

## **Creative Minds: The Search for the Reconciling Principles of Science, the Humanities, Arts and Religion**

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### **Abstract**

Since before the time of writers such as Plato in his *Republic* and *Timaeus*; Martianus Capella in *The Marriage of Mercury and Philology*; Boethius in *De institutione musica*; Kepler in *The Harmony of the Universe*; and many others, there have been attempts to reconcile the various disciplines in the sciences, arts, humanities, and religion within specific principles. These efforts have continued among the various representatives in each discipline. C. P. Snow's texts, *The Two Cultures* and subsequent *The Two Cultures: A Second Look*, are examples of a distinguished physicist discussing the conflicting ideologies that can occur, and the potential impact on what constitutes quality education, rational thinking, and societal priorities in general. The purpose of the proposed paper is to suggest that there are common aesthetic principles within the context of belief systems that unify disciplines, and have implications for cultural and societal development. Observations will also be made about the outcomes that may occur and have impact on each of the broadly defined disciplines.

### **Introduction**

The desire to find unifying principles, both within and among disciplines of study, has been a quest, frustration, and fascination among academics for centuries. The almost obsessive desire to bring together diverse segments of study into one all encompassing frame of reference has led to some of the more phenomenal speculations, regardless of discipline, that have brought to the forefront the strengths and weaknesses of academic speculation. It becomes obvious that for some the need to find the similarities across disciplines is actually the need to find resolution to complex questionable ideas and ideals that come under such scrutiny as to call into question the validity of any argument associated with the basic underlying principles that serve as an impetus for the venture.

The search for unifying principles also addresses a very basic element in human nature—the need to understand the why and what of existence. It is that central purpose that drives the desire to “make sense of it all.” Such is especially true when circumstances exist that raise serious questions about any purpose beyond the immediate intellectual, emotional, and physical push for self-satisfaction, that resolution has been found. This is the point where the innate creative nature of the human intellect becomes most fascinating. The creative mind allows the development of plausible explanations for inexplicable occurrences that defy immediate understanding. Frequently these are spurred by the traumatic events that raise the questions of life and death, good and evil, right and wrong, sane and insane, and the list could continue. These events get to the

core of the beliefs held by an individual, groups, cultures, and entire societies. These are the events that may very well stir or inspire the desire for serious, in-depth study and self-examination to determine if an explanation for the event can be found. The event itself may at the moment of occurrence seem insignificant in a much broader pattern or series of events, but it becomes the pivotal point, the catalyst, that stimulates the intellect to find a reason or reasons that transcend the event. Ultimately, it is the simple yet complex question of “Why did this happen?” that drives the creative mind to greater levels of understanding-or misunderstanding, depending on the interpreter of the results.

The focus then becomes on the individual interpreting the events that occur. How events are interpreted determines how varied events are unified into one frame of reference. “For Pythagoras and his followers, numbers were the key to the universe, and music was inseparable from numbers. . . Claudius Ptolemy (fl. 127-48 C.E.), the leading astronomer of antiquity, was also an important writer on music. Mathematical laws and proportions were considered the underpinnings of both musical intervals and the heavenly bodies, and certain planets, their distances from each other, and their movements were believed to correspond to particular notes, intervals, and scales in music. Plato gave this idea poetic form in his myth of the ‘harmony of the spheres,’ the unheard music produced by the revolutions of the planets. This notion was invoked by writers throughout the Middle Ages and later, including Shakespeare in *The Tempest* and Milton in *Paradise Lost*, and underlay the work of Johannes Kepler (1571-1630), the founder of modern astronomy” (Burkholder 2010, 13).

The philosopher Boethius in 524, while imprisoned and awaiting execution, worked to understand the series of events that led to his demise in what became the text *The Consolation of Philosophy*. Concerning various grades of cognition he wrote “...that every man believes that all things he knows come to his knowledge solely through their own nature and through a force inherent in them. But the opposite is true. For everything which is known is comprehended not according to its own force but rather according to the faculty of those who comprehend it” (57). The attempts then at reconciliation of events in a unified pattern depend on the experiences of the individual that include not only life experiences, but the thoughtful and insightful experiences that go with learning.

