

The Council of Florence: The Religious Event That Shaped the Era of Discovery

by Nora Hamerman

On July 6, 1439, in the city of Florence, Italy, the assembled Church hierarchy and imperial authority of the Eastern Orthodox Church and the Pope and bishops of the Roman Church proclaimed a document of Union entitled *Laetentur coeli*, "Let the Heavens Rejoice" (SEE box). After the Great Schism in 1054 A.D., the Council of Florence had finally reunified the Eastern and Western branches of Christianity.

The Council of Florence took place under the immediate threat of war, plague, and under conditions of extreme poverty. In fact, on several occasions the Council was nearly disbanded for lack of funds.

Nonetheless, under these conditions it established, for the first time, the ecumenical principle of a unity of doctrine within a plurality of rites and customs; and the correlated notion, that doctrine could *develop* without *changing* in its essential truths.

These achievements came to fruition in the evangelization of the Americas, which we celebrate this year on the 500th anniversary of Columbus' voyage to the lands he called the Indies. Yet while the date 1492 is inscribed in every schoolchild's memory, what happened in Florence in 1439 is scarcely remembered.

The Council of Florence is often overlooked as an obscure moment of ecclesiastical history. In part, this is because the union achieved in Florence did not survive



*Cathedral of Florence, cupola built by
Filippo Brunelleschi.*

two decades. The strategic purpose of the Council, which was to join Eastern and Western Christendom in the military defense of Constantinople, failed in 1453. Less than a century later, the Council's aim of keeping Western European Christendom together was shattered by the Protestant Reformation.

Yet, judged from the standpoint of universal history, the Council was possibly the most successful gamble mankind has ever seen. It was the watershed for the Florentine Renaissance, which produced the greatest flowering of genius in the shortest period known to history. To understand how that result was *deliberately* brought

about—in order to replicate it today—we must understand the principles shared by those who organized it.

The *Filioque* Principle

The Union of 1439 was proclaimed jointly by two young men, the Greek John Bessarion and the Italian Julian Cesarini, from the pulpit of the Florentine cathedral of S. Maria del Fiore, under the great cupola, that had just been dedicated in 1436. The Bull stipulated accords on the doctrine of Purgatory, the primacy of the Pope, and divergence of rites, but above all it registered agreement on the doctrine that had long distinguished the Western, Augustinian form of the faith from the Eastern: the

“*Filioque*” clause recited in the West in the part of the Nicene Creed which proclaims belief in the Holy Spirit, the third person of the Trinity.

This clause was understood to define the necessity of technological progress as an indispensable feature of the doctrine of the Trinity, by stating that the Holy Spirit proceeds both from the Father *and the Son* (in Latin, *Filioque*), who is both God and man. Eastern resistance to the *Filioque* had persisted since the eighth century, when the doctrine was promoted by Charlemagne against the Arian heresy, which denied the divinity of Christ. Byzantium, ruled by a theocratic emperor who saw himself in the direct line of descent from the pagan Roman emperors as both secular ruler and high priest, was resistant to the implications of a theology that undermined autocracy by giving a major role to anyone but the Father—and particularly by implying that *development* is necessary.

At the Council, the Byzantines finally agreed to the *Filioque*. As recounted by historian Joseph Gill, their first objection was legalistic. They attempted to prove that any “addition” to the Nicene Creed was forbidden by Scripture, but this argument was finally beaten back by the obvious point that the Nicene Creed itself, established in the third century A.D., is an “addition” to Scripture. The Greeks were forced to concede that while the faith could not *change*, it not only could, but indeed must, *develop*.

This victory by the Latin side forced discussion onto the central point of whether the *Filioque* was true. During the lengthy debates, the Greek prelates were unmoved by the Aristotelian syllogisms presented by some of the Western theologians. But in the end, it was the massive evidence of the writings of the early Church Fathers, especially St. Basil for the Greeks and St. Augustine for the Latins, that moved them. The principle they accepted was “patristic,” for it was clearly impossible that the great saints could have been in disaccord, and if read from the standpoint of this underlying principle of unity, it was also obvious that all the Fathers accepted a concept of the Son’s relationship to the Holy Spirit, that could be expressed legitimately as the *Filioque*.

The Conciliar Movement

At the outset of the fifteenth century, as the threat of the Turkish aggression grew, Western Europe was in chaos, presenting no possibility of a unified military resistance. France and England were torn into feudal entities by the conflicts

most of Europe, the centralized nation-state was a

shadow of the robust promise of the twelfth and thirteenth centuries. Depopulation had begun at the outset of the fourteenth century, as the impact of the practice of usury and slavery—whether *de jure* or *de facto*—struck the poor and defenseless.

After a half-century of shockingly high mortality rates, the outbreak of the Black Death in 1348 carried off as much as fifty percent of the inhabitants in densely populated centers like Florence. Recovery from this disaster was slow throughout the continent. The plague returned often, and population continued to fall. The illusions of some, who had expected that a thinned-out populace would mean more riches to go around for survivors, were shattered by the reality of the Christian teaching that money itself is sterile without human labor. Yet the Church’s own credibility was wrecked by the fact that many of its highest prelates, including numerous Popes, had been complicit in usury and the related sin of simony, the selling of holy things for financial gain. The schism of the West had led since 1373 to two, and after 1409, three competing Popes. In such a situation, the Church could not fulfill its traditional role as a peacemaker above warring parties. Moreover, Europe was racked with religious conflicts, such as the Lollard and Wycliffite rebellions in England, and the Hussite insurgency in Bohemia.

The grand design of the Conciliar Movement was to convene church councils in order to restore Christian unity, by carrying out reforms which everyone agreed were needed, although the nature and extent of the reforms were disputed. The conciliarists were active throughout Europe in the networks of intellectuals established by the Florentine poet Petrarca. Petrarca was an Augustinian Platonist, who committed himself to the recovery of Plato’s dialogues, which were unavailable in reliable translations in the West, and to the expulsion of Aristotle’s authority from science.

Until his death in 1374, Petrarca was the hub of an international community of scholars who managed to keep in touch through the duplication of letters. These scholars sought to recover antique Greek and Roman manuscripts, to master the classical languages, and to build up lay piety and secular states, both in the monarchical and republican forms. Their Conciliar efforts intensified in the 1390’s, spurred by the carnage in western Europe, but especially by the growing danger of Turkish aggression in the East.

The first councils were inconclusive. Then, between 1410 and 1435, two general councils of the Roman Church were convened in the cities of Constance and Basel.

The first major reform was accomplished at the Coun-

cil of Constance in 1414-1418, where a single Pope, Martin V, was elected, and the rivals all renounced their claims. Under Martin V, the process of making peace between France and England began to move forward, even though in 1430, Joan of Arc was unjustly burned at the stake for her efforts to restore France's nationhood. The papal legate, Cardinal Niccolo Albergati, persuaded the powerful Duke of Burgundy to shift his allegiance from England to France. By 1435, the basis for peace had been established.

