AGONY OF CONFRONTATION BETWEEN OLD AND NEW

The New World Imperative

by Robert Ingraham

July 30—On July 21, 1969, Neil Armstrong became the first member of the human species to set foot on another celestial body. This action portended a new future for humanity, new challenges, new discoveries, and an enhancement of the human identity. None of this happened. That mission was willfully abandoned, and to this day, the possibilities of July 21, 1969 remain an unrealized potential.

Instead, there exists in our current trans-Atlantic culture a pernicious mental disease, one which has been intensively cultivated by the U.S. Federal Bureau of Investigation and other oligarchical entities. It is a psychological malady, wherein an individual defines his or her sense of identity by what one opposes, what one is "against."

NASA

Two astronaut mission specialists of Space Shuttle Atlantis on an eight-hour space walk, as they continued repairs and improvements to the Hubble Space Telescope on May 17, 2009, extending Hubble's life well into the present decade.

Human progress has never been realized through such a *Hobbesian* outlook. The human species would have died out long ago if our ancestors had acted solely on the basis of such a stunted identity. One of the great accomplishments of the 1861-1865 American Civil War was the abolition of slavery. But was the species-character of that war defined as being merely *against* slavery? A reflective rereading of Abraham Lincoln's Gettysburg Address and his Second Inaugural Address shows otherwise.

Rather, we find in mankind's destiny a continuous impulse—to conquer new realms of scientific and artistic insight; to expand our understanding of the universe and the role our species plays therein; to increase the productive power of the human race, here on earth and ultimately in the heavens.

Krafft Ehricke, the great genius of America's Apollo Space Program, understood this necessary quality of human existence, and he named it the "Extraterrestrial Imperative." This imperative derives not merely from any practical need to explore and colonize "outer space," for the purpose of finding minerals, raw materials, or simply living quarters for future human population growth. Although many of these benefits might prove useful to future generations, the primary stimulus is to be found, not in merely practical concerns, but in man-

kind's unceasing mission to understand, in ever greater perfection, the lawful nature of the universe, and the increasing of humanity's productive power over both the terrestrial and extraterrestrial environment.

In a book titled **Space Flight**, published in 1960, in Chapter One, "Prelude to Space Flight," Ehricke says the following:

> To expand to the limits of the inhabitable world appears to be life's most powerful impulse . . .
>
> Man's longing for the ability to exist in the extraterrestrial realm must have been born along with his first capacity to be impressed by the starry sky, long before recorded history. With the development of the astral religions, he entered into a personal relationship with the extraterrestrial world and developed the foundations of human morality. This forever correlated in his mind the star-filled universe with his highest philosophical and religious concepts. Celestial events, such as eclipses and the appearance of comets, became of great significance for good or bad. A star announced the birth of Christ to the world; . . .
>
> Astronomy is the oldest of the sciences, . . . the challenge of space, in whichever form it happened to be understood, ultimately became a powerful stimulus to man's scientific curiosity.

All human progress has arisen from such vision and such prompting, as Ehricke discusses here. In this work, we will look at an earlier epoch in human development, an earlier era of crisis and challenge—and one of equally profound import—that is, the greatly misunderstood discovery and exploration of the **New World** in the late 15th and early 16th Centuries.

I. Florence

Between June of 1502 and March of 1503, while in the employment of Cesare Borgia,[1] Leonardo da Vinci traveled extensively along the route of the Arno River in Tuscany, examining its tributaries, and mapping the headwaters of the river in the Apennine Mountains. Leonardo began to explore the economic benefits to be achieved by controlling the flow of the Arno. The maps which Leonardo later drew in 1503 and 1504 clearly show the design for a number of locks, enabling the water flow of the Arno to be utilized for mills, flood control, irrigation, and increased food production.

But in the course of these labors, a new idea emerged. From October, 1502 to January, 1503 Leonardo was joined, in Borgia's army, by Niccolo Machiavelli who was there as the official envoy of the Florentine government. Machiavelli and da Vinci were already known to each other from at least 1501, when it was Machiavelli who secured a position for Leonardo with Cesare Borgia.

It is now not possible to know what discussions took place between the two men as they traveled with Borgia's army, but what is known is that two months after returning to Florence, Machiavelli presented a plan to the Florentine government, designed by da Vinci, for the diversion of the Arno River. In this plan a new component was added—the construction of a second canal which would transform Florence into a seaport, capable of handling the type of ships which were then beginning the exploration of the Western Hemisphere.

Mundus Novus

To understand the context within which the Leonardo/Machiavelli project was advanced, it is necessary to understand the culture-shattering events which were impacting Florence at that time. In December of 1502, a manuscript had appeared in Florence, and within weeks it became widely circulated among leaders in the city. Although it was not authored by him, the manuscript was based on a, now lost, letter, written by Amerigo Vespucci (1454-1512) to Lorenzo di Pierfrancesco de' Medici,[2] describing the former's Third Voyage across the Atlantic into the western hemisphere. A Frenchman, Giovanni Giocondo, translated the manuscript from the Italian into Latin, elaborating and expanding it, and published it in 1503, under Vespucci's name, giving it the title of **Mundus Novus** (The New World).

It begins with these words:

1. Cesare and Lucrezia Borgia were the great enemies of Venice and the old Roman black nobility, as well as the allies of Machiavelli, including Lucrezia's role in Ferrara during the war of the League of Cambrai against Venice in 1508. All quotes by Amerigo Vespucci are taken from {Letters From A New World,} edited by Luciano Formisano, transl. David Jacobson, (New York: Marsilio, 1992.)

2. Lorenzo di Pierfrancesco (1463-1503), a cousin of Lorenzo the Magnificent, was a leader of the junior (Popolano) branch of the Medici family. He was also, for many years, the patron and backer of both Vespucci and Machiavelli.

