Are Science and Theology competing views of reality?

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Declaration

I certify that this dissertation is my own work, and that any use of other people's work is fully acknowledged in the footnotes or end notes.

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Table of Contents

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"Fides Quaerens Intellectum" – St Anselm (c1033-1109)

1 Introduction

1.1 My personal motivation for writing the thesis

It was and remains a great personal challenge to me to reconcile what seemed to be two competing views of reality. This thesis represents a necessarily abridged account of that journey and how I personally have reconciled the two since my "conversion" in 1989.

1.2 Overview and Chapter Outlines

1.2.1 My Intellectual Approach and the limits of the study

Science and theology are often viewed as entirely separate, in opposition to one another as competing and mutually exclusive ways of viewing reality. In response, the central question asked by this thesis is: *"how different are they in describing what is believed to be a true knowledge of reality?"* I argue from a "critical realist" perspective[1]. An important limitation of this study is that space has not permitted me to examine in any depth the place of mystical experience has in this argument beyond the review of the mystical interpretation of Quantum physics.

1.2.2 The Epistemological Question

In the Western tradition, the rational and the transcendent function (encompassing the religious and theological aspects of the psyche)[2] have always been considered in opposition to one another as the distinguished 20th century philosopher Bertrand Russell is keen to point out in his masterly review of Western philosophical thought:

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[1] "Critical realism" is examined at various places in this thesis and specifically in section 2.3.4.
[2] Jung, C.G. (1954), 'The Transcendent Function' *in* Collected Works, v17, London: Routledge, p69.

> "The opposition of the rational and the mystical, which appears all through history, first appears, among the Greeks, as an opposition between the Olympic gods and other less civilised gods"[3].

It is often a "given" that theology is *normative* and science *descriptive*.

Consequently, chapter two explores the basis of "knowledge" and considers the following question: *can scientific knowledge be considered as containing more intrinsic value than theological knowledge?*

1.2.3 The Methodological question

In many studies of the relationship between science and theology, they are often considered as the asking of the "how" (science) and of the "why" (theology) questions about the same ultimate reality:

> "both [science and theology] describe the nature of reality...the difference..is..the aspects of reality they are seeking to explore. One is concerned with the physical world, which we can transcend and manipulate. One is concerned with One who transcends us..."[4]

This assertion is critically examined in chapter 3.

1.2.4 Quantum Physics

Chapter 4 examines the unexpected and profound theological impact of Quantum Physics which revolutionised the Classical scientific (Newtonian) view of the world. The question posed and discussed in this chapter is: *Does quantum physics lend support to a particular theological view?*

1.3 Some Basic Definitions in Science and Theology

A common error is to think of science as a perfectly homogeneous discipline and theology as fractured and filled with the competing paradigms of the 'Great Faiths'. In reality, the differences between the sciences are arguably as big as any distance

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[3] Russell, B.(1991), *History of Western Philosophy*, 3rd ed, London: Routledge, p51.
[4] Polkingthorne, J. (1991), *Reason and Reality – The Relationship between Science and Theology*, London: SPCK, p49.

between religious paradigms. The aim of this brief section is to set the context of what I mean when I talk about science and theology.

1.3.1 Defining Science

The term science comes from the Latin *scientia* which in turn was used to translate the Greek word *epistemē* which both mean "knowledge". Science in its original use was almost interchangeable with the term "philosophy" particularly when talking about *natural* science and *natural* philosophy. The common idea was to come to an objective view of nature and its processes.

However, we immediately run into a problem with this term "objective". Science and theology may be said to "intuit" an explanatory theory and then seek to show how their data accords with their theory. Do they then compete with each other on the basis of their coherence and benefit to the human psyche?[5] Pure objectivity is often considered a fallacy, both post-modernism and empiricism posit that our insights are always coloured by the tenor of our subjectivity. Perhaps the substitution of 'as un-subjective as possible' for 'objective' is more appropriate. These philosophical issues are discussed further in chapters 2 and 3.

1.3.2 Natural and Social Sciences

1.3.2.1 Natural Science

The term "natural science" refers to a model of the Universe that assumes that the Universe obeys rules or laws of natural origin and natural science typically embraces Physics, Chemistry, Biology, Earth Science, Atmospheric Science, Oceanography and Materials Science. Historically, experimentation and empirical data played a

[5] This thought is from comments made on review of an early draft of this thesis by Dr Alex Studholme.

large role in these sciences and they are sometimes called the “hard” sciences. Additionally, there are many cross-disciplinary sciences and branches within each of the broad categories such as biochemistry (the chemistry of living organisms) or cosmology (a specialism of physics). Hard sciences are the basis for the *applied sciences* which may loosely be called the Engineering disciplines where the science is used in the construction of technology to solve specific problems.

1.3.2.2 Social Science

The social sciences are those that explore ‘aspects of human society’ such as Psychology and Sociology where the data relates to complex, multi-faceted processes and the empirical facts are capable of multiple interpretations, some of which are even contradictory, resulting as they do from the subjective evaluation of the scientist. For these reasons, they are sometimes called “soft” sciences.

1.3.3 Natural Theology

When the term “natural theology” is used it refers to a particular view of theology that nature bears the signature of the Creator. This is a view I share and one of the working assumptions of this thesis: “the rational intelligibility and finely tuned fruitfulness of the cosmos perceived as rumours of divinity”[6]. In some pantheistic models, nature is even considered a *part* of God’s being. In general, notwithstanding this last point, by studying creation (of which the scientific method may then be considered a part) knowledge of God can be obtained:

> ‘[we] learn something of God through the exercise of reason and the general exploration of the world...natural theology derives from the general exercise of reason and the inspection of the world.” [7,8]

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[6] John Polkinghorne (1996), p8.
[7] John Polkinghorne (1997), *Science & Christian Belief*, London: SPCK, p3.
[8] John Polkinghorne (1991), p52.

A key line of argumentation in this thesis is to reassert the close relationship of natural science and natural philosophy in the respect that a coherent, consistent view of nature (loosely described as ‘objective’) is being sought.

2 Theology and Science – the Epistemological Problem

2.1 Overview and Introductory Considerations

The challenges of this chapter are to examine in as a sufficient detail as this space allows the epistemological reasons for the common conception of the opposition of scientific and theological systems of thought and to critically examine whether scientific knowledge has a legitimate claim as a superior view of reality. It concentrates on the formation of beliefs and the nature and role of evidence in belief formation and concludes with an appeal to critical realism as an appropriate arbiter between theology and science.

2.1.1 The Historical Context

There is a common perception that science and theology deal with entirely separate domains of knowledge and that neither has any legitimacy to interfere with the affairs of the other because:

1. They are using entirely different frameworks of knowledge – theology is normative[9] and science is descriptive;
2. Their methodologies and subject matter are incompatible – theology makes un-testable metaphysical propositions and speculates about reality; science is empirical and concerned with an evidence based construction of beliefs about reality.

However, we run into a problem straight away because ancient Greek “scientists” were almost always philosophers and virtually all were philosophers dealing first with physics and then metaphysics:

[9] Gill, R (1987) *Theology and Sociology*, Geoffrey Chapman, p11.

> "The roots of all physics, as of all Western science, are to be found in the first period of Greek philosophy in the sixth century B.C., in a culture where science, philosophy and religion were not separated. The sages of the Milesian school in Ionia were not concerned with such distinctions. Their aim was to discover the essential nature, or real constitution, of things which they called 'physis'. The term 'physics'..meant.. originally, the endeavour of seeing the essential nature of all things."[10]

Of great irritation to the army of the modern atheist community, led by General Dawkins, is that science has not killed God, it has not proved to be a "highway to atheism...leading...irrevocably to such beliefs"[11]. It is very notable in the history of the natural sciences that many of the most famous and seminal work was done by men who were openly and publicly "religious". Epoch makers in the history of science such as Galileo[12], Newton[13], Maxwell[14], Faraday[15] and Einstein[16] are all famous for religious insights as well as scientific ones. Contemporary contributions to both science and theology have come from Sir Roger Penrose[17] and John Polkinghorne[18]. In essence, the theological scientists, amongst whom I include myself, must find both activities not contradictory but complimentary: "a consideration of how...differing accounts of the status of the physical world relate"[19]. They are necessary to reconcile the different characteristics of their data into one coherent account of reality:

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[10] Capra F. (1991), *The Tao of Physics*, 3rd ed, London: Fontana, p22
[11] McGrath, A. and Collicott J (2007), *The Dawkins Delusion*, p1.
[12] Galileo was meditating in church when he is said to have realised the swing of the priest's censer was periodic. Galileo was considered the founder of modern mechanics and the modern scientific method of induction. See chapter 3.
[13] Newton is credited as saying 'he thought God's thoughts after Him' and was an interpreter of bible prophecy.
[14] Maxwell is famous for his elegant equations that provided the theoretical description of the self-propagation of electromagnetic waves in a vacuum that finally removed the "ether" paradigm from Physics and was a profoundly religious man.
[15] The pioneering work of Michael Faraday on electricity did not appear in an engineering journal but in a philosophy journal. He was also a member of the Calvinist Sandemanian community.
[16] Einstein is famous for the quote "God does not play dice" expressing a view of a Universal determinism but more movingly, when asked by his nurse when he was terminally sick, 'do you believe in God?' is reported as replying, 'Yes I do, I have spent my life catching Him at His work'.
[17] Theoretical cosmologist who shared the Nobel Prize with Stephen Hawking.
[18] Former Cambridge professor, mathematician and particle physicist cited extensively in this thesis. He is an ordained Anglican minister.
[19] Polkinghorne (1997), *Science & Christian Belief*, London: SPCK, p3.

