreciate this fact today than it was in the early 17th century. At that time there were some people inclined to believe his writing also concealed multiple levels of meaning; in particular, his *Dialogue* could readily be seen as a sequel to Bruno's *Supper*.

What are the grounds on which such a view was based? First one can list what might be called external literary

reasons. Earlier Galileo had written a work called *The Starry Messenger*, whereas in the *Supper* Bruno called the stars "messengers of God." Furthermore, both Bruno's *Supper* and Galileo's *Letter to the Grand Duchess* had expressed similar attitudes toward Holy Scripture. Both works maintained that the Bible often speaks according to the common understanding of the people, and in so doing it may actually say things about nature that are not literally true. The view was eccentric enough to have caused Galileo and Bruno to be closely associated. Finally, it is worth mentioning that both Galileo and Bruno called the Copernican theory Pythagorean, a name often used synonymously with the politically unsavory term Hermetic.

Second, both Bruno's *Supper* and Galileo's *Dialogue* are remarkably similar in form. For example, both dialogues introduce courtly gentlemen and dogmatic Aristotelians as interlocutors. In both dialogues there is extensive discussion of a thought experiment in mechanics: If a stone is dropped from the top of the mast of a moving ship, where will the stone land on the deck? Both works also give the same correct answer: The stone will land at the foot of the mast. No matter that the points made by the thought experiment in the two works are entirely different, or that Bruno's arguments are garbled when they are taken in a purely physical way. A suspicious mind not inclined to physics would find it easy to confuse Galileo's intentions with Bruno's. Furthermore, both dialogues are written in Italian rather than in Latin. The reasons for this linguistic departure from contemporary scholarly convention are now known to be quite different, but again a suspicious reader might think in both cases the vulgar tongue was adopted in order to stir debate and intellectual dissent on the widest scale possible.

There is another and more global similarity in the form of the two works that could easily lead to the wrong conclusion about Galileo's intentions. In both works the Copernican system is defended in a nonmathematical and nontechnical way, completely ignoring the very details that make the system interesting and workable for the practicing astronomer. We have already shown that Bruno exploits the Copernican vision as a hieroglyph for his religious and reunionist aims. Galileo's dialogue is a purely philosophical and scientific work, but it too does not really defend the Copernican system in its then current form. Instead Gali-



ROBERT CARDINAL BELLARMINES played an important role in deciding Bruno's fate in 1600, and he personally admonished Galileo in 1616 not to hold to or defend the Copernican doctrine that the earth moves. It was clear to Galileo from the interview, however, that Bellarmine did not exclude the study of the Copernican view as a scientific hypothesis. Bellarmine's death before Galileo's trial in 1633 left an ambiguity in the position of the church as it had previously been stated to Galileo. This painting of Bellarmine is in the Roman church of St. Ignatius, where Bellarmine's remains are also kept.

leo widens his discussion to judge between his own philosophy of nature and the Aristotelian one. The *Dialogue* is thus opened to the suspicion that its chief aim lies below the surface, as is demonstrably the case for the *Supper*.

The close link between politics and religion we mentioned above underlies a third major reason for confusing Galileo with Bruno. Copernicanism was widely associated with revolutionary political and religious thought. In 1599 Tommaso Campanella, an apostate Dominican monk, led a revolt against Hapsburg rule in Calabria, in the southern part of Italy. Campanella's aim was to reestablish the famous ancient Pythagorean city of Croton in Calabria, but his revolt was quickly crushed and he spent the next 26 years in prison. During those years he was far from idle. In 1600 he wrote his *City of the Sun*, a distinctly Hermetic and Copernican work (although it was not Copernican in an astronomical sense). Within a few years of his arrest his jailers lost interest in him, and he was left in relative peace to write, which he did voluminously.