In days past I have written to you (Lorenzo di Pierfrancesco) at some length concerning my return from those new regions which we discovered and explored with the fleet …, and which we can rightly call the *New World* since our ancestors had no knowledge of them, and it will be a matter wholly new to all those who hear about them. We learned that this land is not an island but a continent… Most of our ancient authorities assert that there is no continent south of the equator, but merely the sea… but this last voyage of mine has demonstrated that this opinion is false and contradicts all truth, since I have discovered a continent in those southern regions.

This aerial map of the Arno Valley was drawn by a young Leonardo da Vinci in about 1473, and shows his early interest in hydrodynamics. It is a harbinger of the later Arno project. Below, left to right: Leonardo da Vinci, Niccolò Machiavelli.

Consider the following chronology:

In 1502 Vespucci's letter to Lorenzo di Pierfrancesco, announcing that he had discovered a new continent, reaches Florence, is immediately circulated in manuscript form and communicated to the government. The *Signoria* (the Florentine government) declares a national holiday to celebrate the news, and for three days festivities are conducted in front of the Vespucci home!

At this time, Leonardo da Vinci, working as Borgia's engineer, makes several trips to explore the headwaters of the Arno River.

In the Winter and Spring of 1503, manuscripts of the **Mundus Novus** circulate widely in Florence, just as both Machiavelli and Leonardo return to Florence from Borgia's army. The manuscripts create a sensation and are rapidly republished in Lisbon, Cologne, Strasbourg, Antwerp, Venice, Augsburg, and other cities.

Throughout 1503 and into 1504, Leonardo continues to improve his designs. Several of his mature sketches from that period are now in the *Codex Madrid* and the Windsor Royal Library, and show detailed plans that would have made the Arno navigable and thereby transformed Florence into a seaport.

In 1504 Machiavelli begins a correspondence with Bartolomeo Vespucci, nephew of Amerigo and a professor of Astronomy at the University of Padua, on the subject of astronomy. About this time Leonardo's notebooks begin to include numerous references to writings and maps on astronomy and cosmography. Also in Leonardo's notebooks, from this period, are studies in measuring longitude, so as to enable navigators to make accurate astronomical readings of a ship's location. This is the exact problem that Amerigo Vespucci worked on during his voyages to South America.

Also in 1504, Machiavelli's close ally, Piero Soderini (1452-1522), receives six letters from his lifelong friend Vespucci, describing his four voyages.

These letters are immediately published and widely circulated.

In the summer of 1504, Machiavelli, this time with the strong backing of Soderini, succeeds in obtaining the backing of the *Signoria* for the Arno Project.

II. Earlier Origins

In presenting the 1502-1504 developments from Florence in the above paragraphs, we are, of course, discussing events which took place ten or more years after Christopher Columbus sailed westward. We shall return to the subject of Columbus later, but to tell this story properly, we must first turn our attention to an era two generations earlier, to the time of Filippo Brunelleschi (1377-1446) and his immediate successors.

Much has been written concerning Brunelleschi's leadership in the construction of the great Dome of the Florence Cathedral (*Cattedrale di Santa Maria del Fiore*). All that will be stated here is that, in his work from 1420 to 1436, culminating in the successful completion of the Dome, there are two points which need to be made: The first is that, in the process of designing and building the Dome, Brunelleschi broke all of the existing rules of mathematics and architecture; second, Brunelleschi not only discovered previously undiscovered principles which allowed him to succeed, but, more importantly, he demonstrated that the principles which permeate the universe are *knowable* to man.

In one poetic sonnet which he wrote, defending his methods against a critic, Brunelleschi wrote:

> When hope is given to us by Heaven,
> O you ridiculous-looking beast,
> We rise above corruptible matter
> And gain the strength of clearest sight.
> A fool will lose what hope he has,
> For all experience disappoints him.
> For wise men nothing that exists
> Remains unseen; they do not share
> The idle dreams of would-be scholars.
> Only the artist, not the fool
> Discovers that which nature hides.
> Therefore untangle the web of your verses,
> Lest they strike sour notes in the dance
> When your "impossible" comes to pass.

In one, staggering and seemingly miraculous accomplishment, Brunelleschi destroyed the world of medieval Aristotelian scholasticism and demonstrated the coherence of physical space and universal laws with the creative nature of the human mind. Modern physical science began.

Brunelleschi, Toscanelli, and Cusa

The young Paolo dal Pozzo Toscanelli (1397-1482) met and became friends with Brunelleschi around 1425, when Toscanelli was 28 and Brunelleschi was 48. By the 1430s, Toscanelli was already the leading mathematician and cartographer in Florence. The two men collaborated and worked together for two decades, precisely during the time period when Brunelleschi was directing the construction of the Dome, and it was Toscanelli who, later in 1475, designed and installed the *gnomon* in the Lantern of the Florence Cathedral, of which more will be said later in this work.

Toscanelli was also the life-long friend—some sources say closest friend—of Nicholas of Cusa (1401-1464), since their time together as students at the University of Padua, as early as 1417. The two men shared lodgings together, and they both studied mathematics under Prodocimo de' Beldomandi. Cusa would later dedicate two of his writings to Toscanelli, and his famous work *De quadratura circuli*, "On Squaring the Circle," written in 1458, is set as a dialogue between the two of them. Cusa and Toscanelli collaborated intimately in bringing into existence the 1439 Council of Florence, which convened only three years after Brunelleschi's completion of the Dome on the Cathedral of *Santa Maria del Fiore*, and, in 1464 Toscanelli would attend Cusa at his death-bed and become the executor of his last will and testament.

The Vespucci Family

After the death of Nicholas of Cusa, it was Giorgio Antonio Vespucci (1434-1514), the uncle of Amerigo Vespucci, who became Toscanelli's closest scientific collaborator. Together, the two men would create an intellectual study group at the Abbey of Settimo, in Florence.

