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Scripture, Science and Hermeneutics

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SUMMARY

The objective in this paper is not to undertake an evaluation of all the entries on the historical or contemporary register, but rather to focus on three significant points: first, to examine the rise of hermeneutics and its implications for this debate; second, to assess the all too frequent polarizations in the world of science and Scripture in light of a hermeneutical perspective; third, to explore the hermeneutical implications of two contemporary solutions that have been put forward to function as *tension resolvers* in the science and Scripture dialogue. We shall conclude by proposing a trajectory that aims to give full countenance to the hermeneutical reality lodged within the contours of the interaction between science and Scripture.

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RÉSUMÉ

Cet article se concentre sur trois questions significatives. L'auteur considère d'abord comment l'herméneutique s'est développée et quelles en sont les implications pour le présent débat. Ensuite, il évalue les trop fréquentes polarisations en termes de perspectives herméneutiques dans l'étude des sciences et de l'Écriture. Enfin, il examine les implications herméneutiques de deux solutions contemporaines qui ont été proposées pour résoudre les tensions dans le dialogue entre la science et l'Écriture. Il conclut en proposant une approche qui vise à donner pleine expression à la réalité herméneutique qui entre en jeu dans l'interaction entre la Bible et la science.

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ZUSAMMENFASSUNG

Die Zielsetzung dieses Artikels besteht nicht in der Bewertung aller Einträge in der historischen oder gegenwärtigen Liste, sondern im Fokus auf drei signifikanten Punkten: 1. Die Untersuchung des Aufstiegs der Hermeneutik und dessen Implikationen für die Debatte; 2. Die Bewertung der viel zu häufigen Polarisierungen in der Welt der Wissenschaft und der Schrift im Lichte einer hermeneutischen Perspektive; 3. Die Untersuchung der hermeneutischen Implikationen zweier gegenwärtiger Lösungen, die mit dem Anspruch vorgetragen wurden, die Funktion von *Spannungslösern* im Dialog zwischen Wissenschaft und Schrift zu übernehmen. Die Schlussfolgerung besteht in dem Vorschlag einer Stossrichtung, die beabsichtigt, der hermeneutischen Realität, die sich innerhalb der Konturen der Interaktion zwischen Wissenschaft und Schrift befindet, volles Gewicht zu geben.

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Introduction

In 1954 Bernard Ramm published his challenging and provocative book *The Christian View of Science and Scripture* (Ramm 1954). In a world that was increasingly dominated by scientific explanations, he was acutely aware of the need for the Christian community to seriously consider the claims of science. How was a Christian to formulate the relationship between science and Scripture? As Ramm's account has it, many Christians had put undue emphasis on a notion of discontinuity, leaving them no other recourse but to deny any continuity and to seek to defend, "a position that violently contradicted the findings of science" (Ramm 1954, 23).

This regrettable state of affairs, in Ramm's estimation, should have been supplanted by a more interactive view, which in the final analysis would find no conflict between *true* science and Scripture (Ramm 1954, 17-42). Yet, where does ultimate authority concerning the interpretation of

the world and the life in it reside: in the hands of science or in the pages of Scripture? Notions of resolution to this complex issue are marked by a long and checkered history, and have proliferated in recent times.

Since the writing of *The Christian View of Science and Scripture* the urgency of this discussion has only been reinforced by recent developments in hermeneutics and the accelerating expansion of our knowledge of the natural world over the last fifty years. As any survey of the current landscape, comprised of a variety of perspectives shows, we are confronted with the reality of a polyphonic discourse concerning the appropriate relationship between science and Scripture. In response to this problematic, a cacophony of voices can now be heard, marking such deliberations with a matrix like complexity, resulting in a lack of any clear-cut consensus.

1. Why Hermeneutics?

Hermeneutics, the act and art of interpretation, has risen like a phoenix in our day. The sheer velocity of this advance is staggering. An interpretative dimension is now acknowledged to touch all disciplines and every area of life. In a relatively short period of time then, we have moved from the fairly specific definition of hermeneutics as the interpretation of legal and biblical texts, to a general definition where hermeneutics is understood as relating to the operations of understanding the whole of life. Specific or regional interpretative ventures, in this case, are frequently subjugated to a universalizing perspective, which is thought to incorporate all regional hermeneutics into a general hermeneutics, while concurrently subordinating properly epistemological concerns to ontological preoccupations (Ricoeur 1991, 53-101).

As Antje Jackelén, in a recent essay points out, hermeneutics is one of three significant challenges facing science and religion today. Hermeneutics is not just a method says Jackelén, "it is about the nature of understanding itself"(Jackelén 2003, 210). While this ontological shift has significant merit and many scholars affirm the importance of a general hermeneutics, it remains essential, in our view, to re-regionalize[1] hermeneutics through a focus on the text and the world (Ricoeur 1991, 53-101). Hermeneutics then is not merely concerned with the nature of understanding, but also with the movements of explanation (epistemology) and new understanding that are comprised in a dialogic interpretative horizon. In the contours of the current hermeneutical discussion, the world and the biblical text are indispensable epistemological components that play a significant role in the nature of understanding, while hermeneutically speaking neither have the capacity to achieve, in spite of what some might have us believe, a totalizing status. A hermeneutical trajectory therefore, characterized by its striking ubiquity and vital challenge, needs to be given due consideration in the insatiable debate between science and Scripture.

We would argue, whether one is reading the natural world or the biblical text, both enterprises are interpretative ventures with varying degrees of objectivity. Scientists and biblical interpreters, that is, are on common hermeneutical ground: a hermeneutics of finitude. This means that they each find themselves grounded within interpretative and overlapping frameworks from which neither can extract themselves in order to make the claim to having a neutral objective standpoint. As Ricoeur puts it: "Indeed, hermeneutics itself puts us on guard against the illusion or pretention of neutrality" (Ricoeur 1991, 54). The old adage that scientists are uninvolved observers and that science is solely about *the facts* has been undergoing serious reassessment, and rightly so, since at least the days of Polanyi and Kuhn (Polanyi 1958; Kuhn 1970). An equally significant and judicious challenge is taking place with respect to biblical readers who have also embraced their own myths of impartiality in assuming that they read the Bible as solely a book of facts with no need of interpretation.

