

RECONCILING OLD LOVERS:

JOHN PAUL ON SCIENCE AND FAITH

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In the introduction of his work *De revolutionibus*, Nicholas Copernicus sings the praises of astronomy, and during his encomium he has this to say:

... when a person is occupied with things that he sees established in the finest order and directed by divine management, will not the unremitting contemplation of them and a certain familiarity with them stimulate him to the best and to admiration for the Maker of everything, in whom are all happiness and every good? For would not the pious psalmist [92:4] in vain declare that he was made glad through the work of the Lord and rejoiced in the works of His hands, if we were not drawn to the contemplation of the highest good by this means?¹

These words reveal that although Copernicus' model would cause revolutions in science and culture, it does not seem to have caused any revolutionary upheaval in Copernicus' own faith. Science and faith lived and moved and had their being within him, harmoniously: harmoniously within the heart of this Pole, within the heart of this graduate from the University of Kraków (for Copernicus was both of these: a Polish graduate from the University of Kraków).

If we understand the significance for the people of Poland of the ethnic and educational background of Nicholas Copernicus, we will have gone a long way toward understanding the work of another Polish graduate from the University of Kraków: Karol Wojtyła. The core of John Paul II's teaching on science can best be understood as an attempt to restore - throughout the Church and throughout the world - the harmony between science and faith which existed in the heart of Nicholas Copernicus; a harmony which also existed in the heart of Copernicus' great disciple, Galileo Galilee.

The eminent historian, Georges Minois, speaks for many when he argues that the condemnation of Galileo, "consecrated" a "great divorce" between science and the Church.² If we grant that the nuptial analogy is apt, then truly we can say that John Paul's work is an attempt to reconcile old lovers. John Paul firmly proclaims the Catholic insight that if science and faith could live together harmoniously in the hearts of Copernicus and Galileo, then, in principle, they should be able to do so in the hearts of all scientists; and thus, there is no need for any divorce between science and faith. The God of creation is the God of revelation and redemption. John Paul's project, therefore, has been something akin to marriage counseling.

First, he seeks to understand better what caused the rupture in this relationship: What went wrong and why? Second, he initiates a deeper reconciliation by calling scientists and theologians to work toward establishing a new unity (what he calls a "relational unity") between science and religion. Thirdly, from this new unity, he calls scientists and theologians to work together for the formation of true culture (i.e., fully human culture). This is the project he follows in virtually everything he has written concerning science and religion. He wants to analyze the rupture, work toward a new unity, and together promote true culture.

I. Analysis of the Rupture

In 1979, at the beginning of his Pontificate, in his first address to the Pontifical Academy of Sciences, John Paul read a quotation from the Second Vatican Council:

We cannot but deplore certain attitudes which have existed among Christians themselves, insufficiently attentive to the legitimate autonomy of science. Sources of tensions and conflicts, they have led many minds to conclude that faith and science are mutually opposed.³

The Pope explains that the Council Fathers are alluding to the Galileo case (as the footnote attached to the council text makes clear), and he continues:

In order to go a step beyond this position taken by the council, I wish that theologians, scholars and historians, animated by a spirit of sincere collaboration, might examine more deeply the Galileo case and, in an honest recognition of wrongs on whatever side they occur, might make disappear the obstacles that this affair still sets up in many minds, to a fruitful concord between science and faith, between the church and world. I give my entire support to this task which will be able to honor the truth of faith and of science and open the door to future collaborations.⁴

John Paul made good on his promise. In July of 1981, the Pope constituted a study commission for the expressed purpose of studying the Galileo case. The commission - composed of scientists, historians and theologians - worked for over ten years and then in 1992 it brought its work to a close.

In all of this, John Paul's expressed aim was to provide the Church and the scientific community with a deeper understanding of the case. This knowledge, it was hoped, would help both communities learn some important lessons about the proper relationship between science and faith. The commission's basic conclusion was that the rift occurred because, first, no one (neither scientists nor theologians), during those early days of the scientific method, had a sufficiently clear understanding of the relationship between data and theory, and between data and theory's relationship to their larger philosophical and theological frameworks.

