

Mystery and the Culture of Science

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*Personal Insights for the 21st
Century*

By

Jim Malone and John McEvoy

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To all who search for Truth in a sea of mystery, and who take the risk of
“putting out into the deep...” (Lk 5.4)

We set up a word at the point at which our ignorance begins, at which we can see no further... (the words) are perhaps the horizon of our knowledge, but not truths. John Banville, *Shroud* (London: Picador, 2002).

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PREFACE

The *Book of Nature* and the *Book of Revelation*, both having the same author, jointly help us gain insights into the cosmos, our neighbours on this planet and God. But God, the person, and much about the natural world is, and will remain, mysterious. Nevertheless, the bottom-up approach to a greater understanding, as elucidated in the sciences, arts and humanities, is valuable and must be taken very seriously, even by theologians. The major advances in our present knowledge invite us to consider our past and our current religious beliefs in the light of these changes. In exploring this, neither our scientific understanding, nor our theology/faith/Christian practices, will remain untouched. Failure to do this will leave our experience unanchored and likewise our faith/theology/Christian practices unsubstantiated. This book offers some tentative suggestions as to how religions might interact with current understandings of the *Book of Nature* and how this impacts issues of concern to citizens of the 21st century.

Chapters One and Two reflect on aspects of science that might help loosen the straitjacket in which the development of doctrine appears to be trapped in the Catholic, and other Christian, traditions. Several useful conclusions are reached including the observation that all knowledge is provisional and open to improvement. This is not relativism and could usefully be integrated into scholarship on theology and doctrine. It can potentially enliven areas presently bloated, in stasis, immune to development, and with skilled advocates for polarised positions constantly restating their case with little or no movement. Such disputes are common in the wider world. There is much to be learned from how reason is forfeited when all sides withdraw into the *comfort of polarisation*. This is explored using examples from the nuclear and climate change fields. The reflection includes surprisingly apt insights into the operation of the churches based on chaos theory.

From this background, reflections are undertaken, in Chapters Three to Six, that illustrate how the polarisation between science and religion has impoverished both. This applies in the mainstream churches, even when conflict is absent. The absence of real engagement leaves multiple seminal areas unexplored. In many ways, the boundaries between subjects in the religious tradition (e.g. theology or spirituality) and the sciences/humanities have all the characteristics of a hard border. There is little communication,

interaction or cross fertilisation across it, even when official relations between those on both sides are relatively cordial. This becomes particularly evident in Chapters Four and Six but is also evident throughout the book. From many topics that might be examined, four are selected. The aspects of each that are regularly debated in the media are avoided as they often generate more heat than light.

The areas explored are *infallibility* (Chapter Three) in its many guises inside and outside Catholicism; the *efficacy of specific forms of prayer* (Chapter Four); how a sense of *mystery and the contemplative approach might benefit science* (Chapter Five); and, finally, *evolution and the incarnation* (Chapter Six). Although these Chapters draw on earlier parts of the book, to a great extent they stand alone, and they may be read in any order. Each exploration has rewarding, surprising and potentially enriching outcomes. Perhaps infallibility is the least surprising, and on reflection appears flawed both historically and operationally. It is probable that it has greatly damaged and continues to damage a valuable institution, the Papacy, and through that the Catholic Church, and many other churches in the wider Christian Community. Although infallibility is not routinely used operationally by the present incumbent, it has, less formally, been implied in much emanating from the Vatican bureaucracy.

On a different note, a series of clear, unambiguous and decisive scientific studies on remote intercessory prayer have, for practical purposes, been side-lined and ignored in theological and religious communities. The studies, of the highest quality, can help us discern more about the nature of prayer in times of illness. It is worrying to see the *Book of Nature* so decisively ignored in the theological, religious and spirituality communities, when its message is not welcome.

Lessons from religion and the arts on the methodology of science flow from reflection on a painting of the physicist, Erwin Schrödinger, in a moment of discovery (see the cover). It, surprisingly, suggests a more contemplative approach to science would be beneficial. In the final area, evolution, we avoid the creationist/evolution controversy and look instead at other deep, far-reaching implications of evolution enabling revision of our understanding of the significance of the incarnation. While some may find this shocking, others will find it liberating and in keeping with the understanding of the sacredness of all nature proclaimed by the bible, St Francis of Assisi, Teilhard de Chardin and many others.