The growing emphasis on hermeneutics is important at several levels, but for the purposes of our discussion, at least in the following way: A recognition that humans are interpreters who have finite interpretative contexts and that understanding, explanation and new understanding are hermeneutical, having the capacity to create suspicion,[2] counter dogmatism, and check reductionism, applies to both science and biblical interpretation. A hermeneutics of finitude and suspicion, for example, begins to make us aware of our own situatedness and offers a critique of any notion of a view from no-where, while also providing the necessary trajectory towards a robust hermeneutics of trust. Those who read the natural world and those who read Scripture have not always adequately considered the force of this developing hermeneutical revolution on their reflections. That is, there is a fair amount of hermeneutically mis-informed rhetoric on both sides of this debate, which often trench-

antly insists on a divide and conquer perspective. Embracing such an outlook results in polarized points of view, which ignore or discount the gravity of a hermeneutical trajectory. In general, for some in the natural sciences this means there is little or no place for the biblical text (Westermann 1974, 3), and for a number of biblical interpreters, a paltry or inconsequential recognition of the value of science with respect to the interpretation of life and the world (Saunders 2002, x-xi). There are many biblical interpreters who tenaciously refuse to consider scientific interpretations of the natural world, while many in the scientific community adamantly ignore biblical interpretations of the same world. A re-regionalized hermeneutics acknowledges the natural world and the Scripture are credible and crucial hermeneutical factors that demand careful consideration for understanding and explaining something of life as we know it. Hermeneutically speaking, therefore, we contend that the biblical text and the natural world should be given their appropriate places as legitimate informers in the act and art of the interpretation of life in the world.

The reality of a hermeneutical perspective then, if we are willing to acknowledge it, begins to challenge us to consider possibilities that may not fall within the scope of more narrow, even at times reductionistic, knowledge frameworks. Hermeneutics is a common ground dynamic that aligns ways of understanding, while opening up possibilities for explaining life in the world, potentially leading to new understanding, be it scientific or biblical. At the same time, hermeneutics confronts those in both fields of inquiry with the truth that they not only read and interpret, but that equally, they are being read and interpreted by the data they interact with.

Furthermore, a hermeneutical trajectory is one that it is obliged to incorporate reader, text and world. There is an inevitable, but not always noticed motion here: from the reader, through the subject matter of inquiry and investigation (world/text), and then back to the reader (Laughery 2002). As readers, we start with some understanding of ourselves and the world, in interaction with the text/world this understanding is explained, and in many instances either affirmed or critiqued, which in turn leads to new understanding. A hermeneutics in motion refutes the image of a vicious circle, embracing in its place the triadic symbol of a productive dialogue between reader, text and world. Hence, one's understanding, explanation, and new understanding of the world can be viewed as a dynamic process that consists of an ongoing dialogue comprised of a spiraling resonance between these entities.

2. Science as Informer

Knowledge of our world is marked by degrees of complexity and uncertainty. A resolution for the uncertainty factor frequently becomes a dominant theme within the contours of the overall debate. For many scientists, resolution is a matter of assigning an authoritative voice to the knowledge acquired from scientific endeavors. Reinforced by the sheer magnitude of the growing bank of knowledge concerning natural phenomena, this perspective promotes an understanding and interpretation of the world and the life found within it, that is restricted to empirical investigation.

In a recent publication, the image of science as a "candle in the dark" (Sagan 1996, 26) was employed to help convey the sense of enlightenment that scientific knowledge has conferred on our understanding of the world. Not only has scientific reflection added to our understanding, but it has also deconstructed many of our preconceived notions of the world. The growing realization of a complex and diverse Earth history in the nineteenth century, for example, disrupted the prevailing medieval notion of a brief static picture of the world (Young 1990). Soon thereafter, the scientific invasion of the heavens led to a similar recognition of the dynamic nature of stellar and galactic history (Van Till 1990).

This often cited example of growing scientific awareness simply serves to illustrate that the investigation of nature can result in a major shift in our interpretive vision of the world. Such a successful and powerful shift in perspective can have at least two significant outcomes: first, it can provoke a variety of responses ranging from assimilation to hostility depending on the variables of the context; and second, it can create the illusionary sense that scientific discoveries and their derivative concepts dominate the hermeneutical landscape.

There are some in the scientific community who adopt this dominating perspective and assign a definitive informing role to the natural sciences. Operating within the confines of a materialistic framework, the result is an ever-widening circle of explanatory power that infuses a naturalistic orientation into other realms of thought from ethics (Ruse and Wilson 1993, 308-311) to sociology

(Wilson 1975). This perspective typically produces a grand scheme in which the inevitable tensions that develop between disciplines are viewed, for the most part as resolvable, if only this scientific informer can be allowed to have a dominating presence in the discussion. The fundamental role of the natural sciences then becomes the simplest and best route toward reducing the uncertainties of our understanding and explanation of the world. Edward O. Wilson is representative of this type of thinking when his commitment to scientific materialism plays itself out in a comprehensive manner. In his book *Consilience*, Wilson clearly articulates his materialistic vision when he states:

> I have argued that there is intrinsically only one class of explanation. There is abundant evidence to support and none absolutely to refute the proposition that consilient explanations are congenial to the entirety of the great branches of learning. The central idea of the consilience world view is that all tangible phenomena, from the birth of stars to the workings of social institutions, are based on material processes that are ultimately reducible, however long and tortuous the sequences, to the laws of physics. (Wilson 1998, 266)

This ontological reductionism breeds an epistemological reductionism, which permeates and unifies all other segments of learning. The term *consilience* in this context implies a linking of facts and fact-based theory across disciplines in order to create a common groundwork of explanation. Accordingly, any fragmentation of knowledge is viewed as an artifact of scholarship and is resolvable by operating upon the conviction that the world is orderly and can be completely explained at the level of natural category.[3]

In Wilson's approach, scientific naturalism is hermeneutically stretched so that once something can be explained by natural selection, including social behaviors like religion, it is thereby concluded that the entity in question must be a completely material phenomenon.[4] From our point of view, this use of evolutionary descriptions is an example of how scientific information can be hardened into an inviolable naturalistic informer that closes constructive engagement with other informing sources. Aside from technical questions as to the role of natural selection in Wilson's assumption, he never adequately contends with the idea that the religious impulse might engender other explanations (Miller 1999, 182-183). Kenneth Miller, by contrast, in a less reductionistic fashion, queries whether it is possible that evolutionary processes might be the means by which "a Deity ensured His message found receptive ground" (1999, 183). Wilson's scientism excludes any such possibility.

