

## SCIENCE AND THE FUTURE OF THEOLOGY - CRITICAL ISSUES

*"Outdated models of the relationship of science and theology can be discarded in favor of a joint exploration into a common reality some aspects of which will prove, in the end, to be ultimate, and thus divine."*

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### I. THE INTELLECTUAL REPUTATIONS OF SCIENCE & THEOLOGY

IT IS NOW some 70 or so years ago that the mathematician-philosopher A.N. Whitehead considered that the future course of history would depend on the decision of his generation as to the proper relations between science and religion—so powerful were the religious symbols through which men and women conferred meaning on their lives, and so powerful the scientific models through which they could manipulate their environment.<sup>1</sup> We, in a later generation, certainly still have the same pragmatic task with religious fundamentalisms inflaming the political and international scene. Furthermore the technological applications of science are generating environmental effects, such as global warming that are already threatening biological and human life. But even more basic is the intellectual task of integrating the search for intelligibility, epitomised by the natural sciences, and that for meaning, enshrined in the world religions. These hard thinking tasks in our societies are, or should be, undertaken supremely in our universities—and paramount will be the relating at the intellectual level of the distinctive explorations of science and of theology, the intellectual articulation and justification of religious beliefs.

However, too often, the science and theology dialogue has been dominated by what I might call the 'bridge model'. Just as the Golden Gate Bridge throws an apparently frail, but actually immensely strong, bond between the solid rock of the lands to the north and south, so the interaction of science and theology has been conceived of as building such a bridge between two solid established disciplines. Across the bridge dialogue is conceived to occur with the hope of achieving at least consonance and maximally, even integration. But that picture represents only the Christian medieval enterprise of relating a natural philosophy to a revealed theology, much as it might appeal to any neo-Barthians still around.

Be it noted too that, in those medieval times one had to change vehicles half way across as reason was left behind and the deliverance of a revealed faith took over in going from science to religion and the reverse route from theology to science was soon rendered impassable, from the point of view of the scientists at least, by certain notorious interventions of the Church in purely scientific matters. Since the Enlightenment, this bridge-building has proved to be hazardous, and the attempt has often been abandoned altogether. For although the foundations on the science side of the gulf seemed solid rock enough, to the modern mind, that on the side of theology was regarded as but shifting sand, having little solid rational basis.

For many decades now—and certainly during my adult life in academe—the Western intellectual world has not been convinced that theology is a pursuit that can be engaged in with intellectual honesty and integrity. Our unbelieving contemporaries have been and still are often the 'cultured despisers' with whom Schleiermacher felt impelled to deal. There are also many wistful agnostics who respect Christian ethics and the person of Jesus, but also believe that the ontological baggage of Christian affirmations can be discarded as not referring to any realities.

This deep alienation from religious belief of the key formers of Western culture of recent times has been almost lethal to a Christianity which has nearly always based its beliefs on authorities of the form 'The Bible says', 'The Church says', 'The Magisterium says', even, at least in the past, 'Theologians say'! Educated people know that such authoritarian claims are circular and cannot be justified because they cannot meet the demand for validation of their claims from any external universally accepted stance.

## **II. SCIENCE WITHSTANDS THE POST-MODERNIST CRITIQUE**

In my view, that "modern", Enlightenment situation, one almost may say plight, of theology—as not meeting the epistemological standards of rational inquiry—continues. However, for causes obscure, and to me themselves irrational, the very word 'rationality', has come under a cloud of suspicion. The gale of post-modernism blows in from who knows what alien strand and not only removes, it would claim, any need for a bridge between science and theology at all, but pulverises the foundations on each side into shifting quicksands.

Or so it is said.

"Relativism rules" is all the cry, so that some theologians are seduced into retreating into spelling out the 'grammar' of their received, confessional, indeed parochial (even when called 'catholic'), traditions and are thereby self-exonerated from justifying their beliefs in the arena of public discourse. So the supporting base for structures on the theological side are deemed to have quailed before the onslaught of post-modernist relativism. We shall have to return to this state of theology later.

But, now, what about the other side of the water? Scientists still go on their way believing that they are exploring a reality other than themselves; that, even after the demise of positivism, their researches still aim to enable them to depict reality, namely, the entities and processes of the natural world; that they do so fallibly, making use of metaphors and models that are revisable; and that, because their procedures make it possible to predict and sometimes even to control natural processes, their efforts are getting them nearer to depicting nature with such increasing verisimilitude as is vouchsafable to finite human minds.