Dublin, 4th October 2018
Feast Day of St Francis of Assisi

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CHAPTER ONE

WHAT CAN THEOLOGY LEARN FROM SCIENTIFIC METHOD?¹

"We know only in part and we prophesy only in part."
(I Corinthians 13:9)

Introduction

Theology and science can, even today, seem divided. Much of science and day-to-day religious teaching/enquiry is rooted in a pragmatic approach often referred to as *critical realism*. In this approach, the scientific method has given us extraordinary advances in knowledge. But, even with this success it recognizes that our knowledge is always incomplete, and in most cases is subject to limitations that arise from, *inter alia*, observer effect-like processes (e.g. the uncertainty principle in physics). In theology and church teaching we achieve knowledge through intellectual effort, imagination, emotional experience and of course revelation. Critical realism is often deployed, in practice, with these approaches. Richard McBrien rightly asserts that Catholicism's philosophical focus is that of critical realism and this "carries over into everything the Church does." This is strikingly true in many practical situations, in social justice issues and in the best of theology. However, as McBrien also points out, in some aspects of church teaching, neglect of critical realism atrophies thinking and can lead to relativism, fundamentalism, dogmatism or legalism.²

Positions reached, using a critical realist approach are, generally, in both science and theology, incomplete, in some way(s) imperfect, open to improvement and subject to some version of the observer effect. In this

¹ This Chapter is a modified version of an article by J. McEvoy and J. Malone, "What Can Theology Learn from Science?" *Doctrine and Life* 66, no. 2 (February 2016): 42-56.

² Richard P. McBrien, *Catholicism* (New York: HarperCollins Publishers, 1994), 1200-1201.

Chapter, we explore the implications of recognising this and making critical realism a more conscious part of the approach to developing both theology and church teaching. We also provide concrete examples of situations where theology and church teaching could greatly benefit from this approach.

The apparent division between some church teachings/theology on the one hand and the sciences on the other, is in part related to some controversial positions, of both. Examples might include Richard Dawkins' position on the exclusive role of science, the position of Christian fundamentalists on evolution, or the position of the *magisterium* of the Catholic Church on, for example, contraception or women priests. Positions of this type are often reached using a method that is in some way extreme or flawed. Nevertheless, much of theology and science share the philosophical roots of their respective methods, although there is still some room for controversy. At the practical pragmatic level, practitioners of both tend to adopt similar approaches that have much in common. This allows them to move past the essentially irresolvable issues in epistemology and proceed with caution on the quest for truth in their respective fields, *wherever their enquiry might lead them*.³ Critical realism, practiced in this way, helps us to contemplate and appreciate the little we know and understand of creation, the human person and the Mystery of God.

This Chapter is an exploration of critical realism and its consequences for both theologians and the teaching *magisterium* of the church/es. Knowing our cosmology not only helps, but is in fact essential to elucidating the Mystery of God more profoundly. Much of our knowledge of God comes from, or is supported by, our knowledge of nature. Perhaps, surprisingly, each feeds from and nourishes the other. Accepting this position makes it easy to see why St Bonaventure's suggestion that the primal book of revelation is *The Book of Nature/The Book of Creation*.⁴

What then are the principles underlying the scientific method which gives rise to what is often described as the most important system for increasing humankind's knowledge of creation? Might knowledge of this method have anything to contribute to theology and/or the teaching of the churches?⁵

³ A critical realist approach walks a path somewhere between the position that there exists a purely objective knowledge, as suggested by the Enlightenment, and the position that knowledge is wholly subjective as suggested by an extreme postmodern system.

⁴ Z. Hayes, "Christ, Word of God and Exemplar of Humanity," *The Cord* 46, no. 1 (Jan/Feb 1996): 3-17.

⁵ Although many scientist-theologians are drawn to the notion of critical realism in science and theology there is a very active debate as to its usefulness in either science

Critical Realism

From a pragmatic viewpoint it is evident that we come to know important things in three ways. These are:

- intellectual effort and reasoning, i.e. cognition,
- through less rigorous intellectual processes such as imagination and intuition, which provide us with some of our most valuable insights, and
- emotional experience, i.e. the heart, which often grounds our deepest convictions.

