



---

# UNITY OF KNOWLEDGE: A BRIEF OVERVIEW

Raja Kishore Paramguru

## ABSTRACT

This paper is a short review on unity of knowledge taken up by different authors at various space and time. The knowledge of various branches such as natural sciences, social sciences, arts and humanities, psychology, moral ethics, and comparative religion are covered. The authors' affiliations cover geography, exploration, natural study, biological sciences, neurosciences, psychology, and theology. They have used methodologies such as consilience, resonance, mutual juxta positioning, and lately sustainability science for sustainable human development. Apparently, the approach generates positive thought, coherence, and harmony.

**Key Words:** *Unity of knowledge, unity of nature, consilience, resonance, juxta position, Sustainability science, sustainable development.*

## INTRODUCTION

Human beings, as the biological species *Homo Sapiens*, inhabit mother earth for ages. One of its most significant possessions is a well evolved brain that makes him intelligent, and hence, he is the best living species on earth. Appropriately, he has cultured learning processes, all along, to acquire knowledge in various disciplines and utilize it to work wonders. Although it is natural that the knowledge with such a width and depth has to be diverse, yet, a question arises, knowledge being knowledge, is it not having any unity? Interestingly, a number of literatures are available which show, at various stages of time and place, people have discussed on this issue. Alexander von Humboldt, a German scientist and explorer of the 19<sup>th</sup> century, pleaded about unity of nature and said that everything in nature is interconnected and interdependent (1858). Edward O. Wilson, a biologist from Birmingham, Alabama, in his book *Consilience: The unity of knowledge*, have dealt in detail how a methodology such as consilience can unite all branches of knowledge ranging from natural sciences to social sciences and humanities to human faith (1998). Warne S. Brown, a neuropsychologist from United States, has shown how a Resonance Model can relate science, psychology, and faith (2004). Robert W. Kates from Harvard University, United States, reviews the key ideas beginning with Humboldt's unity of nature and goes on to discuss about sustainability science and its current practices (2011). Johan Buitendag and Corneliu C. Simut, both



theologians, through juxtaposition of thought constructs of a scientist, Alexander von Humboldt and a theologian, Vito Mancuso, have concluded that the 'spiritual dimension' and the 'natural dimension' do not only overlap but are tangential, as they engage in same reality (2021). In this background, the objective of the present paper is to give a brief overview of unity of knowledge from study of all these literatures.

At this point, two specific issues pertaining to this paper may be mentioned. One, it will be observed that from ancient times religion(s) took the position of dealing with knowledge and wisdom; and the same position has been taken by modern science for the last, say, couple of centuries. It will also be observed that these two branches of knowledge are at loggerheads with each other as regards to unification of knowledge. However, analysing the original meanings of the words 'science' and 'religion', Sisir Kumar Majumdar (2012) writes, "the concepts of science and religion seem contradictory but the philosophy of science and the philosophy of religion offer a pleasant similarity." This aspect will also emerge during the discussions in this paper; but the issue is that all the references used in this paper pertain to Western world and Christian religious school(s) of thought which is, not intentional, but incidental. The second issue is that India offers a vast amount of literature in this area of unification of religious and scientific thought; just to cite one: "Swamiji (1863-1902) envisioned in 1890, that the micro-world & macro-world are built on the same plan. He spoke of interdependence of every species in nature, popularized as ecology in 21<sup>st</sup> century." (Banerjee, 2017, 1). Here, Swamiji refers to Swami Vivekananda, the famous Indian monk who made headlines in the Chicago Parliament of Religion in 1893. Obviously, the Indian thought pertaining to Vedic and Vedanta philosophy will attract a lot of space, and hence it is purposefully kept out of this paper, and will be dealt in other paper(s) in future issues. Thus, this paper reports a brief overview of unity of knowledge pertaining to Western thought represented by the literature used in this study.

