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Reflection

COMPLEMENTARY NATURE OF SCIENCE AND RELIGION

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1. Introduction

As the local archbishop, I have been given the task of delivering the inaugural Address at this august gathering of people of science and of religion, who have converged to debate on a topic of never–diminishing relevance: Catholicism in the World of Science.[1]

I suppose the task given to me also includes the duty – which I would like to perform with the greatest of pleasure – of welcoming you all to this conference in the name of the church in this Archdiocese, which rejoices on the occasion of the fourth century of this great institution of human and priestly formation known today as the patriarchal Seminary which is the oldest existing institution of its kind in the whole Asian continent. Countless indeed are the priests and layman who have left the portals of this house and spread throughout Goa, India and the world at large, bearing the light of knowledge and of the catholic faith, of science and of religion.

[♦]**Dr. Filipe Neri Ferrao**, the Archbishop of Goa and Daman, inaugurated the International Conference on Science and Religion organized to commemorate the 400th anniversary of the founding of the Rachol Seminary which was established by the King of Portugal San Sebastiao in 1610. This article is the inaugural address delivered by Ferrao on 17th December 2010.

[1]Archbishop Filipe Neri Ferrao inaugurated the *Sangam* International conference on 'Science and Religion' held in connection with the 4th Centenary celebration of the establishment of the Rachol Patriarchal Seminary in 1610. The young and dynamic Portuguese king Don Sebastiao was instrumental in constructing the huge edifice within four years time and became a centre of learning where even Swami Vivekananda came and stayed for a few days in order to learn about Christianity. It was also a centre for science since the missionaries from Europe landed here with their scientific gadgets like telescope on their way to China to spread Christianity through the instrumentality of science which was indeed a successful method. Archbishop Felipe in his inaugural lecture presents the complementary nature of science and religion and refers summarily on to the various interactive dynamics between religion and science that played historically and makes the clarion call for closer ties between them so that the environmental and other problems infesting humanity today could be resolved and sustainable progress can be enhanced.

And today, it is precisely science and religion that bring us together, as we celebrate four hundred years of this institution's fruitful contribution to our state, to our country and to the world. This quadric-centennial Seminary has always been a temple of learning and a lighthouse of Faith. Its existence through the last four hundred years has been a great saga of academic as well as spiritual endeavour. Therefore, it is but fitting that we should celebrate this centenary with an event like this wherein people of science and of religion come together to uncover important questions which are of common concern and which are vital to the larger human community which they both serve.

As Rachol Seminary crosses this significant milestone let me congratulate all those who are presently part of it: the Rector, the staff, the seminarians and the non-teaching staff. I would like to express my sincere appreciation for all that you signify to the church in this archdiocese. I would also like to convey my heartfelt gratitude to all those who have actively collaborated with our seminary to organize this international conference on 'Catholicism' in the world of science; chiefly the Pontifical Council for Culture, the Division of Humanities of St. John's University, New York, and the Indian Institute of Science and Religion, Pune. I also welcome and thank all the resource persons for their presence and valuable contribution towards the success of this venture. I appreciate the enthusiastic presence of all the delegates and I hope that the presentations and deliberations of this conference will enrich one and all, so that we can arrive at a deeper understanding of our faith in the context of today's world of science.

You have chosen a very engaging theme four your Conference. Allow me to present a few reflections on it. I shall divide my presentation into three parts. In the first part I shall deal with the relationship of science and Christianity in general. Next, I shall elaborate on Science and Catholic Faith and finally I shall indicate how an attitude of radical openness can define the future direction of the dialogue between Science and Catholicism.

2. Science and Christianity

The church has always shown great interest in science and has, in fact, been irretrievably connected with development. In fact, many noted scientists, like Alfred North Whitehead and Paul Davis, hold that science as a gift of Christianity to the world. This claim is no exaggeration, although we must not forget the contribution of Hinduism, Islam and other

great religions to the development of Science. Many of the founders of modern science were clerics, monks and deeply believing faithful. Neither Galileo nor Kepler, nor Newton was a sceptic or unbeliever. Many scientists, in fact, thought that they were trying to understand God through the understanding of creation. Celebrated scientists like Francis Collins and Allen Sandage, who were avowed atheists, acknowledged at the later state that it was Science that brought them to God. Thus we can trace within Christianity a vibrant dialogue, with science, ranging from the acceptance of science as an enlightened teacher and partner to an established rival and enemy.

