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Catholicism and Modern Science: Vatican II on Science and Technology

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Abstract: Although the Second Vatican Council touched extensively and profoundly practically all the important aspects of the Church, in this paper, the author focusses on its groundbreaking spirit and statements on the relationship of the Catholic Church with modern science and technology. The *aggiornamento* inaugurated by Vat II is a long and challenging process that needs to continue. Both the Church and modern science need to collaborate in this noble task. Science, with its amazing findings of the secrets of nature and its well-proven powerful methods, can be a great boon in this process. The perennial truths and the rich tradition of the Church too should serve as facilitators rather than obstacles in this venture. The truths and insights of religion can ensure that the ongoing process does not deviate from the right path of holistic progress of humanity and the cosmos. The Christian tradition can make available centuries of rich experience as a source of inspiration and guidance. Vat II has opened the door

for such a constructive and collaborative mission to respond responsibly to the challenges of our contemporary world.

Keywords: Vatican II, *aggiornamento*, Science-Religion Dialogue, Technology, Science.

Introduction

Although the Catholic Church is expected to be a Spirit-initiated, Spirit-filled and Spirit-governed institution, certain events in its 2000 odd history lead a critical mind to question this expectation or claim, particularly in our own time. However three events in recent times assure me that the Spirit is very much present and active in the Church: First the gift of Pope John XXII, second the Second Vatican Council and third the gift of Pope Francis.¹ To me, arguably, these three unexpected, out of the blue, happenings come across as a special Epiphany of the Spirit leading, guiding and protecting the Church of Christ. The central player and connecting link of these three, is, of course, Vatican II, undoubtedly the most important event in the history of the Catholic Church in the 20th century. Pope John is intimately linked to it as the inspirer and convener of Vatican II and Pope Francis as the one who has been making a heroic effort to put the path-breaking spirit and ideals of the Council into the practice, particularly since they went through a “lukewarm period” for several decades, mainly due certain conservative and vested interests within the Church. As the Apostolic Brief *In Spirito Sancto* rightly points out, “The Second Vatican Council... must be remembered without doubt among the greatest events of the Church.”² Several details about this Council unmistakably reveal

1 It is interesting to note the tremendous similarity between Pope John XXIII and Pope Francis, particularly in their lifestyle, general attitude and the special circumstances they were elected to be the Successors of St. Peter. See “The unlikely election of John XXIII,” <https://www.catholicireland.net/the-unlikely-election-of-john-xxiii/>, accessed on 11/12/2018.

2 “Papal Brief Declaring the Council Completed,” Walter M. Abbott, SJ, General Editor, *The Documents of Vatican II* (London: Geoffrey Chapman,

the hand of the Holy Spirit in initiating and carrying through this special event. As Pope John XXIII said in his opening speech, “It (the first announcement of the Council on January 25, 1959, within merely three months of his Pontificate) was completely unexpected, like a flash of heavenly light, shedding sweetness in eyes and hearts.”

Furthermore, historically in the past, an ecumenical council was convened when there was a crisis, particularly a doctrinal one, and the Church was seriously threatened. This was not the situation when Vat II was convened. According to the “Opening Speech” of Pope John XXIII, “The salient point of this Council is not, therefore, a discussion of one article or another of the fundamental doctrine of the Church which has repeatedly been taught by the Fathers and by ancient and modern theologians, and which is presumed to be well known and familiar to all. *For this no Council was necessary.*”³ But there was a pressing and potent reason: “Today the Church is witnessing a crisis underway within society. While humanity is on the edge of a new era, tasks of immense gravity and amplitude await the Church, as in the most tragic periods of its history. It is a question in fact of bringing the modern world into contact with the vivifying and perennial energies of the gospel, a world which exalts itself with its conquest in the technical and scientific fields, but which also brings the consequences of a temporal order which some have wished to recognise excluding God. This is why society is earmarked by great material progress to which there is not a corresponding advance in the moral field.”⁴ Thus the Council was intended to remedy the serious mismatch between the advances in the world of science and technology and in that of religion and morality. The Pontiff was quick to add that the Church has not been caught unaware of this situation: “If we turn our attention to the Church, we see that it has not remained a lifeless spectator in the face of these events, but has followed step by step the

1967), p.738. Henceforth Abt.

3 Abt, p.715. Emphasis added.

4 “Pope John Convenes the Council,” Abt, p.704.

evolution of peoples, scientific progress, and social revolution.”⁵ The convening of the Council gives clear evidence to this ever vigilant and solicitous attitude of the Church. These statements of Pope John XXIII clearly indicate the importance he and the Church attach to scientific and technological developments and the well-recognized impact they have on society, particularly the Church.

Although the Council touched extensively and profoundly practically all the important aspects of the Church, in this paper, my principal focus will be its groundbreaking spirit and statements on the relationship of the Catholic Church with modern science and technology. Vat II commenced on October 11, 1962, under the Pontificate of Pope John XXIII and closed on December 8, 1965, under the Pontificate of Pope Paul VI. Not only was this Council unprecedented in its goal, but several other firsts also distinguished it. It had the largest number of participants – the attendance at the Council peaked up to 2540. Furthermore, it was considered the richest experience of its kind because of the careful, profound and open-minded way the questions were discussed all through its four long sessions. Another factor that made it special was its timing: it came at the opportune time, when the world needed it most, “bearing in mind the necessities of the present day, above all it sought to meet the pastoral need.”⁶ Its universal and open spirit also made it a special event. It was conspicuous by the presence of non-Catholics who were invited as observers, particularly from the Eastern Orthodox Churches. “Nourishing the flame of charity, it has made a great effort to reach not only the Christians still separated from communion with the Holy See, but also the whole human family.”⁷

1. The Goal of Second Vatican Council

5 Ibid., ABT, p.704.

6 “Papal Brief,” Abt, p. 738.

