

# The Egg Without a Shadow Of Piero della Francesca

*What we are attempting to do here is not to write one more academic commentary on this or that glorious period of the past. Rather, if today's world is to be able to extract itself from the most serious crisis of modern times, it will be because each of us has plunged into "docta ignorantia," that state of personal humility in front of knowledge and the Absolute, which predisposes us to increase our capacity to love and to act.*

*To do this, as Helga Zepp LaRouche has stressed for a long time, the philosophical ideas and political action of Nicolaus of Cusa (1401-1464) are central, for his method is the key to creating the geniuses of tomorrow. Any revolutionary who takes himself seriously, owes it to himself to study Cusa's ideas and how they revolutionized the world. This approach has been extremely fruitful, as evidenced by the geniuses that history has provided us. Luca Pacioli, Leonardo da Vinci, Johannes Kepler, Wilhelm Leibniz, and Georg Cantor; almost all have explicitly recognized their intellectual debt to Cusa, and it is my hope that tomorrow each one of you and your children should be able to do the same.*

*If we have chosen Piero della Francesca for our study, it is first because he took part in the political conspiracy of Cusa and his friends. But it is especially, because he translated Cusa's approach into a pictorial method of composition. With the work of Piero—and Leonardo will run headlong down the road opened by him—painting will reach a philosophical dimension never before attained. Piero's life and work, which cast light, unexpectedly, on an entire era that has been carefully hidden away, show him to be the Renaissance painter par excellence.*



Erich Lessing/Art Resource, NY

# The Key To a New Renaissance

by Karel Vereycken

*Piero della Francesca,  
"Montefeltro Altarpiece"  
("Madonna and Child with  
Saints"), detail (1469-1474).*

This article is adapted from a presentation to the National Congress of Solidarité et Progrès, Paris, Sept. 18-19, 1999.

FIGURE 1. Michelangelo, "David" (1501-1504).



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FIGURE 2. Donatello, "Mary Magdalene" (1453-1455).



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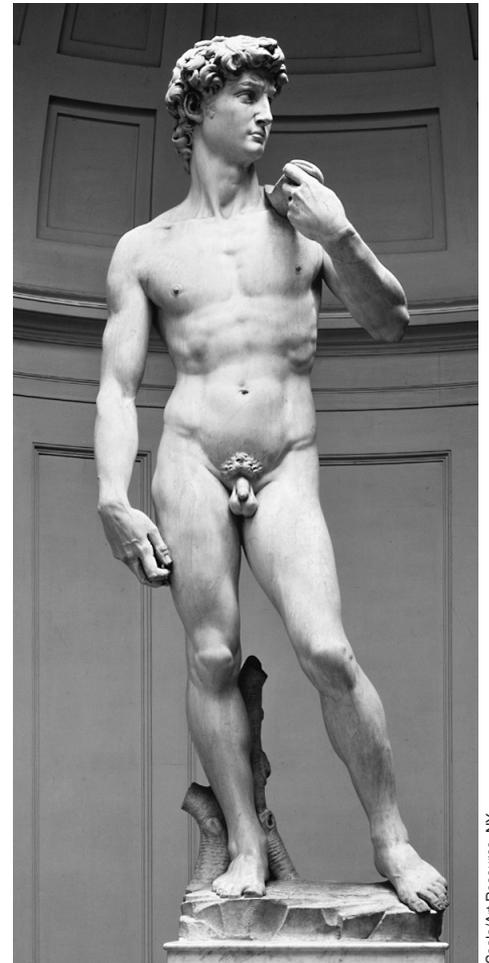
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## Prologue: Renaissance and Pseudo-Renaissance

Before going into the heart of the matter, I would like to subject you to a little test of your preconceptions. If I were to show you two statues of the Renaissance, one, Michelangelo's David [SEE Figure 1], the other, the last work of Donatello, the Mary Magdalene [SEE Figure 2], and if I were to now ask you which is the statue that for you most represents the "Renaissance," I am almost certain that most of you would choose Michelangelo's work.

Three reasons explain this choice.

First, and here I am teasing you a little, I shall affirm that most of you look at the world with what Nicolaus of Cusa called the "eyes of the flesh," that first immediate judgment which—wrongly—possesses the good reputation of never failing you. After all, this Magdalene looks horrible, for she is in a state of terminal physical decay. As for the young David, he is young and beautiful, he is a conqueror. But, if you wish to know what is going on in someone's mind, which part of the body are you going to look at closely? The feet? The David incarnates the triumphal will of man over the fatality of nature. He hides nothing and affirms his state. He has conquered the *external enemy*. But what about the look in his eyes? Mary Magdalene, she too has won a battle, for she is a repentant prostitute. She has conquered her *internal*



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*enemy*. She incarnates the ideal of self-perfection of the individual, typical of the real Renaissance. Have you ever looked at the look in her eyes?

The second reason you would choose the David is, because schoolbooks have popularized this image, to make him the emblematic figure of the Renaissance, whereas Donatello has been relegated to lovers of art history.

The third reason, which encompasses the other two, is the fact that you have never had either the desire nor the courage to confront the fact, that the truth about this period has been deliberately kept hidden from you. You say no, no, this is not possible. Of course, there are *journalists* who would say anything, but not *historians*—they are serious people, they wouldn't make things up. Think about it.

## Giorgio Vasari, Man of the Medici

The person who has left the greatest mark on the history of Renaissance art is without a doubt the painter-historian, and student of Michelangelo, Giorgio Vasari (1511-1574). The genesis of his main work can be summarized as follows. Around 1543 in Rome, Vasari met Bishop Paolo Giovio, a collector of artworks close to Pope Paul III (Alessandro Farnese). Giovio “suggested” that Vasari write the biographies of the great Italian artists. When, with the able assistance of a team of researchers, Vasari enthusiastically began writing the *Lives of the Great Architects, Painters, and Sculptors*, a generous commission from the Farnese family rewarded our intrepid historian. Michelangelo, praised by Vasari in a flattering biography, thanked him with a sonnet.

Published in 1550, the 4,000 pages of the *Lives*, a veritable compilation of all the diverse writings of the period, will forever leave their mark on the manner in which Renaissance art will be grasped by posterity. So it is useful, without creating too much of a caricature, to draw a schematic of Vasari’s vision of art. The collection of biographies is spread out in three volumes. The first, “infancy,” regroups the *primitives*: Cimabue, Giotto, Duccio, etc. These artists possessed the quality of *religious sentiment*, but painting was not yet a *science*. The second section, “youth,” relates the lives of the *transitional figures*: Ghiberti, Masaccio, Uccello, Piero della Francesca, Ghirlandaio, Alberti, etc. These artists, writes Vasari in the preface to the third section, understood nothing of great art, because: “*All these craftsmen put all their efforts into realizing the impossible in art, and especially in their disagreeable foreshortenings and perspectives, which are as difficult to execute as they are unpleasant to look at.*”

Only the artists who make it into the third part represent maturity, *the Renaissance*. The norm of their art opens with Leonardo, passing through Raphael and culminating with Michelangelo, whose

work is such perfection that, according to Vasari, after it art can only decline.

Even though the first edition of the *Lives* made Leonardo, not a representative of humanity as a whole, but a reflection of the divine origins of *Italian* art, this role would be reassigned to Michelangelo in later editions. According to Giorgio Vasari, this “*perfetta maniera*” (“perfect style”) is carried to its apogee by the students of Michelangelo and Raphael in Florence and in Venice: himself, Rosso Fiorentino, Giulio Romano, Domenico Beccafumi, Giorgione, Titian, etc. A visit to the Villa Farnesina in Rome, or to the Chateau de Fontainebleau in France, should suffice to admire the disastrous effect.

Our thesis shall be to demonstrate that it is the “transitional figures” who are the *real actors* of the Renaissance, and who are practically all linked to the international networks of which Nicolaus of Cusa was the epicenter. Therefore, if one really wants to divide history into “periods,” the Renaissance *ends* with Leonardo, and his departure for France during the winter of 1516.

With the exception of the great humanist Cosimo the Elder, the Medici family very quickly fell into the vanities of earthly powers. The pseudo-Platonic Academy of Lorenzo the Magnificent, which was led by Marsilio Ficino and Pico della Mirandola, discredited the Platonic current in Christianity, in order to draw it towards hermeticism and cabbalism. Isn’t it astonishing that Pico della Mirandola, who was supposed to be endowed with universal knowledge, manages to *not once* mention Nicolaus of Cusa, even though Cusa was being studied by everyone during that period? Marsilio Ficino, who christened his main work *Platonic Theology* (a title plagiarized from the major work by Proclus which Cusa studied) mentions Cusa’s name only once, and with dubious spelling at that. This Academy was so “Platonic,” that it spared no effort to show how the immoral theses of Aristotle could be reconciled with the humanism of Plato!<sup>1</sup>

## The Problem of Baldassare Castiglione

*The Book of the Courtier*, by Baldassare Castiglione [SEE Figure 3], a veritable manual of the aristocratic gentleman-warrior, appeared in Venice in 1528, echoing this pseudo-Platonism, which Castiglione learned through the works of his friend in the court of Urbino, the Venetian Cardinal Pietro Bembo. The latter is the originator of a terrible disease, “Bembism,” which will be transmitted throughout France, eventually becoming known as the “Pleiade.” Just as with Pico, the Christian Trinity becomes Love, Beauty, and Pleasure. *When the courtier becomes old, does he still have the right to love?* Bembo, who speaks throughout the *Courtier*, misrepresents Plato, to answer that, since the beautiful is no different than the good, the old beauty who wants to do good with young bodies should not be deprived.<sup>2</sup> The entire book, which incredibly was written by a Church official, is serenely, discreetly, but ever so surely, pagan.

Castiglione would later be scolded by his superiors for his inability to foresee the sacking of Rome by Spanish troops in 1527, during the time he was Papal Nuncio in Madrid. Later on, the Counter-

Reformation would zealously repress *The Courtier*, which was too openly pagan. What demonstrates the remarkable continuity in the education of members of the oligarchy, is that Vice President and Malthusian ecologist Al Gore, in his *Earth in the Balance* (1992), defends the same thesis of the *complementarity* between Aristotle and Plato.<sup>3</sup> Gore even illustrated his book with the image of “The School of Athens,” the fresco which Raphael painted after a commission from the warrior-Pope Julius II, the mortal enemy of Erasmus and Rabelais, and patron of Castiglione.

In this giant fresco, Plato and Aristotle do not really oppose each other, but have their own spheres of influence in the different domains of philosophical speculation: Plato’s *Timaeus* for the science of the souls, Aristototele’s *Ethics* for earthly life.<sup>4</sup> Diametrically opposed to the method of Nicolaus of Cusa, for whom transcendence participates in the earthly domain through the link (*copula*) which is Christ—at the same time, son of man and son of God, is Aristotelian dualism. Politically, it is under the arches of the planned cupola of the new St. Peter’s Basilica, that Plato and Aristotle unite. In one single place (the Vatican, which became *the new Rome* under Julius II), and in one single instant, the fruit of this union is to be found, that is, the greatest philosophers, geometers, and astronomers of all times, supposedly fertilized by this “dialectical complementarity.”

A recent study takes issue with the standard identification of Leonardo with the portrait of Plato in the “School of Athens.”<sup>5</sup> In fact, it does seem far-fetched to imagine that Raphael would have wanted to adopt Leonardo as the model for Plato, since the theme of the fresco was imposed by Julius II, and since Castiglione, the patron of Raphael, spoke so ill of him, regretting

that one of the premier painters of the world despises the art in which he is unique, and has begun to learn philosophy, in which he has forged conceptions so



FIGURE 3. Raphael Sanzio,  
“Baldassare Castiglione”  
(1514-1515).