This lack of clarity was causing trouble for everyone. For example, what exactly had Galileo's observations proved? It was generally agreed that his observations disproved the Ptolemaic system, but in what sense had he proved the Copernican system? Heliocentrism accounted for the then available astronomical data, but so did the geocentric system of the Danish astronomer, Tycho Brahe (which still pictured the earth at the center with the sun orbiting it, but now the planets were no longer presented as orbiting the earth but as orbiting the sun.) One problem, therefore, was the lack of clarity concerning theory, data and their relationship to one's larger philosophical framework. Responsibility for the trouble this caused rests more or less equally upon all the parties involved.

But there was a second source of trouble, responsibility for which rests squarely with the Church. The theologians involved in the Galileo case, failed to grasp the profound, non-literal meaning of the Scriptures when they described the physical structure of the created universe. This led them unduly to transpose a question of factual observation into the realm of faith.⁵

What Augustine and Aquinas had understood well, the theologians of the Catholic Reformation has lost cite of. They failed to recognize that, in the Scriptures, the Holy Spirit does not teach us "how the heavens go, but how to go to heaven." More on this later. Before we move to the next section, however, it is important to note that John Paul exhibits in his writings a real affection for Galileo. He refers to him frequently and often praises him, especially the insight Galileo exhibits concerning biblical interpretation. Indeed, in one address the Pope employs Galileo almost as his theological guide for biblical interpretation, and quotes him liberally. One has the sense in reading these passages that the Pope, as a Polish patriot, is consciously righting an old wrong, a wrong inflicted upon Copernicus' greatest disciple. But to right that wrong, more is needed than mere knowledge of the wrong done. A new harmony must be established.

II. Working Toward a New Unity

Several obstacles stand in the way of establishing a new unity between science and religious faith. First, there are some who believe that no working relationship between science and faith can be established (whether in the hearts of individuals, or between institutions such as the Church and the scientific community). In their view, science and faith are fundamentally opposed to each other. Adherents of this view can be found on both sides of the debate. Some reject the findings of science for religious reasons, while others reject the tenets of faith for scientific reasons.

Scientists will often reject faith because they frequently are confronted with religious claims which plainly contradict the observable data concerning the natural world. (I have in mind here biblical literalists who claim that the earth is only ten thousand years old, or who deny that any form of evolutionary process has been at work in the emergence of life on the earth). Confronted with this, many in the scientific community conclude that while science belongs to the domain of reason, faith attacks reason and is thus essentially at odds with it.

Conversely, many individuals of sincere religious conviction (whether Christians, Muslims or Jews), often reject science - in whole or in part - because they so frequently encounter scientists attacking the deepest tenets of their faith: they encounter scientists who claim that material reality is all that exists, that it was not "created" because there is no God, and that there is no immortal soul, because consciousness is only a product of physical/chemical processes. Moreover, these same scientists will often logically conclude from their premises that there is no such thing as sin. The only values or disvalues that exist, exist on the level of functionality, and lead to the question: Is it useful or is it pleasurable?

These two extremes should be familiar to all of us, because - in the American experience - they are the level at which public discourse between science and religion often, if not exclusively, occurs. One extreme represents what is commonly called creationism, a view which absolutizes biblical revelation, claiming that it is the source of all truth, even scientific truth. The other extreme is that of scientism, which absolutizes science's quantitative method of investigation and makes the very unscientific claim that only the quantifiable (i.e., the material or measurable) exists.

To return to our nuptial analogy, these two extremes can perhaps best be understood as the type of mistake into which young lovers can often fall. Those who are living in an unhealthy relationship often attempt to merge their personalities one with the other. Inevitably, however, this leads to domination. The personality and legitimate independence of the one is subsumed into the other, to the great misfortune of both.