7 Ibid., p. 738. See also Second Vatican Council Ii Closing Speech - Papal Encyclicals, <http://www.papalencyclicals.net/Paul06/p6closin.htm> (accessed July 14, 2019).

Since the circumstances that led to the convening of Vat II and hence its stated goals were intimately interlinked with developments in science and technology, a brief discussion of these goals is quite appropriate. *Lumen Gentium*, “Dogmatic Constitution of the Church,” often considered by the topmost scholars in the field as “the most imposing achievement of Vatican II,”⁸ describes this point in detail.⁹ Today humans are “buffeted between hope and anxiety and pressing one another with questions about the present course of events, they are burdened down with uneasiness.”¹⁰ According to the Council, this spiritual agitation and the changing conditions of life are part of a broader and deeper revolution. Giving a careful and precise analysis of the situation it continues: “Intellectual formation is ever increasingly based on the mathematical and natural sciences and on those dealing with man himself, while in the practical order the technology which stems from these sciences takes on mounting precedence.”¹¹ Furthermore, “Technology is transforming the face of the earth, and is already trying to master outer space.”¹² The advances in the biological and social sciences too are equally powerful and effective: “Advances in biology, psychology, and the social sciences not only bring men hope of improved self-knowledge. In conjunction with technical methods, they are also helping men to exert direct influence on the life of social groups.”¹³ In short, in our contemporary world, intellectual formation is very much coloured and controlled by science and technology. The impact is not confined to the intellectual field only; it reaches out to the cultural field and plays a major role in shaping our mode of thought and value system. Indeed, a new age has ushered in, thanks to developments in science and technology.¹⁴ As mentioned earlier, Pope John correctly diagnosed that there was no proportionate growth in the moral

8 Avery Dulles, SJ, “Introduction,” Abt, p. 13.

9 See “Gaudium et Spes,” nos. 4 and 5, Abt, pp. 203-204.

10 Ibid., p. 203.

11 Ibid., p. 203.

12 Ibid., p. 203.

13 Ibid., p. 203.

14 See “Gaudium et Spes,” no. 54, Abt, p.260.

field to ensure balanced and harmonious growth of contemporary humans. The Council was intended as a timely move to remedy this serious imbalance.

2. Aggiornamento, the Catchword of Vatican II

“Aggiornamento,” making up-to-date, which became the catchword for the Council, expressed its set goal better than any other word or concept. The Church must be brought up-to-date, must adapt itself to meet the challenges of modern times, mainly due to the astounding developments in science and technology. Pope John called for a renewed, serene and tranquil study and reflection on all the teaching of the Church in its entirety and preciseness, in the light of these developments. He wanted the Church to make use of modern means and methods, well proven for their efficaciousness and accuracy, to expound and explicate the ever-alive Christian teaching and rich heritage. Thus the Council would be “a step forward toward a doctrinal penetration and a formation of consciousness in faithful and perfect conformity.”¹⁵ Far from being intimidated by modern developments and techniques and then taking the negative and defensive attitude of debunking them, he wants to welcome them as effective tools from the ever-solicitous God to render the Church more relevant and meaningful to contemporary men and women.

Aggiornamento in the theological context should not be reduced to an exercise of rephrasing conventional theological teaching in contemporary terminology. The Council clearly states that such “old wine in new skins” simply defeats the purpose “for recent studies and findings of science, history, and philosophy raise new questions which influence life and demand new theological investigations.”¹⁶ Pope John Paul II in his letter to Fr. George Coyne, SJ, Director of Vatican Observatory, on June 1, 1988, was even more emphatic: “Contemporary developments in science challenge theology far more deeply than did the

15 “Pope John’s Opening Speech to the Council,” Abt, p. 715.

16 “Gaudium et Spes,” no. 62, Abt, p.268.

introduction of Aristotle into Western Europe in the thirteenth century.”¹⁷

At the same time, it must be emphasized that this *aggiornamento* in no way meant any break with the fundamental teachings of the Church. To dispel any doubt on this matter Pope John clarified: “The substance of the ancient doctrine of the deposit of faith is one thing, and how it is presented is another. And it is the latter that must be taken into great consideration with patience if necessary, everything being measured in the forms and proportions of a magisterium which is predominantly pastoral in character.”¹⁸

The scientific developments had a pivotal role to play in motivating the Pope to convene the Council, and the predominant atmosphere was one of optimism and appreciation for scientific advances. But this allowed no compromise with spiritual values the Church has always stood for. Nor has the Church failed to admonish humans against the wrongs that often accompany an excessive emphasis on the material and the scientific. In Pope John’s own words: “The Church has not watched inertly the marvelous progress of the discoveries of human genius, and has not been backward in evaluating them rightly. But, while following these developments, she does not neglect to admonish men so that, over and above sense – perceived things – they may raise their eyes to God, the Source of all wisdom and all beauty.”¹⁹ In fact, this *aggiornamento*, far from diminishing the importance and relevance of the spiritual dimension, should enhance and strengthen it. “Illumined by the light of this Council, the Church ... we confidently trust will become greater in spiritual riches

17 Letter of Pope John Paul II to Reverend George V. Coyne, SJ, Director of the Vatican Observatory, 1 June, 1988, in Robert Russell, William Stoeger, SJ, and George Coyne, SJ, eds., *Physics, Philosophy and Theology: A Common Quest for Understanding* (Vatican City State: Vatican Observatory Publications, 1988), p. M12. Henceforth Ppt. See also Father Tomislav Vlasic’s Letter To Pope John Paul II, <http://www.medjugorje.org/vlasic1.htm> (accessed July 14, 2019).