> "Ethology and elementary particle physics use different techniques and employ different categories precisely because their subject material is so different...."[20]

However, it is also undeniable that science and theology have collided in history. The fideism[21] and intellectual arrogance of the Papacy meant there was almost a complete intellectual stagnation in Europe for 1000 years which was loosened only by the Renaissance (with its rediscovery of the Classics), the Reformation (with its rejection of state-imposed religion) and the Enlightenment (with its emphasis on the significance and intellectual autonomy of the individual). This opposition was most forceful in the rise of a strict empiricism which was combined with a particular sceptical form of Rationalism[22] associated first with David Hume:

> " for [Hume] 'God remained a riddle, an enigma, an inexplicable mystery' whose nature is forever beyond cognitive powers of man to penetrate"[23].

To Hume, all human knowledge was contingent on experience and so *a priori* objective knowledge of any kind (including God) was a logical impossibility. Empiricism and its influence are revisited later in this chapter.

2.1.2 The "How" and "Why" question

In many studies of the relationship between science and theology, they are often considered as answering different questions but about the same ultimate reality. Traditionally, when considering the differences between the disciplines, it has been common to posit that science limits itself to the "how" and its primary tools are hypothesis, experiment, measurement, empirical analysis, modelling and theorising.

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[20] Polkinghorne, J. (1997), p4.
[21] Fideism is considered in more detail in 3.3.1.
[22] Rationalism is broadly defined as an approach to philosophy where logic and reasoning are used to analyse problems. It is conceptually different from being 'objective' as philosophical problems are seldom objective in their entirety. The founder of rationalism, generally accepted to be Rene Descartes, understood 'I think therefore I am' as a theological formulation. 19th century rationalism was associated with utilitarianism and later Marxist socialism which were far more antithetical to a theological rationalism.
[23] Aiken, H.D. (1948),in introduction to. Hume, D. (1779), *Dialogues Concerning Natural Religion*, reprint Aiken, H.D. (1948) ed., New York: Hafner.

Conversely, the theologian is concerned with the "why" and the very nature of that question implies, indeed requires, metaphysics:

> "Philosophical theology...is seeking to act as the great integrating discipline that expresses the unity of our knowledge of the one world of our experience.

Hence, it then follows that theology is essentially a normative discipline and lacks an empirical basis. However, I believe this is a gross oversimplification – these two questions can only be separated in an artificial manner:

> "'How?' and 'Why?' may be different questions, but their respective answers must bear some consistent relationship to each other. The scientific and theological accounts of the world must fit together in a mutually consistent way."[24]

The un-packing of this "over-simplification" on an epistemological basis is the topic of this chapter.

2.2 The Common Elements of a Critique of Theology by 'Science'

This section briefly enumerates common themes often rehearsed in an attack by atheistic scientists on 'religion'.

- It is a common perception that scientific knowledge is considered rational, empirical and objective. This contrasts with theology which is considered irrational, numinous and subjective.
- From the persecution of Galileo onwards for his support of Copernican view of the solar system, the Church has always stood in violent opposition to the scientific method and human progress.
- Theologians when they are intellectually humiliated resort to Fideistic accounts of their beliefs, "[they] will invent other arguments or take refuge in revelation"[25].

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[24] Polkinghorne (1996), pp5-6.
[25] Russell, B.(1991), *History of Western Philosophy*, 3rd ed, London: Routledge, p453.

- Post-modern theologians now hide behind their comfortable Wittgensteinian walls of linguistic games, “I speak of religious faith it [means] a belief, unsupported by logic or science...[a] non-rational belief.”[26]
- Theological beliefs are based on numinous special revelatory truths so that when logic and reasoning are applied it is in the sense of the exposition of immutable propositional knowledge, “The appeal to reason is....insincere....the conclusion to be reached is fixed in advance”[27].
- Theological speculation in philosophy is unnecessary, irrelevant and obstructs the solving of philosophical problems by introducing unacceptable ambiguity and imprecision into language and human interaction:

  “There remains...a vast field, **traditionally included in philosophy** [my emphasis], where scientific methods are inadequate. **Whatever can be known, can be known by means of science** [my emphasis]; I do not myself believe that philosophy can either prove or disprove the truth of religious dogmas.....In order [for philosophers] to make their proofs seem valid, they have had to falsify logic, to make mathematics mystical and to pretend that deep seated prejudices were heaven-sent intuitions.”[28]
- Scientific beliefs are “evidence-based beliefs” and so warrant their acceptance as part of a framework for a safe, coherent view of the world:

  “In the welter of conflicting fanaticisms, one of the few unifying forces is **scientific truthfulness** [my emphasis] , by which I mean the habit of basing our beliefs upon observations and inferences as impersonal, and as much divested of local and temperamental bias, as is possible.”[29]

  “…in general, beliefs without foundations lead to an early grave or to an accumulation of superstitions, which are usually troublesome and *always* false”[30]

- The scientist is “open-minded” but the religious believer is enslaved within their narrow framework of beliefs held unquestioningly:

  “...the scientist [is] ever open to the correcting power of new discovery...achieving the reward of real knowledge, whilst the religious believer condemns himself to intellectual imprisonment within the limits of an opinion held on *a priori* grounds, to which he will cling

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[26] Gardner, M. (1983) *The Whys of a Philosophical Scrivener*, OUP, pp209-10.
[27] Russell, B.(1991), p453.
[28] Russell, B.(1991), pp788-789.
[29] Russell, B.(1991), p789.
[30] Scriven (2003), ‘The Presumption of Atheism’, *Philosophy of Religion*, Pojman, L.P. (Ed), p345-346.

whatever facts there might be to the contrary. The one is the man of reason; the other blocks the road of honest inquiry with a barrier labelled 'incontestable revelation'."[31]

- The humble scientist is graciously accepting that he is on the road to truth along the empirical highway of enlightenment which follows from his incremental method as light follows day:

  "..a method has been discovered by which....we can make successive approximations to the truth, in which each new stage results from an improvement, not a rejection, of what has gone before...."[32].

- The critical realism and rigid objectivity of the laboratory refuses to be bound by the religious superstitions that held men in the ignorance and darkness of religious superstition. The blood-red moon is not the Moon-goddess blessing the earth with fertility in her cosmic menstrual cycle but simply the effect of the longer wavelength of red light being preferentially bent by the troposphere.
- There is no "higher way of knowing" as the religious mystics assert in their anti-rationality. The so-called "higher" way of knowing by developing a mystical consciousness simply refers to non-objective, non-empirical, subjective, numinous or revelatory knowledge which, as shown by scientific psychology, are probably signs of mental illness and ego-inflation. Unless knowledge is gained through rational means and has reproducible effects, it is of no value as a *general* solution to the problems of men and remains indulgent:

  "The habit of careful veracity acquired in the practice of this [scientific] philosophical method can be extended to the whole sphere of human activity, producing, wherever it exists, a lessening of fanaticism with an increasing capacity of sympathy and mutual understanding. In abandoning a part of its dogmatic pretensions, philosophy does not cease to suggest and inspire a way of life [we] confess frankly that the human intellect is unable to find conclusive answers to many questions of profound importance to mankind, but they refuse to believe that there is **some 'higher' way of knowing** [author's emphasis], by which we can discover truths hidden from science and the intellect."[33]

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[31] John Polkinghorne (1991), *Reason and Reality – The Relationship between science and theology* London: SPCK, p49
[32] Russel, B,. (1994), p789.
[33] Russel, B. (1994), p789.

2.3 A Theological Response

This section attempts to answer these criticisms by examining the implicit epistemological assumptions rather than by a 'point by point' refutation.

2.3.1 Is a Universal Epistemology possible?

The twentieth century was seen as the century of science in which there was a dramatic transformation of the world through a technological revolution from the application of the scientific knowledge. This immense success has meant that terms such as "evidence based beliefs" seem to have become synonymous with "scientific beliefs". Thus, in the philosophical defence of atheism appeal is often made to the success of the scientific project:

> 'the success of this system of [scientific] knowledge shows up every day…the only proper alternative, when there is no evidence, is not a mere suspension of belief…it is disbelief…atheism is obligatory in the absence of any [scientific] evidence for God's existence.'[34]

The same writer tightly couples belief and knowledge with the scientific process:

> "…the difficulty for the religious community is to show that its agreement is not simply agreement about a shared mistake…it is clear that particular religious beliefs are mistaken, since religious groups do not…agree and they can not all be right…"[35]

The logic of the author here is to reject all non-scientific truth on the grounds that there is a lack of homogeneity of belief between different religious groups. This is a strange position to adopt as the same could be said for any organised system of knowledge. It would hardly be appropriate to reject all knowledge on the basis of a lack of agreement between the thinkers in the community. Additionally, he is asserting an intrinsic superiority or "safety" of knowledge when it is empirical and part of a scientific theory. This can only be logically consistent if there is a "universal

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[34] Scriven, op.cit., pp346-348.
[35] Scriven, 'The Presumption of Atheism' in *Philosophy of Religion*, Pojman, L.P. ed. (2003), pp345-346.

epistemology"[36] in which science can judge all other forms of knowledge by its superior, objective principles.