In 1616 Campanella learned that the Jesuit Robert Cardinal Bellarmine planned to admonish Galileo with respect to the dangerous theological implications of his scientific teachings. Campanella hastily wrote an *Apologia pro Galileo*, in which he attempted to show that Galileo's views were actually more rather than less in accordance with accepted theology than the Ptolemaic system was. The theological arguments presented by Campanella on this point bear strong similarities to those made by both Bruno and Galileo. To the possible later detriment of Galileo's case, the *Apologia* is the only work by Campanella in which Bruno is mentioned at all.

Campanella also wrote several letters to Galileo from prison. The letters make it clear that he viewed Galileo much as Bruno had viewed Copernicus: as a genius who heralded the dawn of the new truth without comprehending the philosophical significance of his discoveries. Such an attitude was almost certainly shared by others who were much less friendly to Galileo than Campanella was.

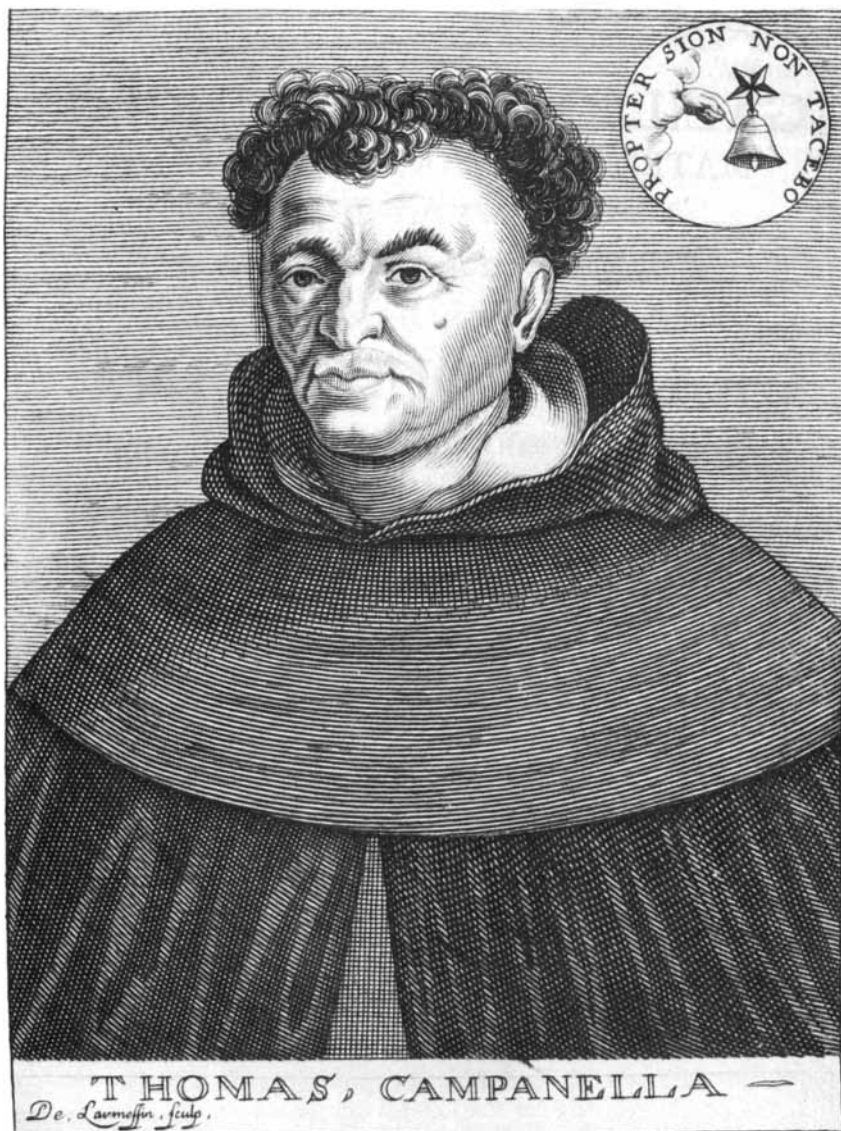
We strongly suspect that Galileo's close, if unwanted, association with Campanella was a major element in Galileo's eventual recantation. When Campanella was finally released from prison, he came into the pope's favor. In the late 1620's the Spanish grew increasingly angry with Urban VIII for following a partly se-

cret and rather clumsy pro-French policy. Consequently they engaged in psychological warfare that played on Urban's belief in astrology: astrologers predicted the pope's death with the solar eclipse of June, 1628, and later with the eclipse of December, 1630. Campanella was known to be a magus, or sorcerer, and so Urban enlisted his aid in performing antieclipse magic. The magic was apparently successful, because Urban did not die.