18 “Pope John’s Opening Speech,” Abt, p. 715.

19 Ibid., p. 714.

and, gaining the strength of new energies therefrom, she will look to the future without fear. In fact, by bringing herself up to date where required, and by the wise organization of mutual cooperation, the Church will make men, families and peoples really turn their minds to heavenly things.”²⁰ Clearly, one of the goals of this Council was to help contemporary humans living in a world dominated by science and technology to achieve a delicate balance between the scientific and the religious, between the material and the spiritual – an extremely challenging but crucially vital task.²¹

3. Some Special Features of Second Vatican Council

In order to understand and appreciate adequately Vat II’s attitude towards science and technology, we need to look at the overall spirit that animated the Council. Some of the special features of the Council had a major role to play in determining the attitude it took towards modern developments, particularly towards those in the field of science and technology.

It could be said that Vat II ushered in a new age in the life and attitude of the Catholic Church. Gone was the age of unhelpful comparison and unhealthy competition, instead the spirit of humility and fraternity was ushered in. Gone was the spirit of confrontation and condemnation, in its place the spirit of understanding and compassion was ushered in. As Pope John announced, “The Spouse of Christ prefers to make use of the medicine of mercy rather than of severity.”²² Taking a positive approach, “she considers that she meets the needs of the present

²⁰ Ibid., p. 712.

²¹ It may be noted that several eminent scholars around this time also sounded alarm bells about the serious mismatch between the wealth of the material, scientific developments, on the one hand, and the poverty of the spiritual in humans, on the other, together with the consequent *monstrous growth* the world was experiencing. In this context the writings of the humanist Martin Luther King Jr. and the scientist Louis de Broglie, both Nobel winners, are particularly remarkable.

²² Ibid., p. 716.

day by demonstrating the validity of her teaching rather than by condemnation.”²³

All these developments brought in a newness and a positive spirit, thereby justifying the new appellations conferred on the post-conciliar Church. Pope John XXIII referred to it as a “New Pentecost,” Pope Paul VI called it an “Epiphany,” and Pope John Paul II spoke of a “New Advent.” Pope John Paul II went further to say that it has brought about a substantially new relationship: “The Second Vatican Council laid the foundation for a substantially new relationship between the Church and the world, between the Church and modern culture.”²⁴ I discuss below some of the most salient elements at the foundation of this new relationship.

a. Emphasis on the Pastoral Rather Than on the Doctrinal Dimension

Vat II can best be characterized as a “people-friendly” council, in the sense here the focus of attention was meeting the pastoral needs of the faithful rather than affirming or clarifying some doctrinal details. Time and again in his opening speech Pope John challenged the Fathers of the Council to a positive and pastoral attitude. The documents of the Council, particularly “*Gaudium et Spes*” and “*Lumen Gentium*,” took special pains to understand the present predicament of contemporary men and women, and explored the best ways to meet their needs.

b. Spirit of Magnanimity, Universality, Optimism and Openness

The newness of the Council became most manifest in the spirit that animated it all through the many deliberations and, in some ways, afterwards: a universal outlook that cut

23 Ibid., p.716.

24 Pope John Paul II, College, December 22, 1980. Quoted in <http://www.wandea.org.pl/second-vatican-council.htm>

across geographical, racial and cultural boundaries; a spirit of magnanimity that expressed itself in respectful acknowledgement and warm acceptance of non-Catholics and non-Christians; a spirit of optimism and positiveness that readily appreciated the good in other religions and systems; and a spirit of openness to new possibilities even when they looked challenging and demanding. In the words of Pope Paul VI, “From the start the Council has propagated a wave of serenity and of optimism, a Christianity that is exciting and positive, loving life, mankind and earthly values ... an orientation of making Christianity acceptable and lovable, indulgent and open, free of medieval rigorous and pessimistic understanding of man and his customs.”²⁵ Unity in some ways became the central theme: unity within the Church, unity with our non-Catholic brothers and sisters (the Separated Brethren), unity with the whole humankind, irrespective of creed, race, caste, colour, nationality, etc. According to Pope Paul VI, “The Council is a solemn act of love for mankind, love for men of today, whoever and wherever they may be, love for all.”²⁶ The Council gave official and solemn testimony to this spirit of unity and universality when “The Constitution of the Church,” considered by many the most important document of Vat II, called the Church “the sacrament of union with God, the sacrament of unity of the whole of the human race.”²⁷

This spirit of unity and universal outlook contrasts conspicuously with the ideas of certain past theologians and other scholars. For instance, in the past theologians and other teachers used to describe the Church as “a perfect, independent society, often in competition with other social systems.”²⁸ Also in the past at times a narrow legalism and a consequent self-referential and

25 Pope Paul VI, Doc. Cath. No. 1538, in <http://www.wandea.org.pl/second-vatican-council.htm>

26 Pope Paul VI, Bodart, La Biologie et l’avenire de l’home, in <http://www.wandea.org.pl/second-vatican-council.htm>

27 This idea is found in many passages of “Gaudium et Spes,” although the exact phrase occurs in the “Constitution on the Sacred Liturgy,” no. 26, Abt 147.

28 “Second Vatican Council,” <http://www.chisturex.org/www1/CDHN/v1.html>

self-righteous mentality used to dominate certain sections of the ecclesiastical milieu. Debunking and belittling of other traditions, cultures and religions was another trademark of this attitude. The successful expansion of colonialism and Church's association, in some ways, with it added to this spirit of triumphalism and elitism which placed other religions at loggerheads with Christianity, particularly in the East, isolated it from other cultures, thereby undermining the universality of Christ and his mission. Vat II was a heroic and much-needed initiative to undo the harm done by such uncalled for superiority feeling and triumphalism.