They would point out that even the post-modernist literary critic or sociologist relies on solid-state physics being true enough for the chips in his PC to function as a word processor! I well remember, at a 1979 meeting convened by the Church and Society section of the World Council of Churches in Boston on "Faith and Science in an Unjust World", the indignant reply of an astronomer from Australia to third-world delegates from the 'South' who, based on their unhappy experience of multinational corporations using technology to exploit their countries, criticised the content and integrity of science. He affirmed—with some passion—it must be said that "quantum theory does not change as you go South across the Equator", and was unanswered.

The philosophical debate concerning scientific realism which raged some ten years ago has quieted down considerably. Some kind of real reference of scientific terms involving entities and processes,

and often theories, seems to be widely accepted—with 'realism' preceded by adjectives such as 'qualified', 'critical', 'sceptical', 'dialectical critical', 'convergent', even 'metaphysical'. All of them are characterised by not being 'naïve'—that is, not regarding terms in scientific theories as literal descriptions of the entities and processes to which they refer; not believing that there are facts to which all scientific propositions correspond if they are true; and not thinking scientific language can exhaustively describe an external world. I said it is 'some kind' of realism which is widely accepted in view of the various qualifications of different authors. Indeed, J. Leplin, who in 1984 edited a comprehensive volume on the question, in his Introduction expressed the judgement that "Like the Equal Rights Movement, scientific realism is a majority position whose advocates are so divided as to appear a minority."<sup>2</sup> I judge that, as against (say) instrumentalism, realism is still the majority view of philosophically-informed practising scientists who would not pursue their exacting profession if they did not think they were uncovering real aspects of the underlying mechanisms and relationships in the natural world.

Recently J. Leplin<sup>3</sup> has contended, I think convincingly, that science proceeds by a combination of induction and inference to the best explanation (IBE). His understanding of scientific realism is worth noting:

"To interpret a theory realistically is only to suppose that its explanatory mechanisms capture some of the features of natural processes well-enough not to be misleading as to how the effects of these mechanisms explain are actually produced. A realist interpretation claims that the theory reveals some significant truth about real processes, where "significance" is relevance to explanatory ends, and "some" is a measure proportionate to those ends."<sup>4</sup>

But how has all this consensus among philosophers of science, and even more among scientists, withstood the gales of post-modernism? I would judge—very well indeed! In concord with that astronomer from Australia at the WCC meeting, it is still the experience of scientists in all fields that in global congresses the criteria for good science transcend all ethnic, religious, political and social backgrounds. Clearly these latter affect the provision of grants, the scientific questions selected for study, and the imaginative and intellectual resources available to scientists—but not the accepted content of science.

This side of the Atlantic, there is no need for me to remind you how the post-modernist critique of science was false-footed by the famous hoax in which Alan Sokal published, in the American cultural-studies journal *Social Text*, a parody article crammed with nonsensical, but unfortunately authentic, quotations about physics and mathematics by prominent French and American intellectuals of the post-modernist school. To be sure, the role of the social context in the historical development of science cannot be controverted. Individuals and groups of scientists depend and feed on social resources of funds, institutions, symbols and concepts and the general *Zeitgeist* of society, like everyone else. But the justification of scientific theories and of the putative existence of the entities and processes to which they refer, is subject to a subsequent rigorous sifting in the scientific community that eventually makes their enterprises an exploration of reality.

Let us return to that bridge hopefully spanning the gulf between science and theology. It now seems that the science side is certainly not quicksand but much more like the lava flow from a volcano which inexorably moves forward in a fluid manner (often purgative of preconceptions) but leaves behind an increasingly solid base of established knowledge about the natural world.

My conclusion, so far, is that in the event science has proved a bastion against the gales of post-modernism and serves to preserve, and even restore if we strayed so far, a conviction that the processes of human rational inquiry, fallible though they are, are not always fated to be engulfed in

relativism, social contextualisation, and even nihilism. By its very success in withstanding the weasel words that lead to abandoning any search for justified belief about what really is the case, science challenges other humanist disciplines, including theology, to live up to its epistemological standards in relation to the data and intellectual histories relevant to them.

### III. EVOLUTION AND HUMAN RATIONALITY

There has, of course, been much debate about whether or not any basis for a common rationality is now possible in these non-scientific disciplines. None of us want to be foundationalists which in theology involves fideism and fundamentalism. So which way do we go from here? Curiously, certain perspectives in modern biology indicate that the exercise of human rationality is not likely to be fruitless and end up in an unreliable, relativistic circularity of affirmation. For, as I pointed out in 1991 in my *Theology for a Scientific Age*:<sup>6</sup>

"Evolutionary biology can trace the steps in which a succession of organisms have acquired nervous systems and brains whereby they obtain, store, retrieve and utilize information about their environments in a way that furthers their survival . . . . Our sense impressions must be broadly trustworthy, and so must the cognitive structures whereby we know the world—otherwise we would not have survived."<sup>7</sup>