All three should be at the service of both science and theology. Perhaps surprisingly the most profound theories in science and some of the greatest works in theology draw their stature from an involvement of all three. For example, quantum physics draws on intellectual rigour, great leaps of imagination and exceptional emotional commitment. Paul Dirac, Noble Laureate in physics, suggested that it is more important to have beauty in mathematical equations than to have them fit experimental data.

Underlying an effective deployment of all three ways of knowing is the epistemological stance of critical realism. All methods of knowing also contain within themselves a practical or fundamental version of the observer effect, in which knowledge we acquire of particle physics or God, is inevitably stamped with the shadow of the observer or technique of observation. There will always be a subject-object relationship. This interdependence is formulated in various ways including the Uncertainty Principle in physics, the observer effect in the social sciences and the hermeneutical circle in theology.

While the Enlightenment suggested that purely objective knowledge was possible, quantum theory, relativity theory, chaos theory and the humanities all deny the possibility of attaining this goal. They find that all knowledge is conditioned by the method through which it is acquired and an element of the subject-object. Critical realism avoids the Enlightenment position, suggesting that a purely objective knowledge can be obtained and, at the same time, avoids the postmodern position in which all knowledge ultimately collapses into an unsatisfactory relativism.⁶ John Polkinghorne, Cambridge theoretical physicist, priest and winner of the Templeton Award

or theology. See, for example, Christopher Southgate and Michael Poole, eds., *God, Humanity and the Cosmos* (London: T&T Clark International 2011), 15-19.

⁶ J. Polkinghorne, *Faith, Science and Understanding* (London: SPCK, 2000), 33-35; 78-84.

(2002), suggests critical realism is the middle way between the intellectual certainties of the former and the intellectual doubts of the latter.⁷ “Critical” because it concedes our inability to eliminate some or all uncertainty; “realism” because it acknowledges that when we do come to know something of truth or reality, that knowledge is always in some way less than perfect. It may be an analogy, or shadow, or as is common in science, a model. Limited or incomplete knowledge gives rise to what is referred to as a *verisimilitudinous* (a true, as far as it goes, but not necessarily complete likeness) grasp of reality.⁸ Chang Ha-Sok, Professor of the History and Philosophy of Science at Cambridge, suggests the importance of acknowledging our limitations and that study should progress towards a given limit, rather than pursuing an abstract “Platonic truth.”⁹

The 2016 US Presidential election, and the UK Brexit referendum, brought a post truth society to the fore.¹⁰ This is well illustrated when Michael Gove, former UK Conservative Secretary of State for Education (2010-2014) and former Secretary of State for Justice (2015-2016), says, “people in this country have had enough of experts.”¹¹ On the other hand, a *Scientific American* article states,

But while scientists do not know everything, there is plenty they do know. And especially during this political season, it is dispiriting to see how many people, including political candidates, bizarrely reject some of the most basic, evidence-based truths that underlie modern science.¹²

Arthur Peacocke, Oxford scientist, theologian and priest, suggests that an acceptance of critical realism means that we are attempting,

⁷ Polkinghorne, *Faith, Science*, 33-35.

⁸ Ibid.

⁹ Bae Young-Dae, "Learning how to be honest about the limits of truth," *Korea JoongAng Daily*, October 1, 2016, 7.

¹⁰ See Lee McIntyre, *Post-Truth* (The MIT Press: Cambridge, Massachusetts and London, England, 2018).

¹¹ Henry Mance, “Britain has had enough of experts, says Gove,” *Financial Times*, June 3, 2016.

<https://www.ft.com/content/3be49734-29cb-11e6-83e4-abc22d5d108c>

¹² M. Shermer, H. Hall, R. Pierrehumbert, P. Ofit, S. Shostak, "5 Things We Know to be True; a Compendium of Irrefutable Facts for these Fact-starved Times," *Scientific American* 315, no. 5 (November 2016): 40-47.

