SHAKYAMUNI BUDDHA AND THE SCIENTIFIC VISION OF FRANCIS BACON

By Taizen Dale Verkuilen

This essay contrasts the inner-world vision of Shakyamuni Buddha and Francis Bacon's far-reaching definitions of the scientific method. Each in their own way overturned subservient adherence to acceptance of traditional authority through their formulation of original methods of exploration of the human condition. They spurned the conventional thought of the Brahmins and Scholastics respectively, and spearheaded movements that even today hundreds of years after their lifetimes continue to inspire creative thought and action. We will examine their innovations, commonalities of insights and methods, along with their place in contemporary thought.

The Teachings of Shakyamuni Buddha

Twenty-five hundred years ago, Shakyamuni Buddha sought the answer to his naturally arising question – Why is there suffering in the world? He penetrated the truth of suffering after six years of rigorous investigation that led to a life-transforming event. Reflecting on his new understanding, he concluded that others would benefit from his experience. He engaged upon a lifelong teaching career centered on the Four Noble Truths: suffering arises, suffering has a cause, the possibility of the cessation of suffering, and the path to its cessation.

The feature that set Buddhism apart in Buddha's time is the same one that does today: the non-reification of self. This is the teaching that the self of all beings, including humans, is without an abiding self-nature. All beings exist within ever changing impermanent causes and conditions. No matter how much one searches, no enduring self can be found. There is a sense of self that holds the narrative of one's life, but upon close inspection even that self as well is not a permanent entity. The study of the Buddha's teaching liberates the practitioner from the manacles of the illusory concept of self, and delivers a vision of the non-dualistic nature of the universe, wherein dualities such as the mind-body, sacred-mundane, personal-universal, subject-object, and psychological-spiritual, are experienced as complements rather than diametrically positioned opposites. In this way alienation from the world is overcome and cessation of suffering achieved.

Buddha did not teach his followers to accept his message only on his say so. He insisted that everyone verify the Four Noble Truths for themselves. The path of the Buddha is experiential, practical, and non-authoritative. To facilitate the education of those who came to him for instruction, the Buddha founded a monastic order with many disciplinary rules. Submission to outer authority assisted the monks in their study of the meditative life. However, inner authority always rested with the individual monk, with spiritual autonomy the required essence from the very beginning of their Buddhist practice. It can be said that Buddha's vision is a study of the interior world that uses scriptures, introspection, worldly activity, and above all meditation, to uncover the true nature of self and resolve the obstacles to a life of liberation.

The Scientific Vision of Francis Bacon

Francis Bacon lived from 1561-1626, a period of intellectual fervor in England. He was educated at Cambridge, served as a barrister, a Member of Parliament, and ultimately became the Lord Chancellor. Even though he was high born in English society, his present day fame is derived from his liberating vision of what science should be. He redefined the practice and research of the scientific method. His groundbreaking book, the Novum Organon (the new instrument) laid out four points that endeavored to replace the logic based on the teachings of Aristotle. This was an audacious suggestion as the philosophy of Aristotle was firmly entrenched within the universities' purview and the Church's dogma as the established authority on philosophy of nature. Bacon was told by his educators to put aside inquiry and to accept without question Aristotle's method of study and to embrace his time-honored knowledge. Bravely breaking with convention, Bacon's Novum Organon contained his scientific method and philosophical principles for investigating the physical world without the impediment of pre-existing hide-bound conclusions. Bacon's Novum Organon rejected given "truths" as the primary and authoritative source of knowledge, while expounding a forward-looking method for acquiring new knowledge useful for enhancing the well-being of the world. He desired to promote the understanding of phenomena in order to minimize unnecessary human suffering.

Bacon's four points are:

1. Science should consist of a dynamic, cooperative, and collaborative means of acquiring knowledge. Its conclusions are always tentative and open to modification as new information becomes available. Varying insights cause communities of interest to form around issues such as biology chemistry, physics, and sociology.
2. Science should be studied apart from theology and theology from science. There should be no science in theology, and no theology in science. The study of the world should be empirical, based on data, free from metaphysical conjecture.
3. Methods of investigation and the acquisition of knowledge should be accomplished inductively, starting with particulars of observable facts and then moving to general descriptions. Experiments are then devised to test insights. All knowledge is subject to expanded research – nothing is final.
4. Knowledge of the world yields power over circumstances, enhancing the human condition through technological innovation, as well as accommodating the growth and application of charitable ventures and social institutions.