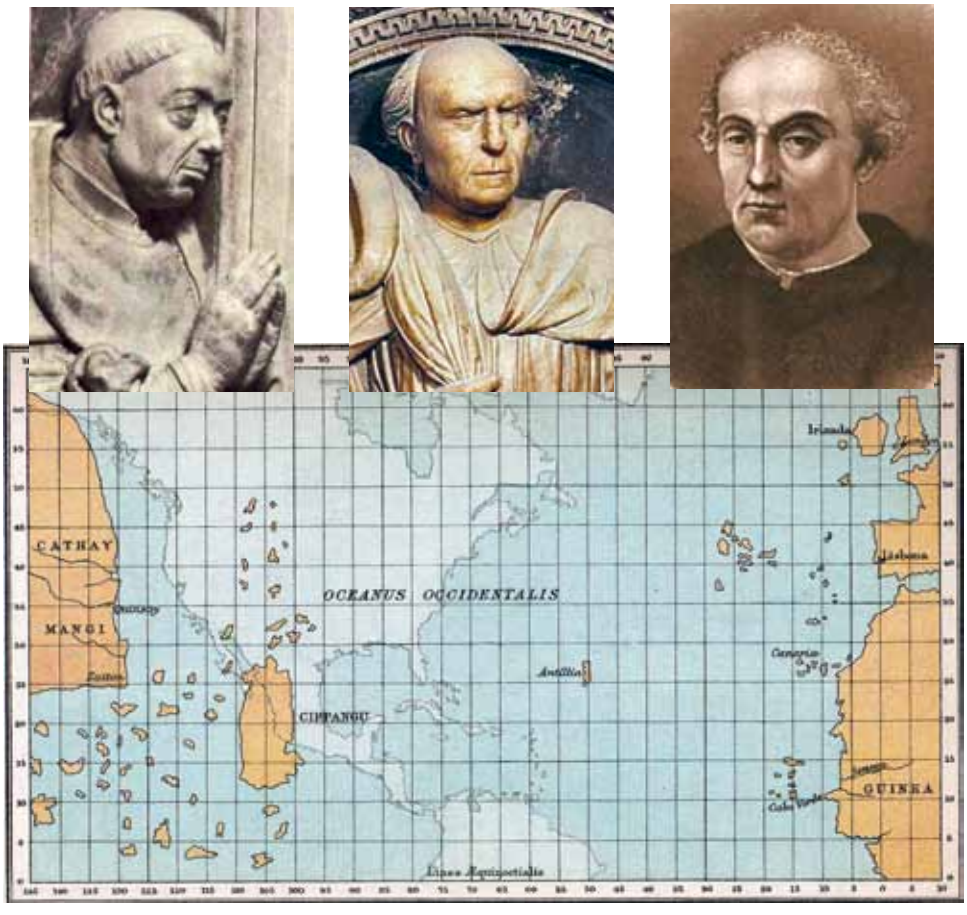
In 1453 Giorgio Antonio established a school for personally-selected pupils at the monastery of San Marco, and educated them in a curriculum of mathematics, astronomy, cosmography, Dante, Petrarch, Plato, Cicero, Heraclitus, and Livy. Among his pupils were his nephew Amerigo, and the future *Gonfalonier*[3]

3. Essentially, President of the Florentine Republic.

of the Florentine Republic—and political partner of Machiavelli—Piero Soderini.

From among Giorgio Antonio's pupils, Toscanelli chose a smaller number to personally tutor. These included Lorenzo di Pierfrancesco de' Medici, Machiavelli's patron in 1498, and also Amerigo Vespucci, who ended up studying under Toscanelli for more than ten years. Following Toscanelli's death in 1482, Amerigo was considered the greatest cosmographer and mapmaker in Florence, and the recognized successor to Toscanelli in those fields.

Among the closest friends of Amerigo's parents was Bernardo Machiavelli, the father of Niccolo, and it seems apodictical that Niccolo and Amerigo must have known each other, given the intimacy of their families, and the close proximity of the two households, in the same neighborhood.



Toscanelli's map, produced in 1474. The correct outline of North America is shown in light blue tint. Above, left to right: Cardinal Nicholas of Cusa, Filippo Brunelleschi, and Paolo dal Pozzo Toscanelli.

In 1498, another of Amerigo's uncles, Guido Antonio Vespucci—together with Lorenzo di Pierfrancesco—played the key role in elevating the previously obscure Niccolo Machiavelli to the post of Second Chancellor of the Florentine Republic.

III. Cristoforo Colombo

The correspondence between Christopher Columbus and Toscanelli, and the map which Toscanelli supplied to Columbus, are both now widely recognized as matters of fact, and the Toscanelli-Columbus connection is firmly established.

But there is a lot more to this story than simply one letter and one map.

Most histories that examine the beginnings of European oceanic exploration begin with a discussion of the role of Henry the Navigator (1394-1460), the invention of the *Caravel*, and Portugal's early leadership in sailing into the Atlantic Ocean. In 1470, when Toscanelli first put forward his idea for sailing westward across the Atlantic, this was done in a proposal to the Portuguese King Afonso V, who rejected it. And in the 1480s when Columbus took up this project, he looked to Portugal as the natural sponsor, but once again the Portuguese king, this time John II, turned him down, both in 1485 and 1488.

The Scientific Challenge of Navigation

Initially, several islands located hundreds of miles west of the Iberian Peninsula, including the Azores, and Madeira, were discovered (or re-discovered) by seamen in the employ of Henry the Navigator, but after his death the Portuguese abandoned all efforts to sail westward and spent the next forty years sailing along the coast of Africa, until they rounded the Cape of Good Hope in 1498.

The difficulty in sailing westward was one of essen-

tially "sailing into the unknown." The existence of the Azores and other islands was already known before the Portuguese landed on them. They were shown on many ancient maps. In addition, fishing boats and other vessels had come across them from time to time. To go beyond the Azores, however, to sail 1,000 or more miles into the ocean where there was no prior historical record of such a voyage,—certainly this would test the courage of everyone involved. What was also clear was that such a project could not hope to succeed unless it utilized the most advanced knowledge in astronomy, cartography, and navigation, as well as the best available technology. In this sense, the requirements were no different than the voyage and return home of the Apollo 11 mission to the moon.

