

# Are Science and Faith in conflict? From Galileo and Darwin to current bioethical debates

articolo

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## Introduction

In the fourth canto of the *Inferno*, the poet Dante awakes in Limbo to find the great classical authors Homer, Horace, Ovid and Lucan. Before long, he rests in awe before «the master of the men who know», Aristotle, in philosophic company with Socrates, Plato and other renowned pagan thinkers<sup>1</sup>. While lack of supernatural faith in Christ prevented them from entering Heaven, their noble pursuit of truth kept them from meriting eternal damnation. In keeping with the profoundly Catholic worldview that inspired his work, Dante wanted to praise all that was good and noble in man's natural quest to know and live in accord with the truth.

Century's latter, Raphael decorated Pope Julius II's library with an exuberant renaissance celebration of classical culture known as *The School of Athens*. Surrounding the imposing geniuses Plato and Aristotle, one finds Greece's great mathematicians, doctors, and astronomers dramatically sprawled across the scene in the united effort to penetrate the mysteries of the universe through the power of the human intellect. Any contemporary secular humanist would be rightly enthralled with the testimony to the noble accomplishments of human reason. This same secular humanist, however, would no doubt be appalled that the artist should dedicate his abundant genius to cover the opposite wall with a pious tribute to the mystery of the Holy Eucharistic as worshiped by the angels of saints of history. This jolting paradox indicates that for Raphael, no contradiction ex-

isted between Ptolemy's examination of the material world, Aristotle's philosophical speculation and the mystical theology of the Catholic Church.

This masterpiece of western art remains a vibrant and immensely popular contradiction to the mental dichotomies that plague atheists and religious believers alike. As I will contend in this present essay, Raphael's room is an authentic testimony to the synthesis of science, philosophy and theology found in the Catholic intellectual tradition. Moreover, I will argue that an appreciation for the historic development of the Church's synthesis of these three modes of knowledge will enable those within and without the Church to appreciate her capacity to enter contemporary bioethical discussions.

## *The Galileo Affair and the clash between science and religion*

Just outside the rooms of Raphael found in the Vatican Museum and down the *Via Conciliazione*, one can take a short bus ride to the gothic church *Santa Maria Sopra Minerva*, the site of one of history's most apparently dramatic clashes between faith and reason, namely, the Galileo trial. The location that still bears the name of the goodness of wisdom was ironically witness to the condemnation of the father of modern science in an event that seems to present a striking counter witness to the vision of Dante and Raphael. Doug Linder, representing current popular opinion, writes on his website that «in the 1633 trial of Galileo Galilee, two worlds come into cosmic conflict. Galileo's world of



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science and humanism collides with the world of Scholasticism and absolutism that held power in the Catholic Church. The result is a tragedy that marks both the end of Galileo's liberty and the end of the Italian Renaissance<sup>2</sup>. The event was indeed a tragedy, but not because of a simple clash between an enlightened scientist and an obstructionist Church. Rather, it was a tragedy because a small group of influential Catholics (Galileo remained a professed believer until his dying days) failed to appreciate fully the intellectual synthesis of their shared tradition. An extended analysis of the Galileo affair is beyond the range of this humble essay, however, it would be helpful to highlight a few lessons of the incident to illuminate the methodological approach Catholic bioethicists are called to follow.

Realizing the continuing relevance of the Galileo affair, Pope John Paul II asked for a thorough investigation of the case from a historic, scientific, philosophic, theological perspective. His October 31, 1992 address summarizes well the enduring lessons of a period of history that has become of mythical representation of the Church's supposedly fundamental aversion to scientific progress. Placing the incident in its proper historic context, he noted that the beginning of modern science demanded an epistemological clarification, «The birth of a new way of approaching the study of natural phenomena demands a clarification on the part of all disciplines of knowledge. It obliges them to define more clearly their own field, their approach, their methods, as well as the precise import of their conclusions. In other words, this new way requires each discipline to become more rigorously aware of its own nature»<sup>3</sup>. As we shall see, a failure to live fully in accord with the Church's delicately balanced synthesis of science, reason and faith resulted in a historic situation that is too readily distorted to be part of a supposed war between religion and science.