Similar types of thinking pervade the work of various contemporary writers.[5] Details may vary, but the same general theme of attaining epistemological certainty by adopting a dominating role for the informing capacity of the natural sciences is consistent. The remarks of cosmologist Peter Atkins herald the triumph of this line of thought when he states:

> Religion has failed, and its failures should be exposed. Science, with its currently successful pursuit of universal competence through the identification of the minimal, the supreme delight of the intellect, should be acknowledged king. (Atkins 1995, 132)

Has science suddenly become hermeneutically immunized against failure, and why is the success of science a measure of completion? Even the resources of philosophy are subject to these influences as they are recruited to unify our knowledge under this representative paradigm (Dennett 2003, 15). Thus, the search for a coherent explanation of the world is envisioned by giving strong assent to an exclusionary method of unification.

Inevitably, this perspective casts a negative glance towards any significant role for religion in informing our current understanding and explanation of the world. In Wilsonian style, the primary merit of religion is often reduced to the idea that it has functioned as a valuable survival mechanism based on its ability to facilitate group cohesion (Barbour 2000, 13). But even if this accurately portrays an aspect of religion, does the acceptance of such a position dogmatically announce a significant diminution in the role theological insight plays in our understanding and explanation of the world? When these naturalistic concepts are wielded in the grasp of scientific materialism, the answer is yes. Any authoritative voice of the traditional religious community is silenced as it is reduced to solely a product of evolution. Ian Barbour notes that in Wilson's judgment, the functions that were performed by religion in the past are now better served by a "poetic rendition of the evolutionary epic" (2000, 156). Acknowledging the human propensity and need to devise sacred narratives, this evolutionary epic is transformed into metanarrative: a grandiose story of mythological proportions configured as the scientific dismantler of the ancient mythic stories (Wilson 1978, 191-192).

It is not our intention in this brief overview to analyze the details of this type of conjecture, nor to dismiss the scientific conclusions contained therein, but rather to draw attention to the totalizing perspective that has been adopted. There is no question that our scientific knowledge has been instrumental in challenging many of our beliefs and has served to sharpen our thoughts across many disciplines. However, by narrowing the scope of the dialogue has effectual critique been so severely hampered that scientific thought has been freed to go about creating its own set of illusions?

Our objective, at this juncture, is now to pursue two lines of thought that more clearly articulate our perspective of science as informer. First, since the view of scientific rationality described above can be characterized as modernist (van Huyssteen 1999, 237), the insights of a postmodern analysis of knowledge may warrant consideration (Jackelén 2003, 210). In his thought provoking volume, *The Postmodern Condition: A Report on Knowledge*, Jean-François Lyotard heightens our awareness of the problematic of the exclusivity claims of scientific knowledge. He states:

> In the first place, scientific knowledge does not represent the totality of knowledge; it has always existed in addition to, and in competition and conflict with, another kind of knowledge, which I will call narrative in the interests of simplicity... (Lyotard 1984, 7)

Lyotard has argued, among other things, that the postmodern is to be defined as incredulity towards metanarratives (1984, xxiv). He contends that metanarratives,[6] a feature of modernism, exist in order to legitimate their own knowledge, interests and practices (1984, xxiii). Metanarratives, therefore, crystallize a totalizing perspective – story-ing a theory of Everything in an attempt to construct explanatory invincibility. Invincibility here is assured by a power play that deprives other potentially valid informers, external to the scientific one, of any credibility. Clearly, based on this definition the vision of science mentioned above qualifies as metanarrative.

An awareness of the potential self interest and self deception configured within one's discipline is heightened by the practice of a hermeneutics of finitude and suspicion. When this awareness is coupled with a postmodern critique of metanarrative, any over-arching *meta* (scientific or otherwise), in its assumption to fulfill the demands for total epistemological closure, becomes transparent as an illusory symbol.[7] In our opinion, as we grope for optimal explanation, this dimension of postmodernism along with a note of suspicion, needs to be taken into account if we are to both optimize our interpretative potential and to avert the tyranny of perceived explanatory closure by an over-zealous scientific informer.

Following on in the postmodern direction of Lyotard, Joseph Rouse introduces the notion of the cultural studies of the sciences. The sciences are envisioned as, "cultural formations that must be understood through a detailed examination of the resources on which their articulation draws, the situations to which they respond, and the ways they transform those situations and have an impact on others" (Rouse 1996, 239). Among other things, this perspective implies that scientific work should exhibit a degree of openness that consists of currents that flow between the sciences and the rest of culture. The distinction between what is scientific and what is not is thereby destabilized to some extent (1996, 249-250).

J. Wentzel van Huyssteen has offered a helpful analysis of Rouse's work concerning the relationship between theology and science. Recognizing that Rouse adopts a narrow definition of postmodernism as a mindset to overcome, rather than one to critically reflect on modernity, van Huyssteen nevertheless acknowledges his important contribution to the rejection of any grand narrative scheme of science. The failure to uphold sharp distinctions between the empirical and the interpretative dimensions opens the door for a wider reflective movement (van Huyssteen 1999, 33-55). In our estimation, the interpretative dimension should be widened and a more porous concept of science as informer needs to be set in motion to counter the hubris of over-determination.