For a few years Campanella's suc-

cess admitted him to the confidence of the pope. It was necessary, however, to keep such magical operations a close secret. In 1600 the Jesuit Martin del Rio expressed an opinion of the church, in which many forms of magic were condemned. It would not do to let the public see the pope engaged in activity that was arguably heretical.

Campanella capitalized on the success of his antieclipse magic to put forward his Hermetic views, and to some degree he was successful. Indeed, at



TOMMASO CAMPANELLA, shown here in a 17th-century engraving by Nicolas de Larmessin the Elder, was an apostate Dominican monk who was imprisoned in 1599 for leading a revolt against the rule of the Hapsburgs in southern Italy. Tortured, starved and frozen while in prison, he nonetheless wrote voluminously about Hermetic and philosophically Copernican ideas. In 1616 he wrote his *Apologia pro Galileo* ("Apology for Galileo"), in which he argued that Galileo's views on astronomy were in accordance with orthodox Roman Catholic theology. Campanella later enjoyed the pope's confidence for a time, but he again fell from favor. He figures prominently in the confluence of events that finally brought Galileo to trial before the Inquisition. The motto *Propter sion non tacebo* recalls Campanella's zeal: "For the sake of the Heavenly City I will not keep still."

one point Urban authorized Campanella to found a college of missionaries, bearing the family name Barberini, which would convert the world to a "reformed," "natural" Catholicism. (Such adjectives were Hermetic watchwords.) Urban found Campanella's Hermetism congenial and was encouraged in his own purely political

pro-French policy. He entered into an alliance with France. In the meantime, however, the French had given their support to the Protestant Swedish king, Gustavus Adolphus. By 1632 the king's military successes had been so sensational that both the political viability of the Holy Roman Empire and the religious viability of the Roman

church throughout much of Germany were seriously threatened.

Thus the pro-French policy turned out to be too successful, and the growing hostility of the Hapsburgs could no longer be ignored. In such a political climate it is not surprising that Urban began to regard Campanella as a false prophet and all his teachings as dangerous. Since Campanella, Bruno, Hermetism and Copernicanism were all tangled together, it would have been a simple step in Urban's mind to link them with another eminent Copernican, Galileo. Given the proper background of fear and suspicion, this association and others could have inclined the pope and the Roman authorities to mistakenly regard Galileo as an antipapist, a religious liberal and perhaps a Hermetist.

There was a fourth reason for the Renaissance confusion of Galileo with Bruno, which seems peculiar to the modern mind. On the title page of Galileo's *Dialogue* his printer, Giovanni Batista Landini, had added a colophon, or emblem, which depicted three dolphins swimming after one another in a circle [see illustration on opposite page]. The emblem could be—and was—construed in an extremely damaging sense. In a letter to a friend of Galileo's in Florence, Galileo's Roman disciple Filippo Magalotti gives an account of an interview with Father Niccolò Riccardi. Riccardi was a Florentine who had risen high in the papal bureaucracy to become Master of the Sacred Palace, that is, the pope's theologian. Magalotti writes in part:

"On Monday morning...the most reverend Father...came to seek me.... Then he proceeded to disclose another reason for wishing to have...the *Dialogue*.... Under the seal of secrecy he told me that great offense had been taken at the emblem which was on the frontispiece.... On hearing this, I burst out laughing...and said I thought I could assure him that Signor Galileo was not the man to hide great mysteries under such puerilities and that he had said what he meant clearly enough. I declared that I believed I could affirm that the emblem was the printer's own. On hearing this, he appeared greatly relieved and told me that, if I could assure him that such was the case...the result would be most happy for the author."