... to infer to the best explanation by application of the normal criteria for reasonableness: fit with the data, internal coherence, comprehensiveness, fruitfulness and general cogency.¹³

An inevitable consequence of the critical realism approach is that knowledge can always be improved. Science has long accepted that theories and propositions are subject to revision in the light of, for example, new data, improved mathematical techniques or new creative insight. Church authorities, on the other hand, all too frequently resist this approach. They use concepts such as *irreformable* and *infallible* to resist any change to a perceived “deposit of faith,” which they believe to be unchangeable and to be true always and everywhere. Restricted enquiry, anchored in an unchallengeable “deposit of faith,” becomes the excuse to avoid the challenge of necessary change. This deprives theology, and the *magisterium*, of engagement with serious scholarship and, consequently, of much of the benefit of over a century of advancement in methodology that would obviously be valuable in addressing the real problems facing the church(es). Examples are given below in this Chapter, and are also the central focus of the remaining Chapters of this book.

Science, the humanities and the best of theology use metaphors to interpret experience and to describe reality. The critical realism approach leaves these metaphors open to revision in the light of new knowledge within the communities that generate and propagate them. Scientists, artists and theologians attempt, each in their own discipline, to depict aspects of reality, for example, the physical universe or the mysterious reality we name “God.” Science, employing the critical realism approach, provides us with cumulative knowledge that has a strong sense of the *verisimilitudinous*. It genuinely reflects many aspects of reality. Knowledge or formulations in theology and church teaching are also necessarily incomplete, partial or inadequate. Yet they can, and often do, have a *verisimilitudinous* quality. There is a powerful case for following the critical realism approach and enquiring further in an *open way* to both deepen our knowledge and insight into the mystery.

Polkinghorne, while believing theology pursues a *verisimilitudinous* reality, suggests that it is not necessary to reach this position by making a judgement. Like Peacocke, he holds that the universe is deeply rational and

¹³ Arthur R. Peacocke, *God and Science: A Quest for Christian credibility* (London: SCM Press, 1996), 6. Italics in original.

asserts that intelligibility is the key to knowledge of reality.¹⁴ For him, the critical realism approach in theological investigation will provide a *verisimilitudinous* knowledge of the underlying reality. Theological concepts and formulations so reached constantly need revision by the community that acknowledges the underlying truth. Turning to a peer community to have any theological development critically examined is a key aspect of a critical realism approach. In science peer review is an important, if imperfect, plank of its methodology. In theology, one thinks of Augustine's dictum, "the entire world is the secure judge"¹⁵ or the concept of "reception" by the faithful of a proposed church teaching is a key part of its adoption (see Chapter Two).

The Observer Effect and The Hermeneutic Spiral

A method employing critical realism almost inevitably encounters the observer effect in one of its many manifestations. Perhaps one of the better known is the *uncertainty principle* in quantum physics, which implies that, at the sub-atomic level, we can never completely know any system we observe. Here, the process of observation inevitably interferes with the observed entity. This is not just a quirk of how observations are made but is fundamental to the quantum nature of matter. Ultimately there are limits on what can be known and these are even susceptible to definition. At a more practical day to day level the effect refers to more mundane situations where observing or measuring something will change it: for example, measuring tyre pressure normally involves releasing a little air, thus changing the pressure by a small amount. In the life sciences, the humanities, and even in the theology there are endless examples of the observer effect. In medicine, when a blood sample is taken to assess cortisol levels, they may be changed by the anxiety/anticipation associated with the needle prick. Drawing more blood to re-assess the levels could result in another system change. Positive interactions with a doctor taking a medical history can result in improvement in a patient's condition without any "treatment," a phenomenon known as the placebo effect. Even more remarkable, in business the Hawthorne Effect refers to the way that workplace efficiency, performance and productivity can be improved by introducing and measuring any change to working practice. It doesn't matter whether System

¹⁴ Peacocke suggests that the goal of both science and theology is intelligibility, which is arrived at by the interplay of both experiment and experiential data. Arthur R. Peacocke, *Theology for a Scientific Age* (London: SCM Press, 1993), 87-90.

¹⁵ "Securus judicat, orbis terrarum." St Augustine, *Contra. Epist. Parmenianus*, III 24.

A is changed to System B or System B is changed to System A: productivity could well go up! The usual explanation is that the *Hawthorne Effect* is akin to a placebo. However, as with the placebo, the result need not always be positive. For example, if an efficiency study is taking place under threat of redundancy, there could be a (subconscious?) desire for it to fail.