2.1. Duhem-Jaki Thesis

Catholic Scholars like Pierre Duhem and Stanley Jaki have argued for the Christian roots of modern science. Their view sees a direct link between Christian metaphysics and the emergence of science and this is hailed as the Duhem-Jaki thesis. This is echoed in the sociological investigations of Robert K. Merton, who opines that ethics was responsible for the rise of science. Much in the same way, the German sociologist Max Weber tied the rise the capitalism to Calvinist ethics. But the Duhem-Jaki thesis rejects these standard views about the origin of science, by pointing out that ethical conditions are only extrinsic cause for the emergence of science. Such condition existed in three great ancient cultures, namely China, India and Egypt and yet modern science did not develop in these cultures. It developed in the West, instead. Duhem and Jaki conclude that Christianity – the western model of Christianity – led to the birth of science. This view states that it is our faith that seeds to the growth of science, which has today become a massive fruit bearing tree.

2.2. The Draper-White Thesis

Although there seems to be a consensus about the Christian origin of modern science, most people believe that, as science grew, it became a rebellious child and spawned conflicts within the Christian society. This conflict theory has been christened as the Draper-White thesis and views the relationship between Science and Christianity as hostile.

This conflict thesis was quite popular during the late 19th and early 20th centuries and can be traced in our days to the work of Richard Dawkins, who regards religion as the root of all evil. With the passing of time, however, the Draper-White thesis was shown to be unfounded, and its acceptance among scholars has declined, thanks to the developments in science and it was finally rejected in the 1970s. As a result, in

contemporary circles, most scholars consider the conflict theory as inaccurate and even obsolete.

In our country there is no place for any war between science and religion. The famous Indian scientists of the yesteryears as well as of the present have found no contradiction between one's specialization in science and one's religious beliefs. What, however, plagues Indian science and one's religious beliefs seems to be a cosmic metaphysics which is part of the very ethos of our country. I refer to the fact that our mainstream society considers the external world as illusory. This is perhaps the reason why we have not been world leaders in scientific innovation, despite the astounding development of science in our country.

2.3. The Two Books Thesis

Although the conflict thesis has lost most of its adherents, the two books thesis has gained momentum among several scholars. It revives the famous Faraday's Rubicon, which states: "when we open our laboratory we have to close our oratory." This view is based on the two books model which was proposed by Francis Bacon, who thought that God has given us two Books: the Books of Scripture, and the Book of nature. The priests read the book of spiritual, the word of God, and the scientists read the Book of natural, the work of God. Karl Barth and many theologians opt for this model, claiming that the only way to ensure harmony between Science and Christianity is to keep them separate in water-tight compartments.

2.4. The S-R-D Thesis

Twentieth century Physics, with the development of special and general theories of Relativity, Quantum Theory, Chaos and Complexity, etc., has brought about a certain humbling of Science, making Science open to religion. Luckily, there were parallel developments within Christianity that led to openness religion to Science. The atmosphere of openness catalyzed by the Second Vatican Council, the reopening of the Galileo case, Pope John Paul II's Letter to the Scientists, etc. have led to the transformation of the reception of Christianity in the scientific circles and vice versa.

As a result of this, the Science and Religion Dialogue become acceptable to historians of science. Religious organization and clerics figured prominently in the origin and growth of science, although it became progressively secular with the professionalization of the scientific enterprise. Buoyed by these developments, the Science–Religion Dialogue – which is greeted as the S-R-D thesis in our country – has grown exponentially, across the globe.