To reinforce this idea we briefly turn to a second line of thought: the history of science. At the end of his stimulating book, *A History of Western Science*, Anthony Alioto concludes that the so-called scientific outlook is an illusion and that science is a cultural artifact that belongs to the West (Alioto 1993, 441). Although this may sound a bit severe, what is suggested by these comments is the recognition that the discoveries of science emanate from the total human matrix. As a matrix, it involves "the extremely complex interplay of aesthetics, values, religion, passions" in interaction with the physical world (1993, 441). In this sense every observation is a dialogue that eludes a tight prescriptive net and thereby, invites a more inclusive approach to our

explanation and understanding of the world.[8]

A more focused examination of both science and religion from a historical perspective led John Hedley Brooke to the realization that the boundaries between "science" and "religion" (Brooke 1991, 8) have shifted over time and therefore, abstracting some correct and timeless view of these entities is problematic.[9] In the past, for example, it was common to encounter scientific pioneers whose science was strongly informed by theological and metaphysical beliefs (1991, 19). This does not mean that those with such beliefs had free reign to discount scientific concepts, but it does draw into question the validity of an over-determining version of science. One conclusion Brooke draws from his historical survey is that not only are theories underdetermined by supporting data, but "that aesthetic and religious beliefs have played a selective role in the past" (1991, 327). This perspective raises a fair challenge to the notion that scientific knowledge can be abstracted into a definitive interpretative vehicle that comprises our total understanding of the world in the quest for epistemological certainty.

Since tight prescriptive definitions of science are elusive, it may be helpful to note what science is not. Science does not attempt to include the gods in its explanations of the natural world, nor does it necessarily attempt to refute them (Moore 1993, 502). This exclusionary principle may serve to delimit scientific objectives, but it fails to extract science from contextual and hermeneutical influences. Furthermore, there are common points of contact in the world where both science and religion have a vested interest, as we will note later, so that any notion of clean separation at the interpretative level is impossible.

It is important to point out that it was not our objective in this section to give a comprehensive description of what science is, but rather to challenge the modernist tendency to rationalize science into an exclusive way of knowing in order to achieve certainty. With this in mind, why have we chosen the term informer to apply to science? In our thinking, the concept of informer includes several general features. As we have affirmed, scientific studies clearly have made vital additions and readjustments to our knowledge about the world and ourselves. In terms of a way of knowing, modern science relies on observation, experimentation and the integration of data into coherent explanations about many aspects and features of the natural world (1993, 503). While confirming the strong empirical footing of scientific thinking, we contend that it is equally important to view scientific endeavors as human endeavors embedded in the world they seek to explain. Hence, scientific conclusions are often tentative and subject to the type of hermeneutical considerations mentioned above. It is not our intention to eschew the weighty findings of scientists like E. O. Wilson. Sociobiology, for example, has made major contributions to our understanding of animal behavior and needs to be seriously reckoned with (Alcock 2001). However, while we can agree with these scientific insights, our brief postmodern and historical analysis points us beyond a Wilsonian interpretative framework, which sanctions a total domination by the natural sciences.

In concluding our remarks about science as informer we would argue that any attempt to abstract and absolutize our scientific knowledge is implausible. In his seminal work, Michael Polanyi concluded that, "science is a system of beliefs to which we are committed...and points beyond itself in the direction of a fiduciary formulation of science" (Polanyi 1958, 171.) From our point of view, this implies the convergence of science and hermeneutics at the epistemological level. It is crucial to note that from a hermeneutical perspective, our scientific endeavors involve a continuous motion between the world and my understanding and explanation of the world that leads to new understanding (Laughery 2002). This encounter not only shapes my knowledge of the world, but it shapes me as the knower of that world. Thus, it is of paramount importance that the scientific informer be positioned within the contours of a broad hermeneutical context that leaves the persistent search for understanding and explaining the world with a more open status that counters the overindulgence of empirical conclusions, which tend to create a false sense of certainty. With these considerations in mind, we turn to examine God and Scripture as informer.

3. God and Scripture as Informer

There are many in theological circles that advocate an inordinately determinative role for the scriptural text when interpreting the natural world. The consequent effect of this, as the text works on the world and the world on the text, through the mediation of the reader, is that Scripture is thought to empower the reader, as it strongly sculpts knowledge about the world. Theological positions that

espouse some form of biblical literalism tend to weight Scripture to the fullest extent in this interaction. In these cases, the biblical text often functions as a fact-laden resource that yields precise information about the natural world.

Strewn incoherently underneath this approach is an epistemology: knowledge is pristinely rational, crystal clear and fully objective. As this epistemology is granted an unquestionably free access to a biblical text that is configured as a transparent book of facts and evidences about God and the world, the text attains an elevated position of final arbiter in a variety of discussions. This epistemological-textual model leads to a fitting response: the goal of proving that the natural world God created fits with and attests to a set of particular dogmatic perspectives aligned with certain theological requirements as to the way the natural world was and is and must be. Acquiescence to this totalizing perspective framed within the strictures of biblical literalism generates a sense of certainty that can dictate scientific conclusions (Barbour 2000, 16). Not surprisingly, quasi-theological inventions like scientific creationism are spawned from this kind of theological chemistry, and frequently find themselves at odds with prevailing currents in the academic world.

The roots of this type of perspective can be traced back to the marked influence of an enlightenment epistemology on some forms of Christian thought at the turn of the eighteenth century (Noll 1994, 83). Overtly represented in dispensational views, the scientific and objective character of theology was defended as the theological ideal (1994, 27). Typical of this theological accommodation to a scientific approach are the comments of the dispensationalist Arthur T. Pierson at the end of the nineteenth century when he advocated a Baconian system that gathered the facts from Scripture in order to deduce general laws for organizing those facts (Marsden 1980, 55). In other words, Scripture was viewed as an encyclopedic jigsaw puzzle that should be subjected to an intensive inductive approach in order to uncover and unify the hard facts (1980, 58-59).