A spirit of humility and brotherly attitude was also very visible in Vat II. As Abbott points out in his footnote, there were several speakers in the Council calling for a reconsideration of the Galileo episode and for taking appropriate steps to forestall any recurrence of such embarrassing events.²⁹ In fact, Pope John Paul soon after taking over as the Supreme Pontiff in 1979 appointed a Pontifical Commission to reexamine the Galileo case in order to set the record straight. This Commission completed its work in 1992 and presented the Pope a report of its findings which found that mistakes had been committed by the Church officials involved in handling Galileo's case. The Commission's recommendation that "these mistakes must be frankly recognized" was endorsed by the official Church. A more dramatic demonstration of humility and brotherliness was witnessed on December 7, 1965, when the Roman Pontiff Pope Paul VI and the Patriarch of Constantinople, Athenagoras I, formally and publicly expressed their regret for the mutual excommunications pronounced by their respective predecessors Pope Leo IX and Patriarch Cerularius in 1054.³⁰

A genuine openness by the Church to new ideas without losing its rootedness in tradition was another hallmark of Vat II, particularly from the world of modern physical and social sciences. Pope John emphasized this point already in his opening speech: "The Church should never depart from the sacred patrimony of the truth received from the Fathers. But at the same

29 Abt, p. 234, note 99.

30 See Abt, p.xiii.

time she must ever look to the present, to the new conditions and new forms of life introduced into the modern world, which have opened new avenues to the Catholic apostolate.”³¹ Lawrence Cardinal Shehan of Baltimore, one of the prominent members of the Council, summarized his view of the Council: “Taken as a whole, the documents are especially noteworthy for their concern with the poor, for their insistence on the unity of the human family and therefore on the wrongness of discrimination.”³²

c. Willingness to Embrace a Dynamic Worldview

The Aristotelian world was very much a static one and gave rise to a static worldview. One could say that in this ancient Greek system also there was room for change and growth, but it certainly was very limited, being confined to the limits set by the intrinsic nature of each species. The species themselves were immutable and the world as a whole could not change and evolve. Christianity, through its process of Hellenization, subscribed to this static worldview, with far-reaching theological and moral implications. According to this perspective, in the beginning God created humans and the universe in the perfect stage. Through Adam’s fall this original pristine perfection was lost. The whole redemptive mission aimed at restoring the lost purity and perfection. Progress in this context is achieved by going back to the good old days and state, not in going forward to a better and glorious future.

The scientific worldview, although it remained somewhat static in the initial stages of its development, gradually became dynamic and progressive, particularly with the advent of the theory of evolution. Today, thanks to further developments in science and the philosophy of science, it is claimed that everything is subject to change – everything in the universe changes and evolves, and everything in science is subject to change and evolution.

31 “Pope John’s Opening Speech,” Abt., p. 714.

32 Lawrence Cardinal Shehan, “Introduction,” Abt, p. xvii.

The scientific worldview and its consequent idea of evolution and progress are alien to the traditional Christian worldview. Vat II in some ways announced a departure from this static view and initiated a move towards a dynamic one. “Gaudium et Spes starts with a long tale of changes affecting humankind, the perpetual justification for innovation. Everything changes – the world, time, but especially man who is described as participating in a perpetual ‘progression.’ John XIII believed there had been a ‘real progress of humankind’s collective moral awareness through always deeper discovery of its dignity... and that divine providence was leading us to a new order of human relations.... Vatican II proceeded to make this principle magisterial.”³³ Vat II gave evidence of this view when it said: “The human race has passed from a rather static concept of reality to a more dynamic, evolutionary one.”³⁴ The consequences of this paradigm shift are enormous and the Council, well aware of this fact, observes: “In consequence, there has arisen a new series of problems, a series as important as can be, calling for new efforts of analysis and synthesis.”³⁵ Pope Paul VI echoed some of these consequences when he said: “If the world changes religion should also change.... the order to which Christianity tends is not static, but an order in continual evolution towards a higher form.”³⁶ This sensitivity to the dynamic worldview of modern science and this openness to its consequences are crucial for defining the Council’s attitude to science and technology. They can play a pivotal role in fostering a constructive and creative dialogue between Christianity and modern science.

33 <http://www.wandea.org.pl/second-vatican-council.htm>

34 Gaudium et Spes,” no. 5, Abt, p. 204.

35 Ibid., p. 204.

36 Pope Paul VI, “Dialogues, Reflections on God and Man,” quoted in <http://www.wandea.org.pl/second-vatican-council.htm>

d. Concern for a Balance between the Divine and the Human

Some scholars point out a sharp contrast between Christ and Socrates when confronted with death. The Gospels tell us that in the Garden of Gethsemane Christ was extremely disturbed and frightened at the thought of his impending death. “My soul is sorrowful to the point of death,” he told his apostles. (Mark 14:34). On the other hand, Socrates laughed and cracked jokes at the moment of his death. Whatever interpretation scholars may give to this remarkable contrast, it brings out the marked difference between Christ’s way of looking at human life and the Hellenistic way. The Socratic school of philosophy, particularly Plato and Aristotle, made a sharp distinction between the celestial and the terrestrial, assigning the former a far superior status and value. Life on earth was neither desirable nor significant compared to the life after death in the celestial world. On the other hand, Christ had a balanced view towards human life on earth. He certainly was not attached to the world and to life in this world, but he did find true meaning and value for human life on earth.