3. Science and Catholicism

The new amity between Science and Religion opened many vistas which illumined the dynamic history of Catholic Faith in dialogue with the World of Science. The Institutional Church has cultivated and fostered science, particularly in its infancy. Members of many religious orders took active part in the development and promotion of science. It may be noted that in the middle ages, the monasteries in various parts of Europe became the custodians of scientific heritage, including Greek science. The works of Robert Grosseteste, Bishop Lincoln and Roger Bacon, a Franciscan who taught optics and experimented science at Paris and Oxford, have been well recognized by scholars. Moreover, Copernicus, a Cathedral Canon, Gregor Mendel, a Catholic Augustinian Monk, Geroge Lemaitre, a catholic priest of the of the Brussels-Mechlen Archdiocese from Belgium and the devout French layman, Louis Pasteur, have made remarkable contributions to science and have become beacons of inspiration to generations of future Catholic scientists. Johann Christian Poggendorf lists 1847 scientists in his *Dictionnaire des Sciences Exactes* from antiquity to 1863. Of these, 10% are priests and religious.

The Jesuit Order has been always thought of as a scientific order in the Church and has made great contributions to the growth and spread of science across the globe. Christopher Clavius was the mathematician behind the Gregorian Calendar reform and was instrumental in propagating mathematics and physics through the schools the Jesuits established in Europe and developed the culture of science. The historian of science, George Sarton, observed that one cannot think of mathematics in the 16^{th} and the 17^{th} centuries without the presence of a Jesuit. The Jesuits brought, in many ways, western science and technology into our country. They brought in the telescope to Goa from Rome and from Goa to China as an instrument of evangelization. Similarly brought the printing press into Goa and perfected our cartography and accurately measured the latitudes and longitudes of our land mass. This very building housed one of the printing presses brought by them, the third printing press in the whole of Asia, to be precise. Many Jesuit scientists came to Goa and, from here, went over to China, Japan and other countries in the East. The school culture and the development of a science enriched curriculum initiated by the Jesuits were taken up by other religious congregations belonging to the Catholic Church and vigorously propagated all over Europe and to other countries and paved the way for the emergence of great scientists like Galileo, Descartes, Louis Pasteur, etc.

All these do not mean that the relationship between the world of science and the Church was always smooth. The trial and condemnation of Galileo and the militantly atheistic Darwinism had, for a long time, fuelled the hostility between Science and Catholicism. The clouds of suspicion that arose in the context of the Copernican Revolution have been shown to have arisen due to many other factors and even personal grudges. Hence, the reopening of the Galileo case by Pope John Paul II in our days became an important step towards the reconciliation of science and Christianity. The controversy triggered by the evolution debate emerging from Darwinism is also reaching a higher level of understanding. As a result, the theory of evolution is now seen as compatible with the Christian view of creation. Moreover, Darwinism has never been formally condemned by the Church. Pope Pius XII had already affirmed that there is no conflict between evolution and the doctrine of faith regarding the origin of humanity, provided the origin of the soul was accepted as a direct act of God. The *Humani Generis* regarded evolution as a serious hypothesis, worthy of investigation. More recently, Cardinal Gianfranco Ravasi, Head of the Pontifical Council for Culture, declared that evolution is compatible with the doctrine of creation.

As the clouds of suspicion are being blown away, we are able to appreciate the dynamic relation between the Church and the world of science. The foundation of the Papal Academy of Sciences and of the Papal Observatory, the teachings of Vatican II on Science and Technology, the Letter of Pope John Paul II to the scientists and the encyclical *Fides et Ratio* have all demonstrated the radical openness of the Church to the world of science.

4. Radical Openness in the Religion and Science Encounter

Science and Religion overlap in many ways and the separation principle seems to be far from helpful for a desirable dialogue that will evoke a sense of mutual involvement of the two. A dynamic interchange prompted by a basic radical openness can lead to broader areas of shared understanding and concern, without necessarily destroying the autonomy of science and religion. It is crucial that the conversation between these two powerful forces in our society, based on critical openness and interchange, should not only continue but also grow and deepen in quality and scope. Science and religion can establish a common interactive relationship, in which they retain their own integrity and yet are radically open to the discoveries and insights of the other. After all, they need each other to be what they must be, what they are called to be.