The conciliarists, who were concerned about greater participation by the national churches in the choice of their bishops, and about control of finances, believed that the reforms of the papacy in Constance were inadequate, and forced the Pope to convene the Council of Basel in 1431. It was for this Council that Nicolaus of Cusa wrote

his first great work, *The Catholic Concordance*. But the higher principle of concordance he sought, was not to be found in Basel.

In 1437, Nicolaus of Cusa became the envoy of the reigning Pope Eugene IV, whom he had previously opposed. Eugene, who had taken refuge in Florence after political troubles drove the papal court out of Rome, had become convinced by the Florentine Christian Platonists to convene an Ecumenical Council which would supersede the hopelessly divided Council of Basel.

The Traversari Conspiracy

Nicolaus of Cusa was recruited to this conspiracy by Ambrogio Traversari, the general of the Camaldulensian Order, who in 1435 was sent by Pope Eugene IV to Basel

'Let the Heavens Rejoice'

Excerpts from the Decree issued by the Council of Florence, which reunited the Roman and Eastern Orthodox churches on the basis of the concept of the Filioque.

Since we Latins and Greeks have met in this sacred Ecumenical Council, we have in common been at great pains, that that article about the Procession of the Holy Spirit should be discussed with great care and assiduous investigation.

After, then, the production of texts from the divine Scriptures and very many quotations of the holy Doctors of both Western and Eastern, some indeed affirming that the Holy Spirit proceeds from the Father and from the Son, while others, from the Father through the Son, and after perceiving that all bore the same meaning though expressed differently;

We Greeks declared that what we say, namely that the Holy Spirit proceeds from the Father, we do not say with the intention of excluding the Son; but, because we believed that the Latins say that the Holy Spirit proceeds from the Father and from Son as if from two principles and two spirations, we refrained from saying that the Holy Spirit proceeds from the Father and the Son.

We Latins, however, assert that what we say, namely that the Holy Spirit proceeds from the Father and the Son, we do not say with the intention of excluding the Father from being the source and principle of the whole of divinity, namely of the Son and of the Holy Spirit, nor by saying that the Holy Spirit proceeds from the Son, that the Son does not receive this from the Father; nor thereby do we assert that there are two principles

and two spirations, but we declare that there is only one principle and a single spiration of the Holy Spirit, as we have hitherto maintained.

And since from all these one and the same understanding of the truth emerges, in the end they unanimously agreed with the same sense and the same mind to the following holy union, pleasing to God.

In the name therefore of the Holy Trinity, Father, Son, and Holy Spirit, in accord with this sacred universal Florentine Council, we define that this truth of the faith should be believed and received by all Christians, and so we profess that the Holy Spirit is eternally from the Father and from the Son, and has his essence and his subsistent being from the Father and from the Son together, and proceeds from both eternally as from a single principle and a single spiration.

Declaring, as the holy doctors and Fathers say, that therefore the Holy Spirit proceeds from the Father through the Son, is directed to this sense, that by it is meant that the Son like the Father is according to the Greeks the cause, but according to the Latins the principle, of the subsistence of the Holy Spirit; and since all that is of the Father, the Father himself in generating gave to the only begotten Son, except to be the Father, [we define] this too, that the Holy Spirit proceeds from the Son, the Son Himself has eternally from the Father, from Whom also He was eternally begotten.

We define that the foregoing explanation of these words was posed legitimately and reasonably by the symbol *Filioque*, for the purpose of affirming the truth and out of urgent necessity. . . .

to organize support for an Ecumenical Council of East and West in Italy.

Ambrogio Traversari, born in 1386, had been a member of the Camaldulensian hermit order since 1400. The order's important monastery of S. Maria degli Angeli in Florence was a center of music and art, including vernacular music, and the leading school of manuscript illumination of the city. Lacking a university education, Traversari taught himself classical Greek and became the outstanding Greek scholar of Italy.

Traversari's mentality, typical of the new Renaissance spirit, is shown in the fact that he vigorously defended vernacular music, by citing the example of the aged Socrates, who learned to play the lyre as an example to the young.

Traversari had inherited from Petrarca the task of leading the battle for the Western notion of the Trinity and of liberating Latin learning in the West from the heavy weight of Aristotelianism.

Under the encouragement of Traversari, among others, classical Greek was mastered by several young Florentines, and the early Greek Church Fathers' writings were scrutinized to develop the arguments that would prove there was no contradiction between East and West on the issue of the *Filioque*, in the early centuries when Christendom had still been unified.

Traversari was not only an ardent collector of such texts, but also a leader in the faction that insisted that Christianity must harvest the best fruits of classical Greek civilization, in order to develop the laymen of a viable republic. By the first decade of the fifteenth century, a debate split all of the religious orders in Italy over whether it was legitimate to study such pagan classics as Plato, Homer, and Proclus. The anti-humanist opposition took a position much akin to today's "fundamentalists," while the Petrarchan outlook was ecumenical and republican. Traversari emphasized that the notion of "poetry" was essential to truth, pointing out that, after all, the Holy Scripture is poetry.

The disciples of Petrarca cited the Fathers of the Church in support of their argument that such readings were not only legitimate, but necessary in order to enrich one's knowledge of God and to foster piety among laymen. The numerous Renaissance paintings showing Augustine and Jerome in their studies, surrounded by books, scientific instruments, and even art objects, are rightly seen as propaganda on behalf of the Christian humanist movement, which insisted on the unity of science and religion.



Jan van Eyck, *St. Jerome in His Study*, 1435.

Key to the movement toward the Council of Florence was the new concept of translation, in open polemic with the Aristotelian approach which prevailed in earlier centuries. Medieval translations of Greek works of the classical and early Christian "patristic" periods were often unfathomable because they proceeded by word-for-word equivalents. But using the method of St. Jerome as their guide, the watchword of the Petrarchan humanists was "translate the meaning," recognizing that the verbatim translations often produced absurdities when the meaning of the words themselves had changed through the centuries. The word-for-word approach was only used for the Holy Scriptures—as Jerome himself had done.

The new, accurate translations were the basis of the

ecumenical movement to which Cusa himself became recruited. While still in his twenties he discovered some lost Latin comedies, which were the subject of correspondence between Traversari and the Medici family in 1429. Later, after 1440, when Cusa and some of his friends decided to attempt a scientific refutation of Islam, as the basis for converting Muslims to the Christian faith, their first step was to insist on getting an accurate translation of the Koran.