In an intriguing reflection on the Galileo affair, Dr. Chris Decaen noted the tragic irony that the "heretical" scientist was often more faithful to the traditional Catholic principles

of biblical interpretations than his clerical investigators, while this same clerical committee often revealed a more scrupulous adherence to the scientific method than the suspected scientist. Decaen proclaims «In short, Rome was upholding the Aristotelian demand for logical rigor; while Galileo, the Augustinian openness about the literal meaning of Scripture. It was at the intersection of these two concerns that the conflict arose»<sup>4</sup>. While Galileo rightly recognized that scripture's use of symbolic language in its description of the physical world should not be misidentified with theories of natural physics, he failed to meet his clerical examiners justifiably high standard of empirical proof for his new astronomical theory.

Early in the controversy over heliocentricism, Galileo clearly embraced the distinct roles of sacred scripture and natural science when he evoked the principle attributed to Cardinal Baronius, namely, that the purpose of Sacred Scripture is «to teach us how one goes to heaven, not how heaven goes»<sup>5</sup>. In continuity with the interpretative tradition of the Church Fathers and Medieval Doctors of the Church, the father of modern science recognized that the Bible was a complex series of books using a variety of literary styles to communicate to men the history of salvation. In his "Letter to the Grand Duchess", Galileo endorses an Augustinian approach to Sacred Scripture that would admit no contradiction between authentic scientific findings and the true sense of the sacred author, writing as follows: «...Two truths can never contradict each other. I take this to be an orthodox and indisputable doctrine, and I find it specifically in St. Augustine... [I]f what they [i.e., astronomers] say is proved by unquestionable arguments, this holy Father does not say that the astronomers are to be ordered to dissolve their proofs and declare their own conclusions to be false. Rather, he says it must be demonstrated that what is meant in the Bible ... is not contrary to their proofs»<sup>6</sup>.

To treat the holy books as post-scientific-revolution treatises of astronomy would be an anachronistic reading of the inspired texts

contrary to the intention of their authors and hence to the divine message God wished to communicate through them. While Sacred Scripture is never in conflict with sound science, particular interpretations of Scripture may clash with the advances of research. Galileo thus wisely cites St. Augustine's call to seek persistently and humbly the reconciliation of the truth of science and the truth of revelation.

Unfortunately, the majority of priests who investigated Galileo's were unable to overcome an overly literalistic interpretation of various scripture passages that seemed to make the physical centrality and immobility of the earth a doctrine of faith. Their stubbornness

in biblical interpretation is more understandable when we consider the post-Reformation historic context in which they lived. Martin Luther and his companions had made private interpretation foundational to a new form of Christianity

that sought the end the Catholic Church's claim to hold divine mandate in the interpretation of the Bible. Having seen the rapid fragmentation and doctrinal confusion that Protestant private interpretation had inspired, the fathers charged with examining Galileo were all the more suspicious of a lay man's capacity to interpret the scripture in a manner contrary to its apparent literal meaning.

While the priests of the Galileo case had embraced an overly literalistic interpretation of the scriptures contrary to the appreciation for symbolic language found in tradition of their Church, they did at times show themselves ironically more consistent with the demands of the scientific method than the very scientific genius they were examining. This startling reality emerges when we reflect on the committee's insistence that Galileo provide convincing empirical evidence for his new heliocentric proposal without dogmatically asserting his hypothesis as an established fact. While the history of scientific research confirmed the fundamental truth of Galileo's he-

liocentric system, it would be inaccurate to identify totally today's astronomical system with the Florentine's 17<sup>th</sup> century system. Bluntly speaking, a number of Galileo's specific arguments were later disproved. Atheistic historian Tim O'Neill insists that while Galileo made undeniably significant contributions to the advancement of science, it would be a myth to claim that he himself demonstrated the theory. He notes that Galileo «was also wrong about several key details – particularly the shape of planetary orbits (he rejected Kepler's theory of elliptical orbits and clung to circular ones) and his idea that the tides were caused by the earth's rotation»<sup>7</sup>. It was not until 1838, when F.W. Bessel

confirmed the first firm trigonometric parallax, that the heliocentric theory found its definitive demonstration. While Galileo is rightfully remembered as one of the greatest scientific geniuses of history, we should not overlook his

limitations and mistakes. His occasional prideful insistence on the truth of his insufficiently demonstrated theory was an unfortunate contradiction to the rigorous burden of empirical proof of the new scientific method. For the aforementioned reasons, the council of priests showed itself ironically consistent with the new scientific method when they insisted that Galileo not overstate the evidence for his constantly developing scientific theory.