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strange and chimeras so curious, that he could not depict them in all his painting.<sup>6</sup>

Julius II ordered Raphael to take down the frescoes of Piero della Francesca and the young Bramante which decorated the *stanze*, and replace them with his own. We know nothing about the subject matter of those frescoes, except that they contained magnificent portraits, and that Raphael had them copied before their destruction, in order to give them to his first patron, the very same Paolo Giovio, art-patron of Vasari. There are reports that one of them was of Bessarion, the friend of Cusa and participant in the Council of Florence.

In this manner, Julius II and Leo X demonstrated their desire to erase the results of the Renaissance. Little by little, the Venetian oligarchy, which became the predominant proprietor and bankroller of the Papacy, would take control over all official iconography. The Council of Trent and the Counter-Reformation would later bring back the Inquisition and Ignatius of Loyola, to impose a theatrical and sanitized art: a prohibition against the fresh, against irony, and humor. “Such and such a subject shall be treated in such and such a manner, and no other.” From the “*perfetta maniera*” of painting would come mannerism, from baroque would come rococo, which is amusingly referred to in English as “the stylish style.” Aesthetics, deprived of a soul—which is to say, of *ideas*—would become a vulgar codification of forms.

It was therefore the Counter-Reformation and the Council of Trent that imposed the following *lies*:

**Lie #1.** The genius of the Renaissance was one hundred percent made in Italy, produced in Florence (in other words, by the Medici), and consumable there only. Consequently, this genius could not be replicated elsewhere, not even in Naples.

**Lie #2.** The “norm” of Renaissance classicism is incarnated by the triumvirate of Leonardo, Raphael, and Michelangelo. But, since Leonardo was

excluded from commissions by the Vatican, which the others did benefit from, he only produced a dozen or so works. Therefore, the iconography of the others will prevail.

**Lie #3.** The Renaissance is nothing more than *a return to the values of ancient Rome*, and Rome, the daughter of a Sparta triumphant over Athens, is and shall be the center and the essence of civilization. Thus, everything which exists elsewhere in the world, or which existed earlier, is nothing more than a sub-culture, which shall be called “primitive” or “Gothic” (Goths = barbarians), the “*maniera tedesca*” (“German style”).<sup>7</sup>

As a commentary on this, I would like to cite the Italian historian Fiorentino, who writes in *The Philosophical Renaissance of the Quattrocento*:

It would be an illusion to believe that our Renaissance represents nothing but a return to the ideas of antiquity; aside from the fact that history never repeats itself, a new branch has grafted itself onto the old Greco-Italian tree trunk: German thought. By neglecting this new factor which appeared in the history of speculative thinking, or by minimizing its importance out of some misplaced national pride, an inexact and unjust judgment is formed, and one would close off all possibilities of understanding the true beginnings of the new philosophy.

We should add that Nicolaus of Cusa, although well-versed in German thought, was not its representative; rather, he was the continuation of a tradition of universal speculative thinking he distilled out of a whole line of Platonic thinkers, from Proclus, to Plotinus, to St. Augustine, to St. Denis the Areopagite; from Ramon Llull, to Meister Eckehart, to Jan van Ruysbroeck and Heymeric van de Velde (de Campo).

Now that we have somewhat dusted off the eyeglasses of our subjectivity, we can better look at our subject.

*Continued on page 56*

## A Cross-Fertilization of Ideas In European Renaissance Painting

The relationship between the painters of Northern and Southern Europe is best characterized as “cross-fertilization” [SEE Map I]. Contrary to Vasari—who nevertheless would be obliged, in the second edition of his *Lives*, to present the Flemish contribution, although he located it at a later period, with Antonello da Messina—the Flemish influence in Italy can be represented in general with the resounding arrival in Florence of Hugo van der Goes’ “The Adoration of the Shepherds” [SEE Figure 4]. Commissioned by Tommaso Portinari, the head of the Medici banking subsidiary in Bruges, whose portrait was painted by Rogier van der Weyden’s brilliant student Hans Memling, the triptych was transported to Florence, to find its place in the

Church of Sant’Egidio in 1483. It fascinated Botticelli, Filippino Lippi, and especially Ghirlandaio, who used the same structure in his “Adoration of the Infant by the Shepherds” of 1485 (Florence, St. Trinità, Sassetti Chapel). Van der Goes, who was associated with the religious community of Brothers of the Common Life at the Rouge Cloister near Brussels, prominently positioned within a conventional “*sacra conversazione*” (“sacred conversation”) some simple shepherds—in other words, laymen—in place of the usual Magi kings. Before the divine, all are equal, without consideration of rank, class, or origin.

In the South–North direction, it was Fra Angelico’s austere iconography in “The Lamentation” [SEE Figure 5], which inspired Cusa’s friend Rogier van der Weyden in his “Deposition” of 1450 [SEE Figure 6]. Supported by Cosimo de’ Medici, Lionello d’Este, and Federigo da Montefeltro, the painters of the North served as models to be copied. All the chronicles of the period bear witness to this, including the writings of Giovanni Santi, father of Raphael and friend of Piero della Francesca at the court of Urbino, who praises van Eyck and van der Weyden.

As far as the use of oils as the proper medium for the glaze technique which made possible the detailed rendering of objects so typical of Flemish painting, new research indicates the important role Piero played. Wanting to paint in the “Flemish manner,” he used an egg tempera/oil technique. Today, it is acknowledged that Antonello, who is usually credited with introducing oils into painting technique in Italy, met Piero around 1460.

FIGURE 4. Hugo van der Goes, “The Adoration of the Shepherds,” (1476).



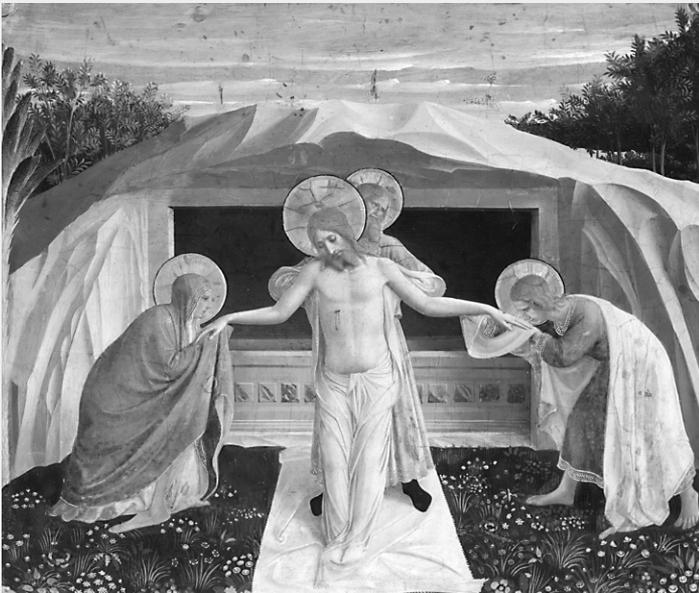
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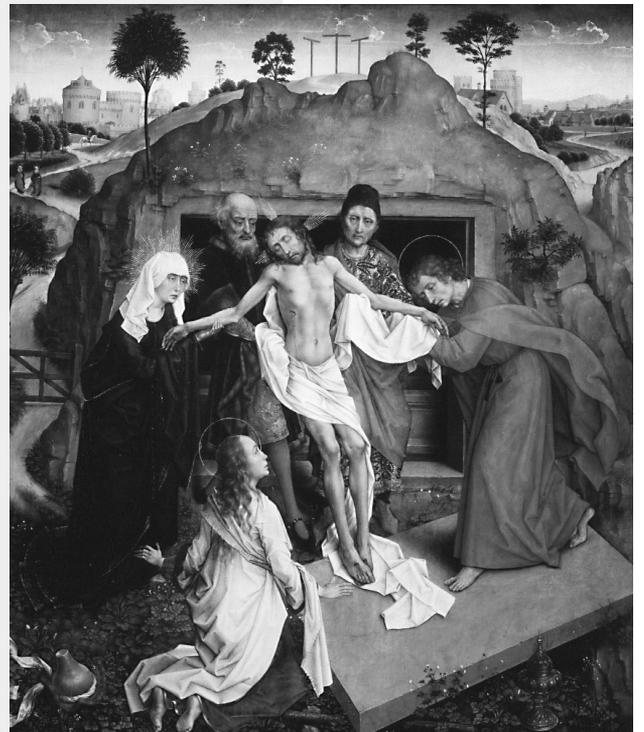
MAP I. *Flemish Paintings in Italy in the Fifteenth Century.*

*The presence of works by Northern artists gives evidence of the process of cultural cross-fertilization between Northern and Southern Europe during the Renaissance. Only those Flemish works whose presence in Italy is attested by historiographical sources from the Fifteenth and Sixteenth centuries are indicated.*

FIGURE 5. *Fra Angelico (c. 1400-1455), "The Lamentation."*



Joachim Blauel—ARTOTHEK



Scala/Art Resource, NY

FIGURE 6. *Rogier van der Weyden, "The Deposition" (1450).*

## Three Councils To Unite The Christian World

Any attempt to understand the work of Piero della Francesca requires understanding the most important issue of the Fifteenth century: the necessity that humanity succeed in uniting the Christian world.

Obviously, when trying to imagine today a situation in which two or even three Popes were fighting over the leadership of the Church, it is tempting to smile, because it is hard to imagine the consequences of this state of affairs for the entirety of society at that time. It was a situation of virtual civil war, in which every city, every community, every country, and every university, was divided down the middle. The University of Paris, for example, began its decline to the benefit of

Oxford, because the battle raged there, and those who did not think one way or the other were excluded. Imagine a situation in France or the United States, in which two Presidents declare victory in an election, and tear the administration apart. Among other things, each side had to confront the necessity of collecting the financial contributions necessary for the Church's functioning.

This internal division of the Christian world in the Fifteenth century was, and remained for a long time, a threat to the very survival of the Western world. "The Ship of Fools" by Hieronymus Bosch perfectly illustrates this concern [SEE Figure 7]. A drunken ship floats aimlessly. While the representatives of the religious orders fight each other over a piece of fat hanging from a rope—like suet left out for birds in winter—the rudder is left to its own devices. High up on the mast, taking advantage of the distraction of those who are lost in their petty squabbles, a thief nabs a chicken. The king's jester, technically out of a job because of the competition from those already on the scene, awaits the end of hostilities. Last, but not least, the Turkish flag flies over the ship.

The threat of an invasion by the Ottoman Empire was not merely a fantasy maintained by those nostalgic for the Crusades, but a very real danger. Running a real protection racket, the Venetians played a permanent geopolitical double-cross game. While renting the ships at exorbitant prices to the Crusaders, they at the same time supplied the cannon to the Turks to take Constantinople in 1453; all the while demanding that the Christians of the East pay to be protected—by Venice!

