Allpoint Notes

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# Summary, Characters, Stories

In an unspecified future, asteroid (69230 Hermes) suddenly threatens Earth, and there is little time to react. At the last instant, the asteroid is nudged out of a collision impact by the Russians using several hypersonic missiles tipped with nuclear weapons. Ten years later, with an agreement that each participating nation commits one percent of its Gross Domestic Product (GDP) to the effort, the first Faster-Than-Light (FTL) speed ship is tested and destroyed during testing, but the designer (Dr. Maria Morelli) miraculously appears above the Arno River and splashes back to Earth as two brightly-colored birds fly away from her grasp.

Maria Morelli goes on to create the Church of the Allpoint (COTA) following the birth of her son, Luca.

[Keep developing]

# World Environment

## Governance

The story commences years after the United States[[1]](#footnote-2) has dissolved into a loosely-knit alliance of federations. Interestingly, my shoot-from-the-hip definition of these federations shows relatively comparable levels of annual GDP based on 2018 figures. Only Heartland fails to reach the trillion dollar mark.

|  |  |  |
| --- | --- | --- |
| Name[[2]](#footnote-3) | States | GDP ($2018) |
| Dixie Federation | Alabama, Florida, Georgia, Kentucky, Louisiana, Mississippi, North Carolina, South Carolina, Tennessee, Virginia | 3.90E+12 |
| Enterprise Federation | West Virginia, Illinois, Indiana, Michigan, Ohio, Wisconsin, Minnesota | 3.09E+12 |
| First American Federation | Delaware, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, Vermont, Connecticut | 4.38E+12 |
| Heartland Federation (No coasts) | Iowa, Kansas, Nebraska, North Dakota, South Dakota | 5.75E+11 |
| Lone Star Federation | Arkansas, Missouri, New Mexico, Oklahoma, Texas | 2.41E+12 |
| Mountain Paradise Federation (No coasts) | Arizona, Colorado, Idaho, Montana, Nevada, Utah, Wyoming | 1.14E+12 |
| Pacifica Federation | California, Oregon, Washington, Alaska, Hawaii | 3.90E+12 |

The key player in world governance is the [UN Security Council](https://www.un.org/securitycouncil/content/current-members), which consists of four of the original five members of the UN[[3]](#footnote-4) Security Council, plus Germany as the replacement for the former United States. Non-permanent members are elected by the General Assembly and frequently include the Pacifica and First American Federations.

Russia was initially heralded for having saved Italy, but few UN member states feel that Russia did so for altruistic reasons. Moreover, rumors abound that Russia itself might have perturbed [69230 Hermes](https://en.wikipedia.org/wiki/69230_Hermes) to create an opportunity to finally use its [Tsirkon hypersonic missiles](https://www.cnbc.com/2019/02/20/putin-confirms-tsirkon-russian-hypersonic-cruise-missile.html) and demonstrate their capability. Simply put, nobody trusts Russia.

## Climate

With population growth largely canceling out the efforts to reduce green house gas emissions, sea levels have increased at a high rate, and many coastal cities have become indudated with sea water.

## Population and Food Supply

The [US Census World Population Clock](https://www.census.gov/popclock/) shows a current estimate of 7.558 billion on 3/11/2019. For the story, population will be stated to be approaching 10 billion, which would place the year to be around [2050](https://en.wikipedia.org/wiki/Projections_of_population_growth), assuming steady growth.

Famine is rampant in Third World countries, many of which are warring with neigboring states to secure food supplies. The UN Food and Agricultural Organization states that food production needs to grow by 70% if world population reaches 9.1 billion by 2015[[4]](#footnote-5).

## Transportation

## Urban versus Rural Conflict

## Motivations for Migration to the Stars

Maria Morelli cites the following motivations for having humanity spread to the stars:

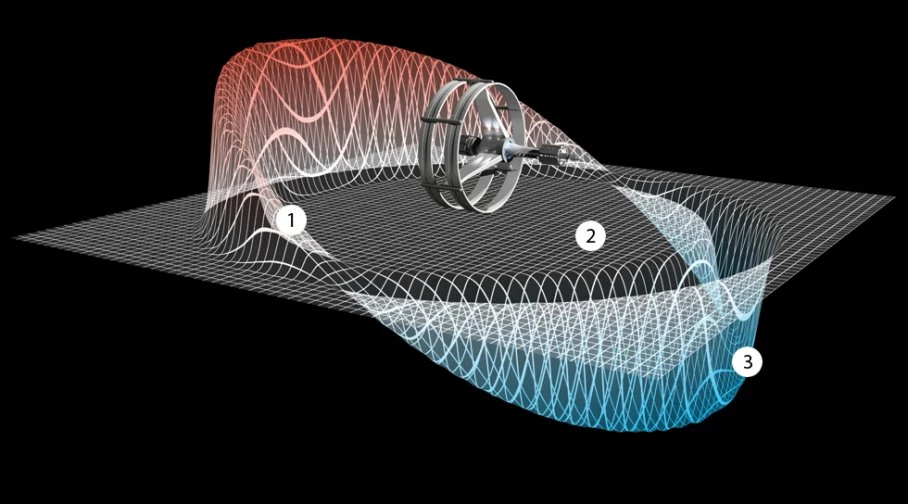
* Reduce risk associated with single-event extinction posed by errant asteroids or comets
* Reduce risk to large segments of the population created by climate change and overpopulation
* Something else?

# First FLT Drive

Dr. Maria Morelli is the designer of humanity’s first warp drive capable of propelling a ship with passengers at speeds exceeding the speed of light. Her drive is an implementation of the Alcubierre Drive concept conceived by Mexican Physicist [Miguel Alcubierre](https://en.wikipedia.org/wiki/Miguel_Alcubierre) in 1994, who tutored Maria for a period during her education.

## Notes on the Alcubierre Drive

The Alcubierre Drive works by manipulating space time around an object, such that spacetime in front is compressed and spacetime behind is expanded.



Source: <https://bigrip.fandom.com/wiki/Alcubierre_Drive>

* + 1. Quotes from <https://phys.org/news/2017-01-alcubierre-warp.html>

“Mathematically, it can be represented by the following equation: ds2= – (a2 – BiBi) dt2 + 2Bi dxi dt + gijdxi dxj, where a is the lapse function that gives the interval of proper time between nearby hypersurfaces, Bi is the shift vector that relates the spatial coordinate systems on different hypersurfaces and gij is a positive definite metric on each of the hypersurfaces.

* + 1. Quotes from White. 2011. Warp Field Mechanics 101. <https://ntrs.nasa.gov/archive/nasa/casi.ntrs.nasa.gov/20110015936.pdf>

“there is no acceleration felt in the flat spacetime volume inside the warp bubble when the field is turned on, and the coordinate time t in the flat spacetime volume is the same as proper time τ, meaning the clocks on board the spacecraft proper beat at the same rate as clocks on earth.”