As Christian theology developed, particularly in the Middle Ages, the Socratic view became dominant and the life of the world-to-come was given all the attention at the expense of life in the present world. Connected to this was the over-glorification of the spiritual at the expense of the material, of the supernatural at the expense of the natural, of the divine at the expense of the human. Critics point out that this lopsided and unchristian view was exploited by the powerful and influential, both in the religious and in the secular world, to their selfish advantage – they could indulge in their selfish exploitation of the underprivileged and console the oppressed with the thought of the great reward to come in the next world. This exploitation was used by atheistic-minded critics of the Church to unleash their vehement attack on religion and God. For instance, Karl Marx called religion “the

opium of the people,” Frederick Nietzsche accused the Church of transferring all the good things to the world to come.

Although there have been several attempts by the official Catholic Church to rectify this one-sided view, many still felt that enough was not done to give a balanced Christian perspective. It seems to me that Vat II took special pains to remedy this imbalance. In this context the following words of Pope Paul VI are very pertinent: “We must never forget that the fundamental attitude of Catholics who wish to convert the world must be, first of all, to love the world, to love our times, to love our civilizations, our technical achievements, and above all, to love the world.... The Council puts before us, a panoramic vision of the world; how can the Church, how can we, do other than behold this world and love it?”³⁷ No doubt, this is not the usual traditional expression and language of Pontiffs. But it seems to me that the Pope has captured the sentiments of the Council quite aptly and accurately. A very positive attitude towards the world that was created by God who “found it good” can never be alien to the Church of God.

From this positive attitude towards and appreciation for the world of God’s creation follows an equally positive appreciation for human activity, particularly in the positive sciences. The Council clearly states that there is a close bond between human activities like the sciences and religion. In fact, “Such is not merely required by modern man but harmonizes also with the will of the Creator. For by the very circumstances of their having been created, all things are endowed with their own stability, truth, goodness, proper laws, and order.”³⁸ An important footnote to this text clarifies the matter even better: “The Council shuns any fundamentalism in dealing with the findings of science, whether ecclesiastical or natural.”

37 Pope Paul VI, Bodart, *La Biologie et l’avenire de l’homme*, in <http://www.wandea.org.pl/second-vatican-council.htm>

38 “*Gaudium et Spes*,” no. 36, Abt, p.233.

In conclusion the Council states: “Therefore if methodical investigation within every branch of learning is carried out in a genuinely scientific manner and in accordance with moral norms, it never truly conflicts with faith. For earthly matters and the concerns of faith derive from the same God.”³⁹

At the same time, it must be emphasized that the Council’s was no blind endorsement of everything scientific. It has taken pains to distinguish between “excesses associated with a spirit of scientism and the permanently valid achievements of the positive sciences over the past few centuries. In doing so, it remains faithful to the spirit of Leo XIII, Pius XII and John XXIII, Pontiffs who made notable efforts to establish fruitful contact and collaboration with the sphere of modern science and culture.”⁴⁰

4. The Main Ideas of the Council on Science and Technology

a. Warm and Positive Attitude

It is quite clear that a very warm and appreciative attitude prevailed towards science and scientists before, during and after the Council. As we have seen, one of the prime motivations for convening this historic Council came from the recognition of the importance of scientific developments and the urgent need to update the Church in the light of them. During the long course of it also the same spirit persisted, as was evident from the deliberations of the Council and the repeated reference of several council fathers to set aright the Galileo controversy. As we will see, after the Council, there was an even more appreciative and collaborative attitude. Perhaps the words of the “Closing Messages” give us the best testimony to this spirit. The importance the Council gave to science can be seen from the fact that it had a specific closing message “To Men of Thought and Science” read out by Paul Emile Cardinal Leger of Montreal,

39 Ibid., p. 234.

40 See “Gaudium et Spes,” no. 57, footnote 190.

assisted by Antonio Cardinal Caggiano of Buenos Aires and Norman Cardinal Gilroy of Sydney, Australia.⁴¹ It is remarkable to note that the special message begins with a special salutation: “A very special greeting to you.”⁴² Although there were closing messages addressed to many other groups, to none was extended such a special and warm greeting. For instance, immediately after greeting the scientists, the Council addressed the artists. But it began with the cold words “We now address you, artists.”⁴³ It seems to me that this small detail should not be overlooked: this indeed was an indicator of the importance the Council attached to the world of science and scientists. That this special greeting was not perfunctory but was really intentional became clear from the very first sentence of the message: “Why a *special greeting* to you?”⁴⁴ The Council itself answers this question in terms of the common quest the Church shares with science: “Because all of us, bishops, and Fathers of the Council, are on the lookout for truth.”⁴⁵ That this warmth and cordiality was not a passing formality, but was a foundation for a lasting relationship and a plea for close collaboration was evident in the memorable letter of Pope John Paul II to Fr. George Coyne, SJ, Director of Vatican Observatory: “We (science and Catholicism) need each other to be what we must be, what we are called to be.”⁴⁶ He specified the point further in the letter: “For the truth of the matter is that the Church and the scientific community will inevitably interact; their options do not include isolation.”⁴⁷

b. Scientists as Friends and Fellow-seekers of Truth

The common bond linking scientists and the Fathers of the Church is the truth and the untiring quest for it. The scientific community and the Christian community share a common goal

41 “Closing Messages of the Council,” Abt, p. 730.