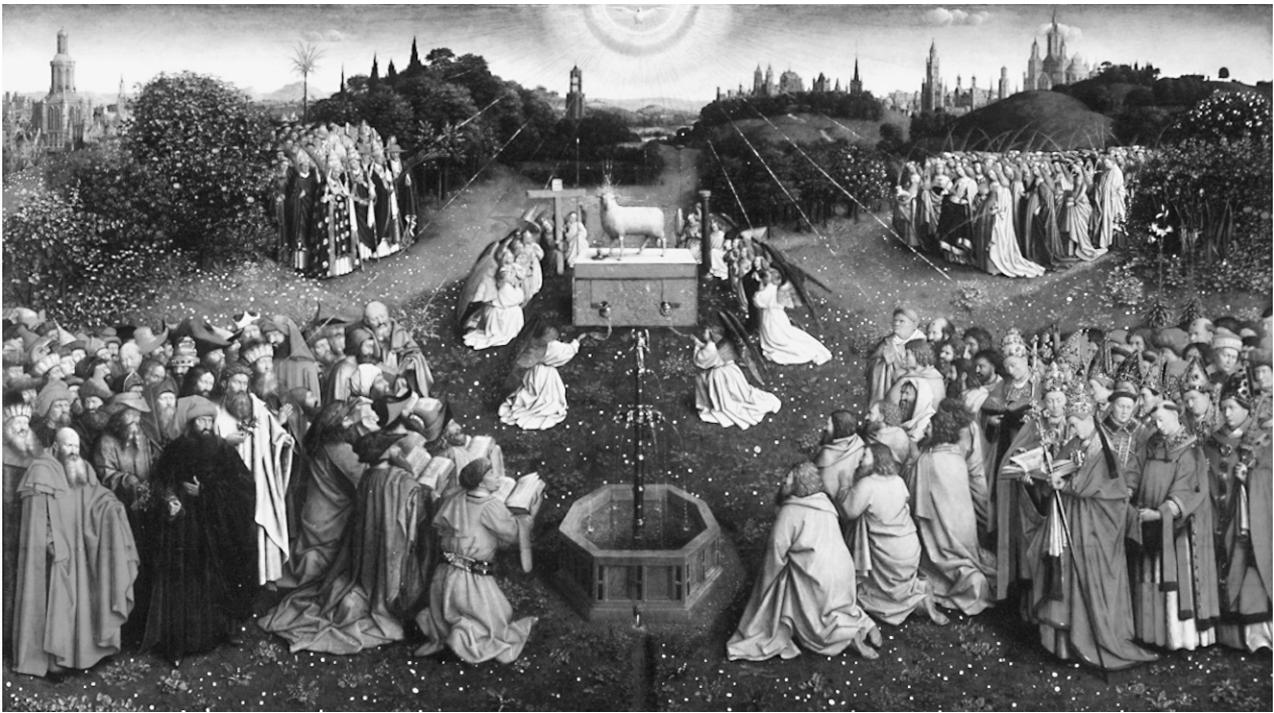
The report which Cusa's friend, the new Greek Cardinal, Bessarion, delivered on the Turkish exactions after the fall of Constantinople, inspired Nicolaus to write "On the Peace of Faith" (1453). Later, in the footsteps of Ramon Llull, he would immerse himself in the Muslim Koran, in order to lay out a policy of concord with the Islamic world for his friend, the humanist Pope, Pius II (Piccolomini).

To begin, it was first necessary to orga-



FIGURE 7. Hieronymus Bosch, "The Ship of Fools" (c.1495).

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nize the unity of the Church in the West. Beginning in 1378, two Popes had co-existed, with one in Rome, the other in Avignon; starting in 1409, another emerged in Pisa! The Council of Constance (1414-1418) put an end to this Great Schism with the election of Pope Martin V. The central panel of the Ghent Altarpiece by Hubert and Jan van Eyck, known as “The Mystical Lamb” (1432) [SEE Figure 8], is a magnificent illustration of the project of Universal Union, and in particular of the victory of the Council of Constance: The earth and all its creatures are united around Jesus and his sacrifice for man; the prophets, the hermits, the Christian knights, the “wise judges,” and all the components of the Church of East and West. Jan van Eyck, who himself was involved in intensive diplomatic activity between Italy and Flanders, painted the three protagonists of the end of the Western schism on the right of the panel: Martin V, whose profile is in the foreground; Alexander V, the anti-Pope from Pisa in the middle; and behind him, Gregory XII, who stepped aside for Martin V.

Later, the battle for unity between the Eastern and Western Churches would

commence. First in Basel (1431-1437), where we will find Cusa at the age of thirty. At first a partisan of the notion of the authority of the Council over that of the Pope, he would defend his position in *The Catholic Concordance* (*Concordantia Catholica*). Cusa, along with the man who propelled him into combat for the union, and who was probably also the first protector of Piero della Francesca, Cardinal Ambrogio Traversari (1386-1438), would later abandon that first view, and take sides with the new Pope, Eugenius IV, himself a great proponent of unity. Traversari and Cusa, both of whom spoke Greek perfectly, worked hand in hand, and Traversari read out in public the Greek reference texts to the Council at Florence in 1438. Nicolaus of Cusa asked him for a translation of the *Platonic Theology* of Proclus, during the Council of Ferrara. The Council of Basel collapsed, when it became a forum for the lower clergy to quarrel over earthly preoccupations. To get out of this deadlock, Traversari, Cusa, and Cardinal Nicholas Alberghati (1375-1443)—of whom van Eyck made a magnificent portrait—became the acting force mobilized by Eugenius IV to organize the Council of

FIGURE 8. Jan and Hubert van Eyck, “The Mystical Lamb,” panel, Altarpiece of Ghent (completed 1432).

Ferrara/Florence (1438-1439), over which Alberghati would preside.

## Putting an End to the Hundred Years War

One of the preconditions for the success of Ferrara/Florence was the reconciliation between the Armagnacs and the Bourguignons, and the end of the Hundred Years War which was ravaging France. The Council of Basel and Eugene IV would send Alberghati, Tommaso Parentucelli, close friend and librarian of Cosimo de' Medici, who would become Pope Nicholas V, and the erudite Aeneas Sylvius Piccolomini, the future Pope Pius II, to France. In 1453, their diplomatic efforts resulted in the Peace of Arras, which is celebrated in another painting by Jan van Eyck, "The Virgin with Chancellor Rolin" [SEE Figure 9]. For Nicolas Rolin, effectively the Prime Minister of Philip the Good, and the great organizer of the peace, this agreement would be the crowning achievement of his career. Behind the main

figures in this painting, one can see a bridge where dozens of people scurry about, on foot and on horseback, carrying out successful trade. East and West are no longer cut off from each other by the river of discord. Historically, it is believed that this bridge is the Montereau Bridge [Figure 9, detail], which is the precise location where the father of Philip the Good, John the Fearless, was assassinated in 1419, in revenge for having ordered the assassination of Louis d'Orléans in 1407. Rolin, in an act of genius, had the text of the Treaty of Arras include the stipulation that a commemorative cross be erected on that bridge, in order to realize a just peace based on forgiveness.

All the delegations thus came together in Ferrara. Despite the interdiction imposed by Charles VII, prohibiting the French clergy from going to Ferrara/Florence, the delegation of René d'Anjou was incorporated in Ferrara on April 1, 1438, and that of the Duke of Burgundy on November 27. To flee the plague, the Council of Ferrara had to move quickly to

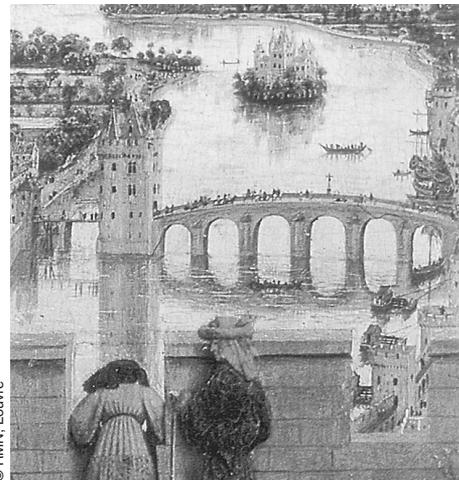


FIGURE 9. Jan van Eyck,  
"The Virgin with  
Chancellor Rolin" (c. 1436).  
Above: Detail showing  
Montereau Bridge.

Florence, where the notion of the *Filioque*, the doctrinal union between Greeks and Latins, put an end to the schism that had begun in 1055.

Thus, this Renaissance was accomplished with Italian, Flemish, French, and German leaders, along with their Greek, Turkish, Hungarian, Balkan, Spanish, Portuguese, and other friends. Together with the political will to bring about a spiritual unification, was the will to reach a concordance in the temporal domain. First, by creating peace within real nation-states, as had been the grand design of Joan of Arc, Jacques Coeur, and Louis XI in France. And then, by creating a concordance between the different nation-states, respecting multiplicity within unity. It could be said that this gave rise to the birth of modern Europe.

The keystone of this policy was a commitment to universal education, made available to all men, now made citizens. Thus, from 1417 to 1464, in addition to such patrons as Cosimo de' Medici and Nicolas Rolin, four humanist Popes would provide a fantastic impetus to the art of the Renaissance. From 1417 to 1431, Martin V (Ottone Colonna); from 1431 to 1447, Eugenius IV (Gabriele Condolmieri); from 1447 to 1455, Nicholas V (Tommaso Parentucelli); and, after a short interruption between 1455 and 1458 with Calixtus III (Alfonso Borgia), once again with the humanist Pope, Pius II (Aeneas Silvius Piccolomini), from 1458 to 1464, the year of the death of Nicolaus of Cusa. All of them hired painters and sculptors to bring the world out of the pessimism of medieval scholasticism.

Let us imagine for a moment that we are out taking a walk in Rome during the Jubilee of 1450, where all the humanists of that era came together. Piero della Francesca is having a discussion about philosophy and mathematics with Nicolaus of Cusa, who is busy writing a first draft of his *Layman*; Fra Angelico is showing his frescoes in the Basilica of Saint John Lateran to Cusa's Flemish friend, the painter Rogier van der Weyden, who is overwhelmed by the commissions he has

received from Lionello d'Este, the patron of Antonio Pisanello; the sculptor Il Filarete (Antonio Averlino) is discussing his idea for an ideal city with the French miniaturist Jean Fouquet, who some years before had painted the portrait of Eugenius IV; while Toscanelli is showing his maps to the humanist financier Jacques Coeur, whose portrait had been painted by Piero della Francesca!

The humanist Popes built libraries and assembled the most precious manuscripts. Cusa was fascinated by the nascent printing industry. Just imagine for a moment that prior to Nicholas V, the Vatican had possessed only a few hundred books! The gossips of the day spread the rumor that what really motivated Cusa and Pius II in their efforts to create unity with the East, was nothing more than their nefarious plan to get their hands on as many manuscripts as possible!

## The Life of Piero della Francesca

Piero della Francesca was born around 1417 in Borgo San Sepolcro (Sansepolcro today), less than fifty miles west of Florence, between Arezzo and Urbino. The son of a shoemaker, he had a passionate interest in mathematics as early as age fifteen, all the while working on drawing. Even though it is known that he worked in 1439 with Domenico Veneziano on the choir frescoes in the Church of Sant'Egidio in Florence, it was especially the two favorite painters of Cosimo de' Medici, Fra Angelico and Benozzo Gozzoli, as well as Flemish painting, that influenced his style. In 1442, he was among the members (*consiglieri popolari*) of the City Council of San Sepolcro. Ambrogio Traversari, the superior of the Camaldolese Order, a religious order founded by St. Romuald in the Eleventh century, who worked together with Cusa, was the abbot of San Sepolcro and, according to some, Piero's patron. The fact that the "Penitent St. Jerome" (Berlin) of Piero belonged to Cardinal Alberghati, tends to confirm this hypothesis. We should also take note of the fact

that Piero would later be buried in the Church of the Camaldolesians in San Sepolcro, in 1492.