Science and Technology

It was these circles, fighting for the *Filioque*, as opposed to the Aristotelians, who launched modern science. In 1423, one of Traversari's Greek associates brought back to Italy from Constantinople a treasure trove of Plato, some 238 manuscripts. In 1424, Traversari reportedly engaged in an assiduous search for a work by Archimedes on military machines and hydraulics, a search that is particularly interesting in regard to the later genesis of the isoperimetric theorem by Cusa.

Cusa's 1438 book, *On Learned Ignorance*, developed the crucial isoperimetric theorem in the process of tackling the Archimedean problem of "squaring the circle." Cusa showed in that book that a circle is the minimum perimeter that can enclose a given area. Kepler and Leibniz later stood on the shoulders of Cusa as they developed the conception of "least action."

During the 1420's and 1430's, Traversari's monastic cell at S. Maria degli Angeli near Florence was the meeting place for a group of humanists linked to the Medici banking family, according to his fifteenth century biographer, Vespasiano de' Bisticci. Members of Traversari's entourage included Niccolò Niccoli, whose fabulous collection of antique books formed the basis of the Platonic Academy of Florence; Gianozzo Manetti, author of the first "Oration on the Dignity of Man"; Aeneas Piccolomini, the future Pope Pius II; and the physician Paolo dal Pozzo Toscanelli. Toscanelli had been a fellow student of Nicolaus of Cusa in Padua in the early 1420's, where both were likely to have studied with the famous master of music theory and mathematical perspective, Prosdocimo de' Beldomandi.

Who Was Toscanelli?

Toscanelli's full importance is hard to judge because most of his writings are lost, but at the very least he was the confidant of the most

creative scientists and artists of his day. He is reported by early sources to have instructed Filippo Brunelleschi, the founder of modern architecture, in formal mathematics. When Leon Battista Alberti wrote his treatise *On Painting* in 1435, which popularized the theory of painter's perspective, he dedicated it to Brunelleschi, whom he credited as the inventor of this new procedure. Shortly afterward, Alberti dedicated his book *Intercoenales*, a series of dialogues touching on political economy and other issues, to Toscanelli. Some decades later, Toscanelli designed a *gnomon*, or sundial, which was installed in the lantern of Brunelleschi's dome and marks the summer solstice at a fixed point on the floor. In 1464, when Cusa died, Toscanelli was the executor of his will.

According to the nineteenth-century historian Uzielli, there was a series of symposia in Traversari's monastery on various topics including especially geography, a topic of great interest to the Florentine merchants who wished to break the grip of the Venetian oligarchy on trade with the Orient. Poggio Bracciolini, another humanist in this group, describes himself, Cosimo, and Niccoli poring over a manuscript of Ptolemy's *Geography*, which had been translated into Latin in 1410 in Florence. (Despite



Council of Florence, fresco, Vatican Library, 1585. Ethiopian and other bishops kneel before Pope Eugene IV.

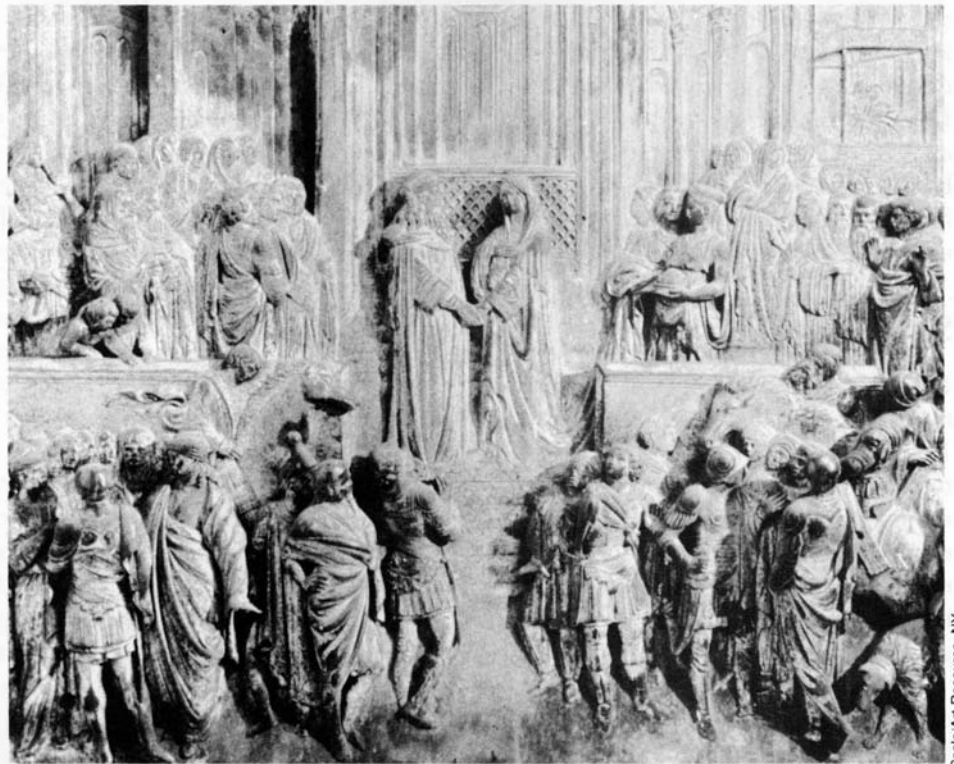
ERNS/Nora Hammerman

its serious flaws, the Ptolemy manuscript employed a spherical projection method of mapping and inspired cartographic reforms [SEE Symposium article on Ptolemy].) In mid-1428, Prince Pedro of Portugal, brother of the famous Henry the Navigator, arrived in Florence to collect maps and pointers for his brother's enterprise. While Portugal contributed the invaluable experience of its seafarers in navigating the deep oceans, Florence served as the theoretical storehouse for expeditions into Africa from the Iberian peninsula.

Such symposia came to a high point at the Council and form the natural counterpoint to debates over the procession of the Holy Spirit. In 1439, Gemistos Plethon, a neo-Platonic philosopher who came with the Greek entourage to Italy, gave the Florentines a lecture series on Strabo, the Hellenistic geographer. Toscanelli had the opportunity to talk with foreign delegates from every corner of the globe and fill in details missing from his mental map.

Although we do not know the precise nature of the connection, the voyages of discovery and the evangelization of new continents clearly do stem from these discussions at the Florentine Council. Reportedly, in 1474, the very old Toscanelli wrote a letter to Christopher Columbus that revised the basic concept of the Earth with the revolutionary premise that the ocean could be used as an intercontinental waterway, and that the navigable *ocean-sea* included the Southern Hemisphere. Toscanelli tells Columbus that he had written on the same subject to Fernão Martins, the canon of Lisbon cathedral. Toscanelli and Martins may have discussed this question at length at the house of Cusa at S. Pietro in Vincoli in Rome, where the three men met frequently in Cusa's last years.