For example, Columbus' 1492 expedition of three ships included two *caravels* and one *carrick*. The caravel was developed about 1450, under the sponsorship of Henry the Navigator, and it was the first ship which allowed the possibility of sailing into the open ocean. The more advanced carrick, which bore many similarities to the *Junk* of the Ming Dynasty, was developed toward the end of the 15th Century, and it was the carrick which made possible global exploration.[4] When Vasco da Gama rounded Africa, it was in a carrick; when Jacques Cartier explored the Saint Lawrence River, it was in a carrick, and when Magellan circumnavigated the globe, it was in a carrick. The carrick was the Saturn V Rocket of its day.

How Do You Know Where You Are?

Moving along vast distances on the surface of a globe, while both that globe, the sun around which it orbits, and all of the stars in heaven are also moving, at different speeds and in different directions, poses enormous problems for navigating over open water.

Prior to the invention of the quadrant and the sextant, sea travel was dependent on two pieces of technology: the compass and the astrolabe. The compass gave direction, and the astrolabe measured the angle between the horizon and the Pole Star (among other functions), and allowed navigators to roughly determine the latitude of one's position. These tools were useful, but the astrolabe was imprecise, and it also did not solve the problem of determining longitude. Without being able to fix one's longitudinal position, there is no way to tell exactly where you are.[5] You could be hundreds of miles, or more, east or west of your desired position.

The ability to navigate precisely was a huge problem that many of the Arab navigators of the Middle Ages had struggled with, and it was the great Arab astronomer and musical instrument maker al-Zarqali (Abu Is aq Ibrahim ibn Yahya al-Naqqash al-Zarqali), who, in the 11th Century, developed an extremely precise method to compute the "positions of the celestial bodies" on any given day of the year and to predict the movement of the planets relative to the fixed stars. In the 12th Century al-Zarqali's computations were translated into Latin and published as the *Tables of Toledo*, becoming the most widely used navigational tool.

Then, in the 13th Century, King Alfonso X of Castile (Alfonso the Wise) had all of al-Zarqali's works translated into Spanish. These were then published under the name "Libros de las laminas de los planetas" (Books of the Tables of the Planets), and from these writings, a slightly improved version of al-Zarqali's tables was published as the *Alfonsine Tables*, and it was this set of Tables (also known as ephemerides) which was used by all of the European explorers of the 15th Century.

The Dome

In 1475, Paolo Toscanelli installed a bronze plate into the lantern above the Dome of the *Santa Maria del Fiore* Cathedral.[6] This plate is actually an astronomical instrument known as a *gnomon*, which tracks the sun's position in the sky like a sundial and shows the length of the calendar year. Every year, on June 21st, crowds of tourists visit the Cathedral to witness an event where a circle of light is projected from the sun through a uniquely placed hole in the gnomon to fill a marble disk on the chapel's floor precisely at the moment of the summer solstice.

Toscanelli's gnomon, however, was no mere parlor trick. The gnomon allowed Toscanelli to make more precise measurements as to the position and movement of the sun than any previous scientific instrument up to that time. In those years, prior to the invention of either the Dutch or Kepler telescope, the gnomon of the Flor-

4. The *lateen sail* design of the caravel made it the first ship capable of tacking *into* the wind and being able to maneuver on the open sea. The carrick included the lateen sail, but subsumed it within a three-masted design that included a minimum of six different sails, all of which had a separate function. It had great speed and maneuverability.

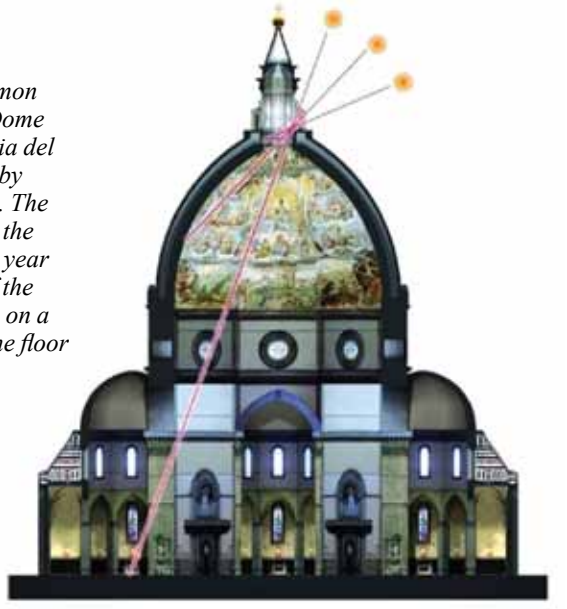
5. The first to solve the problem of determining longitude, at least partially, was Amerigo Vespucci (see below).

6. Some sources date this as early as 1468.

ence Cathedral was the most advanced astronomical device in the world. When comparing this precise mapping with the position of the stars, the implications for seafaring navigation were enormous.

Using the data he collected, Toscanelli corrected all the previous knowledge on the solstices and equinoxes, officially fixed with precision the date of Easter, and then proceeded to correct and improve the Alfonsine Tables.

Toscanelli's observations of projections from the top of the dome of Florence gave impetus to the genesis of a new science. Beyond coastal navigation, emerged the rebirth of astronomical navigation.



Right: Graphic showing the gnomon installed in the Dome of the Santa Maria del Fiore Cathedral by Paolo Toscanelli. The gnomon projects the Sun's rays, every year at the moment of the Summer solstice, on a marble disk on the floor (below).