In a nutshell, our cognitive faculties qua biological organisms must be accurate enough in their representations of reality to enable us to survive. In the case of human beings these cognitive faculties include the representations of external reality we individually and socially make to ourselves. Hence these representations have at least the degree of verisimilitude to facilitate survival in the external realities of our environments. The extent to which evolutionary biology will actually help us understand the cognitive processes whereby this reliable knowledge about the environment was acquired is still an open, indeed confused, question. However there can be little doubt that there is a continuity in the evolution of homo sapiens between:

- \* the cognitive processes that allow a physically relatively poorly endowed creature to survive against fiercer predation and in a variety of environments;
- \* the processes of ordinary 'common sense' ratiocination applied in everyday life;
- \* and the ability to think abstractly and to manipulate symbols in mathematics, art, science, music and the multitudinous facets of human culture.

The central consequence for this inquiry is an enhancement of our confidence in the reality-referring capacity of our cognitive processes which evolution has provided. It warrants the postulating of the existence of a general rationality in homo sapiens which yields, for the purpose of living, reliable knowledge and justified belief. This encourages an examination of the nature of the selfsame perceived cognitive processes. Such an examination has recently also been strongly emphasised here in Princeton by Wentzel van Huysteen who writes:

"[O]ur mental capacities have their roots in organic evolution and it is important to study these roots to learn something about the genesis and development of our ability to know and interrelate with our world."<sup>8</sup>

This approach goes back much earlier to Karl Popper<sup>9</sup>, Konrad Lorenz and especially Donald Campbell who first named the approach as "evolutionary epistemology." However, biology as such gives few clues about the evolution of human cognition. Moreover this enhancement by

evolutionary considerations of confidence in the possibility of human ratiocination providing reliable knowledge does not in itself exonerate us from inquiring into the validity of the actual content of its deliverances and also from asking about the criteria that should operate. To this we must now attend.

#### IV. REASONABLENESS THROUGH INFERENCE TO THE BEST EXPLANATION

We are obtaining from evolutionary epistemology the stimulus to take again seriously the results of the processes of human cognition and rationality. Can we discern any features of these processes that are common to biological survival, everyday experience and the explanatory accounts we give of the activities that constitute human culture in inter alia the sciences, the humanities and theology? It is hardly necessary to remind an American audience, which has witnessed books entitled *Higher Superstition*<sup>10</sup> and *Intellectual Impostures*<sup>11</sup> about the present post-modernist zeitgeist and academic political correctness, of the controversies that rage around this seemingly innocent question. I have given grounds why I think science has been able to resist the siren calls of post-modernism. The continuity of its procedures with those of reasonable decision-making in ordinary life, which can now be attributed to their common biological origin, is significant for our estimate of human rationality in general. When one analyses these two kinds of exercise of human rationality, I think a strong case can be made out for asserting that such deliberations are not purely deductive, nor purely inductive, but are a composite of a particular kind, namely, inference to the best explanation (IBE—sometimes called abduction). This latter is described thus in P. Lipton's key work:

"According to Inference to the Best Explanation, our inferential practices are governed by explanatory considerations. Given our data and background beliefs, we infer what would, if true, provide the best of the competing explanations we generate of those data (so long as the best is good enough for us to make any inference at all) . . . One of the main attractions of the model [of IBE] is that it accounts in a natural and unified way both for the inferences to unobservable entities and processes that characterise much scientific research and for many of the mundane inferences about middle-sized dry goods that we make everyday."<sup>12</sup>

What are the criteria for deciding which is the 'best' explanation among any set of plausible proposals—that is, the one "which would, if true, provide the most understanding"<sup>13</sup> of the field in question? Bearing in mind the intention to use IBE in theology, I prefer to distinguish the following as the criteria for deciding on a 'best' explanation:

(i) Comprehensiveness, the best explanation accounts for more of the known observations by giving a unified explanation of a diverse range of facts not previously connected. There are converging lines of argument based on different kinds of data with which the best explanation fits. Such data will, for theology, including human experience, including (though not exclusively) those designated as 'religious'.

(ii) Fruitfulness—the best explanation can often, but (note) not always, suggest new and corroborating observations. The best explanation is not ad hoc, just to one specific purpose.

(iii) General cogency and plausibility on account of the fit of the best explanation with established, background knowledge (cf. Lipton's 'unified explanatory scheme').

(iv) Internal coherence and consistency, no self-contradiction.

(v) Simplicity or elegance—stressing the need to avoid undue complexity.