By bringing together all the Christian churches of the known world at that time, the Council of Florence had affirmed the true basis for evangelization in opposition to the policy of slavery often practiced in the era of European discovery ahead. Indeed, it was Pope Eugene IV who issued the first papal condemnation of slavery.



Ghiberti, Meeting of Solomon and Sheba, "Gates of Paradise" Baptistry doors, Cathedral of Florence, 1435-7.

Scala/Art Resource, NY

The 1585 fresco in the Vatican Library of the Council of Florence shows three bishops kneeling before Eugene IV. The fact that one of them is the Ethiopian bishop, whose church signed the Decree of Union, underlines the principle of equality of all men, as in the living image of God.

Moreover, the connection between the theological principles of Christian Humanism and what we now call political-economy, was well understood by the leading participants in the Council. Already in 1440, Bessarion, the Metropolitan of Nicea, who had been named a Cardinal of the Latin Church, addressed a letter to the king of one of the states of Byzantium which had not yet been conquered by the Turks, Macedonia, in which he urged a crash program of "Westernization" for the Greek nation. Among the points of his proposal were a survey of natural resources as the basis for developing the economy, and the sending of young students to Florence to assimilate the level of knowledge of the Greeks' own Platonic tradition which had atrophied during the long stagnation of the Byzantine Empire.

Nicolaus of Cusa

The deep affinity between this Florentine group and Nicolaus of Cusa should be obvious. At the age of sixteen,

in 1417, Nicolaus had enrolled in the University of Padua to study canon law. There he met his classmate and lifelong friend, the physician Toscanelli who was among the intimate followers of Ambrogio Traversari. In Padua, Cusa also met the young teacher Julian Cesarini, a Roman only a few years older than himself. Cardinal Cesarini, who initially presided over the Council of Basel, was convinced by Traversari to abandon the contentious Council.

In 1437, Cusa left Basel with a minority group and set sail from Venice. In Byzantium, the minority delegates were received as representing the true authority of the Council of Basel and the Pope.

Cusa made good use of his stay in Constantinople to collect additional Greek sources for the Western argument that the early Greek Fathers of the church had absolutely no objection to the concept of the *Filioque*. Later that year they returned and debarked at Venice with the Byzantine Emperor and Patriarch and their retinues and proceeded to Ferrara, where the Council of

Cusa as “my good friend,” met him again in Ferrara.

Before the Council was moved to Florence from Ferrara, Cusa left on a mission he was uniquely qualified to fulfill. One month before the Union was signed, the Council of Basel had excommunicated the Pope and elected an anti-Pope, Felix V, the king of Savoy. The

young German humanist spent the next decade preaching, organizing, and negotiating in Northern Europe in order to prevent the break between Germany and Rome which finally did occur in the sixteenth century.

Cusa was heartened when the news of the Union between the churches caught up with him in Germany, whence he wrote jubilantly on Aug. 4, 1439, to his friend Tommaso Parentucelli, “The Holy Spirit has made itself heard not in Basel, but in Florence.” (Parentucelli became the first humanist Pope as Nicholas V in 1447, and made public the naming of Cusa a cardinal of the Church.)

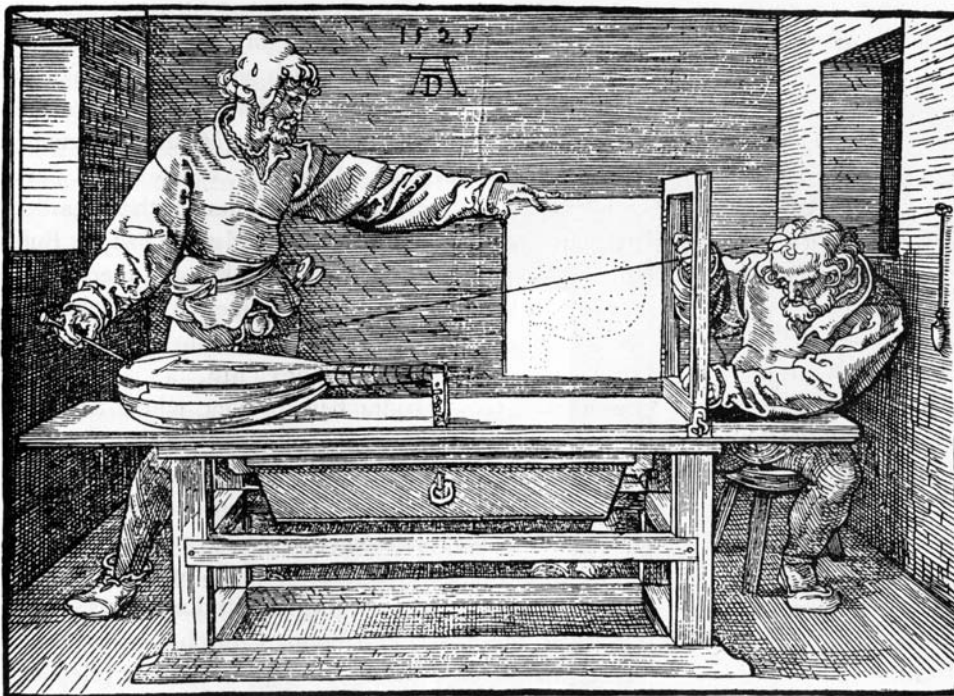
His mission was completed only in 1449 when Felix finally renounced his claims, and the German Emperor had recognized the Pope in Rome. Although rewarded with a Cardinal’s hat, Cusa found his personal burdens no lighter. As papal legate to Germany and later bishop of Brixen, he faced violent resistance to his passionate efforts to reform the church.