42 Ibid., p. 730.

43 Ibid., p. 732.

44 Ibid., p. 730. Emphasis added.

45 Ibid., p. 730.

46 Ppt, p. M14.

47 Ppt, p. M13.

and a common quest. “Hence our paths could not fail to cross. Your paths are never foreign to ours.”⁴⁸ The Fathers of the Council reassured the scientists of their support and collaboration in the different aspects of their challenging search for truth: “We are friends of your vocation as searchers, companions in your fatigues, admirers of your successes and, if necessary, consolers in your discouragement and your failures.”⁴⁹ These are deeply personal and intimate words of encouragement. I wonder whether even the secular world has ever expressed their support to the scientific community in such touching words.

The Council has a very specific message for the scientific community: “Continue your search without tiring and without ever despairing of the truth.”⁵⁰ The spirit that should animate this untiring quest is the same as that of St. Augustine who said: “Let us seek with the desire to find, and find with the desire to seek still more.”⁵¹

The specifically Christian contribution to this common quest for truth is “the light of our mysterious lamp, which is faith.”⁵² Only when genuine scientific efforts are coupled with deep faith in the one who said “I am the light of the world, I am the way, and the truth and the life,” can we hope to apprehend real truth, the whole truth. Today the time is ripe for such a meet between science and faith: “Never perhaps, thank God, has there been so clear a possibility as today of a deep understanding between real science and real faith, mutual servants of one another in the one truth.”⁵³ Finally, the “Closing Message” exhorts scientists “not to stand in the way of this important meeting [between science and faith]. Have confidence in faith, this great friend of intelligence.”⁵⁴

48 “Closing Message,” Abt, p. 731.

49 Ibid., p. 731.

50 Ibid., p. 731.

51 Ibid., p. 731.

52 Ibid., p. 731.

53 Ibid., p. 731.

54 Ibid., p. 731.

c. Appreciation for the Achievements of Science

Gone is the stormy, confrontational attitude that clouded the sky of the relationship between science and religion in the past. Instead a healthy attitude of dialogue and collaboration is moving in, thanks to a positive approach towards science and its achievements. According to Vatican II, far from being the devious devices of the devil, they are a boon to humanity, ordained by divine dispensation. "By divine favour, especially in modern times, human genius has produced from natural material astonishing inventions in the field of technology."⁵⁵ In her solicitude for the wellbeing of humanity, the Church is happy about these developments, and gladly welcomes them. "As a Mother, the Church welcomes and watches such inventions with special concern... Mother Church, to be sure, recognizes that if these instruments are rightly used they bring solid nourishment to the human race."⁵⁶

In a way, science is a powerful affirmation of human dignity and greatness, and provides humans with a most effective means to collaborate with the Creator in the ongoing plan of creation.⁵⁷

For when, by the work of his hands, or with the aid of technology, man develops the earth so that it can bear fruit and become a dwelling worthy of the whole human family, and when he consciously takes part in the life of social groups, he carries out the design of God. Manifested at the beginning of time, the divine plan is that man should subdue the earth, bring creation to perfection and develop himself. When a man so acts, he simultaneously obeys the great Christian commandment that he places himself at the service of his brother men.⁵⁸

55 "Decree on the Instruments of Social Communications," no. 1, Abt, p. 319.

56 Ibid., p. 319.

57 See "Gaudium et Spes," no. 57, Abt, p. 262.

58 Ibid., p. 262. See also The Professions And Society - Aromagosa. easycgi.com, <http://aromagosa.easycgi.com/christianhumanism/professionsworkshop/professionsan> (accessed July 14, 2019).

A prudential, judicious engagement in science can elevate humans to a higher and more sublime level of moral and intellectual life. “Furthermore, when a man applies himself to the various disciplines of philosophy, of history, and of mathematical and natural science, and when he cultivates the arts, he can do very much to elevate the human family to a more sublime understanding of truth, goodness, and beauty, and to the formation of judgments which embody universal values.”⁵⁹

d. Science as a Means to Meet the Challenges

Continuing its positive attitude, the Council further says that science and technology provide us with the best means to respond to the challenges and exigencies of our contemporary world. After a penetrating and perceptive analysis of the various ferments in the air today and the accompanying restlessness and aimlessness, it rightly points out that “today’s spiritual agitation and the changing conditions of life are part of a broader and deeper revolution.”⁶⁰ In its attempt to spell out the far-reaching consequences of this revolution, it admits that the conditions of the world are changing profoundly. For one thing, the traditional base of intellectual formation is getting changed. Today science and technology constitute a powerful foundation for the intellectual formation of humans all over the world. The technological revolution afoot in our world is transforming the face of the earth. The sweeping wave of the new scientific spirit is reshaping both our cultural sphere and mode of thought. I have quoted earlier the words of the Council on this point. In more recent times Pope John Paul has reiterated the same sentiment in his letter to Fr. George Coyne, SJ: “The scientific disciplines too, as is obvious, are endowing us with an understanding and appreciation of our universe as a whole and of the incredibly rich variety of intricately related processes and structures which constitute its animate and inanimate components. This knowledge has given us a more thorough understanding of ourselves and

⁵⁹ Ibid. , p. 263.

⁶⁰ Ibid., no. 5, p. 203.

of our humble yet unique role within creation.”⁶¹ Not only the physical sciences, the social sciences and still more the life sciences also are affecting our world profoundly, especially in the wake of the genetic revolution with its astounding strides in genetic engineering, cloning, etc.