Brunelleschi's Heirs

Paolo Toscanelli, Nicholas of Cusa, and Fernão Martins de Roriz worked together throughout the entirety of their adult lives. Fernão Martins, a Canon at the Lisbon Cathedral and a relative and private counselor to Portuguese King Afonso V, was a longtime friend and collaborator of Nicholas of Cusa, and he was featured as one of the main interlocutors in Cusa's *Tetralogue on the Not-Other* (*Tetralogus de Non Aliud*). It is known that the three men frequently met at the house of Cusa at S. Pietro in Vincoli in Rome, and Fernão Martins, together with Toscanelli, would later sign, on Aug. 6, 1464, the last will and testament of Nicolas of Cusa; a few days later, they both would attend Cusa's funeral.

It was out of the partnership of these three men that the "New World" project emanated. It was not that they knew what would be discovered, because a discovery, by its very nature can not be predicted, but they knew that a new discovery, a new leap for mankind, was an imperative.

This was a time of "Confrontation between the Old and the New." By the latter part of the 15th Century, the dynamic of oligarchism was resurgent in Italy and throughout Europe. This would be borne out with the establishment of the Inquisition in Spain in 1480, the overthrow of the Florentine Republic in 1512, the Sack of Rome in 1527, the reactionary Council of Trent from 1545 to 1563, and ultimately the establishment of the new Venetian model with the coming to power of Paolo Sarpi in 1588. If the spark of the Renaissance were to survive and move forward, a new discovery, a new potentiality, was a necessity.

This fifty-year-long project of discovery was based in the Florentine Republic. Toscanelli, his correspondent Christopher Columbus, and the pupils of Toscanelli and Giorgio Antonio Vespucci, including Amerigo Vespucci and Lorenzo di Pierfrancesco de' Medici, would lead it.

The Correspondence

At some point, in early 1474, Fernão Martins wrote a letter to Toscanelli on the subject of a possible trans-Atlantic voyage. The exact date of the letter and its precise content are not known, because the letter is now lost. What is known is that Toscanelli replied on June 25 that year, sending to Martins a detailed proposal for a westward voyage, including a navigational map he had drawn for crossing the Atlantic. Martins presented the proposal and map to the Portuguese King Afonso V, but the king expressed no interest in the project.

That same year, in Lisbon, Christopher Columbus

learned of Toscanelli's proposal from Martins, and he wrote to Toscanelli seeking advice. Toscanelli responded with at least two letters, the first of which contained a copy of the map he had sent to Martins, but the full extent of this correspondence will never be known because none of the original documents survive.

When Columbus eventually sailed in 1492 he took a very small collection of books with him. The one which he studied most intensely was *Historia Rerum Ubique Gestarum* by Enea Silvio Piccolomini (Pope Pius II), a friend and ally of Nicholas of Cusa. The margins of this book are filled with copious notes in Columbus's handwriting, and in one of the blank pages, Columbus drew a reproduction of the Toscanelli Map.

There are also indications, from several sources, that Columbus took with him the newer versions of the Alfonsine Tables (the new tables of ephemerides) that had been improved by Toscanelli through the use of the gnomon at the *Dome* in Florence.

It must be stated here—both to warn against any attempt to diminish the personal role of Columbus, as well as to honor his courage and extraordinary skill as a navigator—that Christopher Columbus was no automaton who simply plugged in coordinates mapped by Toscanelli. Toscanelli's map was flawed, and his projected distances were off. At the same time, although Toscanelli posited that such a westward voyage were possible, there is a vast gulf between the concept of a possible discovery and the personal action required to fulfill it.

Columbus and Berardi

Armed with Toscanelli's documents, Columbus twice—in 1485 and 1488—petitioned the Portuguese monarchy for sponsorship in a westward voyage, but was turned down both times. He also turned to Spain, and on May 1, 1486 obtained an audience with Ferdinand II of Aragon and Isabella I of Castile. There, too, Columbus' proposal was rejected, but there were some in Spain ready to back him, so for the next six years Columbus continued to lobby his case at the Spanish capital. During this time Columbus also dispatched his brother Bartholomew to the court of Henry VII of England to inquire whether the English crown might sponsor his expedition, but also without success.

Eventually, in April, 1492, the Spanish monarchs aquiesced to Columbus' proposal, and he set sail on Aug. 3, 1492. Later voyages took place in 1493, 1498 and 1502.

The romantic myth is that Queen Isabella was so inspired by Columbus' vision she pawned her jewels, thus financing the first expedition. Although such a notion makes for a good Hollywood movie, that story is entirely apocryphal. It is certain that the Spanish Crown authorized the voyage and provided some monetary backing, but the main financing for the voyage came from a man named Giannotto di Lorenzo Berardi, a Florentine in the employment of Lorenzo di Pierfrancesco de' Medici, and the Director of the Spanish branch of the Medici Bank in Seville. Berardi's partners in financing Columbus' first expedition included the Florentines Giovanni Alberto Giraldini and Bernardo Scarlatti, the latter of whom was a close associate of Machiavelli's ally *Gonfalonier* Piero Soderini.

Berardi and the Medici Bank would go on to provide almost the entirety of the financing for Columbus' second expedition, and after Berardi's death in 1495, management of the Medici Bank passed into the hands of Amerigo Vespucci who organized another group of Florentine businessmen, including Francisco Cataino, Gaspar de Spinola, and Francisco de Riberole, to finance Columbus' Third Voyage. By this point, the Spanish Monarchy had become so disenchanted with Columbus, that when he returned from his third voyage, he, together with his brothers, were arrested and imprisoned.

Columbus and Vespucci

The 28-year old Amerigo Vespucci met Christopher Columbus in 1488, when Lorenzo di Pierfrancesco sent Vespucci to Seville to check into the operations of the Medici Bank located there. Vespucci remained in Seville for two years, then went back to Florence, but he returned to Seville in 1493 to become the co-director of the Bank, working under Berardi.

Earlier, in 1483, after the death of Toscanelli one year earlier, Vespucci had been taken into the household of Lorenzo di Pierfrancesco and appointed the general manager of all of Lorenzo's business and commercial interests in Florence.