The residue from this period persists in the mindset of many present day Christians. They are committed to a particular notion of epistemology, often linked to modernism, and a "scientific approach" to Scripture (Noll 1994, 83). Accordingly, Scripture can then be deployed with variable force to disseminate knowledge about the natural world and to regulate our understanding of this world contingent on the degree of commitment to these ideals and the accepted breadth and depth of the factual content of the text. Frequently, this interpretative disposition is linked to a configuration of Scripture as the carrier of God's specific, unimpeachable information about the structure and formation of the world that positions it in a direct line of fire with various scientific conclusions.[10] All too often the result is a form of theological reductionism that strongly favors a tilt of Scripture toward the status of an exclusive world informer that tends to close-off many potentially valid insights from other informers, such as science. Although the severity of this closure is variable, the tendency is to initially place many controversial issues, like evolutionary thinking, into the category of a dispute between worldviews and, thereby, intensify the closure.[11]

From this brief sketch of a perspective that dogmatically and narrowly applies Scripture to our understanding of the world emanate several comments relevant to our framing of God and Scripture as an informer. We begin by noting that theological movements with modernist overtones that tend toward a totalizing perspective for Scripture's role in our understanding and interpretation of the world are vulnerable to the same metanarrative criticism leveled against an exaggerated scientific informer. Although it may be fair to say that Scripture has a more global and synthetic approach to life, a topic we will return to in a moment, this does not necessarily imply that it can or should be thought to speak in a definitive explanatory manner at every turn in the discussion.

The attempt to achieve certainty and a strong measure of explanatory closure by sifting and assembling answers out of the biblical text runs into several problems. First, this type of scriptural informer, as was the case with an excessive scientific informer, can develop a false sense of invincibility that unduly empowers it to close the channels of dialogue and critique. This is a situation, as we pointed out previously, that is subject to a strong note of suspicion and reconsideration on the grounds of a hermeneutical analysis.

Closure, within this stream of Christian thought, has always been most vigorous around any attempts to seriously entertain perspectives of the world that incorporate an evolutionary framework. However, despite the fact that the evolutionary paradigm has often been co-opted and empowered to support a materialistic outlook, many Christian thinkers have considered it possible, if not preferred, to accept this perspective as the best description of many

features of the natural world. This was the case at the time of Darwin among some leading Christian thinkers in both scientific and theological circles, such as Asa Gray and B. B. Warfield respectively (Livingstone 1984, 60-64, 119, 146-147), as well as with a variety of thinkers since. In a recent book of essays by orthodox Christians, for example, a compelling case is presented for considering the configuration of the natural world to be that of an evolving creation.[12]

Another problem that arises from attempts at tight explanatory closure with Scripture is related to the idea that there is an unequal distribution of information between informers. The engagement of Scripture in the dynamics of interpreting our world is restricted in the sense that as a completed text, its content is fixed in quantity. Consequently, as our scientific knowledge of the world grows and confronts our theological thinking, Scripture is summoned into the role of a respondent. As such, theological innovations ranging from a strict creationism to the integration of process thought in the theology/science discussion are incubated and born as products of theological reflection. Any notion of simply lifting the "facts" directly from the text is strongly challenged as due consideration is given to both the interpretative dimensions of this procedure and the multi-factorial nature of it.

In our opinion, a more productive approach to our considerations of Scripture as an informer may be found in the elaboration of the idea that the theological perspective implies a radical redescription of the world (van Huyssteen 1998, 83). Niels Gregersen contends that this redescription involves the interpretation of existence and not simply the interpretation of the text. Stating that a common interest in life processes is shared by theological and biological concerns, he notes that their conceptions of life are not coextensive in that theology is not only concerned with how the world is, but with what it could and should become. He goes on later to note that this redescription then illuminates our understanding of the world in a way "that allows us to see more than it would otherwise be possible to see without this redescription" (Gregersen 1994, 125-126). In our view, this redescription encompasses both the interpretation and the reorientation of existence in a biblically informed manner. Thought of as a more comprehensive theologically based worldview, it not only counters scientific reductionism (van Huyssteen 1998, 161), but it rightly draws into question the assumed merits of a theological reductionism that empowers Scripture to over-describe the natural world, and in so doing, excessively isolate scriptural knowledge. As van Huyssteen has noted, "our scientific understanding of the world is indeed capable of both limiting and expanding the worldview offered by a theological description" (1998, 161).

Integral to this process, then, is a vibrant resonance between our engagement with the unfolding knowledge of the world, the interpretation of the biblical text in light of that knowledge and the theological redescription of the world that is precipitated by this interaction. Viewed as a circuitous motion proceeding to and from this theological redescription, there is an ongoing dialogue and negotiation between the scientific and theological spheres of influence. As Hans Schwarz points out:

> Since Christian faith is lived in this world and in our present history, the findings of science can be used to illustrate the Christian faith in God the creator, sustainer, and redeemer. In order to do justice to science, this cannot be done by usurping scientific findings for theological purposes, but must take place in continuous dialogue with scientists and their findings. (Schwarz 2002, 241)

This more open encounter functions in an interpretative space where agreement, conflict and uncertainty co-exist. Consequently, the entire interpretive movement is inherently fraught with constructive tension. Within this context, Scripture becomes the volatile ingredient in the interpretive mixture that provokes a reorienting redescription of the world in a way that can direct and challenge our comprehensive theorizing about the world. Implied in this interpretive resonance is a less competitive posture toward scientific conclusions with the recognition that a thorough going resolution between our scientific reflections and theological reflections is often elusive. Simply adopting a stance where the scriptural informer is more exclusionary only serves to place it in a strong disjunctive posture with our knowledge of the world and artificially limits the dimensions of this interpretive motion. By exploiting this type of hermeneutical reductionism, an illusionary sense of tension resolution between Scripture and our knowledge of the natural world is created.

In conclusion, it is important to note that the biblical text is framed within an ancient cultural context and employs phenomenal language in its descriptions, particularly in regions of the text that most directly impact our scientific images.

Interpreting these selective passages as scientific propositions about the world is a highly suspect maneuver. The fact that many in religious circles have been quick to do so only reinforces the conclusion that they have been strongly impacted by a modernist sense of scientific domination.[13] This influence routinely leads to the development of an interpretive consciousness that equates epistemic value in these passages with scientific content. However, by framing Scripture's informing role within the contours of an interpretive motion that incorporates and adjusts a theological redescription of the world, it promotes the de-coupling of the scriptural informer from the hubris of overly specifying a particular scientific configuration of the world. As this concerted movement passes down the corridors of time, Scripture is free from the constraints of over-description and is able to contend with the changing scientific configurations of the world in an open and reorienting fashion. In this sense, Scripture's informing role is as valid in our present context as it was in so called "pre-scientific" times.