Ambrogio Traversari was an exemplary humanist, with a passion for music. Writing to a friend in Venice, for example, he congratulated him for having “also succeeded in those things which, contrary to the habits of the ancients, are better understood by the people than by scholars, like the ability to sing songs softly, accompanied by musical instruments.” Traversari played a decisive role in the greatest project that marks the beginning of the Renaissance: “The Gates of Paradise” for the Baptistry of Florence. This immense project, financed by the Wool Guild—while the Dyers Guild financed the statues for the Orsanmichele—gave the young Ghiberti the opportunity to train, over a period of forty years, more than one hun-

dred sculptors, founders, artists, and painters. In fact, Gozzoli and Fra Angelico, as well as Donatello, Masaccio, Luca della Robbia to name just a few, were involved in this project.<sup>8</sup>

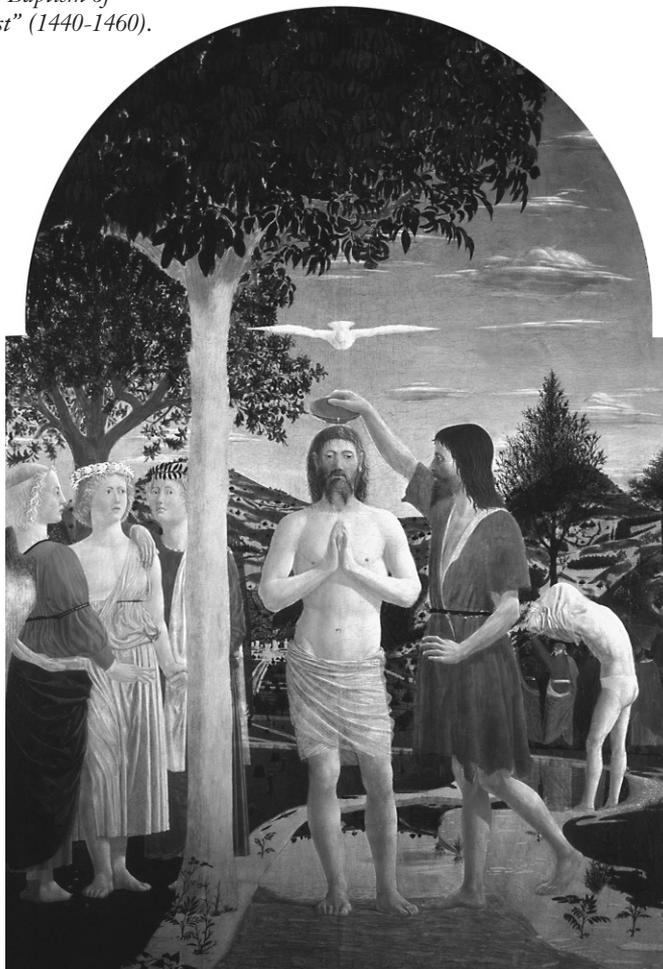
According to the historian of the court of Urbino, Vespasiano da Bisticci, Traversari brought together in his convent Sta. Maria degli Angeli near Florence, the core of the humanist network: Nicolaus of Cusa, Niccolò Niccoli, who owned an immense library of Platonic manuscripts, Giannozzo Manetti, orator for the first “Oration on the Dignity of Man,” Aeneas Piccolomini, and Paolo dal Pozzo Toscanelli, the doctor and cartographer, and future friend of Leonardo da Vinci, who was also known to Piero.

Like Cusa, Piero seems to have been recruited to the battle for the unity of the Churches by Ambrogio Traversari. References to this battle appear in several works. First, in the “Baptism of Christ” [SEE Figure 10]. In the center of the painting, Christ is baptized by St. John the Baptist. To the left, an angel, who is looking over the baptismal scene, seems to discreetly bless two young adolescents with whom he is fraternizing. One is draped according to the Greek fashion, with a crown of flowers, while the other is dressed as an Italian and wears a crown of laurel. These figures undoubtedly symbolize the union of the Greek and Latin Churches. On the right side of the painting, a representation of the dignitaries of the Eastern Church appears, confirming this hypothesis. Between them and the baptized Christ, we see a man taking off his shirt, so as to follow the example of Christ—an image typical of the philosophy of the *Devotio Moderna*, which advocated a life in “Imitation of Christ,” according to the Brotherhood of the Common Life of Thomas à Kempis.<sup>9</sup>

## Malatesta

A second example is the fresco of Rimini [SEE Figure 11]. After having worked for Lionello d’Este in Ferrara, who was the patron of Pisanello and who commissioned paintings by the Flemish painter Rogier

FIGURE 10. Piero della Francesca, “The Baptism of Christ” (1440-1460).



Erich Lessing/Art Resource, NY



FIGURE 11. *Piero della Francesca, "St. Sigismund and Sigismondo Malatesta" (1451).*

van der Weyden, Piero began to receive commissions to paint portraits from the non-enlightened despot Sigismondo Pandolfo Malatesta of Rimini. Pope Pius II, desperately in search of a great lord to lead a military intervention force to protect the Christians of the East who were threatened, undoubtedly hoped at one time to have found his man in Sigismondo. Piero's fresco shows Sigismondo Malatesta kneeling before St. Sigismund, who has been given the features of the Emperor Sigismund, one of the instigators of the policy of unity at the Council of Basel. The fresco was executed in the Tempio Malatestiano, one of Alberti's church projects, whose facade is based on a Roman triumphal arch, and which Malatesta would later transform into a veritable family mausoleum. He rapidly betrayed his commitments, and even made war against the Papal States, with backroom support from Venice. In his *Commentaries*, Pius II wrote that, "Sigismondo built a noble temple, but he filled it with so many impious works that it no longer resembles a place for Christians, but rather for pagan devil worshippers." When Malatesta later invaded the Papal lands, the Pope would "canonize him in Hell," his effigy would be burned

in front of St. Peter's, and Nicolaus of Cusa would proclaim his excommunication for heresy, incest, and other crimes. Pius II added that "of all the men who have ever lived and shall live, Sigismondo is the most foul, a disgrace to Italy and the shame of our era." But Piero seems to have been among those who in the beginning had hoped to make something of him.

### In Service to Federigo da Montefeltro

Piero della Francesca then went to work for the hereditary enemy of Malatesta, the Duke Federigo da Montefeltro in Urbino [SEE Figure 12]. The latter had received a military education in Mantua at the Casa Giocosa, directed by Vittorino da Feltre, one of the first teachers of princes to open his school to poor students, and who already imposed mixed classes (requiring that each group of students have at least one girl). The educational program was extremely broad, and was a precursor of that established by Wilhelm von Humboldt in Germany in the Nineteenth century. In addition to Latin and Greek, the students learned contemporary literature in the vernacular, mathematics, music, and



Nicolo Orsi Battaglini/Art Resource, NY

FIGURE 12. Piero della Francesca,  
“Federigo da Montefeltro  
and his wife Battista Sforza”  
(1464-c.1472).

art. In addition, swimming, horseback riding, marching, and fencing were required, which was exceptional for that time.

Even though Federigo’s father had designated his half-brother Oddantonio to succeed him as Duke of Urbino, the latter was assassinated by an angry populace fed up with his debauchery. After having pledged to not seek vengeance for this murder, Federigo was acclaimed “by the voice of the people.”

In 1465, Pope Pius II named him *gonfaloniero*, or captain of the Papal armies, and in 1467 he found himself at the helm of a league of states alarmed by the aggressive imperialism of Venice. The *Commentaries* of Pius II are filled with attacks against the Venetian attitude: “they favored a war against the Turks with their lips, but condemned it in their hearts.”

In alliance with the humanist Popes, Federigo turned Urbino into a metropolis filled with genius. The Urbino Palace, built by Luciano da Laurana, employed more than five hundred people, and was decorated with marquetry (the famous *intarsia*, and *trompe l’oeil*.) Music played a great role, and in the palace there were a fantastic number of instruments, with at least one sample of each musical instrument known at the time. Flemish and Ital-

ian scientists met there to exchange information on industrial processes, among them Francesco di Giorgio, whose studies in engineering were later advanced by Leonardo da Vinci.

Not finding “any instructor to his liking in Italy capable of oil painting,” Federigo “dispatched his envoys as far as Flanders to find a true master and bring him to Urbino, where he had him carry out numerous and admirable paintings with his own hand.”<sup>10</sup> He brought in the Flemish painter Joos van Wassenhove (Juste of Gent), and the Spanish painter Pedro Berruguete, to paint the portraits of twenty-eight personalities of world historic importance, including Homer and St. Augustine. With the assistance of Vespasiano da Bisticci, he compiled one of the greatest libraries of the period, with works which are today incorporated in the Vatican Library. Extremely cultured and very religious, he had a strong predilection for St. Thomas Aquinas. With Pius II, he debated the selection of arms during the Trojan War, and was knowledgeable enough to contradict the latter when it came to matters pertaining to the geography of Asia Minor. The father of four illegitimate children, he was nonetheless endowed with great morality. In short, he was a potential Louis XI, who would have had the determination and intelligence to enable him to be the first modern nation-state builder, but who, for different reasons, was not able to see his projects to their end.

Aside from the double portrait that Piero made of him and his wife Battista Sforza in which he painted the Duke in profile because he had lost an eye in battle, and in which he appears in the forefront of a landscape that is reminiscent of van Eyck’s “The Virgin with Chancellor Rolin,” he also appears kneeling in the “Montefeltro Altarpiece” (“Madonna and Child with Saints”) [SEE frontispiece, p. 49, and inside back cover, this issue]. This painting, while very Italian, was very much inspired by the Flemish painting of the period, in particular van Eyck’s “The

Virgin with Canon van der Paele.” Joris (George) van der Paele commissioned that painting after a long career in the Papal chancery, where he quietly played an important role for the union of the Churches. Already, we see that the *sacra conversazione* (“sacred conversation”) placement of the figures was shared by the Italians and Flemings of the day. The extreme attention to detail that Piero brings to his paintings is typically Flemish, as painting there, anticipating Cusa’s philosophy, attempted to express the infinite goodness of God as reflected in its manifestations in the infinite beauty of Creation. The resemblance between the “Saint George” of van Eyck, and the way in which the Duke of Montefeltro is portrayed, is striking. This figure is done in a different pictorial manner, as can be seen by the different treatment of the hands, and is thought to have been painted by Joos van Wassenhove or Pedro Berruguete, whose portrait of “Federigo da Montefeltro and His Son Guidobaldo” [SEE Figure 13] is well-known. The most interesting object in the altarpiece is obviously the egg hanging by a string [SEE frontispiece detail]. Some see here a symbol of the Immaculate Conception, others a symbol of the four elements of the world. But, instead of taking a symbolic (and simplistic) approach, let us return to the philosophical conceptions of Cusa, before tackling this extraordinary visual image.

### Cusa: Originator of Non-Linear Perspective

Some alert observers have noted with concern a phenomenon which they deem illegitimate in the works of Piero della Francesca. How is it possible that this artist who was a genius in perspective, and whose brilliance is apparent in his *Treatise on Perspective* (*De prospectiva pingendi*) of 1472, in the final analysis produced works with such little effect of depth? In his treatise, Piero uses no fewer than three hundred reference points to draw the base of a colonnade. But, all of

these efforts fall short of the vertigo they are intended to produce. In fact, we are even struck by a certain flatness. It is only when you imagine the plane on the ground, that you can finally realize the depth that is represented.