It is this process of attempts at reconciliation of events that leads to the need to bring all things into focus within a unifying principle. That broad unifying principle becomes the frame-

work then for the interpretation of all events-physical, emotional, psychological, and spiritual-and the means whereby the individual may find the stable equilibrium to continue to “make sense” of their world. These experiences provide the framework for judgments to be made about how events are interpreted. The judgments reflect not only the individual’s comprehension of events, but also the limitations of comprehension. Leonardo DaVinci expressed the dilemma of experiences and judgment stating, “Experience is not at fault; it is only our judgment that is in error in promising itself from experience things which are not within her power” (2002, 64).

The inability to find a sense of equilibrium brings the instability that causes varying levels of turmoil to exist whether as an individual, sub-group, society, or culture. This turmoil of thought can result in the inward disparity of strongly held ideals and principles, which in turn may influence a much broader spectrum of principles. Depending on how this turmoil is resolved, the result may be growth to a higher level of thinking, or disintegration of the individual. Again, depending largely on the sphere of influence, the outcome of the inner turmoil can have enormously positive or negative effects. Therefore, there is the need for some sense of resolution that understands a unifying or underlying principle or principles that serves as the basis for the interpretation of all disciplines and spheres of learning.

When a significant schism in the differing ideologies occurs the conflicts can escalate to blind adherence to a respective ideal regardless of the consequence. Ideological conflicts in an economic system can lead to economic decline, or extreme levels of wealth verses extreme levels of poverty. Conflicts in an education system can lead to adherence to a trust in standardization at the expense of intellectual freedom. Extreme conflicts in social and religious systems can eventually lead to war. Various disciplines influence the ideology and methodology used to approach both opportunities and problems. Eventually, it is that pivotal point in time when a decision is made that the sum of ideological principles is revealed. (England 2008)

### **Belief: Reason, Faith, Behavior, and Consequence**

Central to any concept of unification among disciplines, avenues of thought, reason, or any other diverse observations is the core belief that guides the interpretation of events. The core belief system serves as the basis for any interpretation of new, or old, perceptions of events. The belief system, however strong it may be, is in a constant state of flux that may be interpreted as either

growth or degradation into a fixed perspective void of the ability to accept alternative explanations for events.

The series of interactions that guide the belief system can be overly simplified into four components of reason, faith, behavior, and consequence. These four components constantly interact with each other around the core system of belief, influencing the other and either reinforcing, or not reinforcing, existing patterns of thought. Quite simply, reason leads to a form of faith that motivates behavior which produces the consequence that leads to a reexamination of the reason. This cycle revolves around the belief system. Disciplines are interpreted within this context. Should a clash of beliefs occur, it will either challenge or reinforce how disciplines and patterns of thought are interpreted.

When religious beliefs are introduced as a third component, or third culture, there is a further dimension that can potentially add additional conflicts to the individual seeking some form of reconciliation among various disciplines. This is especially true when religion is considered within the broader definition of Webster's "any object of conscientious regard and pursuit" (1527). In a presentation in the Oxford Union debating chamber (2009) about the influence of Darwinism and purpose of science, Dr. Richard Dawkins stated his perceived difficulties between Darwinian evolutionary biologists and those that would advocate any form of religious faith stating, "A true understanding of Darwinian evolution is deeply corrosive to religious faith."

