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Pope Francis and Science: A Healthy and Necessary Amalgamation for the 21st Century

S. Stephen Jayard

*Faculty of Philosophy, Jnana-Deepa Vidyapeeth,
Pune 411014*

Abstract: Pope Francis has given a strong impetus to the efforts and the trends of the Church in providing a common platform for the integration of science and faith (religion). Correcting its earlier mistakes, the Church, in the modern times, has been trying to see how science can deepen our faith. Some of the Church documents of the past about 200 years make it a point to highlight the possibility of mutual enrichment between science and faith. The present Pope has taken that task a step further to give a clarion call to the world of science to take concrete measures to protect the planet earth. He likes to interact with scientists in order to listen to them and to invite them to see their grave role in helping humanity to become responsible in their dealing with nature. This short paper begins with highlighting the general realization to bring science and faith together in order to grapple with deep realities of our existence. Then Pope Francis' involvement with the world of science is presented to show how he is open to learn from science and at the same time he does not hesitate to call a spade a spade in pointing out when science happens to fail in its commitment to the total welfare of humanity and nature. The last section presents some of the insights from his encyclical *Laudato Si'*, underlining the need to have clarity in our priorities so that we, the most rational beings in the whole of creation, become very responsible in protecting nature and realized the urgent need for integrating Science and Faith.

Keywords: Pope Francis, Integration of science and religion, Eco-spirituality, Enrichment of the Environment, Enlightenment of humanity

Introduction

In the 21st century it is not difficult to find common platforms for science and religion. Gone are those days when these two powerful human enterprises were seen opposing each other; it was unimaginable then to think of common interests between these two disciplines. But now the findings from both the macro and the micro worlds reveal that science alone cannot answer many of the questions that humanity comes across.

The Church has been taking keen interests in science, especially in astronomy, since the 16th century, when Pope Gregory XIII brought in reform of the calendar. Later in 1890s Pope Leo XIII founded Vatican Observatory; it has now acquired a good reputation, with 1.8 meter telescope for exploring the vast dark space out there; quite a few astronomers of the observatory engage in several significant studies and researches in many fields of Cosmology; they study asteroids, meteorites, extrasolar planets, stellar evolution, and so on. Further, in the recent past, the Church did not keep aloof from science and it always encouraged its followers to do serious science. Priests and monks have been ardent partners in the scientific enterprises; we find a priest or a religious, at every crucial turn in the progress of science in the modern era; for instance, the famous geneticist Gregor Mendel was a Christian monk and the epoch-making theory of Big Bang in Cosmology was the brain child of Georges Lemaitre, a Belgian mathematician and Catholic priest. This priest indeed had a great reputation too. He travelled to California in January 1933 for a series of lectures and in one of them he elaborated his Big Bang theory. Einstein could not resist his desire to openly applaud him; he gave him a standing ovation and announced: "This is the most

beautiful and satisfactory explanation of creation to which I have ever listened”.¹

Pope John Paul II always encouraged dialogues between science and religion and appealed to theologians that they be sufficiently informed of the recent developments in science; he advised them to be equipped with the basics of science so that they could avoid making shallow statements and uncritical reflections regarding scientific theories, like the Big Bang. He sincerely invited scientists also to be aware of the recent developments in the theological trends and the Scriptural researches. In short, as mentioned in his letter to George V Coyne, the then Director of Vatican Observatory, on 1 June, 1988, that he was always convinced and he invited others too to be convinced that “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.”²

Thus, though a few centuries ago the Church had a wrong understanding of science, now the Church has realized that there would not be real contradiction between these two powerful enterprises. With the modern tools of interpreting the Bible and the new theological understandings science is not seen as a threat to faith. Science, in fact, can be seen as something that strengthens one’s faith.

1. Interaction between Science and Religion

The need for interaction between science and religion seems to be on the steady increase. Several developments in the recent science call for a revision of our traditional notions; for instance, the traditional understanding of ‘reality’ is forced to be re-visited.