While Amerigo was still in Florence, between 1490 and 1493, Berardi used the funds of Pierfrancesco's bank to fund Columbus' first voyage. After 1493, Vespucci and Berardi became the primary financial backers of Columbus' second and third voyages. Berardi and Vespucci handled all of Columbus' business affairs in Seville and equipped and outfitted his ships.

Top: The carrack Santa Maria. *Above, left to right: A portrait of a man said to be Christopher Columbus, by Sebastiano del Piombo; Amerigo Vespucci; and Lorenzo di Pierfrancesco de' Medici.*

Vespucci lived in Berardi's home, and this residence became the headquarters for Columbus when he was in Seville. Columbus' Second Voyage was mapped out in Berardi's parlor, and one can only imagine the discussions which took place between Columbus and Vespucci during those years.

Vespucci has been routinely defamed in history books and accused of conspiring to steal Columbus' fame. Ralph Waldo Emerson, the dean of the American "transcendentalists," had this to say of him, "Strange that broad America must wear the name of a thief. Amerigo Vespucci, the pickle-dealer at Seville, whose highest naval rank was boatswain's mate in an expedition that never sailed, managed in this lying world to. . . baptize half the world with his own dishonest name."

In truth, Columbus and Vespucci were collaborators and friends, and Vespucci lived in Columbus' home during 1505 and 1506. Perhaps the best witness to their relationship is Columbus himself, who after his return from his fourth voyage met with Vespucci and gave him a letter to deliver to his son, Diego. The letter says, in part:

> I talked with the bearer of this letter, Amerigo Vespucci, who is going to court where he has been summoned by King Ferdinand in connection with matters of navigation. It has always been his desire to give me pleasure; he is a man of good will; fortune has proved contrary to him; he has not profited from his labors as justice would demand. He is acting in my behalf, moved by a great desire to do something which shall be to my benefit if it lies within his power.

IV. Amerigo Vespucci and his Voyages

Christopher Columbus, Piero Soderini, Leonardo da Vinci, Amerigo Vespucci, Lorenzo di Pierfrancesco de' Medici, and Niccolo Machiavelli. Five of these six men were from Florence. Four were born between 1450 and 1454, and the other two in 1463 and 1469, with Machiavelli being the youngest. They were of one generation.

All of these men, with the exception of the too-young Machiavelli, were associated with Toscanelli, some very closely, and three of them—Soderini, Pierfrancesco and Vespucci—had been students of Toscanelli's partner Giorgio Antonio Vespucci.

As a youth, Amerigo had been personally tutored by Toscanelli and spent many hours at Toscanelli's home. He had full access to Toscanelli's maps and scientific instruments, and he was there at the time of the Toscanelli-Columbus correspondence in 1474. Although,

later, Amerigo would work for more than a decade running business and financial affairs for Pierfrancesco, his character was formed in the years prior to 1482 studying and working under Toscanelli.

Lorenzo di Pierfrancesco de' Medici was the cousin of Lorenzo the Magnificent (Lorenzo di Piero de' Medici), but he was also his political rival. After Il Magnifico's death in 1492, Pierfrancesco played a key role in overthrowing Lorenzo di Piero's son and establishing the Republic. The Vespucci family were among his closest political allies.

It was Pierfrancesco, together with the Vespuccis, who were the primary backers of Machiavelli's political career. Machiavelli's closest ally was *Gonfalonier* Piero Soderini, the head of the Republic. Between 1499 and 1505, when Amerigo wrote a series of letters describing his voyages across the Atlantic, all of these letters were sent to either Piero Soderini or Lorenzo di Pierfrancesco, the former students of Giorgio Antonio Vespucci.

After the death of Lorenzo the Magnificent, Pierfrancesco also inherited control over the Medici banking establishment and all of its branches. He deployed Amerigo to Seville to take control of the branch there, and it was through the Medici bank that Columbus's voyages were financed.

The Voyages

In his letters,[7] Amerigo Vespucci describes four voyages he made across the Atlantic between 1497 and 1503. This is much disputed by the anti-Vespucci clique, but there is no legitimate reason to deny the truth of his reports. After 1504 he was hailed as the "Prince of Scientific Navigation" in both Spain and Portugal by kings and sea captains alike, accolades which certainly would not have been bestowed on someone who, in Emerson's words, was the "pickle-dealer" of Seville.

There is even marginal information from third-party sources, indicating that Vespucci may have made two additional trans-Atlantic voyages, in 1505 and 1507, but there is no mention of this by Vespucci in any of his writings that exist today, so the truth may never be known.

One of the charges made against Vespucci is that, unlike Columbus, he did not command any of those voyages, and, in fact, only piloted a single ship on one occasion. This is true, but it is an empty accusation. Vespucci was not, by training or inclination, a sea captain. He was educated by Toscanelli. He was a cosmographer, an astronomer, a map-maker, and he became the greatest navigator of his time. He was, in short, a scientist.

* * * * *

The first two of Vespucci's voyages were carried out under the Spanish flag. His third and fourth voyages were for Portugal. Of particular note are the second and third voyages, both of which he describes in letters to Lorenzo di Pierfrancesco.

On the second voyage, Vespucci traveled in a group of four ships under the command of Alonso de Ojeda. At some point, either in Guyana or at the Canary Islands, Vespucci's vessel separated from the others, with Ojeda exploring the coastline of Venezuela and Vespucci continuing southward to Brazil. Vespucci discovered the mouth of the Amazon River. He then turned around and explored the Orinoco River in Venezuela which had previously been discovered by Columbus. He visited Trinidad and then rejoined Ojeda in Hispaniola, where they set sail for Spain.

It was on this expedition, on Aug. 23, 1499, that Vespucci discovered a method to determine longitude celestially, and he writes in detail as to how he arrived at this discovery in a letter to Lorenzo di Pierfrancesco de' Medici. More will be said on this below.