As an example of a self-explained internal clash of beliefs the "former" atheist Antony Flew discussed why he changed his position on the existence of God in the text *There Is A God: How the World's Most Notorious Atheist Changed His Mind* (2007). During a debate with Dr. Thomas B. Warren (1976), Dr. Flew would emphatically state that "I know there is no God . . . A system of belief in God contains the same sort of contradiction as unmarried husbands or round squares," and a series of other statements that Dr. Flew used to describe "the fervency of my atheist convictions" (68). Years later, as a result of a self-described journey that led to a different position that was described corresponding to the position of George Wald he would state "The Nobel Prize-winning physiologist George Wald once famously argued that 'we chose to believe the impossible: that life arose spontaneously by chance.' In later years, he concluded that a preexisting mind, which he posits as the matrix of physical reality, composed a physical universe that breeds life. . . This, too, is my conclusion. The only satisfactory explanation for the origin of

such ‘end-directed, self-replicating’ life as we see on earth is an infinitely intelligent Mind” (131-132).

To illustrate the conflict that can occur when two conflicting belief systems are considered, held by two different individuals, an example is drawn from Dr. Richard Dawkins in the text *The God Delusion* (2006) Dr. Dawkins commented about Dr. Flew’s new direction by reflecting on the “over-publicized tergiversation of the philosopher Antony Flew, who announced in his old age that he had been converted to belief in some sort of deity (triggering a frenzy of eager repetition all around the Internet). . . One can’t help wondering whether Flew realizes that he is being used” (106). Whether agreeing with Dr. Flew or Dr. Dawkins, ultimately, the behaviors and actions of an individual or groups of individuals eventually reveal the deep core beliefs, or the evidence of profound hypocrisy.

There is also a difficulty encountered by many who extend their core beliefs to disciplines that extend beyond a familiar frame of reference. This stretch of basic beliefs at times provides unique insights into the thought processes of those strongly intertwined within a system that allows little space for other explanations of phenomena. The result can be an interesting sequence of thoughts revealed that provide insight into the source of conflicts for beliefs and how a core belief can guide the interpretation of multiple areas of thought, regardless of the discipline examined. As example of this interesting phenomena is the speculation of J. F. Derry (2009) in *Bravo Emma! Music in the Life and Work of Charles Darwin*. In the article Dr. Derry, of the Institute of Evolutionary Biology at the University of Edinburgh, suggests a relationship between the piano playing of Emma Darwin (who studied for a time with Frederic Chopin) for her husband Charles and that it perhaps had a profound influence on his theories set forth in *Origin of Species* (1859). Dr. Derry indicates regarding Charles Darwin “A self-confessed lack of musicality did not prevent music from influencing his work. He clearly considered musicality an inherited trait, suggesting that his daughter Annie showed her mother’s aptitude for the piano. He even wove this argument into the *Origin* as he attempted to grapple with the elusive mechanism of inheritance” (2009, 37). The concepts of musical ability as an inherited trait are further discussed within the context of Dr. Derry’s article, but the despondency of Charles Darwin over the death of his daughter Annie at the age of ten is not presented for consideration. Speculation over why such an important element would not be presented could not fail to consider that such a fact

did not fit within the context of the purpose of the article-to show a relationship between the musical influences on Charles Darwin and his views on evolutionary biology.

Conflicts within an individual about conflicting ideas that call into question basic core beliefs and push the need for alternative explanations that go beyond a comfort level in the ideas can lead to a sense of insecurity. Just as secure psychological attachment becomes important in physical growth (Bowlby 1969, 1973, 1980, 1988), so can attachment to a belief become important in interpreting the world. “The element of trust is key to attachment” (England 2004, 110). Conflicting ideas can trouble the secure base used to bring understanding about various disciplines. The absence of this sense of stability increases the probability, though not the inevitability, of internal turmoil. As a result, those ideas and principles that do not conform to an individual’s pre-existing mode of thinking are frequently considered nonsensical or irrelevant. The result may be not only an internal conflict with an individual, but a conflict within and among varied disciplines.