4. Integration or Complementarity?

The previous two sections have reviewed the type of resolution between science and theology that is achieved by adopting procedures of exclusivity and domination. One of the points we noted was that when either the scientific or scriptural informer is dislodged from a wider interpretative framework, over-determination and excessive conflict become likely outcomes. In this atmosphere of conflict, the scientific and scriptural informers vie for hermeneutical/epistemological supremacy.

A variety of solutions have been posited to address this problematic. Often both informers are incorporated to a greater extent in an interpretation of the world, yet with a modicum of disharmony between them. At the risk of oversimplification, these *tension resolvers* may be divided into two categories: integration and complementarity. We shall begin with a brief description of an integrative program that embraces process thought in order to question whether collapsing our scientific and scriptural knowledge into such an integrative whole will result in a diminution in interpretive tension without diminishing the integrity of one of the informers.

Ian Barbour summarizes the comprehensive nature of process thought when he states "process philosophy has developed a systematic metaphysics that is consistent with the evolutionary, many-leveled view of nature" (Barbour 1990, 221-223). Indebted to process thought's analogy between the world and an organism with the attending idea that the world is a community of events, Barbour goes on to note that reality can best be interpreted as "an interacting network of individual *moments of experience*" (1990, 221-223). Difficulties arise, however, concerning the open-endedness of these experiences and whether enough weight is given to the temporality and telos of reality.

When this system is integrated with theology, God becomes circumscribed in a more open relational world where God not only is strongly influenced by the events of the world, but God's influence in the events of the world is persuasive in nature rather than coercive. God's persuasive interaction with the world, then, is configured as lures that prompt events toward idealized outcomes that result in the actualization of particular potentialities (1990, 231). Thus, God's interaction with the world is often reduced to that of a relatively passive pleader at the margins of the world (Polkinghorne 1991, 47).

With these brief remarks in mind, it seems appropriate to raise the query of whether the use of process thinking in the science and theology discussion is too strongly governing the interpretive voice of one or both of our informers. A number of objections to the process vision of the world have been raised at both the scientific and theological levels. John Polkinghorne, for example, disputes the idea that the physical world exhibits the "discrete graininess" implicit in process thought, and barbs at the process world as bordering on a panpsychic view of reality (Polkinghorne 1998, 56). Ian Barbour raises the question of "whether human experience has such a fragmentary and episodic character" (Barbour 1990, 227). Furthermore, he doubts whether the Whiteheadian system can adequately account for the diverse activity at varying levels of organization, as well as the occurrence of novelty throughout evolutionary history. We would agree with Barbour's assessment, but not with his contention that process thinking can be modified to accommodate these issues (1990, 227). In our judgment, an appropriate response at this juncture would be to challenge the integrative practices of any grand scale speculative philosophy, like process thought, on the grounds that it can lead to a form of hermeneutical reductionism that compromises the acumen of both the scientific and scriptural informers.

The objections to this kind of comprehensive integration are only compounded when the theological implications are considered. This is particularly acute when process theologians like Charles Hartshorne ensnare the redemptive event in the process net. Malcolm Jeeves and R. J. Berry note that as Christian theology, process theology "is seriously defective because it relegates Christ's death to a mere catalyst within history, and empties it of all eternal significance" (Jeeves and Berry 1998, 220). When they examine concepts like panentheism, which is often assimilated by process theologians, they contend that it is not based on Scripture, but rather depends on "scientific and theological orthogenesis for which there is no evidence" (1998, 220). This conclusion can be applied with equal force to the general impetus to compress our scientific and theological understanding into an integrated whole through the interpretive lens of process thought. It is highly questionable whether the integrity of the scriptural or scientific informer is able to survive this integrative effort in any tenable way. Moreover, it certainly fails to resolve the tension residing in the interstices of the science and theology dialogue.

This integrative approach is beset by other challenges ranging from how to accommodate the Christian experience of prayer (Polkinghorne 2000, 15), to questioning the utility of retrofitting evolutionary history with a fragmented assortment of deified lures with nebulous specifications. Suffice it to say, there is ample evidence to dispute the success of such a comprehensive integrative approach, so far as the resolution of tension is concerned.

We suggest that any process of integration needs to be more cognizant of the dynamic motion that inhabits the hermeneutical dimension. Strong integrative policies run the risk of inducing a collapse of the interpretive space where the scientific and theological spheres interact. This collapse is precipitated by the coalescence of our scientific and theological knowledge with restrictive principles of integrative governance like process thought. Integration as an ideal is then transformed into a totalizing objective that strongly orchestrates the communicative traffic from and between the scientific and scriptural informers. When this is the case, it then becomes possible to declare that the integrative ideal has achieved the status of a metanarrative, which opens it to a similar Lyotardian critique that was employed earlier. Our orientation, in contrast, on the hermeneutical register, is to promote a greater degree of independence for each informer in order to circumvent the drift into an unwarranted restriction of the scope of an interpretive motion that garners insights from both informers.

At the other end of the spectrum of *tension resolvers* this is well represented by a theoretical model like complementarity, which emphasizes the distinctiveness of the scientific and theological realms. This perspective views science and theology as contending with the same subject but within different categories of description and explanation (Duce 1996, 145-146). Employing the simple analogy of an electrical signboard and its different levels of description, Donald Mackay states, "once you understand the language of each description, what is there to be described in each is a matter of fact" (Mackay 1974, 36-38). When this type of theoretical construct is applied to the engagement of science and theology, the result is a general reduction in the rivalry between them by a strategy that is dependent on a high degree of non-interference. In other words, tension tends to be eliminated by a type of "descriptive indexing." This all seems vaguely reminiscent of the modernist overtones that were discussed in the previous sections. In fact, Mackay at a later point states that scientists in formulating their descriptions should operate from a "detached spectator's standpoint" (1974, 38).