## ROOT AND HISTORY

When does the thought of unity of knowledge occur in human mind for the first time? Is there any record? Yes, Wilson reports in his book that this thought occurred in the sixth century B.C. for the first time (1998, 5). In his own language "I had experienced the Ionian Enchantment. It means a belief in the unit of sciences – a conviction, far deeper than a mere working proposition, that the world is orderly and can be explained by a small number of natural laws. Its roots go back to Thales of Miletus, in Ionia, in the sixth century B.C." (4-5). In fact, he was the legendary philosopher who "was considered by Aristotle two centuries later to be the founder of the physical sciences" (5). As regards the history of extension of this thought, Wilson continues "The Enchantment, growing steadily more sophisticated, has dominated scientific thought



ever since” (5). He cites about the unification of all the forces (electroweak, strong, and gravitation) in modern physics, also about Einstein’s aim “to weld everything else into a single parsimonious system, space with time and motion, gravity with electromagnetism and cosmology” and some others (5). He has mentioned that the spell of Enchantment has extended to other fields of science as well, and also into the fields of social sciences and humanities. He has also dreamt about the spell extending into religious faith - “Such, I believe, is the source of the Ionian Enchantment: Preferring a search for objective reality over revelation is another way of satisfying religious hunger. It is an endeavour almost as old as civilization and it aims to save the spirit, not by surrender but by liberation of the human mind. Its central tenet, as Einstein knew, is the unification of knowledge. When we have unified enough certain knowledge, we will understand who we are and why we are here.” (7) According to him, the dream of intellectual unity came to full power in the original Enlightenment period during the seventeenth and eighteenth centuries, because the then Enlightenment thinkers (Condorcet, Francis Bacon, Descartes, Newton and others) made right assumptions of a lawful material world, the intrinsic unity of knowledge, and the potential indefinite human progress. Then, he laments, it was lost. Then came romanticism, modernism, and post-modernism periods, however, the thought of the unity of knowledge remained in the background, and came to prominence again around 1970s. However, during the nineteenth century, the great branches of learning such as natural sciences, social sciences, and the humanities flourished.

## UNITY OF NATURE

Alexander von Humboldt (1769 – 1859), a German naturalist, explorer, and scientist, though finds no mention in Wilson’s book (1998), is a genuine thinker in this direction. Writing about Humboldt’s dream at an early age of 29, Kates mentions Humboldt’s own words “I shall try to find out how the forces of nature interact upon one another and how the geographic environment influences plant and animal life. In other words, I must find out the unity of nature.” (2011, 1). Humboldt has made his dream come true in his book *Kosmos* published in five volumes during the period 1845-1862. To name the book, he has taken the word ‘cosmos’ from the ancient Greek mythology, however, there is no mention of the word ‘God’ in this book, which means that he was free from any religious dogma. His sole concentration was to unify diverse branches of scientific knowledge and culture, that too, with the holistic perception of the universe as one whole interacting unity. He was fully convinced that the key to understand the nature is to identify the interconnectedness of all its disciplines. The noting in his diary reads in Germany ‘Alles ist Wechselwirkung’, which means ‘Everything is interconnected and interdependent.’ (Doherr 2015, 49) He had a strong belief that both the internal and external worlds are inseparable, and we view the world through our



eyes, and then interpret and define it. To put Humboldt's contribution exactly, Buitendag and Simut (2021) has cited parts of the foreword, titled 'Reclaiming Consilience' for the book *Views of Nature* published in 2014 as follows: "Humboldt's work can be seen as a massive project in consilience, as he strove to weave the separate strands of geology, physiology, physical geography, geophysics, geographic distribution and movements of plants and animals species, vegetation patterns, anthropology and ethnography, linguistics, weather, climate, and more into a whole that today is most closely approached by the field called 'earth systems science'". (2021, 8). They also write "Von Humboldt was primarily an artist. He brought different fields of science in contact with humanities, especially poetry and art. His conscience and aesthetics bring sheer delight to the researcher linking together pieces of the cosmic puzzle" (8). While looking at all these features and phenomena of nature, Humboldt kept 'time and space' dimension in mind. As Doherr puts it "Humboldt saw all phenomena in a context of a historical development. For him the historical perspective was an active dimension in the web of interconnectedness. Nature existed in space and time." (2015, 48). Further, Doherr has mentioned another facet of Humboldt's contribution to humankind – being a geoscientist, he could already envision the dynamic interaction between the biosphere and the inanimate nature, and through this context of observation and the historical dimension he defined basics of sustainability (2015, 50). This sustainable development plays an important role in our society today, and Kates discusses about its recent practices (2011). Overall, Humboldt's contribution to unification of knowledge is highly significant.