Charles Darwin recognized the difficulties that ensue when introducing new ideas that culminate in a different way to view phenomena. In the “Recapitulation and Conclusions” to *Origin of Species* he writes, “Although I am fully convinced of the truth of the views given in this volume under the form of an abstract, I by no means expect to convince experienced naturalists whose minds are stocked with a multitude of facts all viewed, during a long course of years, from a point of view directly opposite to mine” (453). His theories imposed a belief system that he recognized would come into conflict with other established beliefs. The problem presented with conflict, regardless of the discipline is that old question, “So, who do you believe?” For many it largely depends on how an individual arrives at the set of conclusions that brings coherence, and a sense of internal equilibrium, that allows for the acceptance or rejection of the ideas.

A pragmatic, rigorous, logical approach required in the sciences is designed to lead to the inevitable conclusion, even if there is an acceptable margin of error. As an example, psychological testing relies heavily on statistical analysis. A subjective analysis void of statistical proof is usually discarded as nothing more than unsubstantiated opinion. The rigors of this scientific process have led to great innovations and improvements in technology, medicine, transportation, and the quality of life in general for a vast number of people. The same scientific process also leads to discarding those elements that are deemed unsubstantiated or otherwise cannot be proven by accepted methods of research. The end result may very well be the opinion that objective

truth has been achieved through a process that may, or may not, be that objective, depending on the individual, or individuals, perpetuating the idea. The potential conflict of ideas may become intensely personal as evidenced by the statement, “I want to conclude with a rather idiosyncratic approach to the matter of science and ethics: ethical treatment of scientific truth itself. I want to suggest that objective truth sometimes needs the same kind of protection as the libel laws now give to individuals” (Dawkins 2003, 36).

In contrast to the pragmatism associated with many disciplines in science the arts rely heavily on the elements derived from human emotion, intuition, and feelings that are translated into literature, poetry, visual art, stage productions, or music. While there is an order to the process, and perhaps some standardization in the presentation, the underlying motivation is the human desire for expression. Therefore, there is frequently a desire to appeal more to the senses than to logic. The end result is at times the artist and musician are considered more illogical than logical, and more non-conformist than conformist. (England 2008). The problem of reconciling the arts and sciences is further compounded for many when religion is considered within the same parameters as an element that is neither pragmatic nor intuitive, but rather an ambiguously defined sense of something greater.

First consider that there is a pragmatic approach to the basis of scientific inquiry that focuses primarily on the absolute. Through the rigors of study in scientific disciplines there is the attempt to determine what is “true” versus what is “untrue” based on the assumptions of fact. By assumptions of fact, there is the frequent ambiguous determination of what indeed is fact, and thereby true, from a logical, provable perspective. The problem is that what is determined to be “fact” may actually be more of an assumption than fact. For example, school age children have been taught for decades that the farthest planet in the solar system was Pluto. Students were presented this information as fact from the time of elementary school throughout their education. Even the famed astronomer, Carl Sagan, in a debate about the origin and nature of the universe spoke of the fact of “nine planets” when presenting the absolutes known by science (Sagan 1966). Yet, not long ago a group of scientists came to the conclusion that Pluto was technically not a planet (Inman 2006). The fact of Pluto as a planet then becomes something questionable as opposed to the absolute presented in previous textbooks, and by eminent astronomers.

Centuries ago there was the assumption that the earth was flat and that anyone who disagreed with that “fact” was not only unlearned, but a heretic. The fact was, however, that the earth

was not flat. It was then presented that the earth was round as opposed to flat, and therefore there was the new “fact” presented as the new “truth.” The problem is that the earth is not precisely rounded, but rather slightly flattened at the poles due to the turning of the earth on its axis. Further, recent studies by scientists indicate that there are changes in the earth’s shape due to climate changes (Gutro 2005). Therefore, the “fact” that the earth is round is actually not exactly true. Though the earth is more round than flat, neither represents an absolute truth.