In IBE, as John Wisdom had put it:

"The process of argument is not a chain of demonstrative reasoning. It is a presenting and representing of those features of a case which severally co-operate in favour of the conclusion"<sup>14</sup>

It would be naive to think that these criteria depicted with such a broad brush, do not need thorough analysis, justification and development. Their discussion has been grist to the mill of the last few decades of the philosophy of science and, more widely, of epistemology. I cannot pretend to do justice to that complex discussion—though I do note that the term 'inference to the best explanation' seems to be broadly acceptable to the practitioners of a wide range of disciplines in the sciences and the humanities As P. Clayton has rightly said:

"This theory of explanation reflects a more general paradigm shift regarding the rationality of both scientific and meta-physical debates . . . in place of foundationalist understandings of knowledge it presupposes a coherentist framework. This brings inference to the best explanation into close contact with the 'holistic view'<sup>15</sup> of scientific explanation"<sup>16</sup>.

The direction in which such proposals are leading appear to me to be entirely in accord with the critical realist view I have myself espoused<sup>17</sup> and, I think, with the post-foundationalist stance of W. van Huysteen<sup>18</sup> with the gravamen he lays on all epistemologies to create what he calls interdisciplinary spaces—especially between theology and science.

## **V. THEOLOGY TODAY AND TOMORROW**

Earlier I drew attention to the parlous state of the reputation of theology as an intellectual discipline. A very large proportion of educated people do not find Christian (or any) theology reasonable—it is not seen by them to reach the standards of modern intellectual life, not least in its relation to science. It has, it is thought, been tried in the balance and found wanting.

So I would describe the first key critical issue for theology, exemplified supremely in its relation to the natural and human sciences, as the following.

[I] Dare theology proceed in its search for even provisional 'truth' by employing the criteria of reasonableness that characterise the rest of human inquiries, in particular the sciences? In the natural and human sciences, a strong case has been made that they achieve their aims of depicting, revisably and metaphorically, the realities of the natural and human worlds by inference to the best explanation (IBE; 'abduction', according to Peirce). Because of the epistemological revolutions of our time, it is now essential that the theological pier of the bridge to science be subject to the same demands for epistemological warrant and intellectual integrity as other disciplines, especially science—and to relinquish the spurious confidence of, for example, neo-orthodoxy, that it is divinely vindicated.

Theology needs to be, as Hans Küng<sup>19</sup> has put it, 'truthful', 'free', 'critical' and 'ecumenical—a theology which deals with and interprets the realities of all that constitutes the world, especially human beings and their inner lives. Dare theology, by using IBE, enter the fray of contemporary, intellectual exchange and stand up and survive in its own right? To do so, it has to become an open exploration in which nothing is unrevisable.

The Bridge model for the science-and-theology enterprise must go and be replaced by the sense of a joint exploration into a common reality, some aspects of which will prove, in the end, to be ultimate—and so divine.

Let us now look at how theology is actually practised.

## THEOLOGY AS IT IS

What do we find?—a variety of theological procedures that do not meet these criteria:

(a) Reliance on an authoritative book—"The Bible says". Even those not given to biblical literalism and fundamentalism still have a habit of treating the contents of the Bible (now mostly 2000 or more years old) as a kind of oracle, as if quotations from past authorities could settle questions in our times (like a doctor resorting to Galen!). Although (I am sure), many of those present here would not take this view, it is the one that whatever they themselves believe, ordinary Christians think clergy and ministers ought to believe (and are paid to do so!). Yet the library of books we call the Bible itself is constituted by a self-critical dialogic process of constantly revising, repudiating and extending the work and experience of earlier generations—we see this even within the period of authorship of the New Testament itself.

(b) Reliance on an authoritative community—"The Church says", "The Fathers said", "The Creeds say", "The Magisterium says". Here the religious community listens and talks only to itself, following the 'cultural-linguistic' (or, 'regulative') pattern espoused by G. Lindbeck<sup>20</sup>. According to this interpretation, the doctrines of the Christian church, function to establish the framework for that community's conversation which elucidates the grammar of its own internal discourse without ever exposing itself to any external judgement of reasonableness. At its best it can be *fides quaerens intellectum*, faith seeking understanding, but even this prescind from rational justification of the *fides*. I would urge that the only defensible theology is one which consists of 'understanding seeking faith' (*intellectus quaerens fidem*) in which the 'understanding' involved cannot but be that of the natural and human worlds which the sciences, together with the aesthetic and other experiences of humanity, have unveiled. There can be within communities of faith a kind of submission to what I can only regard as a revelatory dogmatism or doctrinal fundamentalism. But however much the *fides* is explicated and enriched within the community it fails to equip itself with the means whereby it can convince those outside it to take seriously its affirmations, if it has foregone and repudiated what I would regard as the God-given *lingua franca* of human discourse—the use of criteria of reasonableness, as in IBE. If we follow this recipe, how can Christian communities ever convince the outside world that they proclaim any kind of 'truth' comparable in cogency to that which that world recognises and, in their application of science, also utilises?