This is where the argument is shown to be lacking depth because modern science is unavoidably subjective:

> "We start from a "prior interpretative point of view"...a hermeneutic circularity (experience must confirm or modify our point of view) and an epistemic circularity (how we know is controlled by our nature of the object of our knowledge; and that nature is revealed through our knowledge of the object)....there is not a "universal epistemology"[37]

The data of the social sciences in particular is empirical but is interpreted, at least in part, subjectively. The same set of empirical facts can be rendered into two different frameworks as in Freudian and Jungian psychology[38,39]. To assert the superiority of scientific knowledge or methods over those of theology is to make the same errors as those fundamentalists who wish to confine theological discussion within the confines of received propositional truths as reflected in the self-justifying phrase "because the Bible says so".

2.3.2 The Basis for a 'Basic Belief'

There are some beliefs that human beings believe in a self-justifying manner. These are known as *basic beliefs* upon which other beliefs can be based. Such beliefs are generally considered necessary to avoid an "endless circularity" where a belief is always looking to be justified by another belief. John Calvin is credited as saying that the proper way to believe God was in the "basic fashion" with those basic beliefs derived from the statements ('propositions') of Scripture. No further justification is required – the Word of God is normative and complete. An important point in

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[36] Polkinghorne, J. (1996), p16.
[37] Polkinghorne, J. (1996), p16.
[38] Jung, C.G.,von Franz, M.L., Henderson, J.L., Jacobi, J., Jaffé, A. (1964), *Man and his Symbols*, 1964 Hardback Edition, New York: Doubleday, pp25-27.
[39] Stevens, A. (1995), *Private Myths – Dreams and Dreaming*, London: Hamish Hamilton, p51.

passing to understand here is that Calvin's "fundamentalism" is not synonymous with "irrational" or "unreasonable" but he has simply located the starting point of his beliefs in a set of propositions he holds to be true because of *divine* warrant.

Atheists reject the concept of "divine warrant" because it is based on *a posteori* religious experience and subjectivity rather than "safer", empirical sources. Indeed, the empiricists who developed Foundationalism did so on the basis that "sense knowledge" is the only reliable source of knowledge and so the only *warrant* for a basic belief is sense knowledge. However, it is hard to sustain this objection, empirical evidence clearly can and does, lead people to fallible beliefs:

> "….he [Clifford] doesn't tell us how *much* evidence is sufficient...the notion of evidence is about as difficult as that of rationality. What is evidence? How do you know when you have some? How do you know when you have sufficient or enough?...A person can have sufficient evidence for a false proposition P. Is he then irrational in believing P?"[40]

It is in the evaluation and assessment of our sense data or "evidence" that helps to form beliefs, not the fundamental nature of the evidence. It could be argued that Calvin's empirical basis for his continuing belief was in the practical outworking of his Christianity in the organisation of the entire civic society of Geneva. Further, the philosopher Wilfrid Sellars critiqued the empiricist interpretation of Foundationalism in his essay published in the middle of the 20th century[41] by arguing that experience must always be processed by our *concepts* before it can become knowledge.

What is being illustrated here is that belief formation has necessarily conceptual elements and experiential elements. Sense experience *and* propositional knowledge

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[40] Plantinga, A. (2003), *Religious Belief Without Evidence*, p416.
[41] Sellars, W. (1956), "Empiricism and the Philosophy of Mind," in *Minnesota Studies in The Philosophy of Science, Vol. I: The Foundations of Science and the Concepts of Psychology and Psychoanalysis* , 1956, edited by Herbert Feigl and Michael Scriven (Minneapolis: University of Minnesota Press), 253-329.

are combined as foundations of belief. It has not been possible for theists and atheists to agree a universal standard of incorrigible facts and a satisfactory "self-evidency" test as classical Foundationalism demands. The philosopher John Hick makes the telling observation, 'religious individuals base their belief on certain evidence that comes through religious experience that non-religious individuals do not have as part of their data'[42]. This means there are distinct religious and non-religious forms of Foundationalism[43] that reflect this inevitable logical disjunction. Calvin is at no epistemological disadvantage to the scientific atheist as both are structuring their knowledge in essentially the same way but it must be said that both are vulnerable to the wider criticism of Foundationalism:

> "…there is no good (non-circular) argument for the existence of material objects from propositions that are properly basic by classical foundationalist standards."[44]

It is not possible to hold that both the self-evident and incorrigible nature of beliefs can be known *a priori*. Atheists and agnostics recognising this weakness of Foundationalism and the possibility of that view of knowledge as admitting theological paradigms have gone as far as to reject *any* Foundationalist position, often rejecting it in favour of a radical empiricism. The converse reaction is that of theologians moving to a post-modern position, recognising the weakness of their propositional view of knowledge and adopting a pluralistic theological view.

2.3.3 Radical Empiricism and Post-Modernism

Radical empiricists and post-modernists can adopt radically different world-views but both hold that there can be no certain knowledge because it is all contextual, human

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[42] Hick, J., 'Rational Theistic Belief Without Proof', *Philosophy of Religion: An Anthology*, Pojman, 2003, p409.
[43] Everitt, N. (2004), *The Non-Existence of God*, Oxon: Routledge, pp17-30.
[44] Plantinga, Alvin, 'Reformed Epistemology', *A Companion to Philosophy of Religion*, Quinn, P.L. & Taliaferro, C. (Eds), 1997, p384-386.

constructed knowledge. A radical empiricist negates the concept of a basic belief on the basis that all knowledge is interpreted human knowledge. This type of empiricism is most directly associated with David Hume who provided a penetrating critique of natural theology and philosophy in the 18th century eventually dismissing even the inductive method of the natural sciences (derived from a belief in causality) as simply an "arbitrary act of the mind"[45]. Consequently, Russell observed that it follows that there is 'no logical difference [for Hume] between insanity and sanity'[46]. Hume did substantial work with the developing natural sciences but offered no epistemological justification for their methods beyond a sceptical pragmatism. Paradoxically, the closeness of his position to that of a secular religion based on un-provable propositions of which he was so critical is striking:

> "The sceptic still continues to...believe, even though he asserts that *he can not defend his reason by reason* [my italics]…That is, a point which *we must take for granted in all our reasonings* [my italics]"[47]

Post modernism with its rejection of meta-narratives, metaphysics and resident meaning in texts arrives at a similar position regarding structured theological knowledge. Post-modernism is closely associated with deconstructionism, diversity, relativism and pluralism which in its theological forms, manifests as universal religion as opposed to particular, the vague rather than the certain, "expressive or dispositional, content [as opposed to] cognitive [content]"[48]. Both encourage, I believe, a neutered and weak theology where 'God' cannot be known personally but only in a vague, eclectic way by 'exclusive'[49], individualised experience, 'rejecting all

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[45] Hume, D. (1779), *Dialogues Concerning Natural Religion*, edited with an Introduction by Norman Kemp Smith, London: Thomas Nelson & Sons, pp190-191.
[46] Russel, B. (1991), p646.
[47] Hume, D.(1739-40), *Treatise on Human Nature*, published in two parts, BkI, part iv, sec ii.
[48] Polkinghorne J. (1997), p179.
[49] Underhill E. (1911), *Mysticism*, republished 1993, One World: Oxford, px.

support of the religious complex'[50] which, in my personal experience, leads to mental illness.

Further, although one can never rigorously 'prove' any theory or be satisfied that there is not fallibility, that surely should not mean that mankind surrenders in a cynical despair but needs to have confidence that as it is possible to discern order in the world by both our intuition (spirituality) and rationality (reason), it is possible to harness that order:

> "...the explanation of the success of science in exploring the intelligible universe is ultimately theological rather than philosophical, believing as I do that it derives from the fact that this specific universe is a creation endowed with a rational order that is accessible to creatures who are made in the image of the creator, rather than deriving from general human rational powers that could be exercised equally in any kind of world."[51]

Thus, there is required an epistemological approach that sets to one side the ultimate psychological status of knowledge of that same reality. This, I believe, is "critical realism".

2.3.4 Critical Realism

The first component of 'critical realism' is realism:

> "The rooting of knowledge in interpreted experience treated as a reliable guide to the nature of reality is an intellectual commitment that we may call "realism" [a guide to] what actually is the case [that is] epistemology models ontology...what we know is a reliable guide to what is the case."[52]

'Critical' means we recognise the epistemological limitations of Foundationalism and approach reality with an awareness we may be wrong. It is a pragmatic approach to the epistemological problem, 'to reject foundationalism is not to embrace relativism but simply to recognise that there is no logically neutral ground from which to

[50] Underhill E. (1911), *Mysticism*, px.
[51] Polkinghorne, J. (2004), *Science and the Trinity*, London: SPCK, p180.
[52] Polkinghorne (1996), p14.

judge'[53]. It is well established within philosophy and broadly accepted within science that the entire human experience cannot be rarefied to empirical data and expressed in terms that can be tested:

> "internal spiritual experience can not readily, or with unanimity, find its expression in outward communication. Here indeed is an area of human life where we know more than we can tell."[54]

The challenge for the theological scientist operating as a critical realist is the presentation of their "data" in a rational and coherent way. Scientists and natural theologians operating as critical realists are both interested in modelling data in an interpretative framework and neither endorses a "narrow reductionist"[55] view of reality. The critical realist is required to admit that they may be mistaken, their knowledge is not a static enterprise though it will have propositional components that aid in structuring and interpreting their data:

> "We might conceivably be wrong and must respect the insight of other faiths [and science]...we never approach reality with my mind a mere *tabula rasa*, awaiting impressions, but my inquiry is always conducted from a...corrigible...point of view."[56]

The critical realist will explore both their own assumptions and adapt the model of reality in response to a critical assessment of their data.