While man's quest for truth was greatly aided by the birth of modern experimental science, his quest to understand the complexly of reality cannot be reduced to any one branch of knowledge. Instead, the richness of his experience calls for a corresponding richness in his methods. While the Pope acknowledged the unfortunate failure of members of his own Church to fully respect the distinction and proper nature of the various disciplines of science, philosophy and theology, we should rejoice that the tragic episode was an exceptional moment of confusion in an oth-

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erwise positive relationship between the Church and the natural sciences.

While these brief and admittedly cursory reflections on an ancient historic controversy seem to have brought us far afield of the topic of bioethics this present essay presumes to examine, I wish to emphasize with Pope John Paul II that this historic event teaches us lessons about the relationship between faith, philosophy and science that transcend the 17<sup>th</sup> century context of the initial controversy, and can hence inform contemporary bioethical debates. With a glance to the future, John Paul noted that «the underlying problems of this case concern both the nature of science and the message of faith. It is therefore not to be excluded that one day we shall find ourselves in a similar situation, one which will require both sides to have an informed awareness of the field and of the limits of their own competencies». Before addressing the Church's involvement in contemporary bioethical debate later in this essay, it will be beneficial to take another brief historical interlude to examine how the Church's reflection on the autonomy and complementarity of the three modes of knowledge served the Church particularly well in addressing the influence of Darwinian evolution since the mid-19<sup>th</sup> century.

#### *Darwinism and the second major clash between science and religion*

While leading scientists welcomed the research of Darwin's *The Origin of Species*, a number of fervent Christians spurned the work as a blasphemous affront to their biblical faith. The notion that various species have developed at different periods of time from previously existing species seemed to contradict the direct creation of species suggested in God's creation of each plant and animal according to its «kind». Moreover, the idea that man descended from apes seems to rob him of his distinct role as steward of creation, a reality likewise found in the *Genesis* text. The uproar reached its public zenith in the United States in the infamous Scopes trial in which a young teacher was punished for

violating Tennessee law against teaching «any theory that denied the story of the Divine Creation of man as taught in the Bible, and to teach instead that man has descended from a lower order of animals». The case may very well have been forgotten if not for the 1960 film *Inherit the Wind*, which portrayed the trial as a fierce battle between progressive science and backwards religious fundamentalism.

While a number of Protestant groups rejected Darwin's theory due to their literalist interpretation of Genesis, Catholics were notably absent from the condemnations of the English biologist. Although not intellectually sympathetic to the Church, secularist H.L. Mencken observed the following regarding Catholics' general open-mindedness to the new teachings:

«[The advantage of Catholics] lies in the simple fact that they do not have to decide either for Evolution or against it. Authority has not spoken on the subject; hence it puts no burden upon conscience, and may be discussed realistically and without prejudice. A certain wariness, of course, is necessary. I say that authority has not spoken; it may, however, speak tomorrow, and so the prudent man remembers his step. But in the meanwhile there is nothing to prevent him examining all available facts, and even offering arguments in support of them or against them—so long as those arguments are not presented as dogma»<sup>8</sup>.

Mencken's assessment provides a stark contrast to the overly hasty condemnations of Galileo's inquisitors. No organ of the Church rushed to offer a definitive assessment of scientific research still in development and wisely left trained scientists to examine the empirical evidence.