Shortly after returning to Spain in 1500, Vespucci left Seville, and traveled to the court of King Manuel I in Lisbon. There he was commissioned as the chief navigator on an expedition of three caravels, under the command of Gonçalo Coelho which returned to Brazil in 1501.

Upon reaching Brazil, Vespucci's ship broke off from the others and headed south. He spent the next ten months south of the equator, exploring the entire coastline of Argentina and traveling almost 2,500 miles. Vespucci's ship ventured as far as 53° south latitude, at Tierra del Fuego, 18 years before Magellan reached that spot. Vespucci was the first to explore the Amazon

7. It is important to understand the role of "letters" during this period. At a time when there were no newspapers, letters were the indispensable source of news from around the world. Except for those most personal of nature, most letters were recopied by hand over and over again, and circulated quite freely. These were known as "familiar" letters, and the authors of these letters consciously designed their messages to reach a much broader audience.

River, and the first to discover the Rio de la Plata.[8]

During this third voyage, Vespucci continued his astronomical investigations, mapping the constellation Crux or the Southern Cross, and also Alpha and Beta Centauri. Crux is hardly visible from the Northern Hemisphere, while the latter two stars had been known to the Greeks, but due to gradual precession they had dropped below the European horizon and had been forgotten in the mist of time. The position of these stars and constellations proved to be a valuable navigational aid to future expeditions.

It was on this voyage that Vespucci became convinced, through a combination of geographical exploration and astronomical observations, that a new continent had been discovered, that this land-mass was neither an island, nor part of Asia. In a letter to Lorenzo di Pierfrancesco he dubbed this continent *Mundus Novus* (the New World).

Navigation: a Willful Act of Discovery

In the letters which Amerigo writes to both Piero Soderini and Lorenzo di Pierfrancesco de' Medici, he describes in great detail his astronomical and scientific observations.

On his second voyage Vespucci makes an intensive study of how to determine longitudinal position at sea. Previously, navigation was based on using the phases of the moon to determine tides, using the meridian altitude of the sun to steer by day, and the positions of Ursa Major and Ursa Minor to steer by night. Vespucci became the first to determine longitude at sea, by making precise measurements of the conjunction of the moon with the planets and constellations.

In a letter to Lorenzo, Vespucci writes:

> As to longitude, I declare that I found so much difficulty in determining it that I was put to great pains to ascertain the east-west distance I had covered. The final result of my labors was that I found nothing better to do than to watch for and take observations at night of the conjunction of one planet with another, and especially of the conjunction of the moon with the other planets, because the moon is swifter in her course than any other planet. I compared my observations with an almanac. After I had made experiments many nights, one night, the twenty-third of August 1499, there was a conjunction of the moon with Mars, which according to the almanac was to occur at midnight or a half hour before. I found that … at midnight Mars's position was three and a half degrees to the east.

During Vespucci's third voyage his ship spent ten months below the equator, and he conducted extensive studies of the southern constellations. In another letter to Lorenzo he recounts the many sleepless nights he devoted to the examination of the Southern Cross, and the many laborious calculations which he entered into, quoting from his favorite poet:

> Each star of the other pole, night now beheld
> And ours so low, that from the ocean floor
> It rose not …
>
> (Dante, *Purgatorio*, Canto xxvi)

It is in this voyage, based on precise measurements of longitude, that Vespucci determines that the sphere of the earth is much larger than previously thought, and it was from these astronomical observations, rather than merely the size of the South American land mass, that he concluded a new continent had been discovered.

As he says in his letter to Lorenzo: "We reached a new land which we discovered to be the mainland… I reached the region of the antipodes, which according to my navigation is the fourth part of the world."[9]

Based on this voyage, Vespucci is recognized as the greatest navigator of his time. By the end of his voyages in 1504 Vespucci's explorations were more extensive than any other mariner up to that time, and his scientific readings were more accurate.

Afterwards

In 1620, only 93 years after Machiavelli's death, forty-one passengers on board the Mayflower signed a Compact in which they committed to "combine our-

8. It is interesting to note that while the Florentine Vespucci was the first European to explore the entirety of the eastern South American coastline, it was another Florentine, Giovanni da Verrazano, in 1524, who first explored the length of the North American coast, from Florida to Newfoundland, on a voyage backed by the French King Francis I, the same monarch who was the benefactor of Leonardo da Vinci, during the final years of his life.

9. It was commonly held, at that time, that there were three parts to the world: Europe, Asia, and Africa.

Above: Pilgrims signing—on arrival in the New World—the Mayflower Compact, an agreement to establish a political entity. Right: The Saugus Iron Works, founded in Massachusetts in 1646 by John Winthrop.

selves together into a civil body politic." Ten years later John Winthrop and his allies established the great Commonwealth in Massachusetts Bay, founded on the principle of the Common Good.

Between 1630 and 1688, under Winthrop's leadership, Massachusetts enacted measures for public education and internal improvements. They established a credit system, through the Pine Tree Shilling, and used it to finance science and industry.

Winthrop's son, John Winthrop Jr., created the Saugus Iron Works, and corresponded with Gottfried Leibniz, and his library included the works of Machiavelli, Kepler, Jean Bodin, and Erasmus. Such was the potential unleashed by the heroes of the 15th Century.

V. Man's Destiny

Taking as a whole everything which has been presented up to this point, ask yourself this question: Is this not mankind's mission? Is this not *our* destiny and that of our posterity? Or—are we to eternally exist, from generation to generation, in a way that would bring a knowing smile to the lips of the British Queen and her progeny: grunting and rooting in the muck, amidst the daily pleasures of an entropic culture, in the manner of pathetic feral creatures?