As has been seen, critical realism is, in theory, accompanied by what is referred to in theology as the *hermeneutic circle*. This does not simply go around and around in a closed loop. Haught points out that a circular vision of history going around in a closed circle is akin to Friedrich Nietzsche's notion of everything happening again and again in an "infinitely prolonged and absurd circle," which gives rise to a metaphysics that is closed to a new future.¹⁶ Reality, and progress in understanding, is better represented by a hermeneutic spiral, in which each cycle also leads to progress toward a more complete or more authentic truth. In a sense the hermeneutic circle/spiral not only encompasses individual scholars, it widens to include the community of scholars and ultimately the wider community being addressed. Vatican II (*Church in the Modern World: Gaudium et Spes*, No. 62) states,

In pastoral care appropriate use must be made not only of theological principles, but also of findings of the secular sciences, especially psychology and sociology...¹⁷

The outcome of theological reflection must be adopted in this wider community. This will in turn change it, leading to further enquiry with new questions, which when *openly explored*, should translate to an ever more freely chosen authentic behaviour(s). From this it follows that theology employing critical realism must lead to constant development and new insights in church teachings, doctrine and pastoral care. Just as happened with the Hellenistic influence in the early and middle-age Church, all dogmatic formulations need explanation in categories and language suitable for today.

In both science and theology the underlying reality (God, the human person, and the cosmos) is finally shrouded in mystery (see Chapter Five). Scientific theories or and theological formulations seeking to communicate this mystery will, at best, always be imperfect and partial and can never be

¹⁶ John Haught, *God After Darwin: A Theology of Evolution* (Colorado: Westview, 2000), 86.

¹⁷ Austin Flannery, O.P., ed. *Vatican II, Constitutions, Decrees, Declarations* (Dublin: Dominican Publications, 1996). Italics added. Unless otherwise stated all quotations from Vatican II are taken from this publication.

infallible in the sense that they are complete. At worst new scientific formulations may give too much credence to the authority of those supporting existing theories (e.g. those opposing Darwin's theory in his own time) or to inadequately performed work that can even be fraudulent.¹⁸ Theological formulations will, at best, take into account *The Book of Revelation*, *The Book of Nature* in all its manifestations in the sciences, the arts, tradition by way of the Fathers, dogmatic pronouncements, the opinion of theologians and the *sensus fidelium*,¹⁹ in short, the “the entire world” of Augustine. However, as with science, they can also be damaged and compromised by excessive use of authority and/or poor scholarship, among other problems.

In summary, intertwining of experience and interpretation in the *hermeneutical spiral*, suggests that continuing change and development in the interpretation of *The Bible* and Church teachings is necessary in a theology that aspires to truth. This does not lead to what Polkinghorne terms a “despairing relativism,” but is rather a more profound penetration of *Mystery and mysteries*. As Vatican II’s *Dogmatic Constitution on Divine Revelation*, *Dei Verbum*, No. 8, states, “For as the centuries succeed one another, the Church constantly moves forward *toward* the fullness of divine truth.”²⁰

Some Conditions for Progress and Implications for Church Teaching

Authentic application of critical realism, together with an awareness of the observer effect, and being attentive to the relevant findings of science, present major challenges to theologians and to the teaching authorities of the church(es). Some preconditions for success and of the implications for the church are set out below. Only a few examples (four) are given, primarily to flag areas that might be brought to awareness and attended to. There are many more, some of which will be treated in detail in the following Chapters.

¹⁸ See, for example, J. Malone. "The Darker Side of Twenty First Century Science, and a Perspective from a Founding Father: Robert Boyle," in *Philosophical Thinking and the Religious Context*, ed. Brendan Sweetman (London, New Delhi, New York, Sydney: Bloomsbury Publishing, 2013), 68-79 ; William Reville, "Fraud is now the biggest enemy of science," *The Irish Times*, June 2, 2016, 14.

¹⁹ “Sense of the faith,” this refers to the Church’s instinct for faith. See Chapter Two for more detail.

²⁰ Italics added.