While the Church thankfully avoided attempts to condemn a scientific theory, she did not remain silent on the philosophical and theological implications of various evolutionary doctrines. Pope Pius XII was the first pontiff to explicitly address the theme evolution and its relation to the faith, when in the 1950 letter *Humani Generis*, he made clear that «the Church does not forbid that ... research and discussions, on the part of men

experienced in both fields, take place with regard to the doctrine of evolution, in as far as it inquires into the origin of the human body as coming from pre-existent and living matter»<sup>9</sup>. Hence, while insisting on God's direct creation of the spiritual soul, the Pope left the details of the possible evolution of the human body from preexisting animal species to the continuing research of trained scientists. In 1996, Pope John Paul II commented on his predecessor's work and noted that decades of research in various fields had provided impressive confirmation of evolutionary theory. Nonetheless, he reemphasized the absolute necessity of God's direct creation of man's soul, for whose spiritual nature no series of material causes can sufficiently account.

John Paul II clarified that the Church was interested in evolutionary doctrines primarily insofar as they touched upon our notion of man. He used the controversy surrounding various opinions to reaffirm the Church's understanding of the distinction and harmony of science, philosophy, and theology. Recalling his reflections four years earlier on the Galileo affair, the pontiff noted that a confusion of disciplines continues to cloud debates on evolution:

«(There is the) necessity of using a rigorous hermeneutical approach in seeking a concrete interpretation of the inspired texts. It is important to set proper limits to the understanding of Scripture, excluding any unseasonable interpretations which would make it mean something which it is not intended to mean. In order to mark out the limits of their own proper fields, theologians and those working on the exegesis of the Scripture need to be well informed regarding the results of the latest scientific research»<sup>10</sup>.

The *Genesis* texts were not written as a modern scientific treatise meant to detail the procedure of creation. Rather, the text used

symbolic language to communicate philosophical and theological truths in a manner accessible to its contemporary audience. Symbolic, of course, does not mean false or merely fanciful. Those who have had the grace to study Shakespeare's plays and sonnets realize that the English Bard's images evoke a reality of human love or pathos that somehow capture a truth lost to a mere mechanical log of events.

While the pontiff insisted on respecting the autonomy of scientists to examine the empirical evidence regarding the development of various species, he did not embrace the materialistic philosophical conclusions many

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thinkers associate with Darwin's work. He notes the multiplicity of the evolutionary theories and clearly rejects those that would affirm that a strictly natural, unguided process of random genetic mutation and natural selection could alone sufficiently explain the mystery of man as a

spiritual-material composite willed by God and with a personal vocation to eternal beatitude. In awed acknowledgement of man's distinctiveness in creation, the Pope writes, «with man, we find ourselves facing a different ontological order—an ontological leap, we could say»<sup>11</sup>.

When thinkers use Darwinism to explain or at times to explain away the meaning of man's existence, they have ceased to perform scientific analysis of biological data and have entered the realm of philosophy. No degree of competency in their specific field of scientific expertise guarantees the soundness of their philosophic reductionism. Rather than blithely accept the covert philosophic conclusions certain thinkers promote under the clock of science, the Pope encourages a robust anthropology capable of synthesizing the truth found in empirical research, philosophic reflection, and theological speculation.

The Church's most recent authoritative bioethical document reaffirms her unfailing commitment to address contemporary issues from a synthetic vision of science, reason and faith. The text clearly summarizes this vision as follows:

«In presenting principles and moral evaluations regarding biomedical research on human life, the Catholic Church draws upon the light both of reason and of faith and seeks to set forth an integral vision of man and his vocation, capable of incorporating everything that is good in human activity, as well as in various cultural and religious traditions which not infrequently demonstrate a great reverence for life»<sup>12</sup>.

While the text is naturally directed to the edification of those within the Catholic fold, it is also addressed to «all who seek the truth». Thus, from the beginning, the Church captures the radical importance of faith to illumine the truth vocation of man, without the Engelhardtian conclusion that fruitful moral dialogue is impossible with those outside her fold. The following brief survey of the landmark document will help to appreciate the capacity of the Church's intellectual synthesis of the science, philosophy, and theology to address specific, complex issues that face today's society.