## CONSILIENCE

Edward O. Wilson (1929 – 2021), a famous biologist, is the author of two Pulitzer Prize-Winning books, *On Human Nature* (1978), and *The Ants* (1990, with Bert Holldobler), though, we will be discussing here about *the unity of knowledge*, which is covered in his book *Consilience: The unity of knowledge* (1998). There are basically two important issues involved in the process of unifying knowledge, first and foremost, the disciplines of knowledge to be unified and the second is the methodology which would unify these disciplines. Let us consider the second issue first; Wilson says "Consilience is the key to unification (8)." Actually, he refers to the English polymath, scientist William Whewell's 1840 synthesis *The Philosophy of the Inductive Sciences*, where he has used the word 'consilience' for the first time and has defined it as "literally a 'jumping together' of knowledge by the linking of facts and fact-based theory across disciplines to create a common groundwork of explanation (8)." The real principle Whewell used is that the consilience of Inductions takes place when an Induction, obtained from one class of facts, coincides with an induction, obtained from another different class of facts; and this consilience is a test of the truth of the theory in which it occurs (8). Here, either



to establish or refute consilience, the methods developed by the natural sciences are utilized. Wilson concedes that it is only a metaphysical worldview shared by a few scientists and philosophers, and it cannot be proved with logic from first principles. However, he claims that its strong basis of acceptability comes from the foundation of natural sciences - when the primarily historical disciplines such as astronomy, geology, and evolutionary biology could be linked by consilience to the rest of the natural sciences, why not the disciplines like the humanities, ranging from philosophy and history to moral reasoning, comparative religion, and interpretation of the arts, be drawn closer to the sciences and even partly be fused with them?

By now, the first issue, i.e. the knowledge of branches of disciplines to be unified is already hinted at above; however, for the sake of clarity, can be named as those branches existing in natural sciences, social sciences, arts and humanities, and moral science and comparative religion. To unify such wide and deep knowledge in all these diverse branches needs a strong basis and Wilson gets strength from the fact that he was a biologist with deep knowledge and experience in the subject and he cites the following factors which have strengthened his conviction: (1) the principles of universal rational consilience is already established across natural sciences, (2) the conception of the scale became the means to make biological sciences consilient, (3) now, the principles of the true advanced theory of biology will accelerate inquiry into mind, behaviours, and ecosystems which are products of organisms, (4) the study on the hundred billion nerve cells working in the brain to create consciousness have already helped creation of neuroscience, neuropsychology type of branches, and (5) mind-body dualism is already abandoned, hence, mind is a part of the body, and therefore, these nerve cells can also work on 'mind', its 'thinking', 'emotion', and other 'mental processes' with physical grounding. Further, he believes that (1) 'interpretation' of art is the logical channel of consilient explanation between science and art, and (2) 'moral reasoning' is intrinsically consilient with natural sciences at every level. Based on these strength and belief, he puts his argument in his own words: "there is intrinsically only one class of explanation. It traverses the scales of space, time, and complexity to unite the disparate facts of the disciplines by consilience, the perception of seamless web of cause and effect. // For centuries consilience has been the mother's milk of the natural sciences. Now it is wholly accepted by the brain sciences and evolutionary biology, the disciplines best poised to serve in turn as bridges to the social sciences and humanities. 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".