Commonalities of Buddhism and Bacon's Science

Even though Buddhism and the Bacon's science are commonly held to be opposites – one qualitative and subjective, the other quantitative and objective – upon closer examination these distinctions flounder as many similarities become apparent. The following is a non-exhaustive list of key points of correspondence.

1. Buddha and Bacon both dealt with questions that have verifiable answers – neither favored unsubstantiated beliefs. Bacon separated theology and science giving each their legitimate sphere of influence, insisting on empirical understanding. Buddha also adhered to the non-metaphysical, famously remaining silent to unanswerable questions such as, "What is death?" and "Is there a God?"
2. Information and insights are shared explicitly. Buddhism and science each developed many schools and branches of emphasis, remaining open to passing on insights and knowledge gained in one area of expertise to another.
3. Both are experiential: Bacon insists on observation and experiment to verify the truth of a hypothesis. Buddha's teaching rests on the primacy of a thoroughgoing resolution of the fundamental misperception of a separate existence through study, meditation practice, and an introspective engagement with the world.
4. Both are practical and seek to relieve suffering in the world.
5. Bacon replaced slavish adherence to deductive reasoning based on axiomatic traditional authority with inductive thinking. Induction moves from particulars about the external world to generalities that can be tested by experiment. Buddha starts with internal particulars and generates an understanding of the intimate interconnected form of the universe.
6. Both teach that all information is tentative: Old insights are replaced with new ones when they become available.
7. Both insist that every human being governs their relationship to society and nature in their own self-interest. Bacon does this by removing the fetters of scholasticism and clerical domination; Buddha by his teaching that you must know for yourself; authentic spiritual authority arises within an individual, not imposed by an outside authority.

Buddha's Teaching and Bacon's Vision in the 21st Century

In the nineteenth century Bacon's dream of a science that enhances the life of humankind took a giant step forward. Science joined with the knowhow of technology, unleashing innumerable advances in the means to apply science to practical concerns, generating the many benefits and lifestyle improvements we enjoy today. Bacon lived into the seventeenth century, but the big push in technology started in the

eighteenth century with the industrial revolution in England. It was two hundred years after Bacon's death that a seminal event occurred that instigated a great leap forward in the application of Bacon's desire for science to enrich the human condition. Joseph Fourier, a leading scientist of his day, published a paper on how heat behaved, ignoring the ontological question of what is the essential reality of heat. Up until then, scientists had tried to set up experiments that would reveal the fundamental nature of heat. Fourier's mathematical equations moved the emphasis of scientific research from the ontology (reality) of heat to controlling it in practical applications. It was as if he had said, forget about the essence of heat, leave that question to the philosophers, and focus on the mathematics of control. Jettisoning the unanswerable questions and sticking to what is verifiable by experiment moved science's perspective close to Buddha's experiential, practical, and non-authoritative teaching methods.

One of the most powerful effects of the Bacon's scientific method was his insistence on exacting questioning of past knowledge. This was most evident in the realm of physics. Scientific thought based on strictly materialistic concepts began to crumble in the early twentieth century with the work of Planck, Einstein, and the founders of Quantum Theory. Newton and others had proposed an atomistic theory that the physical world consists of small bits of matter that interact and form the basis of all phenomena, and that consciousness and its subsequent conscious thoughts and feelings are determined, mechanistic outcomes of these microscopic events. Exploration of the microscopic world that produced Quantum Theory led to the complete breakdown of the explanation of consciousness provided by classical physics. The conscious observer, excluded in classical understanding, became recognized as an integral part of any experiment, and by inference, any action in the world. However, most physicists, long accustomed to the objective viewpoint, have been less than eager to acknowledge that consciousness must be considered an essential element in the analysis of the physical world. Even in the face of repeated experiments that confirm that consciousness as integral, they continue to hold to "shut up and calculate," preferring to engage with the practical only, ignoring the deep philosophical implications of their own discoveries.