Initial thinking was to turn on drive with ship motionless, but there is a problem:

“A paradox identified in [6] is an issue that arises due to the symmetry of the energy density about the x= xs surface. When the energy density is initiated, the choice in direction of the +x-axis is mathematically arbitrary, so how does the spacecraft “know” which direction to go?”

“a modified concept of operations is proposed that may resolve the asymmetry/symmetry paradox. In this modified concept of operations, the spacecraft departs earth and  
establishes an initial sub-luminal velocity vi, then initiates the field. When active, the field’s boost acts on the initial velocity as a scalar multiplier resulting in a much higher apparent speed, <veff>= γ vi as measured by either an earth bound observer or an observer in the bubble. Within the shell thickness of the warp bubble region, the spacecraft never locally breaks the speed of light and the net effect as seen by earth/ship observers is analogous to watching a film in fast forward.”

“– assume the spacecraft heads out towards Alpha Centauri and has a conventional propulsion system capable of reaching 0.1c. The spacecraft initiates a boost field with a value of 100 which acts on the initial velocity resulting in an apparent speed of 10c. The spacecraft will make it to Alpha Centauri in 0.43 years as measured by an earth observer and an observer in the flat spacetime volume encapsulated by the warp bubble.”

“Note that the energy density for the metric is negative, so the process of turning on a theoretical system with the ability to generate a negative energy density, or a negative pressure as was shown in [8], will add an effective negative mass to the spacecraft’s overall mass budget.”

[https://en.wikipedia.org/wiki/Alcubierre\_drive#Mass%E2%80%93energy\_requirement](https://en.wikipedia.org/wiki/Alcubierre_drive" \l "Mass–energy_requirement)

“In 2012, physicist [Harold White](https://en.wikipedia.org/wiki/Harold_Sonny_White_(NASA_Scientist)) and collaborators announced that modifying the geometry of exotic matter could reduce the mass–energy requirements for a macroscopic space ship from the equivalent of the planet [Jupiter](https://en.wikipedia.org/wiki/Jupiter) to that of the [Voyager 1](https://en.wikipedia.org/wiki/Voyager_1) spacecraft (~700 kg)[[7]](https://en.wikipedia.org/wiki/Alcubierre_drive" \l "cite_note-WDmorefeasible-7) or less,[[22]](https://en.wikipedia.org/wiki/Alcubierre_drive" \l "cite_note-io9-22) and stated their intent to perform small-scale experiments in constructing warp fields.[[7]](https://en.wikipedia.org/wiki/Alcubierre_drive" \l "cite_note-WDmorefeasible-7) White proposed changing the shape of the warp bubble from a sphere to a [torus](https://en.wikipedia.org/wiki/Torus).[[23]](https://en.wikipedia.org/wiki/Alcubierre_drive" \l "cite_note-23) Furthermore, if the intensity of the space warp can be oscillated over time, the energy required is reduced even more.[[7]](https://en.wikipedia.org/wiki/Alcubierre_drive" \l "cite_note-WDmorefeasible-7) According to White, a modified [Michelson–Morley interferometer](https://en.wikipedia.org/wiki/Michelson–Morley_experiment) could test the idea: one of the legs of the interferometer would appear to have a slightly different length when the test devices were energised.[[22]](https://en.wikipedia.org/wiki/Alcubierre_drive" \l "cite_note-io9-22)”

* + 1. Quotes from White. 2013. Warp Field Mechanics 102. <https://ntrs.nasa.gov/archive/nasa/casi.ntrs.nasa.gov/20130011213.pdf>
    2. Dark Fluid <https://en.wikipedia.org/wiki/Dark_fluid>, <https://en.wikipedia.org/wiki/Jamie_Farnes>

“Dark fluid theory hypothesizes that the dark fluid is a specific kind of fluid whose attractive and repulsive behaviors depend on the local energy density. In this theory, the dark fluid behaves like dark matter in the regions of space where the baryon density is high. The idea is that when the dark fluid is in the presence of matter, it slows down and coagulates around it; this then attracts more dark fluid to coagulate around it, thus amplifying the force of gravity near it.”

“On the other hand, in places where there is relatively little matter, as in the voids between galactic superclusters, this theory predicts that the dark fluid relaxes and acquires a negative pressure. Thus dark fluid becomes a repulsive force, with an effect similar to that of dark energy.”

Proposition: In one of these modes of existence, dark fluid flowing through channels between the inner and outer hulls of the two tori of the ship provide the negative mass needed to create a warp bubble. In the other mode, the fluid would either collapse or explode the tori. Maria uses this other mode to destroy the Vespucci just as she transports back to Earth.

## Implementation in the UNSS Vespucci

The Alcubierre Drive of the UNSS Vespucci contains a Dark Fluid Generator. When the drive is in operation, the dark fluid is pumped through the plasma protected inner hull space of the two tori, creating the required negative mass.

# Zero-Point Energy Device

Blakemore. 2017. Harnessing Zero-Point Energy. <http://large.stanford.edu/courses/2017/ph240/blakemore1/>

Ancillary to the development of the first operational Alcubierre Drive, Dr. Maria Morelli created a small, handheld device that uses [zero point energy](https://en.wikipedia.org/wiki/Zero-point_energy) to reveal the structure and characteristics of spacetime. However, as she discovers following the initial use of the Alcubierre Drive, her zero-point-energy device not only shows properties about spacetime, including objects within spacetime, it can manipulate those properties, enable objects to be moved from one place to another with no traditional power source, aside from a small voltage source (such as a battery) used to “bump” values up or down.

During the interval between the first use of the drive and the second use, she conducts an experiment in which she sends one of the two shipboard canaries from one cage to another. An avid fan of ancient graphic novels, Maria dubs her device a [Mother Box](https://en.wikipedia.org/wiki/Mother_Box) because its ability to alter the environment reminds her of the devices in the [Fourth World](https://en.wikipedia.org/wiki/Fourth_World_(comics)) series written by [Jack Kirby](https://en.wikipedia.org/wiki/Jack_Kirby).

## Implications

The fact that spacetime has self-defined coordinates is astonishing, but not so nearly astonishing as learning that each object in spacetime has metadata that define the position and physical characteristics of the object. Each molecule, each pebble, each tree, each animal, each human--all have metadata that define them. And, the metadata can be changed.

Want to move a pebble from here to some planet in Andromeda? Change the pebble’s metadata. Want to travel there yourself? Change your own metadata and hope that the air is breathable.

Want to destroy an enemy? Change their metadata to drop them into the emptiness of space.

Can such a potentially catastrophic be trusted to humanity? Maria was willing to accept that fate before she heard the crew speaking about her as a diversion during the three-day return to Earth orbit, and even keeping the drive for exclusive use by Russia. Now, she believes it is a secret that must be kept a secret forever. But how?

How can she keep the Russians from stealing the ship and its drive? How can she escape? And, if she did escape, where could she go in the world where she would not be recognized. Her face was instantly recognizable to anybody even casually familiar with current events.