The document clearly enumerates the two chief principles that guide Catholic bioethical reflection. First it affirms the intrinsic dignity of every human person that entails absolute respect from the moment of an individual's conception to the point of natural death. Second it emphasizes the right of the child to be born within the context of a stable marriage through a conjugal act that authentically reflects the reciprocal total self-giving love of the spouses. The Church insists that these two principles are in accord with right reason and find their full meaning from the perspective of faith.

Consistent with the first principle of human dignity, modern scientific embryology con-

firms that at the moment of fertilization, a zygote is a genetically distinct member of the human species with the 46 chromosomes characteristic of human beings. As Dr. Dianne N. Irving summarizes, «This human being immediately produces specifically human proteins and enzymes, directs his/her own further growth and development as *human*, and is a new, genetically unique, newly existing, live human *individuum*»<sup>13</sup>. The Church rightly questions how any human individual could not be counted a human person worthy of rights. She sees no grounds for inventing categories of non-person or pre-person human beings who could be subsequently manipulated at the whim of those elite human persons deemed worthy of respect. Behind the arguments against universal human dignity is an implicit relativism that would illogically refuse personhood to some while granting it to others. While right reason affirms the universality of human dignity, supernatural faith confirms and further reveals the nobility of man and his sublime vocation. Revelation indicates that person is the sacred image and likeness of God called to share in His divine life here on earth and unending bliss in Heaven. No matter his background, talents, achievements or deficiencies, each and every person is loved into existence by God and called to eternal communion with Him.

Like the principle of universal human dignity, Catholic bioethics' affirmation of procreation through a loving conjugal act is accord with right reason and finds its fullest meaning in the light of the revealed contents of faith. Men and women experience a natural human need to share their life with another whose opposite sex complements their own. Not only is there a physical complementarity of anatomy, there is also a psychological complementarity in which the natural tendencies of the sexes collaborate in the mutual growth of the spouses and in the integral formation of their children. Supernatural faith confirms these natural harmonies and invites the couple to a sacramental union that allows them to more profoundly reflect the infinite self-giving love of God. The communion of life

and love that is marriage is a profound participation in the eternal communion of life and love within the Holy Trinity. In a 1988 homily, Pope John Paul II went so far as to say of marriage that «in this entire world there is not a more perfect, more complete image of God, Unity and Community. There is no other human reality which corresponds more, humanly speaking, to that divine mystery»<sup>14</sup>. The faith reveals that marriage is not a mere human institution designed for strictly economic benefits, but rather part of God plan for humanity and a living icon of His inner life. The conjugal act of free, total, faithful, fruitful love is the supreme expression of the exclusive loyalty spouses promise to one another in their marriage vows<sup>15</sup>. Moreover, the child that springs from the act of mutual self-giving love is a privileged share in the creativity of God. This rich vision of human procreation in the context of marriage illumines discussion of the varied and controversial developments regarding medical advances in procreative technology. Reason enlightened by faith presents the splendor of God's plan for married love and shows the evil of any procreative technology that would compromise the dignity and beauty of the spouses' live-giving conjugal love.

As initial reflection upon *Dignitas Personae* begins to reveal, the Church's supposed hostility to science is actually a balanced vision of the benefits and dangers that technology pose to the dignity of the human person. For instance, the Church is routinely criticized for opposing research that would aid suffering adults through the wise use of mere collections of embryonic cells. In reality, the Church supports stem cell research that would aid such suffering adults, so long as this research does not threaten the lives of other personas at the embryonic stage of development, who possess rights despite their incapacity to yet defend themselves. As experience has shown, research on adult stem cells has also more much more scientifically beneficial than comparable research entailing the destruction of embryos. The document makes clear the Church's openness to re-

search involving stem cells that are obtained in a manner that does no serious harm to the subject, specifically listing the cases of tissues taken from an adult organism, the blood of the umbilical cord at the time of birth, and fetuses who have died of natural causes<sup>16</sup>. The Church's steadfast opposition to embryonic stem cell research thus has nothing to do with its lack of compassion for the sick or with its fear of scientific progress. Instead, her negative restrictions are actually positive affirmation of the intrinsic dignity of every human life at all stages of development<sup>17</sup>. Indeed, that which ideologies would misrepresent as the repression of humanistic medical advancement is in reality a heroic defense of human dignity against all forms of discrimination that would seek to sacrifice the weak and defenseless to the whims of powerful.