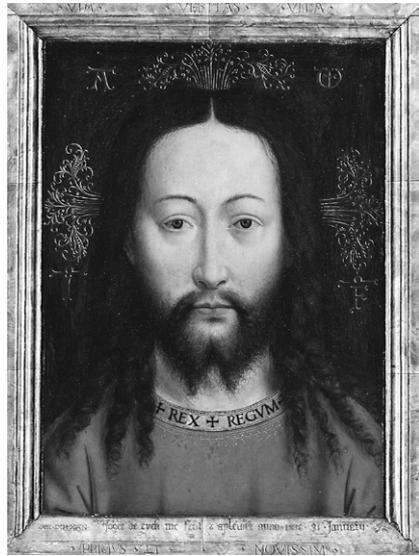
The rigorous work of the art historian Daniel Arasse opens a very interesting avenue of consideration, by establishing a connection between Piero della Francesca’s method and the philosophy of Cusa. Let us examine some of these ideas in relation to Piero. In *The Vision of God* (1453), which he sent to the monks of Tegernsee, Cusa develops further the ideas he presented in his fundamental work, *On Learned Ignorance* (1440). As the starting point for his theo-philosophical speculation, he takes the self-portrait by his friend, the Flemish painter Rogier van der Weyden. This self-portrait, like many faces of Christ painted in the Fifteenth



Scala/Art Resource, NY

FIGURE 13. Pedro Berruguete, “Federigo da Montefeltro and his son Guidobaldo” (1477).

FIGURE 14. *Jan van Eyck (copy), "Salvator Mundi" (1438).*



© Bildarchiv Preussischer Kulturbesitz, Gemäldegalerie/Photo: Jörg P. Anders

FIGURE 15. *Albrecht Dürer, "Self-Portrait in a Fur Cloak" (1500).*



Blauel/Gnamm—ARTOTHEK

century [SEE Figure 14], uses an “optical illusion,” to create the effect of a gaze which follows the observer, even if the latter is not directly in front of the painting. In the “Self-Portrait in a Fur Cloak” (1500), Albrecht Dürer echoes this same method [SEE Figure 15].

In his text, which is written like a sermon, Cusa recommends that the monks form themselves into a semi-circle around the painting, and walk on a segment of the curve. You see, he says, God is looking at you personally, and follows you everywhere; He even looks at you when you turn your back on him. But, God looks at everyone at the same time, even while He has a personal relationship with each. Based on this paradox, Cusa develops man’s inability to access the divine *directly*:

But the invisible Truth of Your Face I see not with the bodily eyes [eyes of the flesh] which look at this icon of You, but with mental and intellectual eyes. This Truth is signified by this contracted shadow-like image. But Your true Face is free of all contraction. For it is neither quantitative nor qualitative nor temporal nor spatial.

For it is Absolute Form, which is also the Face of faces. (*The Vision of God*, Chap. VI)

In pondering this perception of the Absolute, two conceptions come to mind. First, God envelops the reason of all things (Chap. I). He is the eternity which embraces the succession of moments (Chap. XI), the cause which envelops the effect. The visible world is thus the development (*explicatio*) of this invisible power of envelopment (*complicatio*), the development of possibles (Chap. XXV). Next, Cusa wishes to bring us to the point where the Absolute can reveal itself to us. To do this, he has to take us through a classic “mystical” process, which allows him to attack Aristotelian scholasticism. All rational and conceptual thought must be renounced, for, just as in the image of a polygon inscribed within a circle, where the multiplication of angles will never allow the polygon to coincide with the circle, so our reasoning will never be able to grasp the totality of the Absolute [SEE Figure 16]. Armed with this *docta ignorantia*, the Socratic knowledge of “knowing that we do not know,” Cusa evokes the image of the *wall of Paradise*. It

is the wall of the *coincidence of opposites*, and only beyond it is revelation possible:

O most wonderful God, who are neither singular in number nor plural in number but—beyond all plurality and singularity—are one-in-three and three-in-one! I see, then, my God, that plurality coincides with singularity at the wall of the Paradise in which You dwell; and I see that You dwell ever so remotely beyond [this wall]. . . . Hence, this distinction—which is inside the wall of coincidence, where the distinct and the indistinct coincide—precedes all comprehensible otherness and diversity. For the wall is the limit of the power of every intellect, although the eye looks beyond the wall into Paradise. But that which the eye sees, it can neither speak of nor understand. For it is the eye’s secret love and hidden treasure, which, having been found, remains hidden. For it is found on the inner side of the wall of the coincidence of the hidden and the manifest. (Chap. XVII)

Contrary to medieval and Eastern “negative theologies” that lead toward

renunciation of the active world and internal emptiness, for Cusa, leaping over the wall allows man to reach Paradise during this life. The coincidence of opposites is therefore not the result of a rational enterprise, but the fruit of revelation, the result of a quest not in a future life, but in the here and now. By our going toward God, He is revealed. For those who know how to see Him, hear Him, “His Kingdom is among us.”

A commentary on his adversary, the Heidelberg scholastic Johann Wenck, illustrates Cusa’s thinking:

Today, it is the Aristotelian sect that prevails, and it holds to be heresy the coincidence of opposites whose acceptance alone permits an ascension towards mystical theology. To those who have been nourished in this sect, this course seems absolutely insipid and contrary to their thinking. That is why they reject it, and it would be a real miracle, a real religious conversion, if, rejecting Aristotle, they progressed towards the summits.

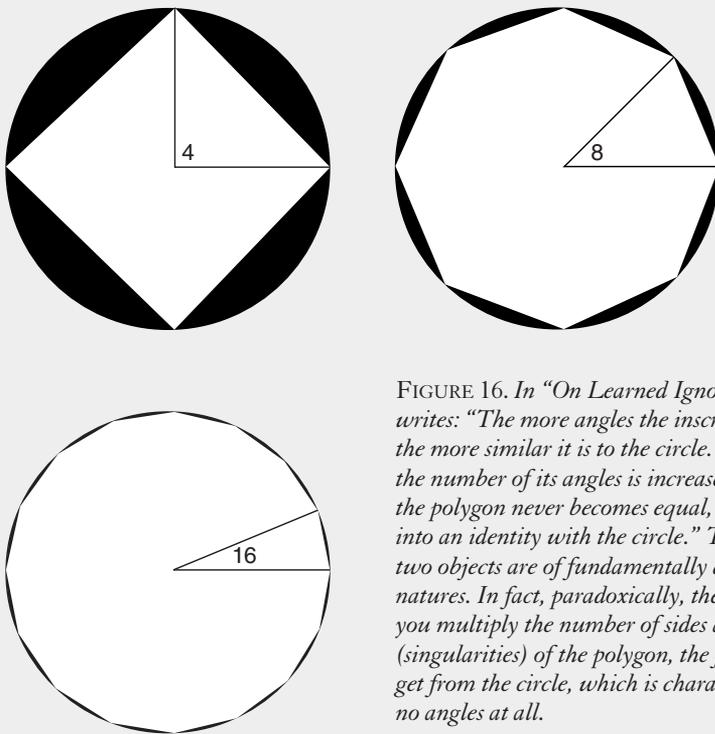


FIGURE 16. In “*On Learned Ignorance*,” Cusa writes: “The more angles the inscribed polygon has, the more similar it is to the circle. However, even if the number of its angles is increased *ad infinitum*, the polygon never becomes equal, unless it is resolved into an identity with the circle.” This is because the two objects are of fundamentally different species natures. In fact, paradoxically, the more successfully you multiply the number of sides and angles (singularities) of the polygon, the further away you get from the circle, which is characterized by having no angles at all.

## ‘The Flagellation’

So, how is this translated in the realm of painting? First of all, instead of treating “space” in its visible development (*explicitio*), it is its invisible envelopment (*complotio*) which is represented.

Piero’s painting “The Flagellation” [SEE Figure 17], is a perfect example of this. Perhaps a repeat of the frescoes he painted in the Vatican, the theme of the union of the Churches of the East and West, and of the necessity for a military expedition to protect the Christians of the East, can again be found. On the original frame appeared the words “*Convenerunt in unum*” (“They came together in unity”). This text has a two-fold significance, insofar as the painting is concerned. On the left we see those who united to put Christ to death, just before the beginning of the flagellation, with John VIII Paleologue, identified thanks to a medal by Pisanello [SEE Figure 17(a)], as Pontius Pilate, and

Mohammed II seen from behind. On the right, are those who must unite to intervene: we see the Greek Cardinal Bessarion, who was an ardent campaigner in Italy for a new crusade, facing a Latin dignitary, probably the commissioner of the cycle of frescoes that Piero executed in Arezzo, Giovanni Bacci, who was close to the humanist network. Between them, a kind of wingless angel seems to impose a demand for the dialogue to begin.

Piero, smitten by mathematics, didn’t pass up the opportunity to give us a demonstration of his talent. The height of the painting is one *braccio* (58.6 cm), the most frequently used unit of measurement at the time in Tuscany. Its width (81.5 cm) is obtained by rotating down the diagonal (irrational number) of the square formed by the height, in this manner forming a harmonic rectangle [SEE Figure 17(b)]. Let us not forget that it is the diagonal of the square which makes it possible to double its area, as Plato demonstrates in the *Meno*,



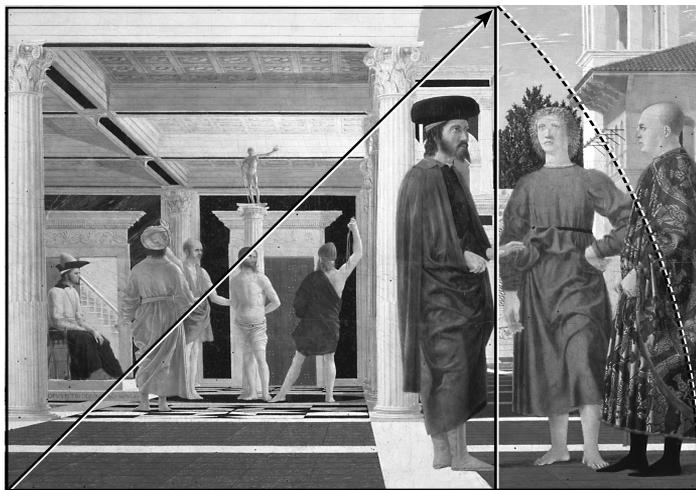
FIGURE 17. Piero della Francesca, “The Flagellation” (c. 1470).

and as was later taken up by Villard de Honnecourt. This diagonal is also the basis of the Pythagorean theorem, which the Egyptians had made use of even earlier in the construction of the pyramids.<sup>11</sup>

Now, as in certain of the works of Fra Angelico, in Piero's "Flagellation," the observer is practically perpendicular in front of a series of columns he can just barely discern. Comparing the floor plan [SEE Figure 17(c)] with what is seen in the flat tableau, however, you can in effect recognize a harmonic sense of the space; but the spatial effect is more of a suggestion, than an actual realization.<sup>12</sup>

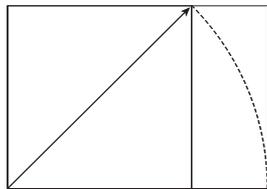


FIGURE 17(a).  
Antonio Pisanello, portrait  
medal of Emperor John VIII  
Paleologus (1438/39).