But what about divine intervention? What if something happened to the ship enroute? Some catastrophe? And what if God intervened to save Maria, even though everything else was lost? What if Maria prayed for such intervention, and God answered her prayer? What if God transported her back to Earth? Was it any less believable than immaculate conception?

## Zero Energy Universe

<https://en.wikipedia.org/wiki/Zero-energy_universe>

The total energy of the universe remains a constant, with positive energy balanced by negative energy, including gravitation.

## Zero point energy density

<http://math.ucr.edu/home/baez/vacuum.html>

“ you get different answers depending on whether the person answering you is basing their answer on general relativity or quantum field theory. Let me run through the 5 most common answers, explaining how people reach these different answers:”

# History and Structure of the Church of the Allpoint

In the words of its founder, Dr. Maria Morelli, “The Church of the Allpoint was created to worship, and to make use of, the connective tissue that binds all existence together.”

Following the miraculous return of Dr. Maria Morelli concurrent with the destruction of the UN Space Ship Vespucci, the seeds are planted for the first new wide-spread religion. Founded by Dr. Morelli, the Church of the Allpoint (COTA) will quickly grow and challenge the financial might of the largest established religions, including the Roman Catholic Church, Islam, Hinduism, Buddhism, and Christian Evangelism[[5]](#footnote-6). [I am still trying to craft a plot point around the fact that COTA’s growth will likely cut into the wealth of earlier religions, and losing money is a motivation for revenge.]

## The Miraculous Appearance of Maria Morelli

The Church of the Allpoint was founded by physicist Maria Morelli two years following her miraculous survival of the accident that destroyed the United Nations Space Ship [Vespucci](https://en.wikipedia.org/wiki/Amerigo_Vespucci), the world’s first Faster Than Light (FLT) ship capable of carrying humans to nearby stars in a matter of days rather than years. Details of the accident are sketchy, limited to a brief message transmitted by Commander Alexey Popov just before all contact with the ship and crew was lost; Povov indicated that he and Lt. Commander Vladimir Semanov were seeing numerous hull breach alarms and that the internal atmosphere of the ship was dropping precipitously and that they had lost contact with Major Boris Volkon, who was attempting to locate Dr. Morelli inside the ship’s Alcubierre Drive compartment.

Dr. Morelli appeared on Earth concurrent with the disintegration of the Vespucci[[6]](#footnote-7), materializing several meters over a rain swollen Arno River[[7]](#footnote-8) just east of the Ponte Vecchio bridge in full view of dozens of observers. Many videos[[8]](#footnote-9) of the event have been identified and verified, and these have been widely shared on social media platforms. Both show footage of a rainy day, looking eastward to the Ponte alle Grazie, as a muddy, churning Arno rolls toward the viewer; then, a figure appears approximately three meters above the water and falls into the water. Many additional videos show the Maria Morelli being swept under the bridge and carried to the Pescaia di Santa Rosa weir, where she was rescued by passersby who formed a human chain.

In the days and weeks following the “Miracle on the Arno,” Dr. Morelli was interviewed many times by both the local and international press and by the governments of Italy and Russian and by accident investigators within the United Nations. In addition, Maria was interviewed extensively by Father Alessandro Ricci of Florence, who was at the time a young priest within the Roman Catholic Archdiocese of Florence,[[9]](#footnote-10) and who had been charged with formally documenting the facts surrounding the miracle.

In addition to the facts of the miracle itself, history notes that Dr. Morelli was four weeks pregnant [[10]](#footnote-11)at the time of the miracle.

## Founding of the Church of the Allpoint (COTA)

During the first year following the tragic loss of the Vespucci and the Miracle on the Arno, Maria Morelli participated heavily in the accident investigation as the only survivor, relating what she saw in the final moments as she inspected the negative mass generator and other components of the Alcubierre Drive following the second warping of spacetime. In the official accident report, Dr. Morelli [details]:

The UN accident investigation team continued into a second year without additional input from Dr. Morelli, who, after giving birth to a son--Luca--briefly returned to research into a design for an improved FTL drive. However, after several months, she resigned, and she and Luca returned to Florence, where she lived with her grandmother in relative seclusion while laying the foundations for COTA with a small group of acolytes who saw in Maria a messiah.

Three years after the accident, Maria Morelli purchased a villa and a large plot of land southeast of Florence[[11]](#footnote-12) upon which the COTA cathedral would be built.

[Fill in details. At the time when Remy Moreau arrives to the story, COTA is well-established, with a massive HQ cathedral and offices, plus international cathedrals and structures in Gabon, Kenya, Indonesia, Papua New Guinea, Ecuador, Brazil[[12]](#footnote-13), and Australia, with lesser cathedrals in all major cities: NYC, Paris, Berlin, Beijing, Moscow, Mexico City, Hong Kong . . . need to make a list. COTA is an influential presence on the world stage because of what it can do, and it is growing stronger.]

## Theological Foundation of the COTA

Unlike Judaism, Christianity, and Islam, there are no lengthy ancient writings for religious clerics or scholars to read and interpret for the laity. Instead, COTA acolytes are encouraged to learn about science and to observe the world in which they live[[13]](#footnote-14), and they are encouraged to speak with COTA clergy[[14]](#footnote-15) to learn more.

There are, however, two important church statements that all members are expected to know:

* The Statement of Essential Truth
* The Commitment to the Survival of Humanity

It is widely believed that these statements were created by Maria Morelli and her initial coterie of acolytes.

### Statement of Belief

The theological underpinnings of the COTA are stated in its Statement of Essential Truth:

Before the beginning, there was a point that contained everything. Then, the point expanded, creating space and time. But, because a point is still a point, everything remains connected to that point. You are connected to everything, and you can go anywhere, because everything is connected.

Internally, COTA has additional operational documents that relate to the administration of the church, but, there is no COTA equivalent to the Torah, the Bible, or the Quran.

### Commitment to the Survival of Humanity

In addition to the Statement of Essential Truth, COTA also has a written Commitment to the Survival of Humanity:

[Write something about how survival means migration. Staying on Earth and continued navel-gazing means eventual extinction.]

## Growth of Stellar Immigration

Ten years after its founding, COTA establishes a mining colony on Proxima Centauri b at the behest of International Minerals Corporation, a mining consortium. The planet is tidally locked with its host star Proxima Centauri and scoured by stellar winds many times more powerful than those of Earth, but both the planet and its star are rich in mineral resources. Because the COTA POP transportation process is not restricted by the enormous fuel expenses associeted with climbing out of a gravity well, it opens up mining of planets that are othewise uninhabitable.