John Paul is clearly aware of this dynamic: that either science or faith - whether in the hearts of individuals or institutions - can attempt to absolutize its role by claiming itself to be the sole source of truth. Yet, experience, the Pope explains, has taught the Church that this is not the way the relationship should be lived. In order to promote the well-being and proper functioning of both science and faith, the legitimate autonomy of each within its own domain must be recognized and respected. Only then can a healthy relational unity be established between them. John Paul explains it thus:

The unity that we seek, . . . is not identity. The church does not propose that science should become religion or religion, science. On the contrary, unity always presupposes the diversity and the integrity of its elements. Each of these members should become not less itself but more itself in a dynamic interchange, for a unity in which one of the elements is reduced to the other is destructive, false in its promises of harmony and ruinous of the integrity of its components. We are asked to become one. We are not asked to become each other.⁶

John Paul later explains specifically what he means by unity in diversity:

Both religion and science must preserve their own autonomy and their distinctiveness. Religion is not founded on science nor is science an extension of religion. Each should possess its own principles, its pattern of procedures, its diversities of interpretation and its own conclusions. ... While each can and should support the other as distinct dimensions of a common human culture, neither ought to assume that it forms a necessary premise for the other.⁷

The model here is that there are two autonomous realms of knowledge. There is what reason can attain through the use of the scientific method; and there is that knowledge which has its source in revelation. Both science and faith have points of contact: they both illumine an aspect of reality. Science considers the world and the human person on the horizontal level, the level of physical/chemical processes and of quantifiable matter. Religious faith, on the other hand, considers the vertical level: the level of the human person's transcendent origin, dignity and destiny: the level of the human person in his or her relationship with God.

Many grow uncomfortable when they hear that science should be autonomous. It conjures in their minds images of the sorcerer's apprentice whose autonomous science has run amuck with ruinous effect. But the Pope, following the Second Vatican Council, is careful to distinguish between the application of the scientific method for the continuous discovery of truth (which is what John Paul means by science) and the philosophical presuppositions and conclusions which accompany scientific investigation and which properly pertain to the domain of philosophy.

John Paul is confident that if science is faithful to its method (if it dedicates itself to the pursuit of knowledge), then science poses no threat to belief, nor does it endanger the integral welfare of human society. The Pope is quite aware, however, that scientists do more than just research. They also seek to integrate their findings into a larger coherent view of the world. In these efforts, they have recourse to what the Pope calls "metascientific concepts."⁸

Whether they realize it or not, scientists often engage in philosophical reflection. They enter the domain of what some would call, "the philosophy of nature." John Paul acknowledges that it is right and just that scientists should do this. Like anyone else, as human beings they desire to understand the meaning that the truths they discover have for their own lives and for the life of the larger community. John Paul explains, however, that once scientists move to this level, the Church is going to engage them in dialogue. Indeed, he says more. The Pope asserts that once scientists move to the level of philosophical reflection they need to be in dialogue with religious faith. Why? Because often "undue extrapolations" are made which link their "strictly scientific discoveries" to ideologies or world-views that are in no way implied by the data, and which do violence to the dignity and vocation of the human person.⁹ (For example, when a scientist embeds his research within a reductionist and materialist view of the world.) In such instances the Church reserves the right to counter these misguided conclusions with the truths of faith and the tools of philosophy.

Scientists are autonomous in their search for knowledge. Yet, when they move to the level of philosophical reflection - the level which makes absolute claims about the human person's transcendent origin and destiny - on that level they are not autonomous. On that level, John Paul argues, scientists have a twofold obligation: (a) they must develop their philosophical reflections concerning their research in dialogue with the larger community, which includes the Church (and indeed, all religions); and (b) they must recognize that they, and all people, have a transcendent vocation: they have a vocation to know and love a truth that transcends this world. In John Paul's view, if scientists are going to step outside of the domain of scientific investigation and engage in philosophical reflection, they must take care to embed the fruits of their research within philosophical frameworks that recognize the human person's transcendent vocation.