### *Conclusion*

Some portray Catholic bioethics as an endeavor doomed to failure. They contend that authentic bioethics should be based on rational principles accessible to all men, rather than upon sectarian religious dogma exclusive to particular communities. Attempts at Catholic bioethics are thus dismissed as veiled efforts to smuggle irrational religious prejudices into what should be a reasonable discussion. Such a perspective, however, misinterprets the Church's rich understanding of the harmonious relationship between faith and reason as developed and clarified through concrete historic events. Faith indeed proposes that which exceeds the capacity of natural human reason, however, this transcendence should not be understood as a contradiction, but rather as a fulfillment of man's universal quest to understand himself, the world around him and their common origin in God. The Church recognizes the autonomy of the natural sciences and encourages their advancement, hence she never resists science, but only its manipulation at the hands of ideologies whose distorted principles threaten man's dignity. Thus, the synthesis of science, reason and faith so vividly celebrated in the works of Dante and

Raphael remains at the heart of a Catholic bioethics that promotes the integral development of the human person and his eternal beatitude.

#### NOTE

<sup>1</sup> DANTE ALIGHIERI, *Inferno*, Canto IV, 130-132.

<sup>2</sup> D. LINDER, «The Trial of Galileo», (2002), <http://law2.umkc.edu/faculty/projects/ftrials/galileo/galileoaccount.html>.

<sup>3</sup> JOHN PAUL II, «Message delivered to the Pontifical Academy of Sciences», 31 October 1979, English translation in *L'Osservatore Romano*, 4 November 1992.

<sup>4</sup> C. DECAEN, «Galileo Galilei, Scriptural Exegete, and the Church of Rome, Advocate of Science», lecture (27 August 2010), <http://www.thomasaquinas.edu/news/lecture-galileo-church>.

<sup>5</sup> GALILEO GALILEI, *Letter to Madame Christina of Lorraine Grand Duchess of Tuscany Concerning the Use of Biblical Quotations in Matters of Science*, 1615, <https://www.college.columbia.edu/core/sites/core/files/text/Galileo.pdf>.

<sup>6</sup> *Ibid.*

<sup>7</sup> T. O'NEILL, «Myths and Facts – The Misunderstood Events of Galileo's Heliocentrism Affair»,

<http://triedgeart.wordpress.com/2013/05/13/myths-and-facts-the-misunderstood-events-of-galileo-heliocentrism-affair/>.

<sup>8</sup> H.L. MENCKEN, *H.L. Mencken on Religion*, S.T. JOSHI (edited by), Prometheus Books, 1 October 2002, 163.

<sup>9</sup> PIUS XII, *Encyclical Humani Generis concerning some false opinions Threatening to Undermine the Foundations of Catholic Doctrine*, 12 August 1950, n. 36.

<sup>10</sup> JOHN PAUL II, *Message delivered to the Pontifical Academy of Sciences*, 22 October 1996.

<sup>11</sup> *Ibid.*

<sup>12</sup> CONGREGATION FOR THE DOCTRINE OF THE FAITH, *Instruction Dignitas Personae on certain bioethical questions*, 20 June 2008, 3.

<sup>13</sup> D. N. IRVING, «When Do Human Beings Begin? Scientific Myths and Scientific Facts», in *International Journal of Sociology and Social Policy*, 19, 3/4 (February 1999), 28.

<sup>14</sup> JOHN PAUL II, *Homily on the Feast of the Holy Family*, 30 December 1988.

<sup>15</sup> Cf. ID., *Apostolic Exhortation Familiaris Consortio on the role of the Christian family in the modern world*, 22 September 1981, 11.

<sup>16</sup> CONGREGATION FOR THE DOCTRINE OF THE FAITH, *Instruction Dignitas Personae*, cit., 32.

<sup>17</sup> *Ibid.*, Conclusion.