2.4 Summary

So, to summarise, the key concept being expressed here is there can be no philosophically legitimate claim for absolute superiority of knowledge gained through science over the knowledge gained through theological exploration. The religious person who structures their knowledge from a critical view of their theology is at no epistemological disadvantage to the atheist that prefers to use science[57]. We can

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[53] Polkinghorne J. (1991), *Reason and Reality – The relationship between science and theology*, London: SPCK, p11.
[54] Polkinghorne J. (1991), p10.
[55] Polkinghorne J. (1991), p85.
[56] Polkinghorne J. (1991), p10.
[57] It is even arguable that inductive scientific knowledge is of a poorer logical quality than knowledge from well argued propositional premises. This is examined in detail in 3.2.3.

coherently argue that theological propositions are at least a warranted starting point for a belief system, particularly if those beliefs are adopted from the critical realist perspective. The radical empiricist assumption of sense knowledge alone as the secure basis for a belief is flawed. A post-modernist denial of meaning frustrates both science and theology in pursuit of verisimilitude and so I believe it is an inadequate epistemological model. In contrast, the critical realist will use the “rigid” conceptual formulations considered to be “right” on the basis of concepts and experiential evidence as a starting point to provide the interpretative framework of reality but will allow overwhelming evidence to the contrary to cause a shift in their paradigm.

My conclusion is that the most reasonable epistemological position is a critical realism with the honest intellectual attitude that there is an implicit fallibility in any human knowledge. Epistemology cannot be allowed to usurp ontology: as a Christian I need to be confident in why I am a Christian rather than theologically monist and why I am still a scientist without requiring me to be a radical empiricist.

3 Theology and Science – The Methodological Problem

3.1 Overview

The previous chapter argued that there was no special claim of scientific *knowledge* to be of an intrinsically superior knowledge to base beliefs on than theological knowledge. However, the radical success of science and technology at providing solutions to problems demands further examination if a pyrrhic victory is to be avoided by the theologian. The aim of this chapter is to demonstrate that science and theology are ideal partners in the pursuit of the true nature of things because their methodologies, though different in scope and detail, are logically very similar. It is proposed that it is only in the retreat of theology into fideism and science into scientism that it has been possible to maintain the arbitrary separation of the disciplines.

3.2 The Greek Paradox – Deduction and Induction

3.2.1 The Deductive Method

The first major clash in the modern sense, between science and theology was seen between the Aristotelian theologians and philosophers and the founder of modern science, Galileo. The Aristotelian philosophers and theologians were to remain Galileo's adversaries and 'permanently hostile'[58] to his thesis throughout his life. This may seem very surprising as the Greeks were considered to have produced the first "scientists" in the Ionian and Milesian philosophical schools. The key to unravelling this apparent paradox is that Greek science was derived from their

[58] Cross, F.L. (1958), *The Oxford Dictionary of the Christian Church*, London: Oxford University Press, "Galilei Galileo".

'discovery' of mathematics which was a *deductive* discipline starting from *a priori* axioms:

> "Deduction is the process of reasoning applicable to the knowledge reached independently of our experience and observation (a priori) Once we know the terms, it is self-defining. No amount of experience will change it. It generates propositions regarded as necessarily or analytically true or false...the truths of logic and pure mathematics."[59]

> "The influence of geometry upon philosophy and scientific method has been profound. Geometry, as established by the Greeks, starts with axioms [self-evident propositions], and proceeds, by deductive reasoning, to arrive at theorems that are very far from self-evident...the axioms and theorems are held to be true of actual space...It thus appeared to be possible to discover things about the actual world by first noticing what is self-evident and then using deduction."[60]

Right at the origin of mathematics it assumed a numinous, spiritual quality and was the genesis of a belief in a "pure", absolute mode of knowing, which through Plato[61] caused a separation of modes of knowing:

> "Mystical doctrines as to the relation of time to eternity are also reinforced by pure mathematics, for mathematical objects, such as numbers, if real at all, are eternal and not in time. Such eternal objects can be conceived as God's thoughts..."[62]

The purest and highest mode of knowing was in the purity of thought apart from the distraction of the physical reality:

> "Mathematics is...the chief source of the belief in eternal and exact truth, as well as in a super-sensible intelligible world....but no *sensible* object is [exact]...there will be some imperfections and irregularities [suggesting] the view that all exact reasoning applies to ideal as opposed to sensible objects...to argue that thought is nobler than sense...the objects of thought more real than those of sense perception"[63]

Thus, the process of observation of the physical world is almost deprecated to the process of mathematics and thought. The hostility of the Aristotelians to Galileo was not purely methodological but stems from this belief of the superiority of the spiritual over the natural, of thought over matter and observation.

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[59] Palmer, M. (2002), p97.
[60] Russell, B (1991), p55.
[61] Attributed to Alfred North Whitehead *in* Law, S. (2007), *Philosophy*, London: Dorling Kindersley Limited, p10
[62] Russel, B. (1991), p56
[63] Russel, B. (1991), p56

Deductive reasoning also came to dominate Western theological thought because it provided the means by which reasoning could be extended into the metaphysical realm whilst retaining some intellectual credibility, it could maintain a rational basis for the discussion of subjective religious experience:

> "[It is] rationalistic as opposed to apocalyptic religion..there is an intimate blend of religion and reasoning, of moral aspiration with logical admiration of what is timeless...[this] distinguishes the intellectualized theology of Europe from the more straightforward mysticism of Asia."[64]

The deductive mode of reasoning had dominated Catholic theology and philosophy primarily because of the influence of Thomas Acquinas who had been heavily influenced by Aristotelian logic, reasoning, physics and metaphysics. Acquinas used these deductive classical methods to come up with his "Proofs" for the existence of God. He believed any reasonable man should be able to deduce God as First Cause[65].

3.2.2 The Inductive Method and the birth of Modern Science

Galileo Galilei[66] is considered the father of modern science. He was born in 1564 in Pisa and educated at the monastery of Vollombrosa. The myth of reasonable verisimilitude was that he was sitting in a church watching the priest swing his censer and realised that there was a periodic relationship in the swing from side to side that seemed to be independent from the initial displacement from the rest position[67]. He had just made an *a posteriori* judgement from evidence of observation rather than a deductive proposition of what was thought to be true. The empirical method of modern science by *inductive* reasoning was born:

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[64] Russel, B (1991), p56
[65] Palmer, M. (2001), *The Question of God*, London: Routledge, pp49-76.
[66] Cross, F.L. (1958), *The Oxford Dictionary of the Christian Church*, London: Oxford University Press, "Galilei Galileo".
[67] This is known as 'pendulum motion' and became the basis for all kinds of clocks as it keeps good time even as the spring unwinds because the period is approximately constant.

> "Induction....is the process of reasoning applicable to the knowledge dependent on empirical knowledge (a posteriori – by direct confrontation with the knowledge, contingently or synthetically true or false), i.e. not certain."[68]

Galileo's methods were thus fundamentally different than the classical methods but proved remarkably successful. He pioneered the discovery of the basic mechanical laws from observation and measurement of physical phenomena rather than deduction from the abstract principles of geometry and mathematics. This *inductive* method was based on observing reality in an empirical fashion and drawing conclusions from what *was* rather than what, for philosophical or theological reasons, was *said* to be requiring no further validation because of who said it:

> [Classical Greek Philosophy] reasoned deductively from what appeared self-evident, not inductively from what had been observed...[Galileo's] scientific method [in contrast]...seeks to reach principles inductively from observations of particular facts..."[69]

3.2.3 An Assessment of the Methodologies

Deductive and inductive processes are both *rational* processes (the application of logic and reasoning to a problem) and both attempt to deal with reality in an *objective* manner. Hence, it can be seen that there is nothing fundamentally "unscientific" about deduction or "scientific" about induction. They are simply modes of reasoning employed by both scientists and theologians (or even theologians as scientists and vice versa) in different stages of the development of an argument or hypothesis.

The perceived strength of deduction is to reason to that which is definitely true, the statements it generates are logically *analytic*[70]. Deductive arguments can be framed in terms of logical syllogisms which mean that the conclusion follows as true if the premises of the two head terms are correct. For example, the following is a simple deductive argument generating the analytic statement as a conclusion:

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[68] Palmer, M. (2002), *The Question of God*, London: Routledge, p97.
[69] Russell, B (1991), pp58-59.
[70] Palmer, M. (2002), pp17-19.

> Premise 1: A bachelor is a single man.
> Premise 2: John is a bachelor.
>
> Conclusion: John is a single man.

Luther made extensive use of syllogisms in his cogent hermeneutical method. However, with inductive statements the conclusion is not definite but just probable, it generates logically *synthetic*[71] statements. The conclusions have an intrinsic fallibility as you are basing your belief on experience. The following is an inductive argument:

> Every swan I have seen is white.
> Therefore all swans are white.

This is a *reasonable* conclusion but a false one because there are black swans. Consequently, the knowledge obtained from empirical science can be viewed as a poorer quality of knowledge than that from deductive reasoning which goes to the heart of the Aristotelian objections to Galileo and is reflected even in modern philosophy of science. If the rational is the *true* then science is irrational: "If one were to equate the rational with the purely deductive...one would have to classify [empirical] science as 'non rational belief'"[72]. For this very reason, Karl Popper, the eminent 20th century philosopher of science, was keen to delineate true science as "deductive" using the "falsification test" as a method to avoid the philosophical weakness of the inductive method[73]. The deductive nature of theology can thus be seen as a methodological strength rather than a weakness *if* the premises of the theological arguments are true.