Then, approximately every two years, new colonies are founded on additional planets:

* (2) Secular Heaven was founded on Kepler-186 f, which turned out to be remarkably Earth-like. Initially, expectations were that established religions might be the first to migrate to the stars, for the purpose of establishing civilizations of like-minded individuals. However, it turned out that there was an even stronger desire among those who are not religions to put distance between themselves and the world’s religions. This pattern became known as the Freedom From Relgion migration.
* (4) Humanity’s Hope, established on Kepler-62 f, was the second Freedom from Religion migration.
* (6) Kepler-1229 b. Mining, Internationl Minerals Corp. Another tidally-locked planet with minerals.
* (8) Kepler-442 b.
* (10)
* (12)
* (14)
* (16)
* (18)
* (20)

## Habitable Planets

Currently, there are not that many potentially habitable planets. S<http://phl.upr.edu/projects/habitable-exoplanets-catalog> [Not current. Gl 667Cf is listed as a monitoring artifact by Wikipedia.

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Name | Type | Mass (ME) | Radius (RE) | Flux (SE) | Teq (K) | Period (days) | Distance (ly) | ESI | Colony |
| 001. [TRAPPIST-1 e](http://exoplanetarchive.ipac.caltech.edu/cgi-bin/DisplayOverview/nph-DisplayOverview?objname=TRAPPIST-1 e&type=CONFIRMED_PLANET) | M-Warm Terran | 0.62 | 0.92 | 0.70 | 233 | 6.1 | 39 | 0.87 | Tidally locked? |
| 002. [GJ 667 C](http://exoplanetarchive.ipac.caltech.edu/cgi-bin/DisplayOverview/nph-DisplayOverview?objname=GJ 667 C f&type=CONFIRMED_PLANET)b | M-Warm Terran | ≥2.54 | — | 0.85 | 245 | 39.0 | 22 | 0.87 | Tidally locked? |
| 003. [Proxima Cen b](http://exoplanetarchive.ipac.caltech.edu/cgi-bin/DisplayOverview/nph-DisplayOverview?objname=Proxima Cen b&type=CONFIRMED_PLANET) | M-Warm Terran | ≥1.27 | — | 0.69 | 227 | 11.2 | 4.2 | 0.87 | Mining, International Minerals Corp. |
| 004. [Kepler-442 b](http://exoplanetarchive.ipac.caltech.edu/cgi-bin/DisplayOverview/nph-DisplayOverview?objname=Kepler-442 b&type=CONFIRMED_PLANET) | K-Warm Terran | — | 1.35 | 0.72 | 235 | 112.3 | 1115 | 0.85 |  |
| 005. [Kepler-1229 b](http://exoplanetarchive.ipac.caltech.edu/cgi-bin/DisplayOverview/nph-DisplayOverview?objname=Kepler-1229 b&type=CONFIRMED_PLANET) | M-Warm Terran | — | 1.40 | 0.49 | 213 | 86.8 | 769 | 0.73 | Mining, Internationl Minerals Corp. |
| 006. [GJ 667 C e](http://exoplanetarchive.ipac.caltech.edu/cgi-bin/DisplayOverview/nph-DisplayOverview?objname=GJ 667 C e&type=CONFIRMED_PLANET) | M-Warm Terran | ≥2.54 | — | 0.46 | 210 | 62.2 | 22 | 0.71 | Monistery |
| 007. [TRAPPIST-1 f](http://exoplanetarchive.ipac.caltech.edu/cgi-bin/DisplayOverview/nph-DisplayOverview?objname=TRAPPIST-1 f&type=CONFIRMED_PLANET) | M-Warm Terran | 0.68 | 1.04 | 0.40 | 203 | 9.2 | 39 | 0.70 | Tidally locked? |
| 008. [Kepler-62 f](http://exoplanetarchive.ipac.caltech.edu/cgi-bin/DisplayOverview/nph-DisplayOverview?objname=Kepler-62 f&type=CONFIRMED_PLANET) | K-Warm Terran | — | 1.41 | 0.42 | 205 | 267.3 | 1200 | 0.69 | Humanity’s Hope |
| 009. [TRAPPIST-1 g](http://exoplanetarchive.ipac.caltech.edu/cgi-bin/DisplayOverview/nph-DisplayOverview?objname=TRAPPIST-1 g&type=CONFIRMED_PLANET) | M-Warm Terran | 1.34 | 1.13 | 0.27 | 184 | 12.4 | 39 | 0.59 | Tidally locked? |
| 010. [Kepler-186 f](http://exoplanetarchive.ipac.caltech.edu/cgi-bin/DisplayOverview/nph-DisplayOverview?objname=Kepler-186 f&type=CONFIRMED_PLANET) | M-Warm Terran | — | 1.17 | 0.26 | 182 | 129.9 | 561 | 0.58 | Secular Heaven |
|  |  |  |  |  |  |  |  |  |  |

I am switching to <http://exoplanets.org/table>. [Nope. The export function doesn’t work.]

\*\*\*\*

While it was suspected that the AllPoint would fuel a monumental diaspora of those religious cultures desiring homogeneity to far-flung points, where they would be undisturbed by non-believers, the reality was that the non-believers were so overjoyed at the chance to escape the believers that they were the first to go[[15]](#footnote-16). Consequently, the first interstellar colonies to were founded by communities of atheists who wanted to live without the influence of religion.

\*\*\*\*\*

# The Miracle of Maria Morelli

Maria Morelli remains a member of the Roman Catholic Church. She grew up in Florence, Italy, and regularly attended Mass at the [Basilica di Santo Spirito](https://www.visitflorence.com/florence-churches/basilica-santo-spirito.html), in the [Oltrano quarter](https://en.wikipedia.org/wiki/Oltrarno), with her Nanna[[16]](#footnote-17). She remains a Catholic even after founding COTA, which causes consternation[[17]](#footnote-18) within the [Catholic Curia](https://en.wikipedia.org/wiki/Roman_Curia).

Although the [steps for becoming a saint](https://en.wikipedia.org/wiki/Saint" \l "Stages_of_canonization) cannot fully proceed until after the death of the subject of canonization, Maria’s story compels both the public and the [Congregation for the Causes of Saints](https://en.wikipedia.org/wiki/Congregation_for_the_Causes_of_Saints) to document the facts of what certainly looks like a miracle[[18]](#footnote-19) while the facts are fresh in the minds of both participants and observers[[19]](#footnote-20). Accordingly, during her convalescence, she is interviewed at length by a young priest from [Basilica di Santo Spirito](https://www.visitflorence.com/florence-churches/basilica-santo-spirito.html), Father Alessandro Ricci.

Key excerpt of the interview:

“How did you escape your doomed ship and arrive here, safe?” asked Alessandro Ricci.

Maria did not respond for several seconds--long enough for the Father Ricci to think about repeating the question. Finally, raising her head to look squarely into the eyes of the priest, Marie replied simply, “I prayed for my survival, and the power of prayer[[20]](#footnote-21) saved me.”