(c) Reliance on a priori truth. In some forms of philosophical theology, the internal 'truths', held by the Christian community are regarded almost as a priori 'basic' truths arrived at by pure ratiocination. This kind of foundationalism is rare today because of the wider recognition of the cultural conditioning of what can seem to be a priori. Clearly, such a theology would find it very difficult to come to terms with the world whose realities are discovered by the sciences.

## THEOLOGY AS IT MIGHT BE

[1] If theology is to meet the intellectual standards of our times by, for example, utilising IBE, and not relying on authorities or claimed a priori notions, it will have to take account of

S the scientifically discovered realities of the world and humanity;

R c the Jewish and Christian communal inheritance of claimed, classical revelatory experiences (in texts, liturgies, aesthetic expression, music, etc); and

R o the perceptions and traditions of other world religions.

Hence the 'data' of theology are : S + R c + R o .

[II] Here we have to put on one side R o but let it be noted here that a second critical issue for Christian theology in relation to the sciences is the perception of how other religions have and are relating to the scientific world view and what can be learnt from that. But for the purpose of this lecture let our data be taken to be only S + R c .

[III] If we put these data together, I think we are faced with our third critical issue, namely, that a very radical revision of past notions concerning what Christians can in future hold as credible, defensible and reasonable becomes imperative.

We have had, as it were,

R c T c , where T c is orthodox Christian theology.

But now,

we have S + R c T sc ,

a radically revised theology which, I am suggesting, will not live at all comfortably with the Tc as promulgated by church bodies and in most pulpits.

[Eventually we need S + R c + R o T csc , global theology]

What are we aiming for, in the nearer future, in that T sc ? What will its truth deliver for the person of the 21st century?

[IV] It is here that we encounter a fourth set of critical issues concerning the methodology of this process. Those of us engaged in the science-and-theology interaction must be committed to the norms spelt out recently by W. Drees: 21 I cannot help wondering if, in spite of the honest efforts of many of us, we have really always maintained such standards.

#### **FURTHER CRITICAL ISSUES FOR THEOLOGY**

There are further tough critical issues that theology has to consider in the light of the sciences.

[V] This is one world: a monistic naturalism is overwhelmingly indicated by the sciences. Everything is constituted of, made up of as 'parts', of whatever current physics discovers underlies all matter/energy. This need not be epistemologically reductionist about the many levels in the world, including human beings—who are seen as psychosomatic unites, not ontologically distinct bodies and minds and souls (according to both the cognitive sciences and the Bible). With respect to the mind/brain relation, 'dual-aspect monism' and, even more so in my view, 'emergentist monism' are positions congenial to Christian understandings of human nature. But no "ghosts in the machine". The only dualism now defensible appears to be the distinction between the Being of God and everything else (all-that-is, all that is created). Talk of the 'spirit' or of the 'soul' of human beings as distinct entities appears to be precluded and holistic language is generally more appropriate. So no more theological talk about the 'supernatural'.

[VI] This one world is an interconnected web of processes which are increasingly intelligible to the sciences. These processes are more subtle and rational than we could ever have conceived. Their creativity is in-built, for theists, by God and it is becoming increasingly incoherent to have a view of God as intervening in these processes to fulfill God's purposes. This is the now notorious problem of God's action in the world and how to conceive of it.

[VII] Because of [VI], the historical evidence for miracles (disruption of the regularities of nature by God) is usually inadequate to testify to them. Can our theology continue to depend at all on the assertion of the occurrence of miracles in that sense? For example:

(i) Does the affirmation of the Incarnation have to be closely related to the Virginal Conception in view of the weakness of the historical evidence for it, its biological implausibility and its derogating from the full genetic humanity of Jesus?

(ii) Does the affirmation of the Resurrection have to depend on the 'empty tomb'—especially as it is clear our bodies are, in principle, not resurrectable (they lose their identity as our constituent molecules are soon dispersed and enter those of other living organisms and other people)—so the transformation of Jesus' body leaving an empty tomb could never give us any particular hope for our own resurrection if that, too, were to be a transformation of our actual individual bodies.

[VIII] Human nature is under the leash of our biologically-conditioned and biologically-created genes. What is the relation of this to 'original sin'? After all, God created us with those biologically-derived genes.