However, Popper's interpretation of science may be seen as a narrow technical argument which has proved of little use to practising scientists. Many scientists see

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[71] Palmer, M. (2002), pp17-19.
[72] Polkinghorne, J. (1991), p52.
[73] Law, S. (2007), *Philosophy*, pp186-7.

the empirical as *the* important part of their science in the framing of testable hypotheses. That said, I argue that this disjunction between the methods is surely a contrived separation; they are not mutually exclusive but complimentary. The success of science in modelling reality is because the aspect of reality which it is trying to model is a narrow one that lends itself well to the inductive method but is not particularly well suited to complex questions of meaning as dealt with in theology:

> "...It was a brilliant tactic of investigation for Galileo and his successors to confine themselves to the primary quantitative questions of matter and motion, but that narrow view would be a poor metaphysical strategy, condemning one to a narrow reductionist conception of reality. Those discarded secondary qualities of human perception may in fact prove to be primary clues to the construction of an ampler view of the way the world is. Music is more than vibrations in the air."[74]

When science does become "complex" as we shall see in the next chapter in its discussion of quantum theory, the use of deduction and speculation using the symbolism of mathematics are the primary tools employed. It is plain also that the tenor of the subject is an important part of reasoning also. "Subjectivity" does not imply a rejection of the rational but an acknowledgement of the place pre-existing beliefs (in theology) named theories (in science) that aid the interpretative process.

The critical realist only finds the dogmatic formulations deriving from "static" bodies of truth in both science and theology unacceptable. They are designed to exclude other views of reality. The imposition of pre-existing assumptions of either a scientific or a theological nature frustrates an honest science and a reflective theology. An honest scientist is prepared to look beyond the evolutionary paradigm, an honest theologian as a scientist is prepared to look beyond their creationism.

[74] Polkinghorne (1997), p1.

However, this may be said to reflect my pragmatism or idealism as a scientist who is a Christian and we have not yet considered the important concept that science and theology in their categories are really mutually exclusive, even if it is granted that their epistemological assumptions are similar and they use similar modes of reasoning to perform analogous logical functions. If the categories and domains of knowledge are distinct, they may still be wholly or partially incompatible. This last position is characteristic of religious "fundamentalism" (or fideism) on the theological side and scientism on the scientific side. This idea of the incompatibility of the categories are examined and evaluated further now.

3.3 Fideism and Scientism

3.3.1 Fideism

The religious fundamentalist position that negates the legitimacy of a non-theological criticism of its beliefs is what might be called a philosophically *fideistic* position where the belief is deemed to be judged in terms of itself only. This can be expressed theologically in the phrase, "faith is beyond [superior to] reason"[75]. The theology is a system of *deduced* truth deriving from theological propositions received by direct revelation from God, "by seeking clear and certain ideas, [we] construct from thought alone an impregnable metaphysic"[76]. Even if it has a rational expression, it is considered to have strict limits of application beyond which argumentation about the assumptions is invalidated because the propositions are of a divine, not a rational origin. Science may simply become a means with which to justify the inductive interpretations of such a theology: 'creationist[s] claim that a literal interpretation of

[75] Law, S. (2007), pp157-159.
[76] Polkinghorne J. (1991), p5.

biblical writings determines the agenda for understanding the process and history of the universe.'[77] In this sense, science is prostituted to serve theology rather than having value in itself or for solving technological problems.

3.3.2 Scientism

The equivalent position to fideism within the scientific domain is known as *scientism*:

> "scientism: the belief that science is the only worthwhile source of knowledge and that it is of itself enough....the only questions worth asking, and capable of being answered, are those that lie within the competency of science itself."[78]

In this case, the scientific enterprise is considered self-justifying with no requirement for reference from any other discipline. The only questions worth asking are the questions which science can answer and specifically, probability and evolution becomes the answer to the "why" we are as we are as well as the "how" we got here. Thus, the human experience of say morality and aesthetics are couched in scientific terms and are rarefied of subjective or metaphysical content:

> "...a covert scientism that attributes subjective experiences of beauty and moral imperative to the contingent 'hard wiring' of the human brain, developed to implement a portfolio of evolutionary strategies for survival. The humane is reduced to the merely epiphenomenal [but surely] the beauty of music...is...more than vibrations in the air."[79]

3.3.3 What has Athens to do with the Church?

Within these extremes though, there is a subtlety required in assessing whether it is legitimate for science to intrude on theology and vice versa:

> "...it would be unreasonable to demand that all forms of human enquiry conform to the scientific pattern...[science restricts] its consideration to those impersonal modes of encounter with reality that are sufficiently abstracted in character..."[80]

The point being made here is that large parts of the scientific enquiry are empirical by design and essentially non-theological. Theology can add very little to measurement of physical phenomena. Similarly, Tertullian (c. 160 – 225CE), the

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[77] Polkinghorne J. (1996), *Scientists as Theologians*, London: SPCK, p5.
[78] Polkinghorne J. (1996), pp3-5.
[79] Polkinghorne J. (1996), p12.
[80] Polkinghorne (2004), p173.

great Roman theologian, is credited with rejecting any type of non-theological treatment of theological subject matter as illegitimate:

> "For philosophy is the material of the world's wisdom, the rash interpreter of the nature and dispensation of God. Indeed heresies are themselves instigated by philosophy… What indeed has Athens to do with Jerusalem?...For this is our first article of faith, that there is nothing which we ought to believe besides."[81]

Tertullian is not asserting an irrational theology as a modern post-modernist might (Schleiermacher felt constrained to re-model theology in terms of "feeling"[82]) but a theology arrived at both by *deductive* reasoning and the empirical experience of *being* as a Christian, the *experience* of an authentic divinity where they experienced the supernatural presence of God. Tertullian thus may be said to have been "scientific" in his rejection of philosophy.

The essential difference to fideism is that the appeal is still to reason and not to metaphysics. The apostle Paul appealed to the Roman Christians in Romans 12:3 that it was a reasonable, rational, spiritual service to offer themselves to God. It is supremely interesting here that the word Paul uses (λογικός) coordinates the rational with the spiritual and then appeals to their authentic *experience* (i.e. empirical evidence) as believers. The logic of his statement is, 'if you have not experienced this do not offer yourself as that living sacrifice!' So, the possibility remains for the critical realist theologian or critical realist scientist, that it is perfectly legitimate for Athens and the Church to engage in dialogue.

This latter intellectual disposition avoids the fideism of the kind characteristic of the Roman Catholic Church of the time of Galileo and I believe, in the contemporary

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[81] Tertullian, *Heretics*, 7 in J. Stevenson (1987), 'A New Eusebius: Documents Illustrating the History of the Church to AD 337', London: SPCK, pp166-167.
[82] Cross, F.L. (1958), *The Oxford Dictionary of the Christian Church*, London: Oxford University Press, "Schleiermacher, Friedrich Daniel Ernst", pp1223-1224.

context, is most often seen in the Creation versus Evolution debate. The 'argument from design' has a superficial appeal but is logically weak as it confuses normative and descriptive argumentation. The causality argument as applied is guilty of the 'fallacy of composition', assigning intelligibility and cause to the whole because of the intelligibility of the parts[83], elucidated in the conversation between Russell and Copleston:

> "Every man who exists has a mother and it seems to me your argument is that therefore the human race must have a mother, but obviously the human race does not have a mother – that's a different logical sphere."[84]

3.4 Summary – Scientific revolution and Theological reformation

All too often, theologians and scientists can make claims about each other that just demonstrate their ignorance of the subtleties of the arguments, rather than engaging and contributing to the wider pursuit of the true nature of things. Neither should be seen as static bodies of knowledge or self-justifying activities but as subject to radical changes and reinterpretations.

Despite the attempt by the philosopher of science Karl Popper to limit true science to the "deductive", most scientists derive confidence from the experimental process as a Christian would from witnessing the miraculous and experiencing the presence of the Holy Spirit in a tangible and corporate sense. Both are empirical data interpreted in a hypothetical framework forming a vision of reality. Both deduction and induction are necessary to form or verify that proposed view of reality:

> "We have...to recognise the subtlety of the scientific method. It does not provide us with a unique 'methodological threshing machine in which the flail of experiment separates the grain of truth from the chaff of error' "[85]

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[83] Palmer, M. (2001), pp59-74.
[84] BBC (1948), 'The Existence of God – A Debate' reprinted *in* Russell, B. (1967), *Why I Am Not a Christian*, London: George Allen & Unwin, p138.
[85] Polkinghorne, J. (1984),*The Quantum World*, London: Longman, p12.