One conclusion of the report is that Maria’s appearance in Florence when she was supposed to be on the Vespucci might be an example of [bilocation](https://catholicmystics.blogspot.com/p/bilocation-bilocation-is-phenomenon-in.html), with one copy of Maria dying alongside her crewmates and another copy surviving to serve God’s will. Maria seizes upon this idea[[21]](#footnote-22) and, in a series of hypnosis-induced therapy sessions, gradually relates repressed memories of the destruction of the Vespucci, including her own demise. She also proclaims her continued fealty to the church, and she expresses a desire to expand upon the concept of the [new evangelization](https://www.avemariapress.com/yearoffaith/what-is-the-new-evangelization/) through the creation of the Church of the Allpoint as an adjunct to existing Roman Catholic programs; the Catholic hierarchy cautiously accept this idea.

With the Vatican’s acceptance of Maria Morelli’s miraculous escape from her doomed experimental spacecraft being an example of bi-location, Maria becomes an object of adoration for throngs of acolytes, who see in her a new-age messiah, able to channel the will of God to use the miracle of teleportation to transport humanity to the stars[[22]](#footnote-23). However, because teleportation using the Power of Prayer (POP) requires faith with extreme focus and intensity, Maria calls for the construction of POP centers in locations around the globe, many of them in equatorial countries[[23]](#footnote-24).

* Name - Name of the planet. This links to the data of the planet at the NASA Exoplanet Archive.
* Type - PHL's classification of planets that includes host star spectral type (F, G, K, M), habitable zone location (hot, warm, cold) and size (miniterran, subterran, terran, superterran, jovian, neptunian) (e.g. Earth = G-Warm Terran, Venus = G-Hot Terran, Mars = G-Warm Subterran).
* Mass - Mass of the planet in Earth masses (Earth = 1.0 ME).
* Radius - Radius of planet in Earth radii (Earth = 1.0 RE).
* Flux - Average stellar flux of the planet in Earth fluxes (Earth = 1.0 SE).
* Teq - Equilibrium temperature in kelvins (K) assuming a 0.3 bond albedo (Earth = 255 K). Actual surface temperatures are expected to be larger than the equilibrium temperature depending on the atmosphere, which are currently unknown (e.g. Earth mean global surface temperature is about 288 K or 15°C).
* Period - Orbital period in days (Earth = 365 days).
* Distance - Distance from Earth in light-years (ly).
* ESI - Earth Similarity Index, a measure of similarity to Earth's stellar flux, mass, and radius (Earth = 1.0). Results are sorted by this number. Planets more similar to Earth are not necessarily more habitable, since the ESI does not consider all factors necessary for habitability.

The list of potentially habitable planets is longer—see the second table in the [source](http://phl.upr.edu/projects/habitable-exoplanets-catalog) —but the modern sci-fi author clearly has limits that did not exist for authors writing decades ago.

## The Education of Luca Morelli

Maria’s only true confidant is her son, Luca, the result of her love affair with Boris Volkon. Only to him did she dare reveal the real truth behind her miraculous escape from a doomed spacecraft. It was not prayer that transported her back to Florence that fateful day, it was the translation of her metadata.

Notes on Maria’s discovery, as (perhaps) revealed in the writings of her son? As Durrell did for the [Alexandria Quartet,](https://en.wikipedia.org/wiki/The_Alexandria_Quartet) perhaps Allpoint can begin with the her son writing about her. In his epistle, he outlines events leading to the founding of the Church of the Allpoint, including the unexpected discovery of the meteor hours away from Earth, the intervention of the Russians, the development of the first FTL ship, and Maria’s discovery the underlying metadata of spacetime that connects everything together and allows the universe to still act like the singularity from which it sprang.

In her pregnancy, Maria outlines a strategy. The way to keep the secret safe is by wrapping it up in the obscurity of religion, where fact means less than belief. If people believe that God is the hand that moves things, then many will look no further. Humans are, in large, gullible--we need look no farther than Trump to see this gullibility in action: a known con-man has convinced hundreds of millions of Americans to trust that he cares about them.

From birth, many of us are conditioned to believe what cannot be proven, and many of us accept the argument that faith is more important than fact. People who think this way are the perfect caretakers of a secret because they will never question the need for secrecy. They will simply say that mankind was not meant to know everything.

## Notes on Nonna:

She shuffles behind a four-wheeled walker, her books and important papers stuffed into a basket hung on the front, along with gloves to keep her hands warm when the weather is chilly.

Nonna lives by a routine. She is up most days by seven, her breakfast is cappuccino and a cornetto from the local panetteria brought to her by her by the caregiver who checks in on her twice a day. After, she watches the news and dozes until lunch, and then she watches her favorite soap opera. After, she dozes some more until it is time for dinner, except when the weather is nice, she sits in the courtyard and reads. Luca brings her pistachio gelato on the way back from school.

She has with single glass of red wine with dinner. She retires to her room about eight, where she attempts to read only to fall asleep after a page or two.

## Notes on Luca:

Each morning, Luca shares breakfast with his nonna, and then he heads to a school located in a building near the Cattedrale di Santa Maria del Fiore, where he studies mathematics, science, history, theology, and languages: Russian, English, Spanish, German, and Chinese with a small group of kids of similar age. His mother, Maria, teaches some of the classes.

40 years later

Nonna is deceased

Maria is 48

Luca Morelli is 20

Reporter--think Sasha Velour.

The man dressed in all black pressed through the massive doors of the Allpoint Cathedral, once known as the the Duomo, or, more formally, the Cattedrale di Santa Maria del Fiore, and squeezed past the ranks of stopstarers, their heads tilted at all angles, up or down, eyes taking in art on a scale never seen in modern architecture. Buildings of the twenty-second century were built under the strictures of dull functionalism, with little thought given to how people should interact with the structures in which they were born, lived, and died. Here, from the marble floors, to the forty-four stained glass windows, to the frescoes that adorned the ceilings, was a vision of structure and humanity existing in symbiosis.

Remy Moreau paid scant attention to such matters as he briskly strode the length of the nave, his cape billowing in his wake. His eyes were riveted on the New Sacristy, whose bronze doors were closed behind a stretch of velvet rope hanging from stanchions that defined the extent of where tourists were allowed to gather. As if in acknowledgment of his presence, the doors swung open as he approached the entrance to the dome, revealing a man not unlike himself: tall, chiseled, and dressed in a dark suit.

The man looked at him and nodded.

The Book of the Allpoint is the shortest religious book in existence. It contains four sentences and a declaration of affirmation:

Before the beginning, there was a point that contained everything. Then, the point expanded, creating space and time. But, because a point is still a point, everything remains connected to that point. You are connected to everything, and you can go anywhere, because everything is connected.

Given its astonishing brevity, The Book of the Allpoint is the only religious tome that has been widely memorized by believers and nonbelievers alike. It is also the only religious book to be successfully published as a tee shirt, cap, and bumper sticker.

The Church of the Allpoint, which was founded upon the ideas presented in The Book of the Allpoint, grew from zero believers to the largest religion in the known universe in the span of three decades, muscling aside Christianity, Islam, Hinduism, Buddhism, Judaism, and even Atheism. In doing so, it enraged the diehard believers of older religions--who joined in a class-action lawsuit alleging infringement of copyright: every other religion has at its core something being created from nothing, so cease and desist! To appease the malcontents, The Church of the Allpoint moved the centers for these religions to their own planets, where they have no competition.