In 1966 Krafft Ehricke addressed this question in a paper he authored entitled "Solar Exploration."[10] He states:

> The challenge of distance and worlds beyond has always exerted a magic influence on man, causing him to overcome even the most powerful fears, born out of the superstitions of his time and to plunge into the unknown. No matter how this drive is rationalized by establishing a causality with certain apparent utilities at that time, there remains an important basic influence which is emotional and which is rooted in the deep-seated obsession to penetrate the mysteries of nature and to absorb them into a system of human understanding. This unquenchable thirst for knowledge and understanding is perhaps the third of man's basic drives. While he shares two others—hunger and sex—with all life on earth, the third is his alone and sets him apart from the other creatures as being endowed with a mind that must forever

10. *Space Age in Fiscal Year 2001*, An American Astronautical Society Publication, 1967.

> feed on the unknown or die. The unknown is the preferred challenge after all, if compared with the business of coercing and killing his own kind. Crossing established frontiers of the known world, mentally or physically, is mankind's way of maturing and is one of the few fundamental causes of terrible crises and of true and lasting happiness known. Man entered space as an earth-oriented being. Now, space begins to transform him into a cosmically-oriented being with a broader and more mature outlook at his own small planet and the problems of living on it.

People often ask, "Why did the Renaissance collapse into the religious wars and barbarism of the 16th and 17th Centuries?" This is the wrong question to ask. No amount of exploring the role of the Venetian or Dutch Empires or the various oligarchical conspiracies will provide an answer. The better question is "How does the human species progress from one generation to the next?" What is necessary to ensure a better future era from the one which is passing from the scene? This is where the Imperative for Discovery comes into play. The discovery of New Worlds, New Universal Principles, New Potentialities—these are the prerequisites for human survival.

Furthermore, it is not enough to merely recognize that imperative. Each new generation—and key individuals within that generation—must willfully act to make those necessary discoveries, often under conditions of crisis. That is the historic responsibility which must be met. No society, no culture, now matter how great, is of the nature of a self-perpetuating machine, and simply "contemplating" the greatness of previous cultures is a habitat for foolish romantics.

Revolutionary Evolution

In 2015, Lyndon LaRouche addressed this question of the willful character of human evolution in the following way:

> I can tell you one thing, that the generation of the people of the United States, since the beginning of the Twentieth Century to the present time, has been one of degeneration!
>
> Now, what we've got to do, is we've got to reverse that problem. We've got to eliminate the factor of degeneration which is the characteristic of the Twentieth Century and beyond. And Bertrand Russell, of course, is the typical agent who typifies that degeneracy. We are living in the United States under a degenerate culture. Now we have to end that degenerate culture, by replacing it with a higher, a proper generation of culture,—as Brunelleschi did in his lifetime. Brunelleschi did things that nobody else was able to do, among all the people around him. He's a remarkable genius,—and it's the remarkable factor of genius among great minds,—and his accomplishments were immense. And that's the way you have to look at it.
>
> We have to take our children, we have to take those we're educating, and we have to get them to see what they can do, the miracles that they can develop and create as a result of their passion for the progress of mankind.
>
> There is no such thing as an evolutionary process of development of human culture. There are effects which occur at certain times. But then, suddenly, the whole culture collapses, vanishes, it's slaughtered. Then later, somebody else arrives, stimulates something new, and gives mankind another chance at progress.
>
> And our job is to understand this question of progress, and progress is not an evolutionary process. *It's always a revolutionary process, it is never evolutionary!* And everybody who's sitting around waiting for a revolutionary process is just kidding themselves. *A revolution of that type has to be an act of genius*, which comes as if from nowhere. But that's the way mankind succeeds. And I'm looking for people who will do that kind of work, and become the geniuses who cause the future to be reborn again.[11]

Create or perish. As we look back at the magnificence of what was accomplished 500 years ago, how shall our descendants, 500 years into the future, judge our own actions?

11. "The Principle of Brunelleschi," by Lyndon H. LaRouche, Jr., *Executive Intelligence Review*, December 11, 2015.

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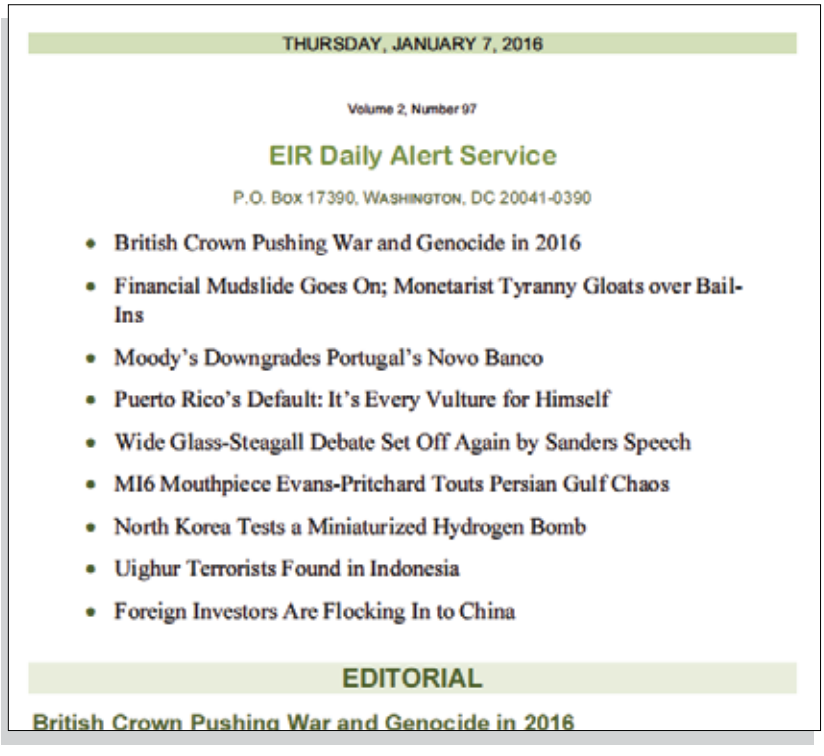

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