Contemporary science questions the classical understanding of ‘reality’. The new discoveries and observations, both in

the macro and the micro worlds, challenge the dogmas of scientism and they “radically alter the status of knowledge and the place of the knowing subject”.³ ***The mysterious nature of matter:*** Heisenberg’s principle of uncertainty and Bohr’s principle of complementarity suggest that the actual nature of reality escapes our complete understanding, because, “The elementary particle is neither a wave nor a corpuscle but a ‘thing’ that combines the two images”.⁴ Therefore, at that level, matter ceases to be ‘material’ and “Matter has lost its substance”.⁵ ***The Mystery of the ‘Fine-tuning’:*** The study of biotic coincidences and the anthropic principles seem to suggest that the universe has been very meticulously fine-tuned to be ready to receive conscious human beings; being convinced of this Dyson, asserts that “the universe knew we were coming”⁶ and Paul Davies declares that “We are truly meant to be here”.⁷ Fine-tuning in the universe is, though may not be a proof, but a strong indicator for an intelligent design; for instance, the initial density of the universe had to be meticulously fixed to an accuracy of 10^{-60} and this precision is like an archer hitting a one-centimeter-square target placed fifteen billion light-years away.⁸ Several scientists-turned theologians, like John Polkinghorne, Arthur Peacock, Ilya Prigogine etc. also find something more to the evolution process than mere chance. They have gone beyond reductionism and are open to mystical and metaphysical overtones in their approach to reality. Even great minds, like Einstein, are also convinced that such fine-tuning in the universe cannot be the outcome of a mere chance. If one argues that all these fine-tunings are just fixed by laws of physics, the question arises: “Where do the laws of physics come from? And why *those* laws rather than some other set?”⁹ Therefore the mystery still remains!

Further, as science proceeds we realize that we lose our grip over reality. The classical notions of certainty, causality, absolute measurability and stability are significantly challenged. We are forced to get reconciled with arbitrary

nature of the initial conditions, irreducibility, uncertainty, and unpredictability. By this “we are reminded of the contingency and finite nature of man”.¹⁰ Such realization of our finitude makes us wise and humble. We are cautioned not to meddle with the wisdom of nature that has been there for about fourteen billion years.

One of the fundamental ways to define humans is to see them as ‘seekers of meaning’. As Victor Frankl shows, the search for ‘meaning in life’ becomes more fundamental to life than food, shelter and clothing. Philip Clayton shows that the meaning-quest is related to the very nature of human being and sciences alone will not be sufficient to comprehend human nature, and therefore, the quest for meaning cannot be satisfactorily fulfilled by science, though science may contribute something in the process of meaning-seeking.

Though humans are biologically very much a part of creation and share a lot with other creatures, yet they seem to be far different from all of them, in terms of reason, will power, ability to imagine, the exercise of control over natural passion and above all the ability to go beyond the immediate environment. However, we cannot easily define life, nor its meaning or purpose, *because the “questioner” and the “questioned” are one and the same here*. Modern neuroscience may succeed in mapping the areas of the brain to find out what happens when one is filled with love or hatred, fear or tranquility; Psychology may come up with convincing theories about the good effects of love and the bad effects due to its absence. *But science cannot exactly define what love is, and since it is this love that makes one find meaning in life, science can comprehend neither love nor meaning.*

2. Pope Francis' Commitment to Science

As Pope Francis has done some studies in Chemistry he is not a stranger to science. He has always been encouraging priests and religious to involve more and more in serious science. He expressed his deep desire, in a meeting with the participants of Symposium Sponsored by Vatican Observatory, that the Church must have many more religious men and women to bridge the gulf between faith and science.¹¹ Knowing about our cosmos is indeed the satisfaction of the innate desire to know. According to Guy Consolmagno, a Jesuit brother, appointed by Pope Francis as the new director of the Vatican Observatory, in 2015, makes it clear that Vatican is eager to investigate in the field of astronomy because astronomy satisfies our quest, as it is a part of being human.¹²