Categorical complementarity frequently borders on compartmentalization, particularly, when it is strengthened with an overt distinction between how and why questions.[14] In response to the accusation that science and theology offer non-interactive complementary perspectives, Richard Bube notes that these perspectives must be integrated to provide a coherent view of reality, but he does little more than to point to a statement of necessity. More attention is devoted to the separateness and partial nature of scientific and theological insights than to their integration (Bube 1995, 167-172). How the scientific and scriptural descriptions engage in wider reflective considerations, other than simply being identified and presented, is left unclear.

Fraser Watts offers a less polarized complementary approach which downplays the radical differences between science and theology that unduly inhibit contact between them. He does, however, contend that as two discourses they are radically different, and that this point needs to be more strongly factored into the discussion by those promoting some form of dialogue between science and theology. Concerning religious language (Laughery 2001, 171-194), for instance, Watts states, it

"is broader in its scope and reference than scientific language, being personal and moral as well as making claims about the nature of reality" (Watts 1998, 158-159). However, he does leave a space for interaction when he discusses that the scientific and theological discourses are not independent unconnected discourses (1998, 161-164).

In Lyotardian fashion, the recognition of the heterogeneity of discourses is a helpful contribution to the dismissal of authoritative declarations that consolidate all knowledge into a metanarrative, but the contrast between discourses can be exaggerated and fail to adequately contend with the interpretive workings in both scientific and nonscientific knowledge.[15] This seems to be the case with complementary models that promote a strong line of demarcation between scientific and theological discourses, so that the deposition of complementary statements becomes equated with interpretive resolution. Consequently, the evaluative projection of scientific or religious thought and discourse across domains of knowledge and into a broader realm of reflection is unduly attenuated by this approach.

The lack of containment of scientific and theological thought within well-defined parameters of discourse is particularly evident in the fields of evolutionary biology and sociobiology. Studies in these more synthetic areas break any sharply defined language barrier as they routinely contend with ethical and moral issues. Although he does not refer to it as such, from our general perspective, Stephen Gould supported a sort of secularized version of complementarity. However, when his evolutionary theorizing encountered concepts like progress and purpose within the contours of evolutionary biology, his scientific discourse became riddled with theological overtones that intersected his scientific ruminations to form a narrative-like description of the world.[16] The imposition of sharp divisions in language at these points would seem like a restrictive contrivance that too narrowly delimits the inclusive nature of these interpretive moments (Laughery 2001, 171-194). Hence, scientists and nonscientists alike are not only interpreters, but are also storytellers as they allow interpretive and narrative elements to mix in an orthogonal trajectory across the "the various culture-spheres of" their "wider historical existence."[17]

It is undeniable that there is a place for complementary discourses, such as in the mind versus brain discussion, but we would contend that a format of partitioning is not immediately explanatory in function. John Polkinghorne concludes this when he states: "Complementarity is not an instantly explanatory concept. It is simply suggestive of a search for understanding which seeks to take an even-handed view of two accounts of what is going on" (Polkinghorne 1991, 27). This is reinforced by Nicholas Saunders' comments on divine action when he notes, "it is not the case that scientific and theological accounts of God's action are in some straightforward way complementary accounts of the same reality" (Saunders 2002, 33). Furthermore, the determination of when these accounts are complementary or contradictory defies any simple formulations. Watts in concluding his remarks in a recent paper on the virtue of complementary perspectives notes the elusive nature of identifying any well-defined criteria for this kind of determination (Watts 1998, 178). From our perspective, this deficiency should be viewed as indicative of the multifaceted unkempt nature and the contextually situated aspects of our hermeneutical endeavors.

Although we can appreciate the removal of strong either/or distinctions between scientific and theological perspectives, complementary approaches falter as a comprehensive interpretive program. In our judgment, by categorically harnessing the communicative resources of the scientific and scriptural informers, both a postmodern critique of modernism and substantial hermeneutical considerations are underplayed. Hence, as a comprehensive program that places analysis and classification in a decisive role, it tends to exchange the tensions of interpretive grappling in our quest for intelligibility and understanding for a type of structuralism tainted with modernist residue.

5. Conclusion

We certainly recognize that all of the positions discussed in addition to the relevant issues raised deserve far greater elaboration. However, our objective in this cursory scan of some of the ways science and theology interact was simply to draw out two significant points. First, whatever scheme is employed to contend with this interaction must give strong credence to the hermeneutical contours implicit in the engagement. As pointed out earlier, hermeneutics is at the core of our understanding and this necessitates the recognition of a hermeneutical realism in the discussion that draws from the quarters of postmodern analysis and defies any strict definitional parameters. And secondly, the

residue from acknowledging this ontology includes the recognition that a persistent tension is present within our interpretive motion that eludes total resolution. This tension has existed historically in these discussions and continues to this day. In combination, these factors drive us to the conclusion that this tension is ontological in nature and at best can be minimized but not eliminated. In this sense, configurations that engulf the scientific and theological perspectives and evoke an absolute sense of certainty or domination represent illusionary symbols of interpretive resolution as they fall within the gravitational pull of metanarrative tendencies.

We would suggest that in light of these considerations, a more dynamic trajectory for a science and theology intercourse may be found in expanding Kai Nielsen's concept of a wide reflective equilibrium (Nielsen 1987) in a manner that recognizes a four part symphonic orchestration of being, knowledge, distinction and relatedness.[18] As pointed out by Calvin Schrag, reflection in this concept is viewed as "from bottom up social, always situated within the density of world-engagements." Schrag goes on to note that the dynamics of this reflection consists of a transversal back and forth movement across culture-spheres in a manner that effects a type of binding, "whereby each functions as a background for the other" (Schrag 1992, 177-178). In this reflective relationship there is due recognition of the distinctiveness of each sphere, but also acknowledgement of the propensity of each to provoke adjustments in the other.