The dolphin was a fairly common element in Renaissance emblematics, but the emblem in the *Dialogue* was not a standard cliché. The quest for its "real" meaning was one of the factors that stirred up the first unease about

# DIALOGO

DI

## GALILEO GALILEI LINCEO

### MATEMATICO SOPRAORDINARIO

DELLO STUDIO DI PISA.

*E Filosofo, e Matematico primario del*

SERENISSIMO

## GR.DVCA DI TOSCANA.

Due ne i congressi di quattro giornate si discorre  
sopra i due

MASSIMI SISTEMI DEL MONDO  
TOLEMAICO, E COPERNICANO;

*Proponendo indeterminatamente le ragioni Filosofiche, e Naturali  
tanto per l'una, quanto per l'altra parte.*



CON PRI

VILEGI.

IN FIRENZA, Per Gio:Batista Landini MDCXXXII.

CON LICENZA DE' SUPERIORI.

TITLE PAGE from Galileo's *Dialogue on the Two Great World Systems* is decorated with a printer's colophon, or emblem, that depicts three fish swimming after one another in a circle. The unintended symbolism of the emblem caused a furor within the Roman church. The fish were assumed to be dolphins—albeit without justification to the modern eye—and the dolphins were immediately taken as a representation of Hermetic and Brunonian ideas condemned by the church. In the contemporaneous context of the Thirty Years' War the emblem was also interpreted as a symbol of philosophical and theological support for the French side. The motto of the emblem, *Grandior ut proles* ("Greater than the offspring"), was misinterpreted to imply that Galileo was extending the work of Bruno by harking back to a superior predecessor, perhaps Apollo, Pythagoras or Hermes Trismegistus. Such figures were associated with the officially discredited Hermetic philosophy.

the work in Rome. Riccardi was favorably inclined toward Galileo, and his agitation, together with his implication that the entire case against Galileo depended on the colophon, shows how important it must have been. It was not uncommon to convey arcane messages through symbols. The Roman authorities were led to suspect that Galileo and Landini had together contrived the emblem to hide a message, or perhaps to act as a key or a summary of the work that was to follow.

A suspicious nature could devise connotations of the emblem that were particularly dangerous to Galileo. First the dolphin was associated with the shrine of the god Apollo at Delphi. In Greek mythology Apollo was the father of Asclepius, who was one of the major figures of the Hermetic myths. Furthermore, in Homer's *Iliad* Apollo had been the leading divine supporter of the Trojans, and one of the Trojan survivors, Francus, was the legendary founder of the French royal line. To reinforce the speculation, the word "dauphin" is etymologically related to "dolphin." In the context of the Thirty Years' War such a linkage of France and Troy might be open to serious misinterpretation: as a passing of the mantle of Apollo—or in Christian terms the passing of the Holy Spirit that confers authority on the pope—from Rome to the rising collateral lineage of the Trojans in France.

All such speculation later evaporated. After an embarrassing delay Magalotti was finally able to give Riccardi another, earlier Landini book with the same colophon. By that time, however, the fat was in the fire: Riccardi was off in full cry over the theology of the *Letter to the Grand Duchess*, to whose existence in manuscript Magalotti had clumsily called attention. We have already mentioned some of the difficulties raised by the *Letter*; from then on Galileo's adversaries had more substantial issues to chew on.

We can now describe how the spurious association of Galileo with the Hermetic tradition meshed with contemporaneous political reality and gave a powerful initial impetus to the judicial machinery in which Galileo was caught. Urban VIII preferred to avoid the opposing extremes of religious orthodoxy and Counter-Reformation enthusiasm. His political and personal inclinations led him on a course clear of Spain and thus toward France. As we have mentioned, however, his actions had stirred growing anger among the Spaniards.