> "Our rational enquiry has to include a response to what we experience...experience and interpretation are inevitably combined...we must understand in order to believe but we must believe in order to understand"[86]

Acknowledging the challenge of Hume, it is clear that both scientist and theologian must admit the epistemological fragility of their methodologies and admit the "basic" nature of their beliefs as examined earlier in this discussion. Despite that these basic beliefs may or may not be "true", honest practitioners within either discipline are certainly warranted in considering them verisimilar and providing a meaningful starting point for the examination of reality:

> "The rooting of knowledge in interpreted experience treated as a reliable guide to the nature of reality is an intellectual commitment that we may call "realism"....into what actually is the case....epistemology models ontology...what we know is a reliable guide to what is the case."[87]

We have seen that there is clearly a "hermeneutic circle"[88] where it is necessary to modify in the light of experience, the final model of reality. Both the scientist and theologian are making sense of data, they are seeking to understand the ways things are from the way the world is experienced and so are both *realists.* They are evaluating experience in the light of propositions that formed the basis of their understandings but are prepared to modify those propositions or re-interpret them in the light of new data:

> "It is a '*critical* realism...No naive objectivity is involved in either discipline; both science and theology speak of entities not directly observable by us....existence is inferred from the way in which its assumptions makes sense of great swathes of physical data."[89]

Both scientist and theologian are both demanding of their theories and loyal to them, yet at the same time critical or them and aware of their limitations:

> "How God can be known must be determined ...by the way in which He actually is known...It is because the nature of what is known, as well as the nature of the knower, determines how it can be known...we must operate with an *open* epistemology in which we allow the way of our knowing to be clarified and modified...with advance in deeper and fuller knowledge of the object"[90]

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[86] Polkinghorne, J. (1991), p5.
[87] Polkinghorne (1996), p14.
[88] Barbour, I.G., *Religion in the Age of Science*, p44 *in* Polkinghorne (1996).
[89] Polkinghorne (1996), p14.
[90] Torrance, T.F. (1969), *Theological Science*, London: OUP, pp9-10.

For the physicist to adopt Quantum Mechanics in favour of General Relativity because of apparent ‘contradictions’ of the latter with Quantum Mechanics is just not an option because of the radical success of Relativity in explaining macro-reality as is Quantum Mechanics in explaining micro-reality:

> “For sixty years fundamental physics has lived with two of its fundamental theories – quantum mechanics and general relativity – imperfectly reconciled to each other”[91].

Similarly, within theology, the tension between what is understood from Scripture and the reality of theological experience is a constant challenge but which, like the fundamental theories of Physics, should not lead one to abandon Scripture but seek a new understanding for its role or interpretation in a modern context, without diminishing its authority:

> “The Bible is neither an inerrant historically conditioned account of propositional truth nor a compendium of timeless symbols, but a historically conditioned account of certain significant encounters and experiences.”[92]

What was intended for liberty brings imprisonment because of false epistemic limitations leading to a perverse practice:

> NAU **2 Corinthians 3:6b** for the letter kills, but the Spirit gives life.

The inability to express accurately and completely the coherence between Relativity and Quantum Physics is analogous to the inability to perfectly reconcile cataphatic and apophatic theological models. However, they can both grounded in an empirical experience of reality rather than dogmatic, unchallengeable propositions:

> “rational [theological or scientific] inquiry is not a speculative investigation of what might be so but a committed response to what is found to be the case...commitment alone without inquiry tends to become fanaticism or narrow dogmatism...”[93]

Our conclusion of the examination of the scientific method and the theological method demonstrate to us that both use a mix of both propositional and inductive processes. It is seen that neither can assert a methodological superiority over the

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[91] Polkinghorne (1991), p50.
[92] Polkinghorne (1997), p8.
[93] Polkinghorne (1991), p17

other. The open epistemology implies that one is not warranted to make the statement 'scientific statements are safer to believe than theological statements' with the important qualification that the theology is not fideistic in its methodology. Our final conclusion of this section must be that theology to be an expression of a living faith needs to be responsive to science and science can be done consistent with theology:

> "Revelation is not the presentation of unchallengable dogmas for reception by the unquestioning faithful...the Nicene Creed is not a demand for intellectual surrender to a set of non-negotiable prepositions; instead it represents the summary of insights and experience...from the founding centuries of the Church's history.....To eschew...this...would be to act as foolishly as did those savants who declined to look through Galileo's telescope. Opportunities for gaining insight are not wilfully to be refused..."[94]

[94] Polkinghorne (1997), p6

4 Theology and Physics – which Theology is Quantum?

4.1 Overview

This chapter seeks to examine, what, if anything, theoretical physics has said to theology. The argument of this chapter examines the impact of quantum theory which has, as reflected in the work of its progenitors (Einstein and Bohr), maintained a spiritual quality.

4.2 The Meta-narratives of Physics

Quantum physics and Relativity, both originating in the work of Einstein, revolutionised Physics during the early 20th century. It is his debate with Niels Bohr over determinism and complementarities in quantum reality that captures the essence of theological questions explored by this chapter that have continued to be asked by scientists and theologians today:

> "The interconnected and elusive character that quantum theory attributes to the world has been held by some to be in closer accord with the ideas of Eastern religions than with the sternly realist approach of the Judaeo-Christian-Islamic tradition."[95]
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> "We...see how the two foundations of twentieth-century physics – quantum theory and relativity theory – both force us to see the world very much in the way a Hindu, Buddhist or Taoist sees it."[96]

4.3 Quantum Physics and Far-Eastern thought

4.3.1 The Tao of Physics

Fritjof Capra gained popular international recognition during the 1970s for his attempt to assimilate quantum physics with Eastern thought[97]. He provided a modernisation of Bohr's interpretation of Quantum theory building on the then

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[95] Polkinghorne (1991), p86.
[96] Capra, F. (1991), *The Tao of Physics*, 3rd ed, London: Fontana, p22.
[97] Capra, F (1991), *The Tao of Physics* , 3rd ed, London: Fontana, p22.

contemporary work of Bell that provided empirical support for non-Relativistic quantum effects:

> "Bell's theorem supports Bohr's position and proves rigorously that Einstein's view of physical reality as consisting of independent, spatially separated elements is incompatible with the laws of quantum theory....Bell's theorem demonstrates that the universe is fundamentally interconnected, interdependent and inseparable."[98]

Capra was keen to assert that this correlated with the Buddhist view of the interconnectivity of all things. He was keen also to represent the same interdependence of all things as corresponding to the remarkable phenomenon within quantum physics that once two entities have interacted at the quantum level they are forever coupled regardless of the physical distance between them (known as quantum non-locality):

> "Things derive their being and nature by mutual dependence and are nothing in themselves....the view of the universe as a web of relationships without any fundamental entities....is a characteristic of Eastern thought."[99]

4.3.2 Determinism, Cause and Effect

Capra emphasised the non-determinism of the quantum world. Quantum conceptions are seen to completely re-cast the classical notions of Newtonian physics. These classical notions of Cause and Effect led to the concept of the personal God directing His Creation:

> "...the mechanistic Newtonian model of the universe dominated all scientific thought....paralleled by the image of a monarchical God who ruled the world from above by imposing his divine law on it. The fundamental laws of nature searched for by the scientists were thus seen as the laws of God, invariable and eternal, to which the world was subjected."[100]

Hence, the argument can be made that the construction of our values and the human experience has been predicated on a false determinism and the concept of an individual personal God which has led us to view the aim of existence as *self*-centred. The religious application of these ideas here is thus essentially an inversion

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[98] Capra, F. (1991), p346.
[99] Capra, F. (1991), p366.
[100] Capra, F. (1991), *The Tao of Physics*, 3rd ed, London: Fontana, p27.

of the Christian concept of the development of the individual self into totality by being reconciled through a definite, empirical, time-based event of the Cross. This location of salvation at a specific point of time in a specific person is contrary to the interlocking nature of the quantum world which is considered to be beyond concepts of time and locality.

4.3.3 Quantum conceptions of Time

This interpretation of quantum reality shows us that to speak of time is not to speak of *true* reality but only of a *particular* reality in which is the experience of time and of time itself is but a property of the quantum state of *our* universe: "Creation of the world is not a temporal act. The world was not created *in time*, the world is created *with time*."[101] The fundamental level (the 'Planck threshold'[102]) can be non-local, i.e., that on this level there can be no time and no space in their usual sense."[103] Time then becomes a fluid concept:

> "To Far Eastern religions...time is but the circling of ...flux...a path to be trodden or a wheel from which to seek release...history...becomes the outworking of a remorseless destiny, the spinning of a wheel of fate [as in Hinduism]..."[104]

This is again in contradiction to the Near Eastern religions which are said to concur in assigning a linear, progressive significance to time, within which God's purposes are in the course of their outworking.

4.4 A Critical Response - The Quantum Paradox

The "quantum paradox" perhaps best exposes the weakness of Capra's interpretation of quantum physics as being radically simplistic, a confusion of logical domains by employing imprecise linguistic parallels. In quantum theory speak, the

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[101] Connes, A., Heller, M.,Majid, S.,Penrose, R.,Polkinghorne, J.,Taylor, A.(2008), *On Space and Time*, CUP: New York, p243
[102] Heller, M (2008) 'Where Physics Meet Metaphysics' *in* Connes, A. and others (2008), *On Space and Time*, CUP: New York.
[103] Connes, A (2001), p250
[104] Polkinghorne (1997), pp189-191.