The point at which anyone makes a decision reveals the sum of education, training, philosophy, idealism, and practical experience that led to the decision. An individual who is hungry desires something to eat. Because of personal taste, religion, health or other reasons this same individual refuses to eat certain foods. Due to the lack of food available the decision must be made either to eat whatever is available, regardless of belief, or starve. Individuals in Port Au Prince, Haiti eat mud mixed with lard and salt to keep from starving. More affluent individuals may argue that eating mud is bad for one’s health. For those who are starving, eating mud becomes a viable, though not necessarily desirable, alternative to starvation. The decision to eat mud therefore becomes more of a decision of whether to live or die versus adhere to a particular standard for good health. The background, education, and experiences all work together to lead to the decision that eating mud is better than the alternative (England 2008).

The conclusion is that the belief system utilized forms the basis for the interpretation of any discipline. It is the interaction among the four elements of reason, faith, behavior, and consequence and each of these elements with the core beliefs that guide the interpretation of events. The “two cultures” described by C. P. Snow represent more the conflict between ideologies than disciplines (England 2008). With the added dimension of religious thought, regardless of the definition of religion, there are additional dimensions of spiritual and aesthetic qualities that become a part of the creative process. Therefore, the reconciling principles among science, the humanities, arts and religion depend on the creativity of the core beliefs used by the individual seeking the commonality in diversity, or the diversity in commonality, to provide justification for a personal conclusion.

### **Diversity and Reconciliation**

Reconciling diverse disciplines presents the greatest challenge when ideas are either considered or rejected because of the enormous conflict generated within the core belief system. Alternative



explanations or possibilities, especially those that challenge the personal and collective belief system of a particular society, culture, sub-group or individual are frequently simply dismissed as being superstitions or the ramblings of the unenlightened. To illustrate this basic concept, Deloria and Wildcat (2001) describe the difficulties faced by Native Americans in a Western centered education system stating “In most introductory courses their culture and traditions are derided as mere remnants of a superstitious, stone-age mentality that could not understand or distinguish between the simplest of propositions that come before them. Nothing could be further from the truth. Western science traditionally represents the consensus of the established scientists who almost always reject new ideas out of hand and spend their time gathering evidence to bolster outmoded paradigms...most all of Western science is reductionist in nature and seeks to force natural experience and knowledge into predetermined categories that ultimately fail to describe or explain anything” (3-4).

The dilemma resolving conflicts between science and religion was discussed at Princeton Theological Seminary in 1939 by Dr. Albert Einstein (1982) in describing his views of knowledge and belief. He commented that “It is true the convictions can best be supported with experience and clear thinking.” But further commented that “The scientific method can teach us nothing else beyond how facts are related to, and conditioned by, each other...Objective knowledge provides us with powerful instruments for the achievements of certain ends, but the ultimate goal itself and the longing to reach it must come from another source....The knowledge of truth as such is wonderful, but it is so little capable of acting as a guide that it cannot prove even the justification and the value of the aspiration toward that very knowledge of truth. Here we face, therefore the limits of the purely rational conception of our existence” (41-42).

The perceptions about the purpose for existence become central to reconciling how the various disciplines in the arts, sciences, humanities, and religion fit together in form, if such is the conclusion. J. W. N. Sullivan in his text *Beethoven: His Spiritual Development* (1927) explored the problems faced by the great composer in attempting to understand why as a musician he was losing what he considered to be his most important of senses-his hearing. He cites a letter by Beethoven written in 1801. “Your Beethoven is most unhappy, and at strife with nature and Creator. I have often cursed the latter for exposing his creatures to the merest accident, so that often the most beautiful buds are broken or destroyed thereby. Only think that my noblest faculty, my hearing, has greatly deteriorated” (68). The despondency and difficulty in making sense

of his deafness went to the extent that Beethoven would write in the famous Heiligenstadt Testament “but little more and I would have put an end to my life-only art it was that withheld me” (74). Sullivan observes that “Beethoven’s greatest music has meaning in the sense that it is not a mere pattern of sounds, but possesses a spiritual content; nevertheless, it does not in any sense express a philosophy. It expresses certain primary experiences as organized in the mind of this particular artist” (172).