Backlash in the East

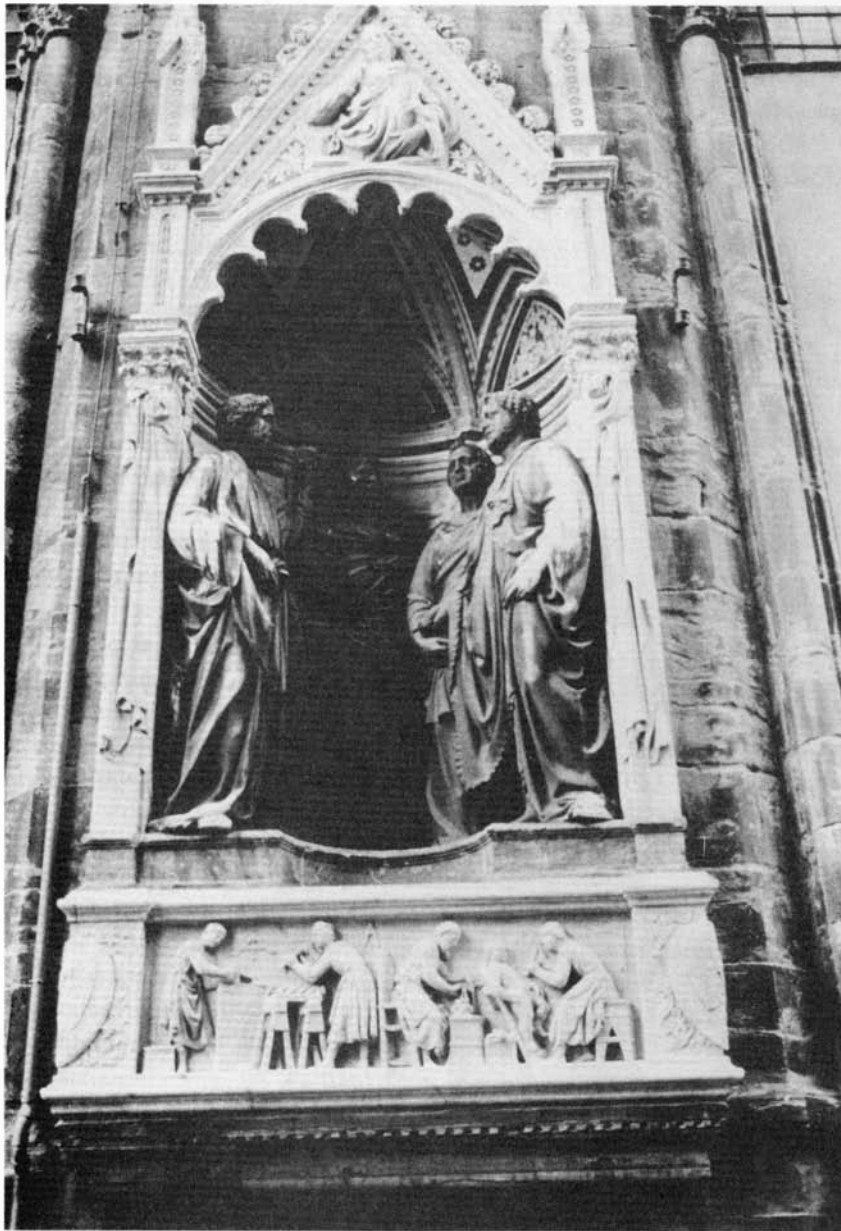
The hardships faced by Nicolaus of Cusa were also visited upon his close collaborators, John Bessarion, Isidor of Kiev, and Julian Cesarini.

No sooner did the Greek prelates and imperial rulers return to Byzantium in 1443, than the backlash against acceptance of the *Filioque* broke out throughout the remaining Byzantine territories, whipped up by reactionary monks of the Mount Athos school.

The Venetian and Genoese oligarchies made sure that no effectual or timely military support was provided to Constantinople. In 1444, thanks to what the king of Naples charged was Venetian treachery, the Western forces commanded by Cardinal Cesarini were slaughtered in the battle of Varna in Bulgaria, and Cesarini died at the age of only forty-five. The Turks drew the noose tighter, and in a terrible bloodbath, overran Constantinople in 1453, with the help of renegade Western engineers serving the interests of the Venetian oligarchs. Only in the



Albrecht Dürer, A Man Drawing a Lute, 1525. The Florentines discovered pictorial perspective, the principle of man’s capacity to depict measurable space in a lawful way.



EIRNS/Steve Meyer

Decorated niche, Orsanmichelle (shrine of the grain market), Florence. Sculptors included Donatello and Ghiberti.

last months of the siege did the Emperor finally have the Bull of the Union read in the church of Hagia Sophia, and by then it was too late. After they conquered Constantinople, the Turks imposed a new Patriarch, Gennadios, on the Greek Orthodox Church, who promptly renounced the *Filioque*.

Isidor of Kiev

The Metropolitan of Moscow, Isidor, merits a statue in his honor in Russia today for his courageous fight to

bring the Renaissance to Russia. He had led the Muscovite delegation to the Council, and had signed the Union proclamation and forced the other Russian delegates to also sign, not out of political motives but because of his deep study of the issues.

In Florence, when after fifteen sessions the question of the Holy Spirit was still being discussed, one opponent shouted angrily, "We would rather die than let ourselves be Latinized." Metropolitan Isidor opened the way for a solution by calmly saying, "We do not want to become Latins either, but the Fathers of the Eastern Church teach that the Holy Spirit proceeds also from the Son, thus it is right to come to an agreement with the Latin Church."

In agreement with the Byzantines, Isidor signed the Decree of Union for the whole metropolis of Kiev, including Moscow. Abraham of Susdal and others who had come from Moscow with him refused to do so. Isidor was made a Cardinal by Pope Eugene and appointed legate to facilitate the application of the Union.

Warmly received in Budapest in 1440 and even in Poland, Lithuania, and Kiev, which were still adhering to the Council of Basel, Isidor received a cold welcome in Moscow when he arrived March 19, 1441. Three days later, he celebrated mass at the Kremlin, in his cathedral, and as he had the Bull of the Union read, he was interrupted by the Grand Duke Vasilij, who arrested him and tried him as an apostate to the Orthodox faith.

Isidor fled to Kiev, where he built up a Western-tied school of thought. After many travels the "Ruthene Cardinal" died in exile, in Rome, along with Bessarion, who was forced into exile as well. Thanks to Isidor's lifelong struggle, even when the universal Union failed after the fall of Constantinople, the regional Union of his own church with Rome was saved. However, the Russian Orthodox Church declared itself autocephalous in 1448, on the basis of explicit rejection of the *Filioque*, and the doctrine of "Moscow as the Third and Final Rome" was born. This rejection of the Idea of Progress embodied in the Council of Florence is the

cultural root of subsequent Russian imperial designs on the West.

Renaissance Perspective

As the two major branches of Christianity convened to rediscover their common roots by studying the period of the early Christians' struggle against the Roman empire, they witnessed the rebirth of civilization before their very eyes, for they were surrounded by paintings, architecture, and sculpture that was based on a new mastery of the physical laws of the universe by man. The Florentine Renaissance, which we recognize today in these beautiful works of art, is the expression of the strategic and spiritual battle for the *Filioque*.

Ambrogio Traversari is credited with conceiving the program of one of the most celebrated works of the Florentine Renaissance, Ghiberti's "Gates of Paradise" for the Baptistery doors. One of the scenes, the Meeting of Solomon and Sheba, executed in 1435-7, has been interpreted plausibly as an advertisement for the Council of Florence, in which the Eastern Christians would accept the superiority of the Western doctrine of the Trinity, as graciously as Sheba was persuaded that the Jewish monotheism was superior to the animism of her native culture. The gilded bronze panel contains an apparent portrait of Traversari himself, looking directly out from among the "Westerners" in the entourage of Solomon.