Another salutary outcome of this revolution principally triggered by developments in science & technology is the shift from an individual or person-centered worldview to a community-centered one. “The destiny of the human community has become all of a piece, where once the various groups of men had a kind of private history of their own.”⁶² The overall outcome of these revolutionary changes is that the old static worldview has given way to a dynamic one, with drastic consequences.⁶³

Indeed, because of all these developments, the living conditions of modern man have been so profoundly changed in their social and cultural dimensions, that we can speak of a new age in human history. Fresh avenues are open, therefore, for the refinement of the wider diffusion of culture. These avenues have been paved by the enormous growth of natural, human and social sciences, by progress in technology, and by advances in the development and organization of the means by which men communicate with each other.⁶⁴

In this new world naturally a new series of problems has arisen,” a series as important as can be, calling for new efforts of analysis and synthesis.”⁶⁵ The Council believes that for tackling these problems, a new approach using new techniques is needed, and here the findings of science & technology should play an active role. Here too Pope John Paul II presents a more contemporary view when he talks of the great contribution technology has made in the field of transportation, communication, etc., and concludes: “Such knowledge and power, as we have discovered, can be used

61 Ppt. PM5.

62 “Gaudium et Spes,” no. 5, Abt, pp. 203-204.

63 Ibid. , no. 54, p. 260.

64 Ibid. , p. 260.

65 Ibid. , no. 6, p. 204.

greatly to enhance and improve our lives or they can be exploited to diminish and destroy human life and the environment even on a global scale.”⁶⁶

e. The Autonomy of the Sciences Upheld

The Council takes special pains to acknowledge and uphold the rightful autonomy of the sciences.

The sacred Synod, therefore, recalling the teaching of the First Vatican Council, declares that there are ‘two orders of knowledge’ which are distinct, namely, faith and reason. It declares that the Church does not indeed forbid that ‘when the human arts and sciences are practiced they use their own principles and their proper method, each in its own domain.’ Hence, ‘acknowledging this just liberty,’ the sacred Synod affirms the legitimate autonomy of human culture and especially of the sciences.”⁶⁷

Nor is it ashamed to admit its past lapses. It accepts that this principle of independence was not always preserved in the past and deplores the mistakes committed. “Consequently, we cannot but deplore certain habits of mind, sometimes found too among Christians, which do not sufficiently attend to the rightful independence of science. The arguments and controversies which they spark lead many minds to conclude that faith and science are mutually opposed.”⁶⁸

Pope John Paul II took up this point more explicitly when he addressed the Pontifical Academy of Sciences in 1979 and said: “Certain attitudes (not unknown among Christians) deriving from a short-sighted view of the rightful autonomy of science: they have occasioned conflict and controversy and have misled many into thinking that faith and science are opposed.”⁶⁹ The

66 Ppt. P. M5.

67 “Gaudium et Spes,” no. 59, Abt, p. 265.

68 Ibid., no. 36, p. 234.

69 Pope John Paul II, “Proceedings of the Pontifical Academy of Sciences,” November 10, 1979, PDF files, p.1. For more details see Mathew

Pope emphasized that he was following up on the declaration of the Council and he took up the Galileo episode as a concrete instance: “To go beyond this stand taken by the Council, I hope that theologians, scholars and historians, animated by a spirit of collaboration, will study the Galileo case more deeply and, in loyal recognition of wrongs from whatever side they come, will dispel the mistrust that still opposes, in many minds, a fruitful concord between science and faith, between the Church and the world.”⁷⁰ He echoed once again the same theme of respectful autonomy and mutually enriching collaboration between science and faith in his letter of 1988: “Both religion and science must preserve their 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.”⁷¹ “Science and faith are called “to live in a collaborative interaction in which we are called continually to be more.”⁷²

At the same time the Council is quick to point out that it does not endorse the false sense of independence, which “is taken to mean that created things do not depend on God, and that man can use them without any reference to their Creator.”⁷³

Some of the excesses and consequent dangers the scientific spirit can lead to also have not escaped the Council.

No doubt today’s progress in science and technology can foster a certain exclusive emphasis on observable data, and an agnosticism about everything else. For the methods of investigation which these sciences use can be wrongly considered as the supreme rule for discovering the whole truth. By virtue of their methods, however, these sciences cannot penetrate to the intimate meaning of things. Yet

Chandrakunnel, CMI, *Science and Religion: From Warpath to Wholeness* (Bangalore: Dharmaram Publications, 2004), p. 213.

70 Ibid., p. 213.

71 Ppt, p. M8.

72 Ppt, p. M14.

73 “Gaudium et Spes,” no. 36, Abt, p. 234.

the danger exists that man, confiding too much in modern discoveries, may even think that he is sufficient unto himself and no longer seek any higher realities.⁷⁴

For instance, at times a belittling of religious beliefs, an agnosticism towards matters of religious life, etc., are looked upon as “requirements of scientific progress or of a certain new humanism.”⁷⁵ But these areas of concern and possibilities of deviation should not be exaggerated and used as an excuse to close the door of science and technology. The document goes on to say that “these unfortunate results, however, do not necessarily follow from the culture of today, nor should they lead us into the temptation of not acknowledging its positive values.”⁷⁶

f. The Pastoral Dimension of Science

The Council readily acknowledges and appreciates the positive values accruing from the scientific spirit. They are:

Scientific study and strict fidelity toward truth in scientific research, the necessity of working together with others in technical groups, a sense of international solidarity, an ever clearer awareness of the responsibility of experts to aid men and even to protect them, the desire to make the conditions of life more favourable for all, especially for those who are deprived of the opportunity to exercise responsibility or who are culturally poor.⁷⁷

From these considerations flows the apostolic dimension of science & technology because the values mentioned above can prepare the ground for sowing the seeds of the gospel. “All these values can provide some preparation for the acceptance of the message of the gospel – a preparation which can be animated with divine love by Him who came to save the world.”⁷⁸