Johannes Kepler explored the possibilities of unifying mathematics, physics, astronomy, music, and religion in *Harmonies of the World: Book V* (1618). In the section entitled “In The Ratios Of The Planetary Movements Which Are Apparent As It Were To Spectators At The Sun, Have Been Expressed The Pitches Of The System, Or Notes Of The Musical Scale, And The Modes Of Song (Genera Cantus), The Major And The Minor” Kepler summarizes a discussion of celestial movements and corresponding tones stating, “Accordingly you won’t wonder any more that a very excellent order of sounds or pitches in a musical system or scale has been set up by men, since you see that they are doing nothing else in this business except to play the apes of God the Creator and to act out, as it were, a certain drama of the ordination of the celestial movements” (34). In the introduction to the 2002 edition of Kepler’s work, physicist Dr. Stephen Hawking discusses the difficulties faced by science when alternative explanations have been provided throughout history, with a special focus on Nicolaus Copernicus and his influence on Kepler. Hawking observed that “Modern scientists have out-Copernicused Copernicus by seeking an account of the universe in which Man (in the old pre-politically correct sense) played no role. Although this approach has succeeded in finding objective impersonal laws that govern the universe, it has not (so far at least) explained why the universe is the way it is rather than being one of the many other possible universes that would also be consistent with the laws...we wouldn’t be asking questions about the nature of the universe if the universe hadn’t contained stars, planets and stable chemical compounds, among other prerequisites of (intelligent?) life as we know it” (x).

The question that is logically posed after the above brief overview of ideas, that is very legitimately raised, is “What is the unifying principle?” The obvious answer is that the unifying principle is the core belief, or beliefs, held by an individual. It is the individual, and collection of individuals, each having their unique set of personal beliefs, that form the sub-groups, societies, and cultures that reflect the sum of how all elements of the human experience are perceived. The

early orientation of the individual toward a system of beliefs may either be reinforced as time progresses, modified, or completely rejected depending on the interpretation of life's events.

### **Conclusion**

A person who grows up in a household listening to the art songs of Franz Schubert, the keyboard inventions of Johann Sebastian Bach, the nocturnes of Chopin, and symphonies of Beethoven may believe that everyone else listens to the same type of music. The same person is surrounded by books written by Hemingway, Chaucer, Twain, Bronte, and a host of other authors, as well as books about history, art, science, politics, and religion. Elementary chemistry experiments are encouraged as is the exploration of nature. Such an environment becomes the frame of reference for interpreting life events. Another individual deprived of a similar set of circumstances, as well as many basic needs such as food, shelter, and clothing, interprets life experiences from a very different perspective. Should these two individuals meet and trade environments, the ability to reconcile the unusual existence of the other would be dependent on the assimilation of the new learning experiences into the existing frame of reference in order to “make sense” of these extremes. The same occurs when searching for the reconciling principles of the arts, humanities, science, and religion. The frame of reference will either encourage or discourage the assimilation of the new concepts and ultimately will find some form of acceptance or rejection. The sum of these interactions and experiences then result in what some may see as growth, and others as digression.

Conversely to the desire for understanding broader possibilities can be the unwillingness to consider, or even listen, to a different approach when determining how various disciplines can be reconciled within a reasonable framework. As recently stated with a presumptuous interruption by a moderator of a forum during a collegiate discussion of reconciling principles when faced with unsettling elements of the presentation, “You’ve gone from the highway to the railway—and we are not going down that path.” So it is at times when passion and zeal for preconceived ideas fail to consider the alternative explanation that the “path less taken” becomes the path never taken.

Perhaps the best question to close this overview was raised by an adopted four year old child posed to the adoptive father while driving down the road, watching the summer landscape go by through the window. The question raised by the four year old was, “Is heaven real because

we imagine it, or do we imagine it because it is real?" The answer would not only depend on who you ask, but more importantly, how you define heaven.

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Published by the Forum on Public Policy

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