"quantum paradox" is neatly expressed by the 'measurement problem' or 'the collapse of the [probability] wave function':

> "the crux of the difficulty is the *measurement problem*. In the quantum world we may combine the possibilities of 'here' and 'there', but when we interrogate it from our macroscopic point of view, it always yields....a perfectly clear and everyday answer:....'here' or 'there'...never both."[105]
>
> "In the jargon of the subject this perplexity is called the problem of 'the collapse of the wave function' – probability which was spread out over 'here', 'there' and, perhaps, 'everywhere', suddenly is focussed on the actually realized result of the observation."[106]

The paradox is trying to express the problem that our physical world *is* experienced in a deterministic and causal fashion despite *appearing* paradoxically 'chaotic' at the sub-atomic level. However, quantum theory itself has developed mathematical descriptions and even technological applications of this 'chaos' far beyond the precision and conception of Capra's generation of physicists. In reality, the term 'chaos' theory is a popularised misnomer and the precise preferred physical description is now 'the theory of predictability in complex systems'. In other words, the quantum world is not beyond harnessing, characterisation or understanding:

> "The quantum world is subtle and elusive, but it is not wholly dissolving. There are also persistent patterns...Capra has to concentrate, in a vague eclectic manner, on certain selected aspects of [a Californian version of] Eastern mystical thought without paying sufficient heed to their complexity and even contradictoriness' [107]

The Christian concept of time *also* includes the concept of a-temporality and non-locality. God is seen to exist outside the constraints of space[108] and time with over one third of the bible being considered prophetic[109]. What must be said though is that it *does* radically alter our view of reality, it is a radically different, subtle and complex world that requires a radical enhancement of our reasoning but does not

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[105] Polkinghorne (1991), p88.
[106] Polkinghorne (1991), p89.
[107] Polkinghorne (1997), p192.
[108] See for example John 20:19. Jesus was subject to a different set of physical laws after his resurrection enabling him to move instantaneously from place to place.
[109] That is, it was future when it was written in addition to the substantial apocalyptic works of Daniel and Revelation.

require us to embrace mysticism or a theological monism, “quantum physics is not irrational but [requires us] to modify our concept of reason.”[110]

[110] Polkinghorne (1991), p9.

5 Conclusion

My key line of argumentation in this thesis has been that science and theology are in fact both reasonable disciplines with a common basis of both propositional and inductive components to their view of reality. Where there is a difference is that the questions that science has been required to answer have a sphere which is narrow and are normally connected with the creation of technology that addresses particular needs of humanity. In this sense, science has developed its inductive aspect without suffering too adverse a penalty from the limitations of the inductive method because philosophers of science are keen to see that it retains a basis that is essentially propositional. It is even seen to return to a primarily propositional mode of reasoning in the mathematics of Quantum physics.

The key common unifying concepts within natural theology and natural science are that reality is being *described* and *observed* and *understood* without recourse to an external mystical revelation of “absolute truth” in a different logical plane beyond the rational. I must emphasise that I do not reject mysticism as a valid source of knowledge but that intuition and experience must still be subject to the mind and the reason. Critical realism denies the status of “absolute truth” unconditionally accepted – “revelation knowledge” must remain subject to the test of informed reason. As a critical realist, I believe that when an attempt is made to attach theological significance to scientific descriptions of reality or to interpret scientific data to support theological propositions, great care must be taken as the confusion of logical spheres leads to logically fallacious descriptions (such as the argument from design) that do no justice to science or theology.

So, whilst I am proposing there is clearly an epistemological equivalence – science is no more valuable or valid than theology and theology is of no more value than science, they need to be recognised as viewing reality with different methodological approaches in their particularity whilst maintaining an equivalence in generality. Their aims are generally equivalent at a high level but are seeking different objectives at the low level. This difference is complimentary, not contradictory as illustrated by theoretical quantum physics: the focus and methodologies begin to converge again because fundamental questions about reality are asked requiring *a priori* symbolic mathematical descriptions and deductive, intuitive modelling.

Hence, this supports my assertion that critical realism has a unifying action between the domains of knowledge. Theology can still be considered “theological science” - it is constructing and modelling thought about God within the limits of theoretical concepts that need symbolic expression. To the Christian whose Christianity is a living experience, they are still concepts resulting from the empirical evidence of the religious experience. It is the experience and observation of God in history, the experience of God in the present and positing about the future on an evidential basis rather than on abstract propositions rooted solely in an external mystical fideistic framework, originating beyond the rational. If we maintain a rational theology, even when we are dealing with propositional models, theology can submit itself to a falsification test and still be considered “true science” if Popper can be accepted as providing an answer to Hume’s radical empiricist objections to human knowledge.

Thus, in final conclusion within the constraints of this work, I assert that in adopting an epistemic openness of mind, science and theology are seen to be different tools in the toolbox of a unified framework of knowledge. They are capable of a dynamic, living relationship. The knowledge of God is perceived both in the matter of spirit and in the matter of the physical world. Science provides a narrow, focussed source of data that is part of the experience of living and being on Earth, it constrains the excesses of theological mysticism by providing a framework that theological propositions should be ultimately consistent with. However, it does not limit or displace the need for a God-consciousness through mysticism that brings to the rational from beyond the rational perhaps challenging it and enlarging rationality (much as quantum physics has done) but, for a critical realist such as myself, nevertheless remains subject to it. This is expressed in the scripture – "in both *spirit* and in truth"[111], which I hope to develop in my future work.

[111] John 4:24 – here we have two realms in which God is perceived but one God.

6 Bibliography

Capra F. (1991), *The Tao of Physics*, 3rd ed, London: Fontana.

Cross, F.L. (1958), *The Oxford Dictionary of the Christian Church*, London: Oxford University Press.

Everitt, N. (2004), *The Non-Existence of God*, Oxon: Routledge.

Fanning, S. (2001), *Mystics of the Christian tradition*, London: Routledge.

Gardner, M. (1983), *The Whys of a Philosophical Scrivener*, London: Oxford University Press.

Gill, R (1987), *Theology and Sociology*, London: Geoffrey Chapman.

Hawking, S. & Penrose, R. (1997), *The Nature of Space and Time,* St Ives: TSP.

Hume, D. (1779), *Dialogues Concerning Natural Religion*, edited with an Introduction by Norman Kemp Smith (1948), London: Thomas Nelson & Sons.

Hume, D.(1739-40), *Treatise on Human Nature*, published in two parts, BkI, part iv, sec ii. (1948), London: Thomas Nelson & Sons.

Huskinson L. (2009),The SPCK Introduction to Nietzsche, London: SPCK.

Jung, C.G. (1954), 'The Transcendent Function' *in* Collected Works, v17, London: Routledge.

Jung, C.G. (1954), Collected Works v9i (esp. pp275ff), London: Routledge.

Jung, C.G.,von Franz, M.L., Henderson, J.L., Jacobi, J., Jaffé, A. (1964), *Man and his Symbols*, 1964 Hardback Edition, New York: Doubleday.

Law, S. (2007), *Philosophy*, London: Dorling Kindersley Limited.

McGrath, A. and Collicott J (2007), *The Dawkins Delusion*, London: SPCK.

Palmer, M. (2001), *The Question of God*, London: Routledge.

Polkinghorne, John (1991), *Reason and Reality – The Relationship between science and theology*, London, SPCK.

Polkinghorne, John (1996), *Scientists as Theologians*, London: SPCK.

Polkinghorne, John (1997), *Science & Christian Belief*, London: SPCK.

Polkinghorne, John (2004), *Science and the Trinity*, London: SPCK.

Pojman, L.P. ed. (2003), *Philosophy of Religion – An Anthology*, Waveland Press.

Plantinga, A. (2003), *Religious Belief Without Evidence* in *Philosophy of Religion: An Anthology*, Pojman, 2003.

Russell, B.(1991), *History of Western Philosophy*, 3rd ed, London: Routledge.

Sellars, W. (1956), "Empiricism and the Philosophy of Mind," in *Minnesota Studies in The Philosophy of Science, Vol. I: The Foundations of Science and the Concepts of Psychology and Psychoanalysis* , 1956, edited by Herbert Feigl and Michael Scriven (Minneapolis: University of Minnesota Press).

Smart, N. (1994), *The Religious Experience of Mankind,* Glasgow: Fontana.

Stevens, A. (1995), *Private Myths – Dreams and Dreaming*, London: Hamish Hamilton.

Tertullian, *Heretics*, 7 in J. Stevenson (1987), 'A New Eusebius: Documents Illustrating the History of the Church to AD 337', London: SPCK

Torrance, T.F. (1969), *Theological Science*, London: OUP

Underhill E. (1911), *Mysticism*, 2008 edition, One World: Oxford.

Appendix – Unedited Section 4.4

Owing to word count limitations I had to edit this section down. In some ways I think it was the most interesting philosophical part of the discussion, so I include it here for those interested.

Michael Macneil, 29th Nov 2020.

6.1 A Critical Response

6.1.1 The Philosophical Weakness

The attractiveness of quantum theory as a means of reconciling theology with science using the vehicle of Far-Eastern thought had and has many supporters although Capra's ideas are not invulnerable to criticism. His central thesis that somehow quantum theory is Far-Eastern is fundamentally based on the idea of the non-deterministic, dynamic and interconnected quantum world. Capra's approach is essentially a *linguistic* one which attempts to align spiritual statements with scientific ones. Polkinghorne comments thus on his method: "...*a facile connection through verbal parallels characterizes the attempted assimilation of Eastern mysticism to quantum physics*..."[112].