The Church of The Allpoint does not include terms for gender or race. Because we all all connected, there is no distinction to be made.

“If I am going to die,” said one young resident, “I want to do so with a clear head. I never believed Maria was that perplexing sort of person who thinks the most intimate details of his of her life are self-evident, with no need to explicate. Incapable of seeing her own history and character as opaque to others, she struggled to form lasting relationships. The few lovers Maria had taken quickly tired of trying to divine predictable patterns in the vicissitudes of her mood; all but one had quickly moved on to less tiresome relationships.

# Nanotechnology

[http://ice.chem.wisc.edu/Small%20Science/From\_Small\_Science\_Comes\_Big\_Decisions/Choices\_files/Military.pdf](http://ice.chem.wisc.edu/Small Science/From_Small_Science_Comes_Big_Decisions/Choices_files/Military.pdf)

Members of the Church of the Allpoint diaspora rules compliance corps wear nanotechnology armor that protects them from military grade guns, gases, and many toxins. A key factor in the effectiveness of the armor is its use of energy of the void, which means no heavy batteries.

EXPAND

# Object movement process

* 1. At the heart of the transportation process is a modified version of Maria Morelli’s original zero-energy powered spacetime probe. Located in a heavily protected section of the COTA Cathedral south east of Florence, this device is used by Maria and her son, Luca, to move objects from Earth to distant coordinates and from distant coordinates to Earth:
  + Examples of movement from Earth to distant coordinates include moving transport vessels to orbit around distant planets or, when the coordinates are well known and the local geography is suitable, directly to distant planets.
  + Another example of movement from Earth to distant coordinates is the sending of information packets[[24]](#footnote-25).
  + Examples of movement from distant coordinates to Earth include sending back people who do not wish to return and the receipt of information packets.

## Spacetime mapping probe

The transport process is based on modifying object characteristics as seen using a spacetime mapping probe powered a zero point energy generator. Invented by Dr. Maria Morelli, the mapping probe shows temsor values for all compound objects. Associated with each compound object are comoving coordinates[[25]](#footnote-26) that show where and when the object is located.

During the initial flight of the UNSS Vespucci, Dr. Morelli first recognized the problem values for what they are, and, while adjusting the prototype probe, inadvertently moved an object on the workspace in her onboard laboratory by slightly changing the comoving coordinated using a signal input probe. She the expanded the focus of the probe until she was able to locate not only herself, but the other members of the crew by the unique data grouping assocated with humans and the locations for herself and the three men.

Ultimately, she uses the device to espace from the boobytrapped Vespucci, transporting herself and the two onboard canaries[[26]](#footnote-27) to just above the Arno River.

## Comoving coordinates

* 1. Essential to the use of Maria Morelli’s transport process is the existence of comoving coordinates[[27]](#footnote-28) in object metadata. Because everything is connected, there is information about where everything is located.

## Using the transporter for objects using estimated coordinates

How do you transport objects to distant planets when the exact location of points on the planet are not known with sufficient accuracy:

* Jump to the best estimate and navigate to a stable Lagrange point to gather additional data using unmanned probes.
* Descend to the surface using a transport appropriate to the terrain and make measurements in-situ.

To the world, the transporters appear to be little more than wire cages into which that to be transported is placed. The thing to be transported (a data stream, a person, a cargo container, or a ship filled with pilgrims) was placed in the transport cage, and then an Allpoint Guide, encased in a kiosk, would transport in from one of the monastic cells located in Tuscany to the prayer cell, some sort of divine intervention would occur, and the object to be transported would vanish, frequently accompanied by a rush of wind, either incoming or outgoing. Then, the kiosk with the Allpoint Guide would return whence it came. . [[28]](#footnote-29)

Transport of interstellar exploration ships was a little more complicated. Because precise coordinates are needed, the initial approach to an unsettled planet was done in stages, from Earth through a series of established transporter locations placed at increasing distances out. Initial distances were relatively short, rarely exceeding a single light year, as transport engineers gained confidence, but with time, jumps of greater than twenty light-years became normal.

The final jump, prior to planetfall, was to a low orbit from which the terrain would be observed and mapped, leading to landing of small exploratory craft whose crews would establish bases and erect transporter structures capable of accommodating successively larger containers holding both passengers and materiel. The final transporters would, as always, be the Marias, named for the founder of the Church of the Allpoint, who at age 12, had lived through the near-destruction of Florence at the hand of 69230 Hermes. Five hundred meters long, one hundred meters wide, and a height of seventy-five meters, the Marias brought massive, self-contained container vessels that could hold hundreds of colonists, along with their belongings and enough supplies for to live off of for months.

# Rules of interstellar settlement

Human nature being what it is, there are always those who feel that their success depends on converting outsiders to a shared viewpoint. To protect the rest of humanity from this need to control others, a path to independence was created: each religious, ethnic, or economic entity that felt it could not live with others was given the opportunity to move elsewhere.

Rules for allowing interstellar transport for the purpose of settlement:

1. All requests for transport must be filed with the Office of Divine Intervention. All decisions by the Office of Divine Intervention are final.
2. The destination planet must support unaided human life. If humans cannot breathe the air, drinking the water, and eat the native flora and fauna, transport is prohibited.
3. The destination must not have life that is becoming or likely to become sentient. Human life cannot displace native life.
4. Conflicting requests for transport to a common destination will be adjudicated by the Office of Divine Intervention.
5. The minimum size of a colony is 10,000, consisting of roughly equal numbers of men and women.
6. The community to be transported must pay for all costs associated with equipment, supplies, and training, to include the following:
   1. The transport vessel, which can be disassembled into smaller units to provide the initial housing and other facilities necessary for the economic viability of the colony.
   2. Water sufficient for the first thirty days of the colony, along with water purification equipment and equipment for the drilling of wells.
   3. Food sufficient for at least the first year of the colony.
   4. Equipment for the following:
      1. Extraction of metals and minerals
7. All transportees of adult age (21 years) must personally attest to their desire for transport. No person may make such attestment for another person with the exception of children. The Church of the Allpoint will provide sanctuary for all who feel that they are being coerced into unwanted transport.
8. All transportees who were not at least 21 years old at the time of transport have to right to alternative transport, including return to Earth, upon achieving the age of 21. The Church of the Allpoint will provide sanctuary for all who seek alternative transport.
9. Transport of weapons of war is strictly prohibited. Weapons for the purpose for hunting and personal protection are allowed.
10. The Church of the Allpoint places no restrictions on transport based on race, creed, or religion.

# Settlement Protective Service

Walta Wambui (“World War”) is 31 and a major in the Church of the Allpoint’s Settlement Protective Service (SPS)

Enforces rules of interstellar settlement

Protects settles from natural hazards

# On Religious Organizations

The true opium of the masses is vainglorious patriotism: feed them stories of heroes in their midst who fight, at great cost, against a foe of the people--real or imaginary--and they will die for you. Many believers of ancient mythologies are hypocrites who revere a perfect god while simultaneously pointing to natural variations in their god’s creation as moral imperfections.