Scala/Art Resource, NY

Harmonic rectangle



Golden rectangle

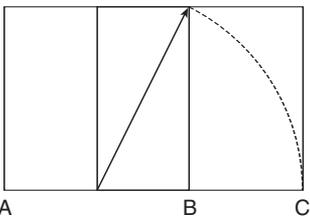
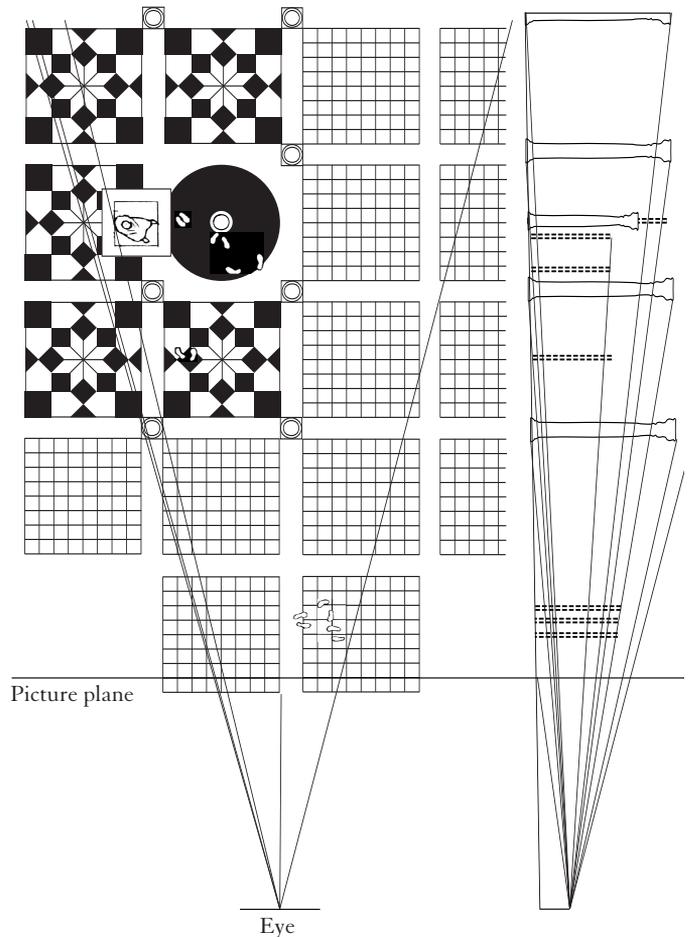


FIGURE 17(b). Piero della Francesca's "Flagellation" is constructed according to the proportions of a harmonic rectangle, where the length of the base is equal to the diagonal of the square formed on the rectangle's height. A square constructed on the diagonal (or base) is double the area of the original square formed on the rectangle's height.

A golden rectangle is constructed by rotating the diagonal drawn from the midpoint of the side of the original square. The area of the rectangle formed on base AC using height BC, is equal to the original square on AB. Algebraically,  $(BC \times AC) = (AB \times AB)$ ; point B divides length AC in golden-section proportions  $BC/AB = AB/AC$  (called the "divine proportion" by Piero's teacher Luca Pacioli).

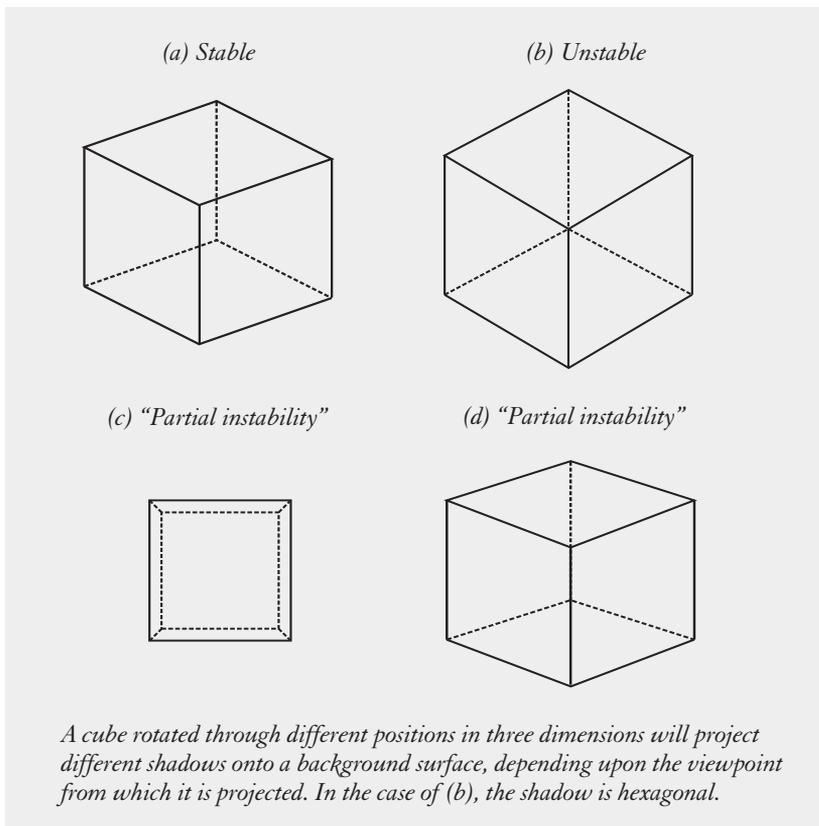
FIGURE 17(c). Ground plan (left), and perspective elevation (right), of "The Flagellation."



This standpoint of observation is to be identified in geometry with what is called the *unstable or non-generative viewpoint* [SEE Figure 18(b)] as opposed to the *stable or generative viewpoint* [Figure 18(a)]. This unstable viewpoint opens up the perspective to a “beyond,” and makes the viewpoint of the observer coincide with that of the Absolute with which he identifies, as suggested by Cusa in the *Vision of God*.

To illustrate this phenomenon, imagine the following little experiment. If we were to place a cube made of pieces of wood in front of a light source, you would observe shadows projected onto a screen that would vary according to the rotation of the cube. Here, the crucial position of the cube is that with one of its corners directly facing the light source [Figure 18(b)]. This viewpoint will generate the “optimal instability,” or maximum ambiguity—with the projected shadow of the cube being a hexagon! Thus, the projection of the cube in its *maximum* spatial extension (depth), coincides with the shadow of *minimum* surface extension, the flat hexagon. The diagonal of the cube pro-

FIGURE 18. A cube seen from stable (generative) and unstable (non-generative) viewpoints.



jects into a single point. As Cusa would say, this is the “vision of God,” the viewpoint from which all others can be generated. It represents the viewpoint from the “wall of the coincidence of opposites,” since here two-dimensional surface *coincides* with three-dimensional volume!

We can identify other unstable viewpoints of the projected cube. For example, looking straight at “the wall” of one of the cube’s faces, without being able to see any of the other (hidden) ones [Figure 18(c)]. You could qualify this viewpoint as “partially generated.” Or, another unstable viewpoint, looking straight-on at an edge; this would also be a “partial instability” [Figure 18(d)].

This compositional method appears even more brilliantly in “The Annunciation” [SEE Figure 19], which appears on the pediment of the “Polyptych of St. Anthony.” An effect of quasi-inversion of space is operating here through a coincidence of opposites. Piero knew that he had to reserve classical perspective for the domain of the *measurable*, but that in order to express the *incommensurable* and open the eyes of the intellect, he had to plan a non-linear but legitimate effect. In the “Annunciation,” he intensifies this effect by placing a marble plaque at the end of the hallway, which virtually *annuls* the perspective he has just created with the virtuosity of the hallway colonnades. Could this plaque be his representation of the wall of the coincidence of opposites? Let us recall that one of the altarpieces of the Flemish painter Campin depicts two marble plaques on its closed shutters. Could these be the Gates of Paradise, that is, the opening leading to revelation?

Another demonstration of Piero’s compositional genius is revealed in “The Resurrection of Christ,” which is found in the City Hall of Sansepolcro [SEE Figure 20]. The Christ surprises us, because even though the observer is located below (which is proven by the perspective of the soldiers), we have the strange impression of also viewing the painting from above.

Piero has made three modifications to “The Resurrection” of Andrea del Castagno [SEE Figure 21]: First, he depicts dead trees on one side and flowering trees on

the other, to signify symbolically the effect of the Resurrection. Then, he puts the edge of the tomb, which virtually becomes the altar of a church, so it is seen from an unstable viewpoint. And, last, he likewise presents the face of Christ from an unstable viewpoint. From out of a linear and mortified world, the entire metaphysical dimension is expressed, in a very simple way, through this compositional method.

We have now demystified the egg of the “Montefeltro Altarpiece.” The fact that the egg is illuminated, along with the edge of the apse that is in the form of a scallop shell, makes us think visually that the egg is suspended above the Virgin—which is absolutely impossible in reality, since a coffered vault separates the people from the back of the apse. The shadow projected from the curvature of the vault suggests a source of light high in the foreground. But the light shining on the egg and the top of the alcove at the back of the apse, suggests another source of light, more in the lower front. Or, is it the egg itself that illuminates the top of the alcove? Positioned at the crossroads of the diagonals of the square



Scala/Art Resource, NY

FIGURE 19. Piero della Francesca, “The Annunciation” (1460/70).



FIGURE 21. Andrea del Castagno, “The Resurrection” (1447).



FIGURE 20. Piero della Francesca, “The Resurrection of Christ” (1455-1465).

Alinari/Art Resource, NY



Erich Lessing/Art Resource, NY

FIGURE 22. *Jacopo de' Barbari, "Portrait of Luca Pacioli" (c. 1498).*

inscribed in the upper portion of the painting, Piero's egg makes the foreground coincide with the background, and the absence of a shadow projected from the egg is there to reinforce that effect.

Take note also of the unobtrusive presence (to the right behind the Duke of Montefeltro) of Piero's best student, Luca Pacioli (1445-1510) [SEE Figure 22]. Even though Vasari twice accuses the Franciscan monk of grossly plagiarizing the mathematical works of Piero della Francesca, we have good reason to believe that they were on good terms in their relations.

### Luca Pacioli: The Transmission Belt

In Cusa's *De idiota (The Layman)* (1450), the Layman explains that "It is from thought that all things receive limit and measure. I surmise that *mens* [mind] comes from *mensurare* [to measure]." The Renaissance is characterized precisely by this desire to measure all the phenomena of the universe.