It is precisely at this point that others become concerned. If some are troubled by the notion that science should be described as "autonomous," others are deeply disturbed by the prospect of religious authority critiquing their philosophical inquiries. If this is what John Paul means by relational unity, they want no part in it. John Paul counters, however, by asserting that religion's

critical role does not hinder scientific investigation, but actually perfects and preserves it. When John Paul argues that scientists' philosophical investigations must recognize the human person's transcendent dignity - that he or she has the vocation to know truth and choose truth - in John Paul's view, he is defending the conditions for the possibility of science. Only if you believe that there is such a thing as truth, and that it can be known and freely embraced, is science possible. On the other hand, if one denies that there is truth, then the scientific community has no defense against forces in society that would usurp science.

This is at the core of all of John Paul's thought: there is no freedom without the recognition of truth. Unless one recognizes that there is something which transcends this world and the structures of this world, one ceases to be free. Unless there is something that can be used as a measure for judging the structures of this world, those structures will begin to enslave us. Without truth, we become subject to the powers of this world and have no defense against them.

Thus, when scientific investigation becomes enmeshed in a false view of the human person, it becomes enslaved. When the human person is viewed merely on the material level as a thing to be manipulated and when utility becomes the only good, then science as the unhindered pursuit of knowledge will begin to disappear. It will be replaced by a science enslaved to the idols and ideologies of the age. Under this corrupting influence, dedication to the pursuit of knowledge and the welfare of the human community will inevitably give way to the pursuit of profit and power. In the process, the dignity of scientists themselves becomes degraded: to their horror they begin to discover that they are increasingly little more than instruments for the production of products and the manufacture of munitions.

The Pope, therefore, appeals to the scientific community to recognize that a dialogical and relational unity between science and religion is for the benefit of both. His explanation of this in his groundbreaking letter to the director of the Vatican Observatory deserves to be quoted at length.

Science can purify religion from error and superstition; religion can purify science from idolatry and false absolutes. Each can draw the other into a wider world, a world in which both can flourish.

For the truth of the matter is that the church and the scientific community will inevitably interact; their options do not include isolation. Christians will inevitably assimilate the prevailing ideas about the world, and today these are deeply shaped by science. The only question is whether they will do this critically or unreflectively, with depth and nuance or with a shallowness that debases the Gospel and leaves us ashamed before history. Scientists, like all human beings, will make decisions upon what ultimately gives meaning and value to their lives and to their work. This they will do well or poorly, with the reflective depth that theological wisdom can help them attain or with an unconsidered absolutizing of their results beyond their reasonable and proper limits.

Both the church and the scientific community are faced with such inescapable alternatives. We shall make our choices much better if we live in a collaborative interaction in which we are called continually to be more. Only a dynamic relationship between theology and science can reveal those limits which support the integrity of either discipline, so that theology does not profess a pseudoscience and science does not become an unconscious theology. Our knowledge of each other can lead us to be more authentically ourselves. No one can read the history of the past century and not realize that crisis is upon us both. The uses of science have on more than one occasion proven massively destructive, and the reflections on religion have too often been sterile. We need each other to be what we must be, what we are called to be.¹⁰

To summarize, therefore, John Paul is saying that by establishing and living this relational unity, both science and faith benefit. Negatively, they help each other avoid absolutizing themselves as the sole source of truth. Positively, they help each other understand more deeply the truths that pertain to them. Moreover, they help each other preserve their legitimate freedom and independence.

I note in passing that John Paul takes very seriously the notion that theology needs science. He asserts that the data and the methods of science will help theology probe the mysteries of faith more deeply. He specifically states that reality - the truth of faith - is much richer than any theology can adequately explain. Thus, just as Aquinas found in the science flooding the culture of his day elements that could illumine his faith, the same is true for us today. What we need, he says, is a new St. Thomas to do with the science of our day, what Thomas did with Aristotle.¹¹

III. The Promotion of True Culture

In 1980, John Paul addressed UNESCO (United Nations Educational, Scientific and Cultural Organization) at its headquarters in Paris.¹² In his address he said he felt like St. Paul in the Areopagus: St. Paul speaking to the leaders of art and science. His address, however, seems also to have followed the example of St. Paul in another way. Just as St. Paul begins by saying things that his audience wanted to hear, so too, the Pope begins by praising the scientific and artistic communities for all they have done for humanity. Like St. Paul, however, he also says some things that were not easy for them to hear. He reminded them that science has known sin. At times, science has become enslaved to ideologies which have directed it toward alien goals: toward destroying the environment, instead of tending it; toward taking life, instead of preserving it; toward having more, instead of being more.