Such high-level "political cartoons" depended for their powerful impact upon the primary achievement of Florentine art in this era, the discovery that the physical universe is measurable, and that the transformations between three-dimensional and two-dimensional space can be lawfully known to man, and made intelligible through art. This is known as the science of pictorial perspective, which applied projective geometry to the problem of representing three dimensions on a plane surface.

Brunelleschi discovered that instruments could be devised for mapping the points of intersection upon an interposed plane (the wall or panel of the painting) of light rays, which run from the boundaries of the solid object to the eye. The total of these rays were called a visual cone, or pyramid; thus their projection on the plane surface of the picture takes the form of a conic section. In its initial form,

what the Florentines called legitimate construction was premised upon the conceit of monocular vision, in which the "point at infinity" in the picture corresponded to a single eye-point, and they also imagined, contrary to nature, that the lines from the boundaries of the object to the eye are straight.

Although later theorists, most notably Leonardo da Vinci, were to effect further revolutions in the concept of applying mathematics to construction of pictures, the principle of man's capacity to depict measurable space in a lawful way represented an untransgressible law of nature which the Florentines were proud to have discovered. Through perspective, the fifteenth-century



Interior, Hospital of the Innocents, built by Brunelleschi, 1421.

Florentines defined painting as science, and although mastery of perspective does not in itself constitute good art, there is no retreat from that position, without descending into irrationality.

Progress Made Concrete

The delegates to the Council of Florence from the Byzantine East found themselves surrounded with buildings which proved man's ability to transform nature as "the living image of God," and with pictures and sculpture



Hagia Sophia, Constantinople.

which showed the method behind those demonstrations. In the paintings, sacred figures were depicted sharing a space with ordinary modern, middle-class individuals, and the pictures were implicitly only completed by the viewer, who was drawn into the action through the laws of perspective and proportion.

Most of the sessions of the Council of Florence were held in the Dominican church and monastery of S. Maria Novella, where, on the wall of the nave, a young genius named Masaccio, a protegee of Filippo Brunelleschi, had painted a fresco of the Trinity with life-size figures, demonstrating the application of the new science of perspective.

At the heart of the Florentine commercial district, the

shrine of the grain market, Orsanmichele, was decorated with niches in which over-life-size statues of saints stood: powerful portrait-like figures erected from 1400 onward, paid for by the local guilds, which emphasized the attributes which linked them to productive labor, such as stonecutting. These saints, made by Brunelleschi's collaborators such as Donatello and Nanni di Banco, and his rival Ghiberti, exalted the role of the leading citizen in the republic.

Near the Cathedral, the beautiful Hospital of the Innocents, an institution designed to shelter and educate abandoned children, had been built by Brunelleschi beginning in 1421. The Innocenti was the major vehicle of the appealing vision of Renaissance Florentines that, as author Philip Gavit puts it, "charity, tenderness, and compassion toward children were crucial to personal immortality, the survival of families, and the salvation of the State."

The young sculptor Luca della Robbia, taken under Brunelleschi's artistic wing after the death of Masaccio, was commissioned in 1431 to create the marble reliefs of the choirstalls, or cantoria, for the cathedral. These celebrated reliefs show children in the act of singing polyphonic music from the long scrolls then developed for multi-voice parts. The sculptor was at pains to capture the precise manner of singing by the choirboys, including not only the effort to produce a "head tone" through accessing the nasal passage, but the rounding of the mouth to produce the "round sound" for which the Italian school of singing, known

as *bel canto*, became famous (SEE Figure 1, page 7, this issue).

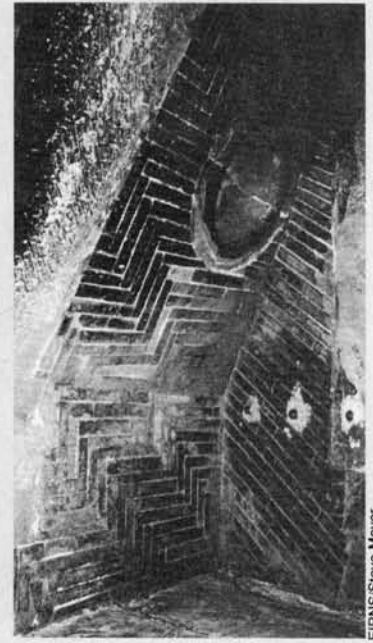
The Cathedral Cupola

The Bull of the Union was read from the pulpit under the shelter of the cupola which Brunelleschi had built. The cupola defied the fixed knowledge of previous generations of builders. It was an unprecedented artistic, engineering, and economic feat. The diameter of the Florentine cupola was much larger than that of Hagia Sophia in Constantinople, and was equal to the dome of the Pantheon built by Hadrian in Rome in the early second century A.D.. The Greco-Roman building technol-

ogy that had achieved those two earlier, hemispheric domes was long since lost. Since Hagia Sophia, which had been built by the Emperor Justinian in the sixth century A.D. was considered one of the wonders of the world, one can only imagine the shock of the visiting Byzantines when confronted with the Florentine achievement. A mere republic had outstripped the biggest domes of the first and second Roman Empires!

But there is more. Brunelleschi was faced with an aesthetic requirement far more demanding than the Greco-Roman models, because the dome of Florence

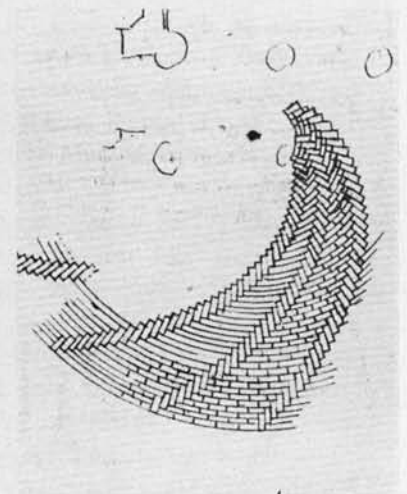
The herring-bone brickwork of the cupola reflected a grasp of the principles of "negative curvature." Above: exposed brickwork; below: original brick molds, museum display; center: contemporary diagram.