Indeed, Luca Pacioli derives his greatest renown, as the father of accounting, for his elaboration of a system of double-entry bookkeeping. A student of Piero, he first developed in the Urbino court, where he taught mathematics to Guidobaldo, the son of Federigo of Montefeltro. Then he met

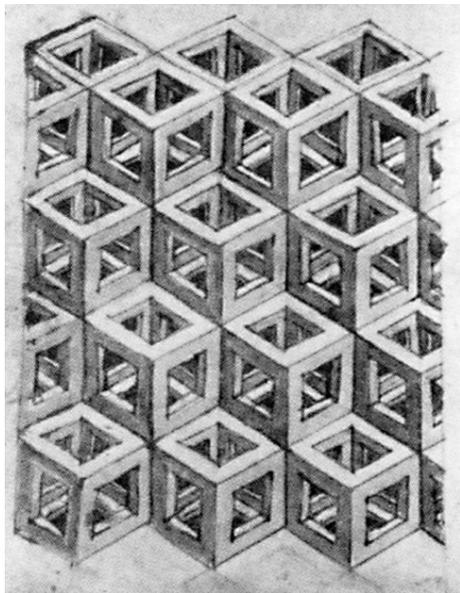
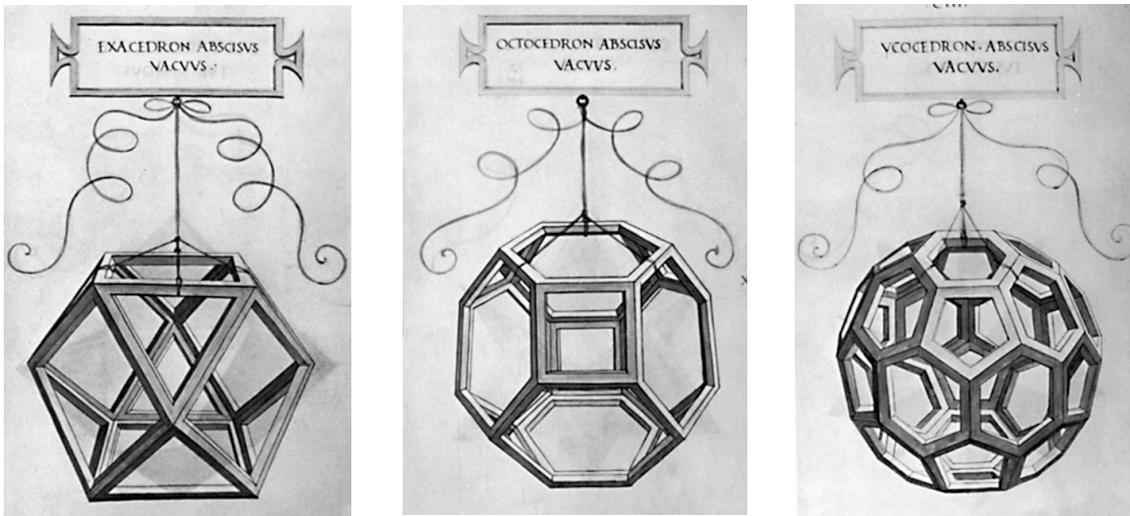
Leonardo da Vinci in the court of Milan, where Leonardo made drawings for him of the regular and irregular polyhedra that illustrated his *De divina proportione (On the Divine Proportion)* [SEE Figure 23(a)], written in 1498 and published in 1509. Leonardo regularly met with Pacioli, whom we today consider to be one of the major influences on the painter. Their exchange of ideas would continue when Leonardo returned to Florence, where Pacioli taught Euclid. This is how the writings of Piero della Francesca were transmitted to Leonardo, in particular the *Treatise on Mathematics*, which deals with arithmetic, algebra, and stereometry, and the *Treatise on the Five Regular Solids*, which Pacioli would later incorporate almost unchanged into his *Divine Proportion*.

While it is not certain that Albrecht Dürer (1471-1528) was able to meet Piero (who died in 1492), it is established that he received his initiation in the principles of perspective from Luca Pacioli during his stay in Bologna. We can see in his treatise, *Instruction on the Art of Measuring*, how he reworked entire sections of Piero's treatise. The influence of Jean Pélérin Viator, former secretary of King Louis XI, can also be seen in his works.

### Leonardo, Heir of Cusa

Since Ernst Cassirer's book in 1927, the influence of Cusa on Leonardo has been noted, but it is not known whether this influence was transmitted through Luca Pacioli. Pierre Duhem already showed in 1909 that Leonardo took up all the problems of science where Cusa had left off. What is certain is, that Cusa's best friend—the two had known each other since they had studied together in Padua—was Paolo dal Pozzo Toscanelli, who was in his time, doctor, expert in perspective, and geographer. This same Toscanelli, whose 1420 treatise "On Perspective" is unfortunately lost today, but whose world maps found themselves in the transatlantic luggage of Christopher Columbus (along with Pius II's *Commentaries*), became another aide and friend to Leonardo!

It is known today that, into his thirties,



Leonardo could neither read nor write in Latin, although he could write in Italian. This was a typical situation at the time for artists, and demonstrates the feudal cleavage in medieval society between *epistemē*, the theoretical sciences, and *technē*, the practical crafts leading to production of material goods<sup>13</sup>—a separation which Leonardo abolished through his thinking and discoveries. It was Pacioli, in particular, who helped Leonardo work through Euclid’s text, translated from Arabic into Latin by Campano. With his help, Leonardo worked hard to enrich his Italian vocabulary, and to learn classical Latin, in order to have access to philosophical and scientific manuscripts. Leonardo decided he would need to be

equipped linguistically, to be capable of describing precisely the discoveries he was about to make! According to Augusto Marioni, he transcribed some 9,000 words, not to compose a Tuscan dictionary, but for his own conceptual enrichment, which can be found marvelously at work in his descriptions of the movements of water.

In his essay on Leonardo, the art historian Daniel Arasse has brilliantly reconceptualized what we thought we knew about the culture of the master, based on new research on Manuscripts I and II found in 1967 in the National Library of Madrid, and he has re-established the truth of the discoveries of Cassirer, which had been thrown into doubt by Eugenio Garin<sup>14</sup>:

[W]ithout even evoking a certain number of phrases, which, taken out of their context, seem to echo formulations by Nicolaus of Cusa, it is very likely that Leonardo knew at least two of Cusa’s texts: the “*De transmutationibus geometricis*” [“On Geometrical Transformations”] and the “*De ludo globi*” [“The Game of the Spheres”]. In the beginning of the 1500’s, the Forster I and Madrid II manuscripts, as well as many pages of the Codex Atlanticus, contain multiple studies of the transformation of solid bodies, as well as the transformation of curved surfaces into rectilinear surfaces, and Leonardo arrives at the project of a treatise, “*De ludo geometrico*” [“On Geometrical Playfulness”]. Also, Manuscript E (1513-1514) contains drawings (fol. 34 and 35) which illustrate the “game of the sphere,” which had stimulated the specula-

FIGURE 23. Leonardo da Vinci. (a) Above: Illustrations to “*De divina proportione*” by Luca Pacioli. (b) Left: Study for marquetry (c. 1515).

tions of the German philosopher; now, this was no case of child's play, since the spiraling motion of a spherical body invited further reflection, in a precise and complex case, on the question of an imprinted movement of a heavy body, a central question in Aristotelian physics which, in the Fifteenth century, involved the notion of *impetus*, in relation to which Leonardo proposed his own definition of *force* (“*forza*”), at the heart of his conception of nature.<sup>15</sup>

There is another kinship of ideas between Leonardo and Cusa, concerning the defense of the layman. The “*uomo senza lettere*” (“unlettered man”) status that Leonardo claims, strongly resembles the layman imagined by Cusa in his dialogue *The Layman* (1450). In it, a simple craftsman who carves wooden spoons, becomes the intellectual superior of an orator and a philosopher:

ORATOR: How can you have been led to understanding your ignorance, since you are a layman?

LAYMAN: Not by your books, but by the books of God.

ORATOR: Which are they?

LAYMAN: Those he has written with his finger.

ORATOR: Where can they be found?

LAYMAN: Everywhere.

As with Erasmus later in *The Praise of Folly*, the criticism of academic knowledge, in the name of the sovereign capacity of each human being to think for himself by submitting his hypotheses to the test of nature, is found also in Leonardo:

Warning: I know that, since I am not a lettered person, some will presume to know that they can rightly blame me by alleging that I am ignorant [*io essere uomo senza lettere*]*—*what imbeciles! They know not that, like Marius to the Roman patricians, I could reply: “Those who adorn themselves with the works of others, do not want to grant me mine.” They will say that my ignorance of letters prevents me from expressing myself on the subject I wish to treat. But they do not know that my arguments must come from Experience, more than the words of others; she was the mistress of those who write well, which is why I shall take her as my mistress, and in any case, it is her I shall quote.<sup>16</sup>

Let us conclude with the observations of Daniel Arasse, who adds very pertinently that,

Cusa and Leonardo make the painter, and the activity of the painter, into a model for thinking. In Cusa, the concept is based on the original idea of painting as infinite movement toward conformity with its model. Viewing human thought as an “image of divine art,” Nicolaus of Cusa explains his conception of the method of knowledge, as infinite movement towards truth, inaccessible in its transcendent and absolute unity, through a comparison with the “unfinished” art of the painter: the “imperfect,” unfinished work is more perfect than the perfectly finished work, as it “tends always to always conform more and without limit to the inaccessible model,” for, in that, it “imitates the infinite on the means of the image.” These pages of *The Layman* not only contribute to situating the will to impress upon others the “formation under form,” which explains the “unfinished” nature of certain works of the painter Leonardo, in the framework of Fifteenth-century thinking; they are akin to those in which Leonardo exalts painting, divine art, and philosophy, and the painter, whose spirit “is transformed in an image of the spirit of God.” The organized thought of the philosopher, theologian of the “*docta ignorantia*” and initiator of the notion of the cosmos as a universe in motion, gives without doubt a contemporary theoretical framework to the fragmentary thoughts of the “man of praxis” that was Leonardo.<sup>17</sup>

In any event, Leonardo seems to have been alone in understanding Piero's revolutionary breakthrough in non-linear perspective, in the compositional method of metaphysical-geometrical metaphor. The studies that he made for *intarsia* show that he knew and mastered the *unstable viewpoint* [Figure 23(b)].

## Piero's Influence on Leonardo

This gives a new coherence to two of Leonardo's major works, which date back to the Milan period, precisely the timeframe when the painter was in a dialogue with Pacioli. First, let us look at

“The Virgin of the Rocks,” whose proportions form a golden rectangle [SEE Figure 24]. Let us recall that Leonardo insisted that the goal of painting was to *make visible the invisible*. Far from the esoteric rantings for which Castiglione and Vasari reproached him, what we have already raised concerning the notion of envelopment/development in the thought of Cusa, allows us to grasp this expression on its own merits. It is often remarked of “The Virgin of the Rocks,” that the Virgin seems to be trying to prevent the infant Jesus from falling off the precipice that opens before his feet, an impression which is caused by the use of an unstable viewpoint. This effect is amplified by the use of light, one of Leonardo’s original contributions as a precursor to Rembrandt. The thick penumbra of the grotto is reminiscent of a passage of Cusa, in Chap. VI of the *Vision of God*:

[W]hen our eye seeks to see the sun’s light, which is the sun’s face, it first looks at it in a veiled manner in the stars and in colors and in all participants in the sun’s light. But when our eye strives to view the sun’s light in an unveiled manner, it passes beyond all visible light, because all such light is less than the light it seeks. But since it seeks to see a light which it cannot see, it knows that as long as it sees something, this is not the thing it is seeking. Therefore, it must pass beyond all visible light. So if one has to pass beyond all light, the place into which he enters will have to be devoid of visible light; and so, for the eye, it will be darkness. Now, while he is amid that darkness, which is an obscuring mist: if he knows that he is within an obscuring mist, he knows that he has approached unto the face of the sun.

Therefore, the only way to represent invisible light is *by darkness!* Isn’t this why Leonardo chose a grotto? The light that shines on the figures is the light of the visible, but the light that comes from the second light source at the back of the grotto, is of a radically different *quality*. Doesn’t it represent invisible light?



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FIGURE 24. Leonardo da Vinci, “The Virgin of the Rocks” (1483-1486). Below: Golden rectangle proportions.



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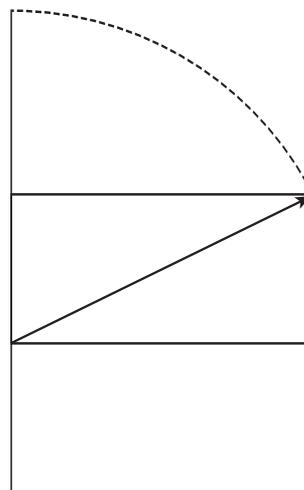




FIGURE 25.  
Leonardo da Vinci,  
"The Last Supper"  
(1495-1498).