As things stand now, the path of Bacon's scientific method and the age-old intuitions of Buddhism appear as complementary requisites for an entirely new concept of the human self. The worlds of objective matter and subjective consciousness that science has established as an inseparable unity is the teaching that Buddhism has recognized since its inception twenty-five hundred years ago. The ancient Buddhist analysis of the conscious self understands that everything is interconnected and that nothing has an independent existence. This closely matches the philosophical shift of twenty-first century science that replaces the atoms of Newton with intricate and universal relationships.

The mathematical physicist Henry Stapp summarizes the movement in science where the observer gains its rightful place at the center of every experience, undoing a two hundred year-old minimization of consciousness.

> "Thus a radical shift in the physics-based conception of man from that of an isolated mechanical automaton to that of an integral participant in a non-local holistic process that gives form and meaning to the evolving universe is a seismic event of potentially momentous proportions."[1]

In this short passage Professor Stapp brings science close to the Buddhist principles of reality of impermanence, interdependence, and intimacy of relationships. The scientific insight of "an integral participant in a non-local holistic process" echoes the ancient Indian vision of the Indra's Net where all parts of universe find their being within an intricate web of mystery and universal cognizance.

Taken in concert, Buddha's intuitive perception and the fruits of Bacon's science provide a rational base for rooting ethics in experience not beliefs. Blind submission to unsubstantiated views closes off the greatest of human creative accomplishments: inquiry. History attests to the hostility that erupts when inquiry is put aside and rigid assumptions take the place of openness. World culture has an opportunity to recognize the shared ecumenical spirit of science and Buddhist all-encompassing thought. A society with a coherent precept at its heart that embodies Buddha's teaching along with Bacon's vision would lead directly to Stapp's "seismic event of potentially momentous proportions." When reality is recognized as universal cognizance is the start of knowledge.

[1] Henry Stapp, *Mindful Universe: Quantum Mechanics and the Participating Observer* (Berlin Heidelberg: Springer Verlag , 2007) p. 140

The Four Points of Bacon's Vision	Where Buddha's Teaching Comes Close to Bacon's Vision
1. Science is	**Buddhism is**
an objective study of nature—how it behaves, without the necessity of answering the questions of what and why.	a subjective study of the self—how it behaves, not concerned with trying to answer unanswerable questions.
dynamic, cooperative, and collaborative.	based on taking refuge in the Buddha (awakened mind), the Dharma (Buddhist teachings), and the Sangha (community of seekers).
always correcting itself; conclusions are always tentative.	a recognition that life is impermanent, always fluid and new. Nothing is ever the final answer.
the acquisition, pursuit, and use of knowledge.	an acquisition of wisdom and compassion in the service of all beings.
a varying insight that cause communities of interest to form such as biology, chemistry, physics, and sociology.	a way that provides many valid approaches to awakening for the diverse needs of individuals.
2. The method of acquisition of knowledge is inductive reasoning	**The method of acquisition of wisdom is the Eightfold Path**
that moves from particulars to generalities of experience.	that moves from the particulars of right view to the generalities of right speech, action, and livelihood.
that tests with experiments, recognizing insights are open to expanded investigation and that nothing is final.	that teaches the practice of Samadhi (Meditation), awakening wisdom and compassion.
3. The separation of science and theology allows	**The teachings are experiential and practical within which**
an empirical study of the world, free from metaphysical issues.	metaphysics is put aside and inquiry is limited to answerable questions.
establishing a method based on evidence, not unsubstantiated opinion (no theology in science, and no science in theology).	introspection, language, reason, and analysis are studied and given their correct place within human life.
putting aside a priori beliefs.	practitioners observe the world "as it is" without additions or subtractions.
4. Knowledge is power	**Wisdom is shared human benefit wherein**
that enhances humanity's place in the world, and cultivated as a means for human charity.	wisdom is heart-to-heart communication with all beings.
not mere philosophical contemplation.	wisdom is the holistic understanding of the nature of the self and its relationship with the world.