Pope John Paul II has succinctly presented the benefits of our engagement with science when he said: "theology ... must be in vital interchange today with science just as it always has been with philosophy and other forms of learning. Theology will have to call on the findings of science to one degree or another as it pursues its primary concern for the human person the reaches of freedom, the possibilities of Christian community, the nature of belief and the intelligibility of nature and history."[2] This clarion call for a radical openness between Theology and Science represents, indeed, a most relevant response of the Church to the signs of the times.

It is in this context that I hail this initiative of holding an International Conference on the theme, 'Catholicism in the World of Science'. I am certain that the enlightened inputs of the learned resource persons and the deliberations of our vibrant delegates and our beloved seminarians will enrich us all individually and the Church at large. The Church in Goa considers herself blessed to host this unique event in this Patriarchal Seminary of glorious tradition, and I wish all the success to everything that will take place during these four days.

This conference should become an important occasion for us to look back and to look ahead. Our reflection on the amazing successes of science can become for us a stimulus to come before our God in wonder and awe. The human spirit cannot be subdued, for human beings rise on the wings of faith and reason and raise the questions like "Why is there something rather than nothing?" or "How do the equations that accurately describe the cosmic phenomenon work?" bring back forcefully the divine horizons into our this-worldly life.

Science also amplifies our understanding of the entire creation. It brings into special focus the face of humanity. And human beings are in constant search for a more profound meaning of life. It is faith that complements and illumines the insights from science. That is why we need the dialogue to bring together the scientific perspectives and the domain of faith and morals. This dialogue has the power to help us proclaim our faith to our contemporaries, because it speaks to them in a language they understand, and therefore it has the power to bring about a re-evangelization of human culture. What I mean to say is that the world of science has become like a new *Areopagaus*, wherein we can evangelize our culture, while remaining in an active dialogue with science. This active dialogue can help permeate the world of science with the values of the Gospel, leading to the transformation of humanity. The often elitist,

[2]Pope John Paul II, *Message to Rev. George V. Coyne, S.J. Director of the Vatican Observatory*, June, 1, 1988.

atheistic and capitalist driven science and technology can become more humane through such an encounter with faith and this encounter can alternately provide a conscience to the world of science.

The Pastoral Constitution on the Church in the Modern World, *Gaudium et Spes*, given to us by the Vatican Council II, exhorts all Christians to "blend modern science and its theories with Christian morality and doctrine. Thus their religious practice and morality can keep pace with their scientific knowledge and with an ever advancing technology." In recent times, the Church has been in the forefront in these reflections on morality. Encyclicals like *Humane Vitae* of Paul VI, *Veritatis Spendor* and *Evangelium Vitae* of John Paul II, as well as Instructions like *Donum Vitae* and *Dignitatis Personae*, given by the Congregation of the Doctrine of Faith, have made the Church a lighthouse that guides the path of humankind.

The role of the Church is irreplaceable in the institutionalization of love that seeks the integral good of the human person drawing us to an active dialogical engagement with the world of science. In our country, this engagement becomes simultaneously an inter-religious dialogue. Science, being the common heritage of humanity, becomes non-threatening table of fellowship and offers new opportunities for evangelization. Hence, the public square, the university and the market arena have become new pulpits for evangelization. This dialogue with science, with its inter-religious rippling effect, will indeed help us to diffuse the Kingdom of God among our countrymen.

To the Church in Goa this conference is an invitation to appreciate the power of dialogue with science. We hope it will generate and catalyze a new spirit of evangelization that will face up to the pastoral challenges posed by the developments in science. This conference is indeed a gift of God that will enable us, in a way, to bring the world of science at the feet of the Lord of Science. That is why I see this conference as a kairological event, a kind of a new Pentecost for all of us. May this great Jubilee of our seminary be a springtime that will infuse new life into its entire programme of formation, ensuring that we have ever more effective and mature pastors and evangelizers in tomorrow's world of science. I pray for all of you, dear participants in this Conference. You have everything to gain from this great event. I pray that your continued engagement with science, enlightened by your faith, may lead you to be true modern evangelizers of our culture. The human community which you serve has a right to demand this from you.