Van Huyssteen applies this concept directly to the science and theology discussion. He develops the notion of a postfoundationalist rationality, which is neither strictly modernist nor postmodernist in form, that strives for optimal understanding by encompassing our scientific and theological reasoning strategies within a "process of intercontextual and cross-disciplinary reflection" (van Huyssteen 1999, 278). If viewed as a relationship situated in the transversal time-space of their respective communicative practices, the interface of our scientific and theological reflections is characterized by the "interplay of dissent and consent" (Schrag 1992, 174) that effects appropriate revisions or concurrence in optimizing our wider interpretive understanding.[19] By discerning this transversal pattern of interpretation within a space of communicative praxis, we can hopefully avoid the slippage of a hermeneutical trajectory into the perils of another type of metanarrative (1992, 76, 100-102).

This brings us back to our designation of science and Scripture as *informers*. The term informers tried to capture their *relatedness* as complex communicative practices and their *distinctness* as designated and articulated by the spatio-temporal context of their respective practicing communities. The ecology of their interaction is not that of a predator-prey relationship or one of isolation, but more of a symbiotic community interwoven with a texture of creative tension that facilitates constructive critique, affirmation, conflict at times, and the forging of new perspectives. At the same time, this type of community weakens any hyper unifying attempts to dominate the interpretive landscape. As a result, among our epistemic values, humility must rank high in that as our convergent interpretive workings encounter the otherness of each informer it is imperative to be open to a continuous reassessment of our complex narratives of the world and the life we find in it. Thus, strong prescriptive remedies are destabilized as hermeneutically insensitive myths. Further elaboration of this type of communitarian symbiosis must await a future publication.

As we return to our starting point with Bernard Ramm, how do we respond to Ramm's assertion that there is no conflict between true science and Scripture? We shall answer in both the affirmative and the negative. We can concur that there is much that would support the ongoing interaction between science and Scripture as it pertains to the interpretation of the world and the life we find in it, despite claims to the contrary. However, there is also ample evidence to indicate that the tension between them continues to defy eradication, and in fact, often seems to have intensified. Therefore, the future of this dialogue must consider giving strong assent to this persistent tension as a permanent resident and inherent component of their ongoing intercourse.

Notes

1 Ricœur 1991, 53-101, notes that the movement of hermeneutical re-regionalization is one of the major motifs in his entire work.

2 Westphal 1993, 13, in commenting on the masters of suspicion, Marx, Nietzsche, and Freud refers to a hermeneutics of suspicion this way: "the deliberate attempt to expose the self-deceptions involved in hiding our actual operative motives from ourselves, individually and collectively, in order not to notice how and how much our behavior and our beliefs are shaped by values we profess to disown."

3 Wilson 1998, 4, 8. A fair question, under hermeneutical considerations, relates to whether this kind of interpretative exclusivity is itself an artifact of scholarship; notably Wilson's.

4 Wilson 1978, 192. See Schrag 1997, 118-127, for a stimulating discussion of the role of religion in Kant and Kierkegaard.

5 See D. Dennett 1995, 21; R. Dawkins 1987, 13-15 and F. Crick, 1994, 3.

6 Lyotard's version of postmodernism, however, does not rule out *mega*-narratives. We express our gratitude to Merold Westphal for the notion of *mega* versus *metanarratves*.

7 At any rate, whether or not closure can be or has been achieved is not a question that can be answered by simply structuring the question within the boundaries of empirically based scientific knowledge. See also Ricoeur 1967, 347-357. Symbols, according to Ricoeur, should give rise to thought and be understood as an augmentation of reality, not a closing it down.

8 Feyerabend 1975, 214, questions whether science as we know it could have even arisen within the "blunt application of 'rational' procedures."

9 Brooke 1991, 8, draws attention to the fact that both are human endeavors subject to human concerns. On p. 42 he concludes that both are complex social activities and that their interaction cannot be structured in any simple formulation (51).

10 Noll 1994, 201-202. Noll quotes J. C. Whitcomb, Jr. and H. M. Morris 1961, as representative of an instinctive trust in the perspicuity of Scripture and the ability to clearly align scientific data within the biblical framework in a way that may necessitate significant modifications in the scientific picture of the world.

11 This has taken on current significance by many individuals supporting the intelligent design motif. See, for example, W. Dembski 1999, 114, 120 and Johnson 1995, 7-17.

12 Miller 2003, ed., an assortment of articles from authors across a variety of disciplines has been compiled in support of the assessment that evolutionary configurations of creation are compatible with orthodox, evangelical Christianity.

13 Hyers 1984, 29-33, 37-56, points out that how the universe is conceptually organized (37) is not the preeminent concern of Scripture, but rather that the vast array of phenomena, however they are organized, "are the objects of divine creation and sovereignty." See also Blocher 1984, 15-78.

14 Duce 1998, 65-67 notes this in H. Van Till's strict separation between Scripture informing us about the relationship of the cosmos to God in "the categories of status, origin, governance, value and purpose" and science informing us about internal intelligibility in "the categories of physical properties, behavior and history." See H. Van Till 1986. Duce, for example, questions whether there is a clear distinction between governance and behavior, in particular, which one does the formative history of life fall under.

15 Schrag 1992, 97-102, contends that what is lacking in Lyotard's thinking is adequate "recognition of the interpretive moment within both of the alleged forms of knowledge, "narrative" and "scientific" alike." Interpretation is at work regardless of the language game. For example, it is already at work before science even gets started by the delimitation of its discourse. In our discussion, this steers us away from over-structuring differences between scientific and theological (narrative) discourse.

16 Gould 1977, 12-13, notes that the Darwinian view of life has radical philosophical implications that challenge our entrenched Western sensibilities and replaces the traditional story of life with a new narrative that dismisses humanity as "the loftiest product of a preordained process." Thus, this type of scientific conclusion destabilizes the border between "scientific" and "narrative" (theological) thought and discourse.

17 Although Schrag 1992, does not apply the concept that the consequences of interpretation and narrational emplotment are orthogonal to the culture-spheres directly to the science/theology discussion, we suggest that such an application is a helpful direction to pursue. It provides a necessary antidote to the overemphasis on contrast between the scientific and theological realms.

18 See Laughery 2002, 105-148, for an elucidation of how relation and distinction apply to the broader discussion of narrative and hermeneutics.

19 Schrag 1992, 174, applies these concepts more generally, but we are focusing his thinking on the science and theology discussion.

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