Some believers of the triune god mythology are homophobes who dehumanize their victims by calling them “sodomites.” If you can convince yourself that the victim upon whom you prey is sub-human, it makes being an asshole easier.

It also helps to pick on a minority: if your victims only represent about five percent of the population, you have an unfair advantage, and bullies always want an advantage.

<https://www.smithsonianmag.com/history/secret-societies-you-might-not-know-180958294/>

“Why do people believe religious books are true?” he wondered. “I mean, aside from being told they are true by parents, and grandparents, and other people, why do people believe? Where is the proof that these aren’t just made-up stories?”

“They are not entirely made up,” said the man. “Often, there is a historical basis. We know, for example, that historical records of Jesus not in the Bible support the fact that he existed, that he was baptized by John the Baptist, and that he was crucified. In the language of historians, he has historicity.”

“Yes, but the fact that Jesus existed doesn’t prove that he did all of the things The Bible says he did. He could have been a real man about whom people made up stories.”

“Why should people make up such stories?” asked the man.

“To control others,” replied Remy. “It is what people do.”

“So young and yet so cynical,” observed the man with a smile.

Remy shook his head. “I am skeptical, not cynical. And what about other religious figures: Mohammed and Buddha--what about their, what do you call it, historicity?”

“False religions, all!”

“Why? Because you were raised as a Christian? Or, did you compare the religions and then make your choice?”

“I had no need. I knew Christianity was true.”

“How? How did you know?”

“I knew it in here,” said the man, tapping his breast.

## Roman Catholic Church

Largest Christian church, [1.3 billion](https://en.wikipedia.org/wiki/Catholic_Church). Headed by the Bishop of Rome, aka the Pope. Central administration is the Holy See (the Pope himself?) aided by the [Roman Curia](https://en.wikipedia.org/wiki/Roman_Curia) (“court,” comparable to cabinets). Principal departments are called dicasteries:

* Secretariat of State
* Congregations
* Tribunals
* Councils
* Offices

Theology based on the [Nicene Creed](https://en.wikipedia.org/wiki/Nicene_Creed). Bishops are successors of the apostles. Pope is successor to [Saint Peter](https://en.wikipedia.org/wiki/Saint_Peter).

# Business of Religion (and impact of COTA)

https://www.weforum.org/agenda/2017/01/religion-bigger-business-than-we-thought/

https://www.rolandberger.com/en/Point-of-View/The-connection-between-religion-and-business.html

https://www.salon.com/2013/09/19/10\_ways\_religious\_groups\_take\_public\_money\_partner/

https://en.wikiquote.org/wiki/L.\_Ron\_Hubbard

The Profits of Religion, Sinclair.

## Roman Catholic Church

Revenues of Catholic Church approximately [$170 B in 2012](https://slate.com/business/2013/03/catholic-church-and-pope-francis-religious-institutions-are-exempted-from-nonprofit-disclosure-rules-so-nobody-knows-how-rich-they-really-are.html). Assume $250 B at the time Maria makes her jump to Earth from the Vespucci. Five years later, she founds COTA and revenues begin to drop. At the time of Reny’s story, overall revenue is $93 B.

## Islam

[“Estimates in 2012 put the assets of the Islamic financial industry alone to be at nearly $1.6 trillion.”](https://www.therichest.com/rich-list/world/the-10-richest-religions-in-the-world/) (There isn’t much information about money and Islam, so I am assuming the wealth is concentrated in businesses owner by Muslims--such as Aramco--rather than by the religion itself.)

## Prosperity Theology

[“… financial blessing and physical well-being are always the will of God for them, and that faith, positive speech, and donations to religious causes will increase one's material wealth.”](https://en.wikipedia.org/wiki/Prosperity_theology)

“The [atonement](https://en.wikipedia.org/wiki/Atonement_in_Christianity) (reconciliation with God) is interpreted to include the alleviation of sickness and poverty, which are viewed as [curses](https://en.wikipedia.org/wiki/Curse) to be broken by faith. This is believed to be achieved through donations of money, visualization, and positive confession.”

“It was during the [Healing Revivals](https://en.wikipedia.org/wiki/Healing_Revival) of the 1950s that prosperity theology first came to prominence in the United States, although commentators have linked the origins of its theology to the [New Thought](https://en.wikipedia.org/wiki/New_Thought) movement which began in the 19th century. The prosperity teaching later figured prominently in the [Word of Faith](https://en.wikipedia.org/wiki/Word_of_Faith) movement and 1980s [televangelism](https://en.wikipedia.org/wiki/Televangelism).”

[Scott Thumma, professor of sociology and religion at Hartford Seminary told CNN that "the mega church on average has about $6.5 million in income a year."](http://www.cnn.com/2010/WORLD/americas/01/21/religion.mega.church.christian/index.html)

Database <http://hirr.hartsem.edu/megachurch/database.html>

<http://leadnet.org/world/>

# AI and COTA

COTA’s computer scientists are using AI to map the location of objects out thousands of light-years from Earth. Having identified the characteristics of stars, planets, moons, asteroids, and comets, they are systematically focusing father and farther using the church’s far-range probe.

EXPAND. Maria was able to make the initial jump based on intuition, but recognizing and classifying the enormous volume of data provided by the zero-energy probe is tailor-made for advanced AI.

## How will AI have changed social media?

NOT SURE THIS INSIGHT IS NECEESARY, BUT IT MIGHT BE FUN TO PROJECT.

<https://unbabel.com/blog/artificial-intelligence-fake-news/>

<https://www.technologyreview.com/the-download/612401/this-is-fake-news-chinas-ai-news-anchor-isnt-intelligent-at-all/>

<http://news.mit.edu/2018/mit-csail-machine-learning-system-detects-fake-news-from-source-1004>

* <https://arxiv.org/pdf/1810.01765.pdf>
  + “Moreover, it has been shown that “fake news spread faster than real news (Vosoughi et al.2018). As they reach the same user several times, the effect is that they are perceived as more credible, unlike old-fashioned spam that typically dies the moment it reaches its recipients.”
  + They found that“fake news” pack a lot of information in the title (as the focus is on users who do not read beyond the title), and use shorter, simpler, and repetitive content in the body (as writing fake informationtakes a lot of effort).
  + the absence of a Wikipedia page may indicate that a website is not credible.
  + media that publish unreliable in-formation might have no Twitter accounts
  + malicious URLs tend to make excessive use of special characters and sections

# Remy Moreau

Remy Moreau, 38, is an investigative reporter with Reuters and a 6’-6”, 220 lb sometimes drag queen (nickname: Queen Xerxes because of his resemblance to a character in the movie The 300) who served in the French Foreign Legion.