Welcoming the findings of science

Scripture and science, i.e. *The Book of Revelation* and *The Book of Nature*, cannot be opposed. Ultimately both have the same author. Our knowledge of *The Book of Nature* continuously evolves, and cannot leave theology untouched. Concepts such as irreformability are untenable in this context. Theology, to be vital and meaningful, must consider what *The Book of Nature* is revealing as it will inevitably impact Church teaching. This position receives strong support from surprising sources. Pope St John Paul II wrote that theology,

... must be in vital interchange today with science just as it has always 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. *The vitality and significance of theology for humanity will in a profound way be reflected in its ability to incorporate these findings.*²¹

On the other hand, Pope Benedict XVI, in his 2007 encyclical *Saved in Hope, Spe Salvi* (No. 25) appears to regret this is not happening,

... we must also acknowledge that modern Christianity, faced with the successes of science in progressively structuring the world, has to a large extent restricted its attention to the individual and his salvation. In so doing it has limited the horizon of its hope and has failed to recognize sufficiently the greatness of its task...²²

The authors agree with the sentiments in both statements and this book is an attempt to move to a place where *The Book of Nature* is valued as an authentic revelation, whose findings have to be incorporated into the teachings and practices of the churches. Failure to do so in the 21st century is a recipe for marginalisation. Interestingly, St John Paul II and Benedict XVI served as Popes over a thirty five year period (1978-2013) but failed, as noted above, to incorporate the findings of science into their own and the

²¹ Letter of Pope St John Paul II to Reverend George V. Cloyne, SJ, Director of the Vatican Observatory, June 1, 1988, www.vatican.va/holy_father/john_paul_ii/letters/1988. Italics added.

²² Pope Benedict XVI's Encyclical Letter *Saved in Hope, Spe Salvi*, November 30, 2007.

http://www.vatican.va/holy_father/benedict_xvi/encyclicals/documents/hf_ben-xvi_enc_20071130_spe-salvi_en.html. See Chapter Six.

institutional churches' thinking. It is probable that neglect of critical realism, and retreat into the comfort zone of polarisation (see Chapter Two), contributed significantly to this.

With critical realism the sense of mystery always remains

Both theology and science are linked to an underlying faith in the intelligibility of the universe. While interrogating this intelligibility, critical realism and common experience suggest that no matter how complete our knowledge is, in either theology or science, there is always room for improvement. No person or institution has "all the answers." Regardless of how well we comprehend a situation, an element of mystery always remains and recognition of this should be encouraged (see Chapters Five and Six). Our knowledge of mystery, while based on reality, is of its very nature limited and at best *verisimilitudinous*. Mystery is not a quicksand in which all enquiry ends; rather, the opposite, it is the pull to know more. As new knowledge and insights are critically examined, proposed to and accepted by the community, deeper insights into *Mystery and mysteries* can be anticipated.

The scientific method does not, as is frequently thought, simply involve pure reason. Like theology, it involves reason, imagination and heart. Many theories involve great leaps of imagination, some profoundly counter intuitive (see Chapter Five). Theories or experiments are often felt to have qualities of beauty and attract followers who are emotionally attached to them. Scientists often experience compelling, rewarding, emotional responses to the revelation of nature in experiments conducted for the first time. Both theology and science involve, for serious practitioners, a commitment to truthfulness, and indeed a reverence for the object of investigation. Both theology and science have an essential social dimension, regardless how reclusive the individual practitioner may be.

Observer effect, the hermeneutic spiral and the community

Theology has been defined as faith seeking understanding.²³ Faith is the starting point, and in this sense it is never a simple case of the purely cognitive or purely deductive/inductive processes. It generally involves these, but also involves contributions from revealed sources, the imagination and the heart, all informed by private and communal prayer, the latter with a believing community—a Church. Here we see the objective

²³ McBrien, *Catholicism*, 20.

data of revelation blending with the inner experience of the individual scholar and the wider experience of the community. This process is well illustrated by Biblical scholar, José Pagola,

I did something I had never done before. After examining a concrete issue, critically evaluating the information provided by scholars, I have spent many hours in silence, trying to become attuned to the protagonist himself. Sometimes I did so as an historian (in the third person): ‘Who is this Jesus who has left us with so many questions and debates?’ ‘What can we say today about his activity and his message?’ At other times I did so as a believer (in the second person): ‘Who are you?’ ‘What was your first reaction when you saw people suffering?’ ‘How can I tell your story to men and women of today?’ Please understand. I have not done this to alter the critically established information, but to enter more fully into the meaning of the information and to be more vitally attuned to the person and message of Jesus.²⁴