74 Ibid., no. 57, p. 263.

75 Ibid., no. 7, p. 205.

76 Ibid., no. 57, p. 263.

77 Ibid., pp. 263-264.

78 Ibid., p. 264.

In pastoral care too science and its findings can be beneficial. “In pastoral care, appropriate care must be made not only of theological principles, but also of the findings of the secular sciences, especially of psychology and sociology. Thus the faithful can be brought to live the faith in a more thorough and mature way.”⁷⁹

g. The Importance of Science Education

Having appreciated the tremendous power science wields in our world by influencing not only how we live, but also how we think, the Council emphasizes the teaching of scientific ideas and methods in educational institutions. In its “Declaration on Christian Education” it takes special care to remind all that, although primary education is important and must be continued, “considerable importance is to be attached to those schools which are demanded in a particular way by modern conditions, such as so-called professional and technical schools,...”⁸⁰ It goes on to say that in institutions of higher learning, the Church wants “in a systematic way to have individual branches of knowledge studied according to their own proper principles and methods, and with due freedom of scientific investigation. She intends thereby to promote an ever deeper understanding of these fields, and as a result of extremely precise evaluation of modern problems and inquiries, to have it seen more profoundly how faith and reason give harmonious witness to the unity of all truth.”⁸¹ The Council is even more direct and emphatic when it says: “Since the sciences progress chiefly through special investigations of advanced scientific significance, Catholic colleges and universities and their faculties should give the maximum support to institutes which primarily serve the progress of scientific research.”⁸²

79 Ibid. , no. 62, p. 269.

80 “Declaration on Christian Education,” no. 9, Abt, p. 648.

81 Ibid., p. 648.

82 Ibid., no. 10, p. 649.

h. Science and Priestly Formation

From what has been said already, the conclusion follows naturally that the Council wants the imparting of the scientific spirit to be made an integral part of the priestly formation. This point is made explicit in the “Decree on Priestly Formation,” particularly when it talks about the teaching of philosophy. “Philosophy should be taught in such a way that students will be led to acquire a solid and coherent understanding of man, of the world, and of God. Basing themselves on a philosophic heritage which is perennially valid, students should also be conversant with contemporary philosophical investigations, especially those exercising special influence in their own country, and with recent scientific progress.”⁸³

Speaking of theological study and research Pope John Paul urges all engaged in theological reflection to incorporate the findings of contemporary science to complement and enrich their service to the Church and the world. “As these findings [of science] become part of the intellectual culture of the time, however, theologians must understand them and test their value in bringing out from Christian belief some of the possibilities which have not yet been realized.”⁸⁴ At the same time he is quick to caution that “theology is not to incorporate indifferently each new philosophical or scientific theory.”⁸⁵

i. The Impact of Science on Theology

The Council is of the opinion that theology is an important beneficiary of these scientific developments because they can “stimulate the mind to a more accurate and penetrating grasp of the faith. For recent studies and findings of science, history, and philosophy raise new questions which influence life and demand new theological investigations.”⁸⁶ Hence the Council

83 “Priestly Formation,” no.15, Abt, p. 450.

84 Ppt, p. M10.

85 Ibid., p. M10.

86 “Gaudium et Spes,” no. 62, Abt, p. 268.

urges theology to be in constant touch with developments in the sciences. "Through a sharing of resources and points of view, let those who teach in seminaries, colleges, and universities try to collaborate with men well versed in the other sciences. Theological inquiry should seek a profound understanding of revealed truth without neglecting close contact with its own times."⁸⁷

More recent proclamations of the Church are even more emphatic on this point: "Theology has been defined as an effort of faith to achieve understanding, as *fides quaerens intellectum*. As such it 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."⁸⁸ Nor is the Pope content with a purely speculative theorization, he wants it to be implemented in the practical realm. "It would entail that some theologians, at least, should be sufficiently well versed in the sciences to make authentic and creative use of the resources that the best-established theories may offer them."⁸⁹

These developments in science and technology have significant bearings on morality as well since they put us in close association with the contemporary life situation. Hence the Council exhorts all Christians: "May the faithful, therefore, ... 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."⁹⁰

87 Ibid., p. 270.

88 Ppt, p. M10.

89 Ibid., p. M11.

90 "Gaudium et Spes," no. 62, Abt, p. 269.

Conclusion

Our brief study reveals that Vat II was not just another council convened to tackle a particular doctrinal problem vexing the Church. It was far more than that. It really aimed at an *aggiornamento*, a genuine, comprehensive effort to make the Church be at home in our contemporary world dominated by science and technology. It was a revolution-making event that brought about a paradigm shift not only in the Church's view of the world, but also in its attitude towards science and technology. Far from being intimidated by the impressive strides of science, the Council gladly welcomes them as God's special gift to the universe to be used for its betterment. Far from looking at it as a formidable rival, Vat II looks at it as a respectful partner with a common mission. We have seen that recent developments in science and technology not only gave impetus to convene the Council, they also in some ways helped to redefine Church's new role in the world and suggested some ways of using the findings of science to play that role expeditiously and effectively.

The *aggiornamento* inaugurated by Vat II is a long and challenging process that needs to continue. Both the Church and modern science need to collaborate in this noble task. Science with its amazing findings of the secrets of nature and its well-proven powerful methods, can be a great boon in this process. The perennial truths and the rich tradition of the Church too should serve as facilitators rather than obstacles in this venture. The truths and insights of religion can ensure that the ongoing process does not deviate from the right path of holistic progress of humanity and the cosmos. The Christian tradition can make available centuries of rich experience as a source of inspiration and guidance. Vat II has opened the door for such a constructive and collaborative mission to respond responsibly to the challenges of our contemporary world.

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