[IX] Human beings seem to be 'rising beasts' rather than 'fallen angels'. There is no evidence for a past paradisaic, fully integrated, harmonious, virtuous existence of homo sapiens—so how should this shape our understanding of the 'work of Christ' as 'redemption'? Should we not now be regarding the 'work of Christ' less as the restoral of a past state of perfection than as the transformation into a new as yet unrealised state? How did and does the life, death and claimed resurrection of Jesus make any difference?

[X] If God is all the time creating in and through the processes of the world, so they are in themselves God's action, then the understanding of God's immanence in the world has to be held in a much stronger sense than ever before. God is closer to natural reality than previously conceived. God is indeed the "one in whom we live and move and have our being" (Acts 17v. 28). God's relation to the world is through and through sacramental, both instrumentally and symbolically in revelation of God's self. So is not a 'sacramental pantheism' called for as representing the closeness of God in creation and yet God's basic 'otherness'. We certainly need more dynamic metaphors for that relation than have usually been propounded in the past.

[XI] The role of chance and its interplay with necessity (law, regularity) is a real feature of the processes now uncovered by science, whereby new entities have appeared in the world. This needs to be incorporated positively into our account of how God creates. Does God experiment?

[XII] Human death. Death of the individual is now seen as part of God's created processes whereby the living creatures preceding humanity and humanity itself have come into existence. So how can the "wages of sin" be "death" 22?—and what does this imply for many classical understandings of redemption/atonement as the 'work of Christ'?

[XIII] If there is life on other planets, as is at least possible, what does this imply for the uniqueness of Jesus as Redeemer, Lord, Saviour, Logos incarnate, etc.?

[XIV] The relation of God to time is an issue which has greatly exercised many of us as we relate the perceptions of modern relativistic physics to classical notions of eternity and of God's supposed 'timelessness'. Suffice it to say there is no agreement—believe the future does not have any kind of existence the content of which an omniscient God could logically know. On this latter view God alone will certainly be present to all future events but what they will be is open and not determined and not known to God. The discussions of eschatology have to be set in the context of this

unresolved dichotomy of views. Furthermore we have to ask, on what is much Christian theological talk of eschatology and the future based? Cosmology predicts with very great certainty the demise of this planet and all life on it, including ours. What then is the cash value of talk about 'a new heaven and a new earth'? The only propounded bases for this seem to me to be the imaginings of one late first-century writer (in Revelation) and the belief that the material of Jesus' physical body was transformed to leave an empty tomb. I have already indicated that the latter is at least debatable and the former can scarcely be evidence. So what is left is belief in the character of God as Love and that God has taken at least one human being who was fully open to the divine presence into the divine life—the resurrection and ascension of Jesus. Is not much of Christian eschatology but empty speculation?

## VERDICT

The foregoing (I to XIV) consist of both methodological and substantive challenges to Christian theology as it reflects on the nature and character of the cosmos that the sciences have unveiled. Intellectually-educated, thinking people if they are still attached in any way to the Christian churches are, as it were, hanging on by their finger-tips as they increasingly bracket off large sections of the liturgies in which they participate as either unintelligible, or, if intelligible, unbelievable in their classical form. There is an increasingly alarming dissonance between the language of devotion, liturgies and doctrine and what people perceive themselves to be, and to be becoming, in the light of the cognitive sciences and in a world described by the 'historical' sciences (cosmology, geology, biology) in the 'epic of evolution'.

Hitherto apologetic based on science by Christian thinkers has been a well-expressed, re-inventing of the wheel that strengthens Christians who are wobbling in their faith but it is not convincing the general, educated public. It is still too entangled in worn-out metaphors and images—both biblical and traditional.

I myself have argued for a more dynamic view of God's continuous action in the processes of the natural, including human, world—the action of a God who is indeed Transcendent, Incarnate and Immanent, in whom the world exists and who is its circumambient Reality. Be that as it may, what we all have to do in this interaction of theology with the sciences, is by argument and imagination, to develop a notion of God belief in the reality of Whom, with all that that entails, can coherently embrace what we now know from science about the cosmos, this planet and our own and other species. Theology—which I still take to be wisdom and words about God—has to develop concepts, images, notions, metaphors that represent God's purposes and implanted meanings for the world we actually now find it to be through the sciences.

We require an open, revisable, exploratory, radical (dare I say it?) liberal theology. This may well be unfashionable among Christians who seem everywhere to be retreating into their fortresses of classical Protestant Evangelicalism, traditional (Anglo-) Catholicism and/or so-called 'biblical theology'. Nevertheless, transition to such a theology is, in my view, actually unavoidable if Christians in the West and, I suspect, eventually elsewhere are not to degenerate in the next millennium into an esoteric society internally communing with itself and thereby failing to be the transmitter of its 'good news' (the evangel) to the universal (catholicos) world.