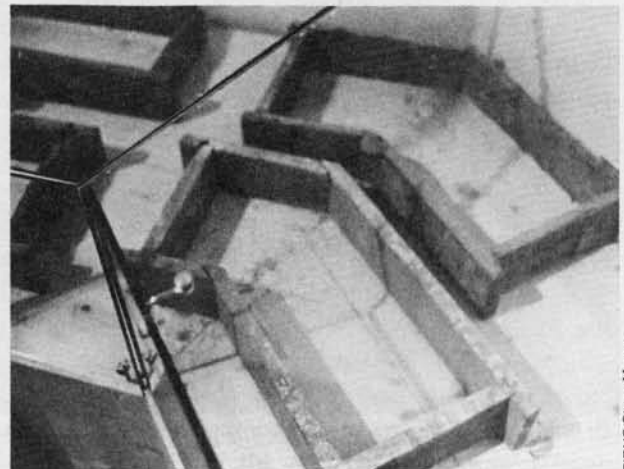
ERNS/Steve Meyer



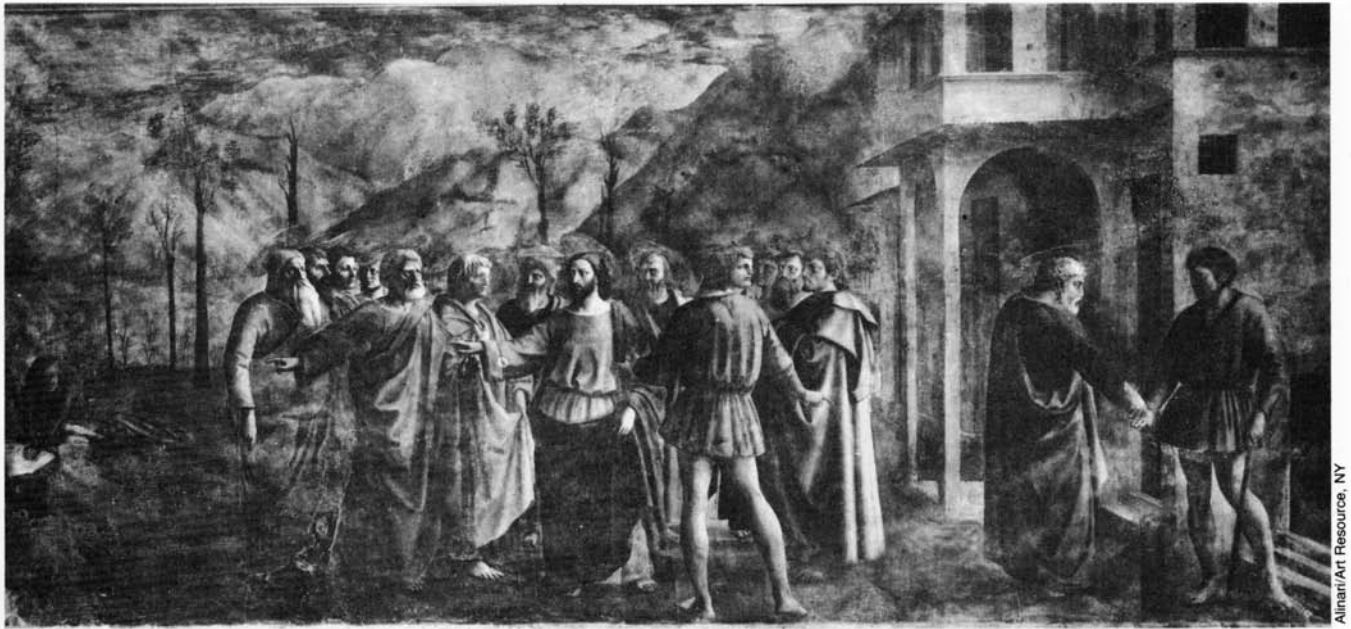
Cathedral of S. Maria del Fiore, Florence.



was to be imposing both on the outside and on the inside, just as the individual interacting with a free, republican society mirrors the internal beauty of his soul in the external beauty he creates in that society. The ancient domes had been designed to be magnificent within, but externally they lacked the concept of perspective by which the Brunelleschi dome, lifted on a high drum well over the shoulders of the cathedral nave vaults, dominates the entire city and surrounding hills as far as the eye can see. The cupola was the fitting manifestation of a culture that was fighting for the doctrine of the immortality of the *individual* soul and struggling to frame a constitution that would wed individual liberty to the highest common good.



ERNS/Steve Meyer



Masaccio, The Tribute Money, Brancacci Chapel, Carmelite Church, Florence.

The most famous of Filippo's achievements in raising the cupola over this enormous space, was that he did it without the traditional *centering*, a pre-formed board structure reinforced by a wooden framework. This supported the masonry and remained in place until the mortar had set and mostly shrunk, and was then carefully removed. The amount of wood that would have been required to build such a centering not only far exceeded the Florentine exchequer, but may have required trees larger than those that grew in the forests of Tuscany. Brunelleschi successfully applied principles previously used in the construction of spherical domes on a small scale, to build an octagonally based dome with a high curvature on an extremely large scale. To do this, as Lyndon LaRouche has observed, Brunelleschi and his collaborators must have had a grasp of principles of "negative curvature," which were only understood again by the great mathematicians Gauss and Beltrami in the nineteenth century.

Secondly, Brunelleschi had begun a revolution in political-economy, by destroying the power of the mason's lodges, and introducing labor-saving machines which anticipated the advent of industrial capitalism. His achievement was partially recognized in 1446, after Brunelleschi had died, by the Consuls of the Wool Guild, the Florentine republic's strongest economic body, in their decision to accord him the exceptional honor of burial in the Cathedral. They singled out for praise Brunelleschi's success in cheapening the cost of the enormous project such that "by his careful economy, the

greatest expenses that it would have been fitting for his genius and intelligence to make, were removed."

Third, however, Brunelleschi himself conceived of his achievement on the level of the same concepts that were being fought for in the *Filioque* debate. In a famous exchange of sonnets in 1425, he replied to an invidious attack on the project by asserting:

When hope is given us by Heaven, . . . we rise above
corruptible matter
and gain the strength of clearest sight. . . . Only the
artist, not the fool
discovers that which nature hides.

In the final tercet of his sonnet, Filippo confidently concludes that his enemy's "sour notes" would be exposed, "when your 'impossible' comes to pass."

The Art of Masaccio

The art inspired by Brunelleschi applied to civic life the theology embodied in the *Filioque* principle. The expression of this idea is direct in Masaccio's "Trinity" fresco in S. Maria Novella (see photograph, page 17, this issue).