In 1631 Gaspare Cardinal Borgia,

the Spanish ambassador to the Holy See, put increasingly heavy pressure on the pope for positive support of the Spanish cause. Urban recognized the danger of growing Spanish hostility, and he declared his readiness to try to dissuade France from an alliance with Sweden. In spite of this move, in March of 1632 Borgia openly attacked the pope in consistory, the meeting of the cardinals. Urban was furious, but he held his peace for fear of an open rupture with Philip IV of Spain.

To mollify Spain, Urban might have moved against France, but such a move would have risked an open break with the French church. The only course open to him was to make a nonsubstantive but strongly symbolic gesture. He could publicly sacrifice a person associated with the pro-French policies and the Hermetic philosophy from which he badly needed to dissociate himself. Campanella was the obvious choice. He was clearly connected not only with the pro-French policy but also with its underlying philosophy. Besides, he was expendable.

But Campanella knew too much. If strong and direct action were taken against him, the unedifying story of a pope who practiced heretical magic would certainly have come out. The next-best choice was Galileo. His association with Campanella in the public mind is underscored by the fact that the writer of the preliminary report of the committee investigating the *Dialogue* at first penned in Campanella's name instead of Galileo's and then had to erase it.

Given even these demanding circumstances, Urban might well have searched further for a scapegoat inasmuch as he had long held Galileo in high regard. Unfortunately, with singularly bad timing Galileo had managed to hurt Urban's feelings. The pope had argued that God could have accomplished his ends in infinitely many ways; as he put it to Galileo, "You must not necessitate God." Because Urban knew of Galileo's Copernican views, he had instructed Galileo not to make any definitive choice between the Ptolemaic and the Copernican systems. Galileo followed the instructions to the letter: the *Dialogue* ends with a passage disclaiming any choice between the two positions. The disclaimer, however, is clearly hypocritical, and Urban's views are put into the mouth of the dogmatic and dull-witted Simplicio. Consequently Urban was not unwilling to make a sacrifice of Galileo when one was needed.

Hence three strands are seen to converge. The political situation demand-

ed a sacrifice. Galileo's writings, interpreted by men who were intelligent but out of touch with his real intent, made him a likely candidate. His supposed mocking of the pope deprived him of Urban's goodwill at a crucial moment. The Hermetic misinterpretation of his writings had been able to launch events that were later sustained by other forces.

One of the least convincing of the traditional explanations for Galileo's troubles has been that his trial went forward because of the pope's personal animosity. Urban's feelings alone would not have led him to set the immense machinery of the Inquisition against Galileo. The enormous disparity between the social and the political positions of Urban and Galileo would have made such a response to a personal affront entirely inappropriate. Our extension of the accepted explanation for the trial shows how Urban's strong reaction can be understood. Given the exigencies of the state and the fact that Galileo seemed to fill a political need, the momentary agreement between this need and Urban's personal pique made things go badly for Galileo.

One can also understand the ambiguities of Urban's later treatment of Galileo. Galileo was old and in poor health when he was summoned to Rome, but even when he lost his sight, Urban angrily refused to mitigate his conditions of house arrest. Yet Urban never tried to interfere with the continued lionization of Galileo, even by princes of the church. Nor did Urban make any attempt to interfere in any effective way with Galileo's freedom to publish, which he surely would have done if he had regarded Galileo as dangerous outside the context of the Spanish policy. Once Galileo had served the purpose of being a symbolic victim, Urban's further actions seemed to stem from mere personal anger rather than official enmity.

Galileo thus became a symbolic victim in an age that set great store by symbols, just as Bruno had before him. He was a victim of pan-European reputation and high visibility, and his exemplary punishment again taught the lesson of 1600: that anti-Hapsburg, pro-French, religiously conciliatory policies were heretical or at least close to it. A caricature of Galileo was concocted from the real man by his enemies and the circumstances of the moment, and so it was a resurrected Bruno who went before the Inquisition in 1633 to furnish a myth around which an existing moral could be woven.