Hence, a paradox—to be truly evangelical and catholic in its impact and function, the church of the next millennium will need a theology that, in its relation to a world view everywhere shaped by the sciences, will have necessarily to be genuinely liberal and even radical. For such a Christian theology to have any viability, it may well have to be stripped down to newly-conceived essentials and so be minimalist in its asseverations. Only then will Christian theology attain that degree of verisimilitude

with respect to ultimate realities which science has to natural ones—and command respect as a vehicle of public truth.

## VI. A HOPEFUL AFTERWORD

To conclude I want to indicate why I am full of hope, in spite of the gargantuan task facing Christian theology as it enters its 21st century—a hope based on the perennial character of God's creative engagement with the world. Some years ago<sup>23</sup>, in 1991, I observed that, natural as all this process is, yet, oddly enough, there are signs of a kind of misfit between human beings, persons, and their environment which is not apparent in other creatures. We alone in the biological world, it seems, individually commit suicide; we alone by our burial rituals evidence the sense of another dimension to existence; we alone go through our biological lives with that sense of incomplete fulfilment evidenced by the contemporary quests for 'self-realization' and 'personal growth'. Human beings seek to come to terms with death, pain and suffering and they need to realize their own potentialities and learn how to steer their paths through life. The natural environment is not capable of satisfying such aspirations—nor can the natural sciences describe, accurately discern or satisfy them. So our presence in the biological world raises questions outside the scope of the natural sciences to answer. For we are capable of happiness and miseries quite unknown to other creatures, thereby evidencing a dis-ease with our evolved state, a lack of fit which calls for explanation and, if possible, cure.

Subsequently (1993)<sup>24</sup> I urged that the alienation of human beings from non-human nature and from each other appears as a kind of anomaly within the organic world. As human beings widen their environmental horizons, so they experience this "great gulf fixed" between their biological past environment out of which they have evolved and that in which they conceive themselves as existing or, rather, that in which they wish they existed. We may well ask, 'Why has, how has, the process whereby there have so successfully evolved living organisms finely tuned to and adapted to their environments failed in the case of homo sapiens to ensure this fit between lived experience and the environing conditions of their lives?'. It appears that the human brain has capacities which were originally evolved in response to an earlier environmental challenge but the exercise of which now engenders a whole range of needs, desires, ambitions and aspirations which cannot all be harmoniously fulfilled.

Such considerations raise the further question of whether or not human beings have really identified what their true 'environment really is—that 'environment' in which human flourishing is possible. There seems to be an endemic failure of human beings to be adapted to what they sense as the totality of their environment—an incongruity eloquently expressed by that great nineteenth-century Presbyterian preacher, Thomas Chalmers, in his 1822 Bridgewater treatise.

"There is in man, a restlessness of ambition; . . . a dissatisfaction with the present, which never is appeased by all the world has to offer . . . an unsated appetency for something larger and better, which he fancies in the perspective before him—to all which there is nothing like among the inferior animals."<sup>25</sup>

Does not the human condition raise the profound question of what humanity's true environment really is? Thus it was that St. Augustine, after years of travail and even despair, addressed his Maker: "You have made us for yourself and our heart is restless till it rests in you".<sup>26</sup> Augustine's Maker is ours too and no one who asked has not had it given and no one who has sought has not found. So let us knock and it will be opened to us.<sup>27</sup>