Pope Francis always cautions about the dangers of the literal reading of the Bible, especially the account of creation in the book of Genesis. So in his address to the Pontifical Academy of Sciences on the Big Bang Theory and Evolution. (27 October, 2014), he alerts: "If we take this story literally we run the risk of "imagining that God was a magician, complete with an all powerful magic wand." But, he affirms, "that was not so." ¹³ The theories on the origin of matter and life, like the Big Bang and the evolutionism, leave several questions unanswered. Science does not provide any satisfactory, provable answers to the questions like, the wherefrom of the primeval atom, the cause of the big bang, the mode and the purpose of the Big Bang and so on. Pope goes on to announce that "The Big Bang theory, which is proposed today as the origin of the world, does not contradict the intervention of a divine Creator but, rather requires it."¹⁴

Pope Francis explains how God has chosen to create nature with the inherent power to evolve further. The scientific theory of evolution implies creation, because unless there is something in the first place it would not evolve. God did not want a

‘finished product’ when he created the world, rather he wished his creation to evolve towards ‘perfection. Creation implies a “Creator” as an art implies an artist, a dance a dancer! Catholic teaching says God created all things from nothing, but it doesn’t say how and that leaves open the possibilities of evolutionary mechanisms like random mutation and natural breeding.

Pope Francis has high hopes with scientists. They need to instruct the policy makers and the general public regarding the critical situation of the ecological crisis. But they are very often influenced and hijacked by very many other forces, from within and without, in such a way that they are not able to do justice to their vocation to do science in a moral way. “I would say that it falls to scientists, who work free of political, economic or ideological interests, to develop a cultural model which can face the crisis of climatic change and its social consequences,” he said, “so that the vast potential of productivity will not be reserved for only a few.”¹⁵

It was a very interesting meeting between Pope Francis and Stephen Hawking, known as the 2nd Einstein, during a session of the Pontifical Academy of Sciences convened to discuss the impact of scientific knowledge and technology on people and the planet (November 25-29, 2016). Pope sincerely wants to remind the world that “We are not custodians of a museum and its masterpieces that we have to dust off every morning, but rather collaborators in the conservation and development of the existence and biodiversity of the planet and human life.”¹⁶ He insists upon moral basis for all our human endeavours, including scientific ones. Authentic collective living has to be based on morality. He *critiques consumerism and irresponsible development; he strongly suggests a holistic vision rooted in spirituality which would ensure a healthy environment for everyone and a better care for the environment itself.*

3. Pope Francis and Eco-Spirituality

Pope Francis' involvement with science and his hopes with the scientists came out very clearly in his encyclical, *'Laudato Si: On Care for our Common Home'* (18 June, 2015); it is an Encyclical on Ecology by Pope Francis; it is acclaimed by several as the, may be described as the most significant contribution of the Catholic Church to ecology. As he assumed his office, he took the name of St. Francis of Assisi (1181-1226) precisely because of the latter's love for nature and admiration for God's creation. St. Francis of Assisi had deep love for nature; he treated all that is in nature as his brothers and sisters. Inspired by this ardent love, Pope Francis wrote the encyclical. It is for the first time that a Pope dedicated an entire encyclical letter to the issues of environment and climate change. He deliberately and affectionately addresses to 'every' person who lives on earth, as we all share the 'common home'. It is the moral responsibility of everyone in caring for the earth. Oftentimes a wrong reading of the creation account absolves humans of their sin of exploiting the earth; but actually *in the beginning God gave humanity the earth to "till and keep"* (Gen 2:15), where tilling refers to 'cultivating, ploughing, or working' and keeping means, 'Caring, protecting, overseeing and preserving'.