“Even when the the message is not the word of God, such as was the case with rampant racism posing under the mantle of nationalism in the 20th and 21st centuries, the goal was always to bring more power and wealth to the powerful under the guise of protecting the common man from outsiders. Fascism could not have existed without people willingly elevating the messengers of hate to positions of trust usually reserved for religious leaders, whether those messengers are preaching hatred of Jews, anybody with a different color of skin, or those people who live on the other side of a man-made border.”

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Star Lifting. <https://en.wikipedia.org/wiki/Star_lifting>

Menger Sponge. <https://en.wikipedia.org/wiki/Menger_sponge>

Botany Bay. <https://en.wikipedia.org/wiki/Botany_Bay>

Pitcairn Islands. [https://en.wikipedia.org/wiki/Pitcairn\_Islands#Polynesian\_settlement\_and\_extinction](https://en.wikipedia.org/wiki/Pitcairn_Islands" \l "Polynesian_settlement_and_extinction)

Fermi Paradox. <https://www.space.com/25325-fermi-paradox.html>

1. Perhaps along with other countries that suffered through a period of rampant populism and nationalism in the 21st Century. Certainly Spain, Great Britain (because of Brexit), Yugoslavia, and others. See [Is Nationalism on the Rise? Assessing Global Trends](https://www.tandfonline.com/doi/full/10.1080/17449057.2018.1532633), for what appears to be an objective discussion. I am sure there are other sources. [↑](#footnote-ref-2)
2. I’m not in love with these names or even the specification of member states. These divisions are just starting points. [↑](#footnote-ref-3)
3. Where is the UN headquarters at this point? I suspect it has moved to Europe, let’s say Paris. [↑](#footnote-ref-4)
4. <https://www.populationinstitute.org/resources/populationonline/issue/1/8/> [↑](#footnote-ref-5)
5. This is a bit of an odd grouping. There is published information about the Catholic Church’s finances, but I found almost nothing about Islam, which seems to keep a tight lid on how much money it is--or perhaps it is hidden because Islam thrives where it is not kept separate from the host state. There is some information about the wealth of evangelist churches. I know nothing about the finances of the Hindus and Buddhists. [↑](#footnote-ref-6)
6. ADD DETAILS TO SUPPORT DISINTEGRATION. [↑](#footnote-ref-7)
7. Comparable to the 1992 flooding event; see <https://www.aigaa.org/public/GGA.2005-01.0-18.0018.pdf>. [↑](#footnote-ref-8)
8. In addition, many falsified videos have surfaced. [↑](#footnote-ref-9)
9. Alessandro Cardinal Ricci is currently the Archbishop of the Archdiocese of Florence. [↑](#footnote-ref-10)
10. Maybe a hint of allegorical reference to the Virgin Mary here--or perhaps a reason for some Christian churches to take umbrage because there is a hint of allegorical reference. [↑](#footnote-ref-11)
11. Somewhere beyond the [Abbazia di San Miniato al Monte](https://www.google.com/maps/place/Abbazia+di+San+Miniato+al+Monte/@43.7626781,11.2409693,14z/data=!4m12!1m6!3m5!1s0x0:0x5591438487aaf1f5!2sCathedral+of+Santa+Maria+del+Fiore!8m2!3d43.773145!4d11.2559602!3m4!1s0x132a53f0c5886e97:0x3b3fbfadae9452b0!8m2!3d43.7594174!4d11.2649775), to which Donna and I walked when we were in Florence in 2014. Initially, I toyed with having COTA buy the [Cattedrale di Santa Maria del Fiore (the Duomo)](https://en.wikipedia.org/wiki/Florence_Cathedral), [↑](#footnote-ref-12)
12. Mostly equatorial locations to this point--in case there is a reason to need the 7 k/s velocity when moving transports using Maria’s zero-energy device. Also, none of these countries are part of the old establishment, which might have benefits when there is a need to protect how the miraculous transportation is actually done. [↑](#footnote-ref-13)
13. Which begs the question: does COTA have regular services? If so, what are the like? [↑](#footnote-ref-14)
14. Need to define the COTA hierarchy. There could be parallels with the [hierarchy of the Roman Catholic Church](https://en.wikipedia.org/wiki/Outline_of_the_Catholic_Church). [↑](#footnote-ref-15)
15. This odd, stand-alone paragraph is here to remind me that there could be some populations who would gladly have a chance to create a new home far from distractions. Several sci-fi authors have created universes in which there are, say, Christian worlds, Muslim worlds, etc, but it is just as likely that some communities might form, consisting of people who want to live in a place where religion doesn’t interfere. [↑](#footnote-ref-16)
16. Maria’s mother is not mentioned in the story. I assume she is dead, but perhaps something else happened to her. [↑](#footnote-ref-17)
17. I am picturing Maria, or some agent, petitioning the Roman Curia for a new Congregation dedicated to stellar migration. Conservatives within the Curia will reject the petition as protectors of the status quo always do, but those with a more financial bent might jump to get bring COTA’s revenues and visibility into the church. [↑](#footnote-ref-18)
18. For protection of the technology, Maria will also want to have such an investigate that tacitly stamps her stunning reappearance on earth as a miracle. COTA itself was established as a smoke-screen to protect the technology, so documentation by the Catholic church that appears to show a miracle is vital. [↑](#footnote-ref-19)
19. Many pedestrians we standing on the [Ponte Vecchio](https://en.wikipedia.org/wiki/Ponte_Vecchio) on the rain-soaked day Maria appeared out of thin air and dropped into the swollen Arno River. There were many observers recording the flooded river who capture the event. [↑](#footnote-ref-20)
20. By the time Remy Moreau arrives to the story, power of prayer has, colloquially, been abbreviated to POP and is also used as a verb: “We POP-ed into the L5 [Lagrangian](https://en.wikipedia.org/wiki/Lagrangian_point) of the target planet.” [↑](#footnote-ref-21)
21. Frankly, it never occurred to her that there was such a thing until it was suggested. [↑](#footnote-ref-22)
22. Why not use POP on Earth instead of plane, trains, and automobiles? My thinking is overuse of Maria’s zero-energy device to reassign an object’s metadata increases the risk of discovery of how POP actually works. [↑](#footnote-ref-23)
23. See Founding of COTA. [↑](#footnote-ref-24)
24. There is a constant flow of information packets to and from data routers on each colony. Because of the physical limits of switching equipment, there is a slight time lag, but it is not noticable at the human level. [↑](#footnote-ref-25)
25. [↑](#footnote-ref-26)
26. Leonardo and Michelangelo [↑](#footnote-ref-27)
27. See <https://en.wikipedia.org/wiki/Spacetime> (search for comoving) and <https://en.wikipedia.org/wiki/Comoving_and_proper_distances>. Because all spacetime is connected, each object in spacetime carries data about where other objects are located at the same time. (Nothing herein is stated about where objects may be at other times.) [↑](#footnote-ref-28)
28. May not be necessary, although I like the idea of having a “prayer cell” arrive to perform the transport. The ritual helps to hide the true process behind the cloak of religion. [↑](#footnote-ref-29)