**Arthur Peacocke**

## NOTES:

1. Quoted by J.H. Brooke, *Science and Religion: Some Historical Perspectives* (Cambridge University Press, Cambridge, 1991), **p1**
2. J. Leplin, *Scientific Realism* (University of California Press, Berkeley, Los Angeles and London, 1984), **p1**. For a wider ranging critique see P.R. Gross and N. Levitt, *Higher Superstition: The Academic Left and Its Quarrels with Science* (John Hopkins University Press, Baltimore 1994)
3. J. Leplin, *A Novel Defence of Scientific Realism* (Oxford University Press, New York and Oxford, 1997); for a recent useful survey of the status of realism in the philosophy of science and among scientists, broadly in accord with the judgments in the main text, see A. McGrath, *The Foundation of Dialogue in Science and Religion* (Blackwells, Oxford, 1998), **ch4**
4. Op. cit. **p104**
5. One of the most thorough and detailed attempts to restore rationality to theological procedure—that of N. Murphy, *Theology in the Age of Scientific Reasoning* (Cornell University Press, Ithaca and London, 1990). Her transfer of the research programme notion of Lakatos from science to theology runs the risk of reverting to the foundationalism many wish to eschew. For her Lakatosian research programmes start with a "central organising idea" as its hard core. This can be "the God of Jesus as the all-determining reality" (176), "the trinitarian nature of God, God's holiness, and God's revelation in Jesus" (184). Such a research programme necessarily should develop specific doctrines for all the classical theological loci; it must be consistent with the major creeds and must be adequate not only to the available data (176) as one would expect for any programme described as 'research', but also to the dogma of "a particular communion" (185) and Scripture (188) and so on. All of which sounds pretty foundationalist and falls within that explicating of the 'grammar' within a particular faith community which could ensure that theology had no public forum.
6. Arthur Peacocke, *Theology for a Scientific Age* (Blackwells, Oxford, first edition, 1991) **p73, p76**
7. Konrad Lorenz, *Behind the Mirror: A Search for a Natural History of Human Knowledge* (Harcourt Brace Jovanovich, New York, 1973; Methuen, London, 1977, English translation, **p113**). He identifies these functions as: perception of form; representation of space, especially through sight; locomotion; memory, storage of information; voluntary movement with feedback; exploratory behaviour; imitation (and so learning); transmission of individually acquired knowledge between the generations.
8. Wentzel van Huyssteen, *Duet or Duel?—Theology and Science in a Postmodern World* (SCM Press, London, 1998) **p137**
9. The development of Popper's thought in this respect is well described by W. W. Bartley III in *Evolutionary Epistemology*, n. 16, pp. 18-20. He dates Popper's public discussion of the role of biology in elucidating human cognition from 1960 and refers (n. 16, pp. 20-23) to the key contributions of Lorenz (see n. 17) and of Campbell. The latter's key essay of 1974, "Evolutionary Epistemology", is reproduced as Chapter II in the multi-author volume of this title (n. 16), but goes back to an earlier 1960 essay of his, "Blind Variation and Selective Retention in Creative Thought as in Other Knowledge Processes" (also reproduced in Chapter III, in the volume referred to in n.16).
10. Paul R. Gross and Norman Levitt, *Higher Superstition: The Academic Left and its Quarrel with Science* (John Hopkins Univ. Press, Baltimore, 1994).
11. Alan Sokal and Jean Bricmont, *Intellectual Impostures: Postmodern Philosophers' Abuse Of Science* (Profile Books, London, 1998).
12. Peter Lipton, *Inference to the Best Explanation* (Routledge and Kegan Paul, London, 1991), **p58, p188**. Emphasis added. See also, Philip Clayton, "Inference to the Best Explanation" (*Zygon* 32 (1997) 377-39) for a persuasive argument for its application to theology, especially in its interaction with science.

13. Lipton, op. cit. **p186**. He calls this the "loveliest" explanation. The "likeliest" explanation—the one most warranted by the evidence—he rightly regards as not conducive to finding the best explanation for the model then tends to triviality.
14. John Wisdom in 'God', reprinted in his *Philosophy and Psychoanalysis* (Blackwells, Oxford, 1953).
15. As proposed by Philip Kitcher, op. cit., (n. 12), **p182**
16. Clayton, op. cit., (n. 21), **p387**
17. Initially and explicitly in *my Creation and the World of Science* (Clarendon Press, Oxford, 1979) **p21-23**; then more fully in *Intimations of Reality* (University of Notre Dame Press, Notre Dame, Indiana, 1984), **ch1**; and subsequently in other publications.
18. W. van Huyssteen, "Postfoundationalism in Theology and Science: Beyond Conflict and Consonance", in *Rethinking Theology and Science*, op. cit. (n.26).
19. H. Küng, *Theology for the Third Millennium—An Ecumenical View*, trans. P. Heinegy (Doubleday, New York, and Harper Collins, London, 1991), **ch3**, II on "Paradigm change in theology and science", especially **p161-2**
20. George Lindbeck, *The Nature of Doctrine* (Westminster, Philadelphia, 1984)
21. The "Ten Commandments" of Wm. Drees, expounded in his 1999 *Idreos Lectures* in Oxford and published in *Science and Spirit*, No. 4 (1998), **p2-4**
22. Romans 6, v.23 (AV).
23. Arthur Peacocke, *Theology for a Scientific Age—Natural and Divine*, first edition., 1991 **p77** (n. 15).
24. Arthur Peacocke, *Theology for a Scientific Age: Being and Becoming—Natural, Divine and Human*, (SCM. Press, London and Fortress Press, Minneapolis, 1993, second enlarged edition) **p231-2, p252-3**
25. T. Chalmers, 'The Power, Wisdom and Goodness of God'. First Bridgewater Treatise, 1882, **p308**
26. Augustine, *Confessions*, Book I [1],1.
27. Matthew 7, v.7.