Pope Francis is greatly concerned about the ecological crisis. He is deeply convinced that all need to work on a war-footing in order to save the earth, our common home. He gave a clarion call to the world of scientists to establish "a regulatory system that includes inviolable limits and guarantees the protection of ecosystems before new forms of power derived from the technological-economic paradigm produce irreversible damage not just to the environment but also to coexistence, democracy, justice and freedom."¹⁷

There have been also serious voices of blame and accusations of Pope transgressing the areas of morality and

theology to go into the unfamiliar and unnecessary terrain of science; for instance, the Republican presidential candidate Rick Santorum openly suggested that Pope Francis to “leave science to the scientists” in order to show his displeasure about Pope’s constant reminder and efforts to fight against climate change.¹⁸ Since Pope openly challenges the irresponsible ways of the nations and societies that add up to the environmental crises, there are attacks on him. Of course there also powerful voices that support his genuine concern for the eco-welfare of humanity at large. His efforts to point out to the world, the rich and the poor nations, the highly educated elite and the poor ignorant, about the urgent need to act collectively and proactively to protect the mother Earth are greatly appreciated by many world leaders.

Pope demands a right understanding of stewardship, rather than ownership, regarding our role in taking care of the earth. He has supported his arguments for the immediate need to protect the Earth from the environmental degradation with enormous scientific accuracy. As David M. Lodge points out, he has situated the environmental crisis in a much broader context, by linking it “to economic exploitation and the plight of the poor”¹⁹

a. Poverty and Ecology

His concern for the poor is well-known. He invites humanity to work together to remove poverty from the face of the earth. He feels that the earth has also been impoverished by the careless actions and greedy attitude of humanity. Therefore as he voices out for the poor in humanity, in the same breath he draws our attention to the impoverished earth; he calls for a caring treatment for the earth urgently, because “the earth herself, burdened and laid waste, is among the most abandoned and maltreated of our poor.”²⁰ Thus he sees the link between poverty and the ecological crisis. Most of the

ecological problems like the increase in the global temperature or the pollution of the atmosphere are the result of the careless attitude and reckless activities by the rich and the affluent. But the poor and the underprivileged, as the sharers of the common home, are forced to suffer from those ecological crises. The air conditioning machines blow hot air adding slowly and steadily to the global temperature; the burning of the fossil fuels and other travel mechanisms pollute the air; but the poor, who are generally add much less to these, suffer more because of the ill effects. When they are afflicted with related diseases, those diseases have a great impact on their lifestyle and even their very survival.

b. Ecological Conversion

Pope Francis sees the urgency in taking care of nature; he invites the whole of humanity to engage in this with the utmost dedication. To dedicate ourselves to work for nature is like dedicating oneself to a new religious or social ideology. One needs to “convert oneself” to this new mission; one needs a profound interior conversion; no one can keep oneself aloof from this important mission of saving the environment. If one decides to participate in this global mission, one has to be ready to change one’s life style which adds to the environmental crisis in some way or the other; if one likes to participate in the global drive for saving the earth but at the same time if one continues in one’s old ways of life that are damaging the earth, then it is an inconsistent and self-contradicting behavior. Therefore he is convinced that “*what they all need is an ‘ecological conversion’, whereby the effects of their encounter with Jesus Christ become evident in their relationship with the world around them*” (*Laudato Si’*, No. 217).

c. New Spirituality

Pope Francis proposes a ‘new spirituality’ that enables us to see the Creator in the Creation, to realize that wasting the natural resources is an insult to their creator and to realize that we are not the ‘owners’ of this earth, but ‘responsible stewards’ who are called to be ‘co-creators’ with God. Thus one realizes that saving water and natural resources is also a spiritual virtue. Each creature has its own beauty, dignity and purpose; their purpose is not to be assessed in terms of their usefulness to human existence. His new spirituality enlarges its vision and includes social structure and environment. Thus, not only caring for the poor but also valuing manual labour, denouncing consumerism and the tyranny of the market forces are certainly spiritual activities. Excessive use of plastics, consuming natural resources and fossil fuels, wasting energy, increase in the global temperature are some of the blunders that modern humanity is engaged with.