Tragically, science has also often been directed toward destroying any unified sense of human purpose. In other words, at times science has been an instrument toward the fragmentation of culture. Yet, it can be something very different. In the heart of society, science can become an engine for promoting the unified and holistic growth of true human culture.

Thus, John Paul calls upon scientists to take back their research and to ensure that it is not used to destroy or degrade human life. The way to ensure this, John Paul explains, is by promoting a true conception of the human person. Scientists should be involved in the philosophical reflection and cultural leadership necessary to instill in the cultures of the world an understanding of the human person's transcendent dignity: that we have been made for a truth that transcends this world. We are made of matter, but also of spirit. Scientists must be concerned about the values of the larger culture, because the very existence of science - indeed, the very existence of scientists and humans in general - depends upon this. As discoverers of truth, scientists have a responsibility to ensure that the truths they discover are used in ways that do not destroy human dignity.

John Paul invites scientists to join with the Church to promote and ensure the two great freedoms at the heart of true culture: religious freedom (the freedom to pursue religious truth), and scientific freedom (the freedom to search for true knowledge about the physical world). Admittedly, the Church in her leaders has not always recognized the full value of these two freedoms. The crucible of modern history, however, has taught her the importance of recognizing and defending them. Conscious of this, John Paul is inviting scientists and theologians to learn from the past so that we can work together for a better future.

Ultimately, these two freedoms are only possible if the existence of truth is affirmed. Science will not survive unless it is embedded in a culture that presents its young with a coherent view of the purpose of human life. Unless we succeed in sharing with our children the existence of a truth that invites us to discover it, our own existence will become imperiled.

John Paul, however, is filled with confidence. As a person of faith nurtured in the Christian tradition, he recognizes that the truth we pursue has a hidden power all its own. Science and faith can work together for the promotion of true culture, because ultimately the truth they both pursue is a "who" and not a "what." The relationship between science and faith can be dynamic and healthy, because truth itself is a dynamic relationship. Indeed, for the Christian, the ground of truth is itself a triune community of love. v

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NOTES

1 Nicholas Copernicus, *On The Revolutions*, edited by Jerzy Dobrzycki, Translation and Commentary by Edward Rosen (Baltimore, Johns Hopkins University Press, 1978), 7.

2 Georges Minois, *L'Eglise et la Science: Histoire d'un malentendu, De saint Augustin à Galilée* (Paris: Fayard, 1990), 9.

3 *Gaudium et Spes*, n 36.

4 John Paul II, "Address to the Pontifical Academy of Sciences," November 10, 1979; *Origins*, CNS documentary service v. 9, n. 24 (November 29, 1979), 391.

5 Cardinal Poupard, "Galileo: Report on Papal Commission Findings," *Origins*, v. 22, n. 22 (November 12, 1992), 375. There is some confusion concerning whether Cardinal Poupard reported the findings of the Commission itself, or expressed his own reflections concerning the work of the Commission.

6 John Paul II, "Letter to the Reverend George V. Coyne, S.J., Director of the Vatican Observatory," in *Origins* v. 18, n. 23 (November 17, 1988), 377.

7 Ibid.

8 John Paul II, "Lessons of the Galileo Case," address to the Pontifical Academy of Sciences, October 31, 1992; in *Origins*, v. 22, n. 22 (November 12, 1992), 371.

9 Ibid.

10 John Paul II, "Letter to Reverend George V. Coyne, S.J.," *Origins*, 378.

11 Ibid., 377-378.

12 John Paul II, "The World as an Environment for Humanity," *Origins*, v. 10, n. 4 (June 12, 1980), 58-64.