Theology would arguably benefit from being situated in a university setting where the theologian might be exposed to, and interact with, a full range of the sciences and the humanities, all seeking to reveal *The Book of Nature*. This would broaden even further the hermeneutical spiral. Retreating to academic/professional training in isolated seminaries runs counter to this thinking. Vatican II (*Church in the Modern World, Gaudium et Spes*, No. 62) states, “Those who are engaged in the theological disciplines in seminaries and universities should aim to collaborate and cooperate with experts in the other sciences.”²⁵

Fundamentalism and dissent

Extreme scientism suggests that knowledge can only be obtained by an exclusively empirical method; an approach espoused by, for example, Richard Dawkins and his followers. This is a form of scientific *fundamentalism*. Fundamentalism is also to be found in theology and church teaching when, for example, a naive realism is used in the interpretation of *The Bible*, dogma or tradition. This is often associated with harsh judgment of contrary positions. Examples include senior US clerics comparing President Obama to Hitler, and grouping “homosexual and abortion ideologies” with Islamic fundamentalism and “Nazi Fascism and

²⁴ José A Pagola, *Jesus: an Historical Approximation* (Florida: Convivium Press, 2009), 22.

²⁵ Norman P. Tanner, *Decrees of the Ecumenical Councils*, volume 2, (Washington DC: Georgetown University Press, 1900), 1112-1113.

Communism.”²⁶ Fundamentalism is also found, perhaps even more insidiously, where those expressing even slight disagreement gain the title *dissenter* and can often be subject to extreme sanctions. This has happened, even to those who have given extraordinary service. It is even more problematic when the Church tries to control what may be discussed. Numerous examples could be cited including interference with invitations to speak at public occasions for those not in favour. Recent examples include former President of Ireland, Mary McAleese, Professor Tina Beattie and Fr Tony Flannery, among many others.²⁷

At a different level, Pope Francis has stated on several occasions that the issue of women priests is *closed*, and in doing so appeals to the authority of Pope St John Paul II's position.²⁸ Thus authority appears to be the only approach that allows this issue be disposed of, where many other perspectives include well-argued cases for change. How close is this to the situation in which Pope St Paul VI tried, with an unprecedented lack of success, to close the debate in *Humanae Vitae*? History appears to be repeating itself, with a substantial body of knowledge in theology and the social sciences, as well as the *sensus fidelium*, being ignored. How much better, and less damaging to the *magisterium*, it would be to have open debate within the framework of critical realism. It is worth noting that Pope Francis is encouraging some discussion on married priests and women deacons.

An institution that does not deal with dissent, when handling current problems, will almost inevitably suffer from a quiet exodus of members. Cardinal Timothy Dolan, Archbishop of New York, referring to the “chilling statistics” of those leaving the US Church said, “So they drift from her, get mad at the church, grow lax, join another, or just give up.” He then adds, “If this does not cause us pastors to shudder, I do not know what will.”²⁹ A critical realist approach to current problems would be more flexible.

²⁶ See, for example, Michael Sean Winters, “Allies and adversaries,” *The Tablet*, November 10, 2012, 4; Christopher Lamb, “Rising stars,” *The Tablet*, October 31, 2015, 6.

²⁷ See Christopher Lamb, “Academics protest against university ban on Beattie,” *The Tablet*, November 10, 2012, 34; Christopher Lamb, “Priest defends Flannery against bishops,” *The Tablet*, September 5, 2015, 30. S. MacDonald “McAleese writes to Pope over exclusion by Farrell,” *The Tablet*, February 10, 2018, 25.

²⁸ Robert McClory, “Pope Francis and women's ordination” *NCR Today*, September 16, 2015, <http://ncronline.org/blogs/ncrtoday/pope-francis-and-womens-ordination>. Accessed 4th October 2015.

²⁹ Archbishop Dolan's first presidential address to the US Conference of Catholic Bishops, November 14th 2011. <http://www.usccb.org/about/leadership/usccb-general->