Conclusion

It is high time that we all realized that we are very much part and parcel of cosmos. Nature is never hostile to us, nor that are we strangers to it. Sometimes when we are struck by natural disasters like earthquakes, floods or tsunamis, we are made to think that nature works out against our survival and well-being. In fact, in many of such cases it can be traced out that nature, in its efforts to maintain its fine balance, just reacts to our actions, which are very often highly detrimental to itself. We all are very much part of nature. The inter-connectedness between us and nature is so much that, it is said, very many minerals, salts and chemical elements, like iron, carbon, oxygen, calcium, potassium, magnesium, iodine etc., that are in our bodies are also abundantly found in nature, in the plants, animals and even the distant stars, millions of light years away. As we are very much part of nature, the mother earth never

rejects us; for example, when we are buried after death, the earth very comfortably accommodates us, nor the atmosphere rejects the smoke that comes out when we are cremated. We often don't realize the significance of our being part of the unimaginably vast universe. For instance, when one holds a litre of water a part of the whole cosmos is in it. If only all the molecules of that water are kept as a string one by one it will be long enough to reach the moon from the earth, up and down for about seven times. [There are about 10^{25} molecules in one litre of water; each molecule is 10^{-10} meter, and the length of the whole string will be 10^{15} meter].

Though humanity has not sufficiently realized the cosmic significance, which results in ecological crises, yet Pope does not lose hope with humanity. Since God has given us the reasoning power we can certainly reflect upon our own responsibility towards protecting nature. As God never loses hope with us let us also not lose hope for the betterment of the current situation. But the only concern is that we all have to be convinced of the dire need for immediate action. *Pope invites all brothers and sisters, living on the planet earth to make a pledge to save the earth and to protect the environment.* We hope that the Pope Francis' sincere efforts to work towards a better environment will bring forth lasting fruits. As David M. Lodge is hopeful, "if Pope Francis can persuade the communist Raúl Castro to reconsider Catholicism",²¹ he could easily create an atmosphere for the scientific consensus, whereby various communities of faith, science and the rulers can come together for open sharing and mutual learning.

Humanity needs to realize that God is truly present in all his creation, not only in human beings. This very realization is the foundation of eco-spirituality, which will motivate everyone to deal with nature in a cautious and respectful manner, to ensure its inner worth and undeniable dignity. S. Ignacimuthu explains the fundamental role of eco-spirituality

in his book: Eco-spirituality is the basis for all our efforts to find solutions for the ecological crisis. In our present times we are facing huge challenges and crises in ecology and in this context the need and relevance of eco-spirituality is very high and important.²²

As Francis Bacon wished, science must take us back to the glorious state of the pre-fallen state. It should make us wise, not otherwise. If we are not humble enough to “learn how to learn from nature”, as Dudley Shapere puts it, we may end up using science as a tool of desolation and it would be like chopping off the very branch of the tree upon which we are sitting and, as Claude Levi Strauss fears, “the world began without the human being, and will end without him”.²³

The substance of Pope Francis’ analysis of science and his exhortation to the world of science can be summed up as follows: “We need science with the human face”. Only such science will enrich humanity. Enriching humanity would mean, among many other, making humans wiser, more sensible to mysteries and enabling them to find more meaning in their existence. Though humans have enormous cognitive power, yet they are cosmically very insignificant in the vast dark universe, known and unknown. As Blasé Pascal has it, “Man is only a reed, more frail than nature, but he is a thinking reed. It does not need the whole universe to wipe him out; a breath, a drop of water, is enough to kill him.” But still humans are more powerful and noble than the universe, because, “he knows that he dies and knows the advantage the universe has over him”,²⁴ whereas the universe that kills him does not, cannot know anything.

With due admiration and respect to science, joining with Pope Francis, let us dearly expect science to collaborate with other disciplines to enrich humanity and protect nature. It is high time that we realized, as Philip Clayton declares, “... science alone will never provide the answer”.²⁵ Thus the efforts

and mission of Pope Francis to integrate science with other social and spiritual disciplines are very essential and relevant in paving the way for better humanity and safer environment.