The painting on the wall of the church sets up a Platonic dialogue with the viewer. On the lowest level, below the point of perspective along the painted marble slab of the altar, lies a painted skeleton seen in a cutaway section of an imaginary tomb. A Latin inscription warns,

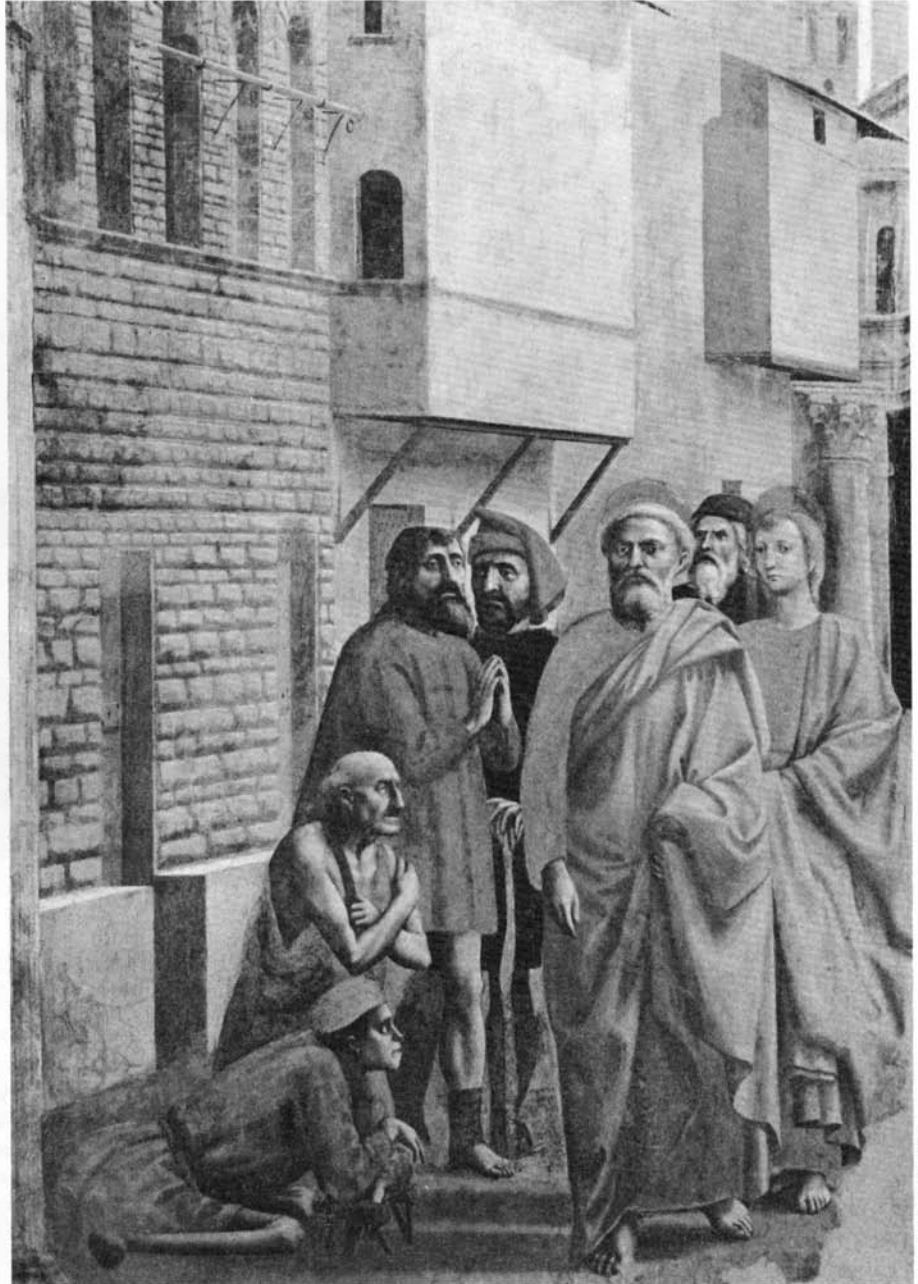
“Where I am, you shall be; where you are, I was.” With this reminder of our mortality, the eye of the viewer rises to confront two contemporaries, a high official of the Florentine state and his wife, who kneel on either side of the altar. Our eyes follow their prayers upward to the scene of historical Golgotha. A stern and sorrowful Virgin Mary looks directly out and points our attention to the crucified Christ on the cross. As we look upward, a fourth phase is introduced, like the Empyrean of Dante’s *Commedia*, which subsumes all lower-order geometries: for the figure of Christ doubles in his historical dimension as the crucified man and his eternal one as the second person of the Holy Trinity. The cross is both planted in the hill of Golgotha below, and seemingly suspended above from the arms of the Almighty Father. Between the two, there “proceeds”

The very reality which Aristotle denied—the possibility that the Eternal could intervene into Time—is played out before our very eyes, and made undeniable by the application of scientific perspective.

But the story is not yet complete. It must be completed by man, applying the creative powers which the divine gift of reason gives to him by reason of the *Filioque* principle. This entire sequence is enclosed within a magnificent architecture, a new, fully fledged chapel in the Renaissance style of Brunelleschi, painted on the wall of the Gothic church. Masaccio has evoked a kind of building which, at the time he painted this, did not yet exist. His painting exists within an architecture, and his architecture exists within the painting, forcing the viewer to come to terms with the Idea of Progress unfolding before his very eyes.

Similarly, the frescos of the Brancacci Chapel in the Carmelite church also represented an intervention into the philosophical and political struggles of the day.

What better way than through the life of St. Peter, to put forward a reform program for the successors of Peter in the Holy See? In the celebrated mural of “The Tribute Money,” three successive moments of the encounter of Christ and the Apostles with a tax collector are shown. In the central scene, a bumptious Peter is thrown off balance when he tries to strike the tax collector, and Christ prevents him with a gesture that directs the disciple to the nearby lake and tells him to catch a fish. From this productive work he extracts wealth from the sea in



Masaccio, St. Peter's Shadow Healing the Sick, Brancacci Chapel, Carmelite Church, Florence.



Scala/Art Resource, NY

Masaccio, St. Peter's Vision of God at Ephesus, Brancacci Chapel, Carmelite Church, Florence.

the same kind of transformation he himself had undergone. Walking down a Florentine street, the apostle heals three citizens with his shadow. The three individuals appear as three stages of development, from the lowest level of a man bestialized by disease and poverty, to the semi-human man rising to his feet, and finally, the standing figures of two craftsmen of the city. The message of Christianity is the message of such transformations. A recent restoration of the chapel reveals that here, too, Masaccio completed the scene with a fourth level, opening to a piazza with a Renaissance church facade behind the figures.

Comparing the face of Peter in the first moment of "The Tribute Money" to his face in these subsequent stories, and finally in his ecstatic vision of God at Ephesus, we witness a face which has gone from ignorance and susceptibility to the impulses of the moment, to the face of a man completely committed to God, even at the cost of his physical existence. For Masaccio, the friend and disciple of Brunelleschi, Peter is worthy to be Christ's vicar on earth *because* he can develop in this way.

the form of a coin, which Peter uses to pay the tax. Finally, the erstwhile comic figure of Peter is transformed into a figure of great dignity as he pays the tax, while his persecutor, the tax collector, now turned around to face us, is exposed as a misshapen individual with an ugly face and a crippled leg.

This transformation comes about because of Peter's obedience to Christ. His faith causes him to act on the basis of reason. In the process, Peter is transformed. The remaining scenes of his life on the walls of the chapel all take place after the ascension of Christ into heaven. In one of them Peter, taking the place of Christ, carries out

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Of the many sources consulted, the author acknowledges a special debt to the following:

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