Alinari/Art Resource, NY

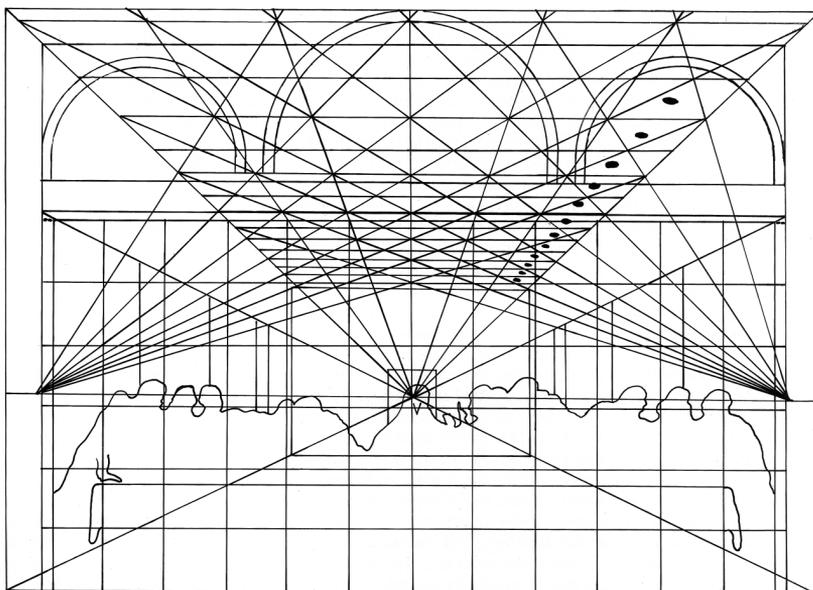


FIGURE 25(a). Perspective diagram, "The Last Supper."

Let us conclude with *The Last Supper* in Milan [SEE Figure 25]: The coincidence of the central point of the perspective, with the center of Christ's face [Figure 25(a)], brings us back to the mirror effect Cusa evoked for the monks of Tegernsee with van der Weyden's self-portrait, or other saintly faces of the Fifteenth century. The Christ follows you with his gaze. Perspective brings the microcosm of human creation into coincidence with the macrocosm of the Absolute, through the necessary mediation of Christ.<sup>18</sup>

Thus, we see that Leonardo is not some "divine genius" who dropped down from the heavens. From the egg without a shadow—that metaphor for the coincidence of the material and the immaterial given us by Piero della Francesca—comes an explosion of human creativity guided by universal love. In this sense, Leonardo is the test-tube baby of the great laboratory of the Renaissance, a humble and gigantic self-teacher, in the image of Nicolaus of Cusa's Layman, where theologian meets craftsman. Because, for Cusa, God's act of love cannot take place outside knowledge in the service of action. So, far from seeing science and

creative action as what alienates the man of faith, it is precisely their growth that brings man closer to the Absolute. In the spirit of the coincidence of opposites, it is the most metaphysical speculation that will bear the most fruit in terms of earthly discoveries.<sup>19</sup> Cusa, precursor to Leibniz and LaRouche, defines in this manner a participatory transcendence, a theo-philosophy that can generate scientific discoveries, a true science of *economy*, that is, *of the voluntaristic transformation of the world*.

In opposition to this optimistic view, a representative of the fanatical current of the Orthodox Church of Capri confided once a long time ago to this author:

“Humanity’s greatest mistake was the Renaissance. God was supposed to be replaced by human reason, and so man courts his own peril. The failure of this rule of reason will, however, bring man back to authentic faith.”

The French philosopher André Malraux once said, that the Twenty-first century *would be spiritual, or it would not be*. We agree, but *your* actions will determine whether it shall be a new Renaissance of great discoveries and beautiful creation, or a return to obscurantism and the chaos of a new Dark Age.

—translated from the French  
by Dana Scanlon

1. In 1484, Pico della Mirandola wrote to Ermolao Barbaro: “Lately, I have distanced myself from Aristotle, in order to get closer to the Academy; not as a turncoat, but as a guide. It seems to me, nonetheless, if I can express my feelings, that I perceive two things about Plato: first, an abundant eloquence that is quite Homeric, a type of style that is more elevated than prose; then, if one looks from high enough, a perfect communion of ideas . . .” Cited in Pico della Mirandola, *Oration on the Dignity of Man* [*De la dignité de l’homme*] (Combas: Editions de l’Éclat, 1993), p. XXIV].
2. Baldassare Castiglione, *The Book of the Courtier*, Book IV [*Le livre du Courtisan*, Livre IV (Paris: Editions Garnier-Flammarion, 1991), p. 387-LVII]: “Also, it is rare for a bad soul to inhabit a beautiful body, which is why external beauty is the true sign of internal beauty, and in bodies, this grace is imprinted more or less as a mark of the soul which wishes to make itself known externally, as with trees [sic], in which the beauty of the flowers bears witness to the beauty of the fruit.”
3. Albert Gore, *Earth in the Balance: Ecology and the Human Spirit* (Boston: Houghton Mifflin, 1992), chap. 13, “Environmentalism of the Spirit,” pp. 248-258.
4. Editor’s Note: On “The School of Athens,” and Raphael in general, Lyndon LaRouche presents a sharply contrasting view, which highlights the *opposition* between Plato and Aristotle in the fresco, and uses its representation of the great thinkers of antiquity as a vibrant metaphor for the “simultaneity of eternity” discussed by K.V. elsewhere in this article. Raphael’s compositional approach here, and in such works as “The Transfiguration,” mark him as continuing the cognitive method of Leonardo, in opposition to the Roman Empire Romantic Michelangelo. The key to the historical development is Pope Julius II’s 1510-1513 transition, turning against the League of Cambrai to ally with Venice; only after which does the Romantic Michelangelo emerge as the official standard of Vatican artistic

expression, later codified by the Council of Trent. See, most recently, Lyndon H. LaRouche, Jr., “Information Society: A Doomed Empire of Evil,” *Executive Intelligence Review*, April 28, 2000 (Vol. 27, No. 17), p. 44, and also the related fn. 18.–KK

5. The Leonardo drawing known as the “Turin Self-Portrait,” which is supposed to give credence to this identification, is now believed to have been made in the Nineteenth century, using drawings made from the fresco! At best, the fresco portrait dates from the same period as the initial cartoons of the fresco. Leonardo being absent from Rome at the time, Raphael would have had to execute it from memory. But, during his last encounter with Leonardo, the latter was only in his fifties, whereas the drawing shows an old man of advanced age. Raphael’s Plato looks more like the drawing of the Philosopher (Aristotle) that the humanist Ciriaco d’Ancona had made based on an antique bust.
6. Castiglione, *op. cit.*, p. 158.
7. The notion of national patrimony in art history is barely a few hundred years old. Only since then have Italian and Gothic art been separated; more recently, the term “International Gothic” has been added (including to classify Ghiberti), and the term “Flowery Gothic” has even been invented (for Pisanello!), in order to designate a supposedly medieval, but pre-Renaissance style.
8. In translating the manuscripts of the Roman historian Pliny the Elder, the humanists discovered that, with the exception of bas-reliefs, the science of statuary in bronze had been lost. Bronze, which is by its very nature more resistant than marble to the extremes of weather, was often melted down to recover the metal, especially for making arms. It is a historic fact that bronze statues, except for the equestrian statue of Marcus Aurelius in the plaza of the Capitol in Rome, had disappeared by the Middle Ages! With his 1492 “St. John the Baptist,” Ghiberti was the first to bring back a life-sized bronze statue, thanks to the complex technique known as “lost-

wax casting.” During Leonardo’s time, it is estimated that there were more than 350 bronze foundries in Florence alone.

9. This theme is already apparent in the Flemish “mystic” Jan van Ruysbroeck (1293-1381), notably in his *The Spiritual Espousals*. Van Ruysbroeck’s definition of the “common life” in *The Sparkling Stone*, would help his student Gerhard Groot to create the Brothers and Sisters of the Common Life. Beginning at Hadewich as Beguines, they developed into the Augustinian Order of the Congregation of Windesheim in the Low Countries. This lay order became very active in the translation, illumination, and printing of manuscripts. From its ranks would come Thomas à Kempis, author of *The Imitation of Christ*, and Erasmus. Hieronymus Bosch was close to this movement. Nicolaus of Cusa was trained by them in Deventer (he would found the “Cusana Fund” to help poor students in 1450), and he later got back in touch with one of them, Heymeric van de Velde (de Campo) in Cologne in 1425. The latter introduced him to the works of Ramon Llull and St. Denis the Areopagite. Van de Velde became one of the representatives to the Council of Basel, and accepted the offer of the humanists of Flanders to direct the new University of Louvain. Nicolaus of Cusa declined the offer, as he knew he had a broader political role to play.
10. Quoted from Vespasiano de Bisticci, historian of the court of Urbino.
11. Yves Messer, “The Pyramid of Cheops,” *Fusion*, Nov-Dec. 1992 (No. 43).
12. Karel Vereycken, “The Invention of Perspective,” *Fidelio*, Winter 1996 (Vol. V, No. 4). There, the author cites as one “non-linear perspective,” the idea of “suggested” perspective. The most telling example of this idea, is in the “St. Jerome in His Study” of Antonello da Messina (National Gallery, London).
13. Classical Greek philosophical terms.
14. Eugenio Garin affirmed in “*Il problema delle fonti del pensiero di Leonardo*” (“The Problem of Sources in the Thought of Leonardo”) (1953), published in *La cultura filosofica del Rinascimento italiano* (Florence: 1961), that

“Cusan speculation, matured through the encounter between neo-Platonism and German theology, has absolutely nothing to do with the ‘science’ of Leonardo,” since the latter would have been incapable of reading and comprehending Cusa’s complex Latin! This type of feudalistic contempt of the “learned” for the “people,” can also be found more recently, and rather bizarrely, in a 1995 article by Serge July in the French newspaper *Libération*. July argued that it was impossible for the mayors of small French towns to have understood the “complex” political message of Presidential candidate and Lyndon LaRouche collaborator Jacques Cheminade, and that this was proof in and of itself that Cheminade had “bought” their support!

15. Daniel Arasse, *Leonardo da Vinci* (Paris: Editions Hazan, 1997), p. 69.
16. Leonardo da Vinci, Codex Atlanticus, fol. 119 v-a.
17. Arasse, *op. cit.*, p. 70.
18. Karel Vereycken, “Leonardo’s ‘Last Supper’: A Lesson in Metaphysics,” *Fidelio*, Winter 1997 (Vol. VI, No. 4).
19. Starting from his understanding of the absolute character of God, Nicolaus of Cusa postulates that everything created is necessarily imperfect. So, he concludes, the Earth cannot be a perfect sphere. If the Earth is only a spheroid, its perfect center is not perfectly in the center. Far beyond the Copernican revolution that replaced the Earth with the sun as the center of the universe, Cusa wrote, correcting the Aristotelian scholastic vision:

Moreover, it is no less false that the center of the world is within than it is outside of the earth; nor does the earth, or any other sphere even have a center (which is so true and precise) that a still truer and more precise center could not be posited. Precise equidistance to different things cannot be found except in the case of God, because God alone is Infinite Equality. Therefore, He who is the center of the world, viz., the Blessed God, is also the center of the earth, of all spheres, and of all things in the world. Likewise, He is the infinite circumference of all things. (*On Learned Ignorance*, Book II, chap. XI)

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