Notes

- 1 See: Mark Bidmon, “A Day without Yesterday: Georges Lemaitre and Big Bang”; <http://www.catholiceducation.org/en/science/faith-and-science/a-day-without-yesterday-georges-lemaitre-amp-the-big-bang.html>; accessed on 11 May, 2017
- 2 See: https://w2.vatican.va/content/john-paul-ii/en/letters/1988/documents/hf_jp-ii_let_19880601_padre-coyne.html
- 3 Thierry Magnin, “Moral Philosophy – A Space for Dialogue between Science and Theology”, in *Science and the Search for Meaning – Perspectives from International Scientists*, Jean Staune (ed.), (PA, USA: Templeton Foundation Press, 2006), p. 140.
- 4 Ibid., p. 146.
- 5 Trinh Xuan Thuan, “Science and Buddhism”, in *Science and the Search for Meaning – Perspectives from International Scientists*, Jean Staune (ed), (PA, USA: Templeton Foundation Press, 2006), p. 181.
- 6 Freeman Dyson, *Disturbing the Universe* (NY: Harper & Row, 1979), p. 250.
- 7 Paul Davies, *The Mind of God* (NY: Simon & Schuster, 1992), p. 232.
- 8 Trinh Xuan Thuan, “Science and Buddhism”, p. 184.
- 9 Paul Davies, “Glimpsing the Mind of God”, in *Science and the Search for Meaning – Perspectives from International Scientists*, Jean Staune (ed.), 2006, p.31.
- 10 Thierry Magnin, “Moral Philosophy – A Space for Dialogue between Science and Theology”, p.142.
- 11 See: <https://zenit.org/articles/pope-francis-church-needs-religious-who-bridge-the-gap-between-science-and-faith/>; accessed on 17 April, 2017.
- 12 For the full interview with him, see: <http://www.sciencemag.org/news/2015/09/talking-science-and-god-popes-new-chief-astronomer>; accessed on 5 May, 2017.
- 13 See: <http://www.independent.co.uk/news/world/europe/pope-francis-declares-evolution-and-big-bang-theory-are-right-and-god-isnt-a-magician-with-a-magic-9822514.html>; accessed on 10 May, 2017.

- 14 See: <http://www.pressreader.com/australia/daily-mercury/20170424/281801398846412>; accessed on 11 May, 2017
- 15 See: https://www.washingtonpost.com/news/energy-environment/wp/2016/11/29/pope-francis-urges-world-leaders-not-to-delay-climate-change-efforts/?utm_term=.787f92d71df8; accessed on 9 May, 2017.
- 16 See: <http://www.catholicherald.co.uk/news/2016/11/29/pope-francis-meets-stephen-hawking-at-vatican-science-conference/>; accessed on 7 May, 2017.
- 17 See: http://en.radiovaticana.va/news/2016/11/28/pope_francis_address_to_pontifical_academy_of_sciences/1275273; accessed on 10 January, 2017.
- 18 See: <http://time.com/3907567/pope-francis-rick-santorum-science/>; accessed on 10 May, 2017.
- 19 See: <http://www.nature.com/news/faith-and-science-can-find-common-ground-1.18083>; accessed on 17 April, 2017.
- 20 See: https://www.washingtonpost.com/news/energy-environment/wp/2016/11/29/pope-francis-urges-world-leaders-not-to-delay-climate-change-efforts/?utm_term=.787f92d71df8; accessed on 11 February, 2017.
- 21 See: <http://www.nature.com/news/faith-and-science-can-find-common-ground-1.18083>; accessed on 10 Dec, 2017.
- 22 Ignacimuthu, S., *Eco-spirituality* (Dindigul: Vaigarai Publications, 2011), p. 159. (The title of the book in Tamil - *Sutruchuzhal Aanmigan*).
- 23 Claude Levi-Strauss, *Tristes Tropiques* (Paris: Librairie Plon, 1955).
- 24 Blasé Pascal, *Pensees*, ed. Philippe Sellier (Paris: Mercure de France, 1976), p. 231 & 145.
- 25 Philip Clayton, “Foreword”, in *Science and the Search for Meaning – Perspectives from International Scientists*, Jean Staune, (ed.), 2006, p. xvi.

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