## RESONANCE

Warren S. Brown, a neuropsychologist, is Professor in clinical psychology, also a Professor in theological seminary, works (research and teaching) at Graduate School of Psychology, Fuller Theological Seminary at Pasadena, California, United States. Here, he is making an attempt to correlate psychology, neuroscience, and Christian faith, basically to understand and develop a link between his own professional branch and his own faith. In his own words: "I find myself called to consider more deeply the relationship between my field of human cognitive neuroscience, wider domain of psychology, and the Wesleyan nature of my Christian faith." (2004, 111). After examining the various approaches used to relate psychology and faith, he found perspectivism more suitable for developing a relationship between psychology, neuroscience, and Christian theology, for two reasons, one - human nature is viewed from different perspectives in the disciplines of physiological science, psychology, sociology, philosophy, theology, scripture, personal faith which suits to this methodology; and two, one can take the richer view of the human nature learned from different perspectives for final correspondence in the study. He also found Wesleyan Quadrilateral, a model developed from John Wesley's thought and experience helpful in his study. The basis of this quadrilateral is his presumption that four sources of authority such as Scripture, Experience, Rationality, and Tradition should be taken into account for understanding truth about God, human nature, the physical world, redemption, holiness etc. These four sources, which may be considered as four domains having valid voice, constitute the four sides of the quadrilateral, and 'truth' to be derived from these four sources is placed in the central space of the quadrilateral. Brown took this quadrilateral as his model with two additions: (a) addition of 'science' as the fifth source in the model to provide scientific information, and (b) bringing in the metaphor of resonance to serve as a methodology to affect coherence in resolution between the various information obtained from these five domains. Here, each domain provides information via a radio signal and resonance means the amplification or enrichment of sound when more than one auditory signal vibrates together synchronously or harmonically. Brown has outlined his own work to find resonance between neuroscience and a Christian view of human nature as a case study.

## UNDERSTANDING REALITY

Johan Buitendag and Corneliu C. Simut, both theologians, propose that by juxtaposing theology and science, it is possible to arrive at a consensus for understanding reality (2021). They mentioned that they got the clue for this study from the idea of NOMA (nonoverlapping magisteria) from American paleontologist Stephen





Jay Gould who says “No conflict should exist because the magisterial of science and religion don not overlap. According to the principle of NOMA – ‘nonoverlapping magisterial’ – science covers the empirical universe, while religion covers questions of moral meaning and ethical value (Gould 2014:7)” (2021, 1). Further, the authors extended the idea of NOMA to TOMA (tangentially overlapping magisterial) developed by Warren P. Brown (2010) for this analysis; they also used the iterative hermeneutics principles also developed by Brown (2010) in their study. They based their premises on the following: (a) science holds the promise of deepening religious perspectives on creation, (b) the boundary dividing science and faith constitutes a porous membrane, (c) both science and theology are followed by truth-seekers, who shun delusion, and accept scrutiny of knowledge, and (d) we all share one earth, and it is always better for us to stay closer and relativise differences together. Then they juxtaposed the thought constructs of a scientist (Alexander von Humboldt) and a theologian (Vito Mancuso) through use of resonance, and William Brown’s hermeneutic iterative process steps of (i) elucidating the text’s perspective on creation within its own context, (ii) associating the text’s perspective on creation with the perspective of science, and (c) appropriating the text in relation to science and science in relation to the text (2021, 9). Here, the ‘text’, though comes from the traditional creation narratives, very much equals nature; everything that happens in nature is natural and ‘nature’ as part of nature; even the spirit is material and natural (9, note 9). Finally, the authors concluded that “the ‘spiritual dimension’ and ‘natural dimension’ do not only overlap but also tangential, as engage with the same reality” (2021, 1).

## SUSTAINABILITY SCIENCE

When we are talking about unification of knowledge, we find science at one extreme and religion at the other extreme. At some point in the time scale, a new twist came up. Science which has provided us with new materials, machines and a lot of comforts to such an extent that we progressed, but totally forgot about the welfare of our surrounding and hence, ended up in ecological problems. The main problem was the crisis of food and all other material needed for a tangential rise in human population on earth. Wilson in his book *Consilience: The unity of knowledge* mentions: “To summarize the future of resources and climate, the wall towards which humanity is evidently rushing is a shortage not of minerals and energy, but of food and water” (1998, 313). Of course, though the situation is very grave, he has given hope: “We hope – surely we must believe – that our species will emerge from the environmental bottleneck in better condition than we entered” (319-320). Here came the term ‘sustainability’ – to make science, the progress giver, ‘sustainable’ – and also make the progress itself ‘sustainable’; the same term was mentioned by Alexander von Humboldt (Doherr 2015, 50) nearly two centuries back, and Robert W. Kates (2011) gives an analysis on this