The philosophical point here is that Capra asserts that the sages intuited the "true" nature of things by means of "absolute" knowledge received through non-rational means. Capra is perhaps then guilty of swapping one metaphysical system of assumptions for another that uses a different set of propositions but propositions which are of the same *logical* character. As soon as "absolute" knowledge is spoken of, the epistemological assumption is one that such knowledge actually exists which

[112] Polkinghorne (1996), p7.

essentially means one arrives back at a parallel to the Newtonian view that he was so keen to attack. Newton was confident that he was "thinking God's thoughts after Him", he essentially believed he was unveiling hidden spiritual truths and indeed, some of his ideas such as the "corpuscular theory of light" can be seen as an intuitive pre-figuring of the packets of "quanta" in Einstein's formulation of the concept of quanta to explain the photoelectric effect, the first foundational statement of quantum theory.

6.1.2 The Quantum Paradox

However, the "quantum paradox" perhaps best exposes this interpretation as being the radically simplistic. In quantum theory speak, the "quantum paradox" is neatly expressed by Polkinghorne, the particle physicist turned theologian:

> "the crux of the difficulty is the *measurement problem*. In the quantum world we may combine the possibilities of 'here' and 'there', but when we interrogate it from our macroscopic point of view, it always yields....a perfectly clear and everyday answer:....'here' or 'there'...never both."[113]
>
> "In the jargon of the subject this perplexity is called the problem of 'the collapse of the wave function' – probability which was spread out over 'here', 'there' and, perhaps, 'everywhere', suddenly is focussed on the actually realized result of the observation."[114]

The paradox is trying to express the problem that our physical world *is* experienced in a deterministic and causal fashion. Science itself is based on the reproducibility of phenomena. One of the great successes of quantum physics was its application to explain the stability of atoms and its mathematical application to the dynamics of complex systems (known as "chaos theory"). There is now substantial technology built on quantum mechanical principles that would have seemed like fantasy to Capra as a physicist and his colleagues in the 1970s. In other words, the quantum world is not beyond harnessing, characterisation or understanding:

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[113] Polkinghorne (1991), p88.
[114] Polkinghorne (1991), p89.

> "The quantum world is subtle and elusive, but it is not wholly dissolving. There are also persistent patterns...Capra has to concentrate, in a vague eclectic manner, on certain selected aspects of [a Californian version of] Eastern mystical thought without paying sufficient heed to their complexity and even contradictoriness' [115]

It is just a radically different, subtle and complex world that requires a radical enhancement of our reasoning, "*quantum physics is not irrational but [requires us] to modify our concept of reason*."[116]

Indeed, there are now sophisticated quantum mathematical models that are describing reality in new ways far beyond the expectations of Capra's generation of physicists. The key concept is that reality is being *described* and *observed* and *understood* without recourse to an external mystical revelation of "absolute truth" in a different logical plane beyond the rational[117]. The modes of reasoning are still empirical, deductive and inductive, descriptive rather than normative:

> "I want to ask my colleagues in Eastern religions what they make of the finely tuned balance in the laws of nature, enabling the evolving [anthropic] history of the universe to achieve its astonishing fruitfulness..."[118]

The methodologies of quantum physics have meant radical change in concepts but they have not required a retreat into a passive surrender to a universal process shared by all life in which we are trapped within a wheel of fate:

> "To Far Eastern religions...time is but the circling of ...flux...a path to be trodden or a wheel from which to seek release..."[119]

We are still entitled to maintain the confidence granted to us by Genesis 1:26 that we are masters of destiny, destiny does not master us. However imperfectly it may be perceived our rationality and processes of reasoning still give us *real* information about an object:

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[115] Polkinghorne (1997), p192.
[116] Polkinghorne (1991), p9.
[117] This is not to dispense with the mode of thinking beyond the empirical which is analysed in a later section but to guard against the fideism that seeks to self-justify itself and excludes criticism from beyond its own understandings as described previously in the thesis.
[118] Polkinghorne (1997), p192
[119] Polkinghorne (1997), p182

> "Despite the fact that we are normally only provided with probabilities for the outcome of an experiment, there seems to be something objective about a quantum-mechanical state. It is often asserted that the state-vector [wavefunction] is merely a convenient description of 'our knowledge' concerning a physical system....Such sentiments strike me as unreasonably timid concerning what quantum mechanics has to tell us about the *actuality* of the physical world."[120]

Though the quantum world is frequently characterised as "chaotic" this is really a misnomer as is the popularised mathematical discipline associated with it known as "chaos theory". The discipline is still *mathematical*, the concepts and expressions are discrete but nevertheless coherent:

> "What is involved is not mere numeration but the structure-analysing, pattern-creating power of abstract mathematics...there is an isomorphism...between mathematical patterns and physical patterns..."[121]

Capra's confidence that Bell's theorem dispensed with relativity was premature. Relativity has proved too successful a theory in describing the macro-universe for physicists to abandon it and the tenor of modern physics has moved on from the scepticism of Capra about relativity to a movement to unite the "very large" (relativity) and the "very small" (quantum) in a "theory of everything":

> From both the quantum perspective and the relativity perspective, there is but one 'Planck era' or 'Planck threshold' where our theories of physics break down or beyond in which the two separate theories are one unified theory.[122]

The quantum interaction is modified so that although the entities remain in relation to one another and information can pass between them at speeds greater than light, it is not the structured information that would contradict relativity. Although some see this as a pragmatic fudge to avoid embarrassment of the disagreement between the two fundamental theories of modern physics, these "fudges" are common in quantum physics:

> "Conventional quantum theory describes a world intrinsically cloudy and fitful in its behaviour...Heisenberg's uncertainty principle as expressing a genuine indeterminacy. [However] Bohm...asserts quantum events to be perfectly determined but by factors partially

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[120] Polkinghorne (1991), p96.
[121] Polkinghorne (1991), p29.
[122] Heller, M (2008) 'Where Physics Meet Metaphysics' *in* Connes, A. and others (2008), *On Space and Time*, CUP: New York.

> beyond our knowledge...the uncertainty principle to be no more than an expression of our ignorance..."[123]

It is dealing with objects which are only possible to know from their effects but with which there is nevertheless a belief that this reflects the true nature of that object. This is the essence of the critical realist approach and indeed, that of the theological scientist who believes in an evidence-based construction of a view of reality of reasonable verisimilitude. The confidence is that a personal Creator can communicate to the personal consciousness of their Creation:

> "...in humanity the universe became aware of itself…[we] can not believe that this emergence of personhood is simply a happy but meaningless accident, for it seems to be a most important clue to the nature of the reality within which we live."

6.1.3 Religious Particularity and Quantum theory

Quantum science challenges our conceptions and challenges our notion of time and local existence as discrete disconnected entities:

> "the atemporal Planck era in which the concept of distance is meaningless and in which everything is in contact with everything".

God is not necessarily the impersonal, vague and illusive intuiting only in fleeting insights as a Universal consciousness as might Capra see in the confluence of quantum theory and theology. The concepts of God's existence outside time and the oneness of creation are not the sole province of Far-Eastern religions but can have a place in mainstream Christian thought. It enjoys a biblical foundation as over one third of the bible was concerning future events when it was written. The Christian theological scientist believes the empirical data of Jesus provides direct contact with the reality and not the Kantian abstract category perceived in many forms through many different religions:

> "I certainly do not believe that the answer to these problems lies in the abstracted cosmic agnosticism of a Kantian kind that Dyson seems to advocate...it deliberately abandons a good deal of evidence and insight that needs to be taken into account, however demanding the task might be...progress [does not] lie in the direction of bland lowest-common denominator formulations, so rarified in content that virtually no adherent of any faith tradition would consider

[123] Polkinghorne (1991), p8.

> them worthy of assenting to, or even worth arguing about....As a Christian who believes that God took human life in Jesus Christ, I inevitably believe that there must be something of particular significance in present humanity."[124]

Though diversity is real and is present in the diversity of creation, it reflects the creativity of the Creator and not to provide the explanation of faiths as "anonymously Christian"[125]. The theological scientist needs to have the courage to assess the claims of the differing faiths and, with the appropriate caution in full knowledge of the epistemic limitations, be prepared to posit their relative plausibility:

> Hans Küng it is right to say that 'the Christ event is bound up with *concrete history* in a way quite different from the Buddha event'[126]. Christianity is inescapably concerned with history. Its stories are not merely pragmatically useful encouragements to right living…Is the human person of unique and persisting significance (the Abrahamic faiths), or recycled through reincarnation (Hinduism), or ultimately an illusion from which to seek release (Buddhism)?" These conflicting concepts do not seem to be culturally different ways of expressing the same idea[127].

6.2 Summary

The discussion of this chapter has necessarily been technical but these ideas have needed unpicking as they are important because they have provided the basis for an attempt to align quantum theory with far-Eastern religion and philosophy and directly challenging any concept of a particular and personal God. As the previous chapters were concerned with asserting there is no claim for epistemic superiority of the scientist over the theologian, then this chapter asserts that quantum science can not be used to assert the superiority of one theological system over another without losing the precision of the language and confusing the logical categories.

[move to final conclusion]

[Thus, the conclusion of the author is that only by adopting an epistemic openness of mind where science and theology are seen to be in a dynamic, living relationship can

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[124] Polkinghorne (2004), pp176-178.
[125] Modifying Karl Rahner's words slightly as quoted in Polkinghorne (1997), p172.
[126] Kung, H. (1993), Christianity and the World religions, p432, Doubleday
[127] Polkinghorne (2004), Science and the Trinity, London: SPCK, pp175ff

the knowledge of both God as spirit and flesh be complimentary and enriching. Science provides a narrow, focussed source of data that is part of the experience of living and being on Earth, it constrains the excesses of mysticism but does not limit mysticism and the place of God-consciousness.