issue now. Kates provides the definition of 'sustainability science' from the Proceedings of the National Academy of Sciences (PNAS 2010) as: "... an emerging field of research dealing with the interactions between natural and social systems, with how these interactions affect the challenge of sustainability: meeting the needs of present and future generations while substantially reducing poverty and conserving the planet's life support systems." (2011, 9) Beginning with Humboldt's dream for unity of nature which is produced in a previous paragraph here, he continues with George Perkin Marsh's vision of nature as modified by human action; and then gives a chronological history of how we have linked the nature or the environment to human development during the past years. He has highlighted that the human population would have been 9 billion in fifty years time, and to sustain them three targets are to be met: (i) the resource need of 9 billion people, (ii) preservation of the life support system of the earth, and (iii) reducing hunger and poverty. To achieve these goals, he suggests, we have to (i) sustain fundamental research on use-directed problems, (ii) nurture next generation sustainability scientists, and (iii) move the new knowledge to action mode. Last two sentences of his conclusion are significant: "We shall try to find out how the forces of nature and society interact upon one another and how the geographic environment and the complex system of life can sustain itself. In other words, we must find out about the unity of nature that we humans are both part of and apart from." (2011, 14).

## CONCLUSION

We saw a brief worldview of unity of knowledge. The disciplines sharing knowledge ranged from natural sciences to social sciences, arts and humanities to psychology to religion. The human personalities sharing the knowledge ranged from biologists to psychologists, neurologists to theologians and many others. The human population explosion during the last century increased atmospheric problems many folds, and prompted for the dire need of sustainable human development, and hence, for sustaining sustainability science. All these facts point out towards positive growth of unity of knowledge. It will be perfect to conclude with a sentence from Wilson's book *Consilience: The unity of knowledge*: "We are entering a new era of existentialism, not the old absurdist existentialism of Kierkegaard and Sartre, giving complete autonomy to the individual, but the concept that only unified learning, universally shared, makes accurate foresight and wise choice possible" (1998, 325).





---

## REFERENCES

1. Banerjee, Sudhish C., 2017. "Swami Vivekananda – as the Scientist." *International Journal of Advanced Research in Physical Science (IJARPS)* 4(11): 1-10. ISSN No. (Online) 2349-7882. [www.arcjournals.org](http://www.arcjournals.org).
2. Brown, Warren S., 2004. "Resonance: A model for relating science, psychology, and faith." *Journal of Psychology and Christianity* 23(2): 110-120.
3. Brown, William P., 2010. *The seven pillars of creation. The Bible, science and the ecology of wonder*. Oxford University Press, Oxford. (cf: Buitendag & Simut, 2021).
4. Buitendag, Johan & Simut, Corneliu C., 2021. "Nature as God: A juxtaposition of Vito Mancuso and Alexander von Humboldt in their search for understanding reality." *HTS Theologese Studies/Theological Studies* 77(3), a6525. <https://doi.org/10.4102/hts.v77i3.6525>.
5. Doherr, Detlev., 2015. "Alexander von Humboldt's idea of interconnectedness and its Relationship to interdisciplinary and communication." *Systemics, Cybernetics and Informatics* 13(6): 47-51.
6. Gould, Stephen J., 2014. "Nonoverlapping Magisteria." *Philosophical Aspects of Origin, Uniwersytet Zielonogorski* nr 11. 7-21. (cf: Buitendag & Simut, 2021).
7. Kates, Robert W., 2011. "From the Unity of Nature to Sustainability Science: Ideas and Practice." CID Working Paper No. 218. Centre for International Development, Harvard University. Cambridge, MA: Harvard University, March 2011.
8. Majumdar, Sisir K., 2012. "Vivekananda on Science and Religion." *Frontier* (January 8-14, 2012) 44(26): NOTE. <http://frontierweekly.com>>vol>note-44-26.
9. Von Humboldt, Alexander., 1858. *Cosmos – A sketch of the physical description of the Univers*. Vol.1., Kindle edn., translated by E.C.Otto, and eBook prepared by Amy Zelmer, Harper & Brothers, New York, NY. (cf: Doherr, 2015)
10. Wilson, Edward, O., 1998. *Consilience: The unity of knowledge*. Vintage Books, A Division of Random House, Inc. New York, NY.