

Science and Spirituality

Complementary or Contradictory?

Science and spirituality are part of our collective experience. That they could be contradictory now seems strange to me, and yet once they seemed so. This essay draws parallels between my own personal experience of growth and the corresponding growth of humanity; reconciliation of a complementary science and spirituality is a fundamental part of this process.

Education of a materialist

My school years centred around the 1950s in Lincoln. Science was king. I well remember the reverence accorded to white-coated boffins on the television (when we eventually got one). What they said was treated as gospel. The pressure from teachers was for the sciences. This was the future, what the country needed. Humanities were second best, for those with no aptitude for science.

Religion was singing in morning assembly, and when we kids were sent to the Methodist chapel on Sundays. The minister warned us of the dangers of alcohol, while parents kept away and did the garden. Yet we loved the occasional lay preacher who came with song and speeches that stirred our soul with their passion. Except we had no concept of soul.

Spirituality was something we secretly found out about through reading library books. It seemed to be all to do with séances, ouija ouija boards and magic. It was not talked about in polite society, and definitely not recognised as valid by science.

So I emerged from the education system with an essentially materialistic scientific viewpoint, deeply sceptical of religion, and uncomprehending of spirituality. After studying mathematics, I took up what was then called computer science and soon became information systems engineering. I joined the everyday world of industry, married and started a family.

Early doubts

But I always had intimations that there might be something more, choosing the label 'agnostic' if pressed on my beliefs [atheism seemed to me to be irrational bravado].

Mathematics had given me an insight of enormous value in my subsequent deliberations. Gödel's theoremⁱ shows that any mathematical system is in a sense incomplete - there are things outside of the system that cannot be known within it. Since much science is essentially about the construction of mathematical models of reality this seems enormously relevant to our subject. There can be no complete model of the universe. Period.

Physics also suggested that the materialistic viewpoint had its limitations. Paradoxes of relativity indicated that different people apparently aged at different rates. Quantum theory seemed even more challenging. Heisenberg's uncertainty principle suggested that science could not be as precise as it had seemed. You couldn't even know, at the same time, how fast a particle was moving and where it was. And something was a wave or a particle depending on what you were looking for!

Quantum phenomena also included *non-locality*, when physically remote parts of the universe appeared to be causally and instantly connectedⁱⁱ. So-called paranormal phenomena came to seem quite plausible, and indeed are well documented, despite being apparently resistant to proof by controlled experiments.

Astronomy and its bedfellow cosmology offered exciting materialistic visions of our context in space and time. 'Big bang' theorists argued against, and prevailed over, 'steady state' theorists. And yet what did it all mean - and what came before the bang?

In the background I was becoming aware of the exciting psychology of Freud and Jung, then humanistic psychology and Maslow, and later Assagioli's psychosynthesis. People grew to self actualisation or individuation. I had special experiences that later found the label 'peak experiences'. I was convinced that these were intimations of my own potential for something moreⁱⁱⁱ.

I was also drawn towards the Eastern religions, particularly through the evocative novels of Hermann Hesse^{iv} and the philosophical writings of Alan Watts^v. There seemed to be sense here, notably in Buddhism and Taoism. But Christianity became more and more of a puzzle. The great European Gothic cathedrals were wonderfully evocative and inspiring buildings, surely pointing to something more than material concerns. The teachings of Christ largely made sense. And yet I became increasingly aware of the great crimes done over the centuries in the name of the church and Christ, such as the persecution of Cathars, the various Inquisitions and Crusades, even the apparent tacit support of the Nazi regime in the Second World War. I realised that the church, and the religion, were not the spiritual essence.

And there were great heroes, such as M.K.Gandhi and Martin Luther King, who achieved great things for humanity, apparently driven by the fire of an unselfish spirit.

Personal crisis and growth

But it took more than theories to really change that simplistic materialistic viewpoint that had emerged from my school days. It was in the crucible of everyday experience, of relationship and conflict in the real world - the development of the psyche that began to recognise that it was more than mind.

First, there was body and feelings to be accorded their due. Body rebelled at improper treatment through lack of exercise, late nights, alcohol, etc., and had to be accommodated. And for many years I had not really understood 'feelings', hardly being aware of the consequent moods foisted onto those around me. Slowly awareness dawned. The mind had a role, but it was in accepting and working with body and feelings, not repressing them. But this was not all.

After years of an unsatisfactory selfish life style, and years of denial, I eventually realised that I was in crisis. An essential selfishness in my being was leading me on a destructive path, which could destroy my material life altogether. I see retrospectively that an inner battle raged between material desires and spiritual values, with conscience as the insistent arbiter. I made painful changes to my life to get back onto a steady track, towards becoming a personality integrated within itself and with the world.

I was inspired to follow directions indicated by earlier intuitions, eventually discovering meditation. This proved a wonderful systematic tool for personality integration, and for ongoing exploration into what I term my higher self - which seems to correspond with the worlds of soul and spirit apparently universal to human experience and documented by many^{vi}.

Expressed simply, I was embarked upon the process of integration of the personality, resolving the previous dissociation of mind/ feelings/ body, and beginning to connect with my higher self/ soul/ spirit^{vii}. Inevitably this led to becoming gradually less selfish and more concerned with the general good - the real experience of a developing spirituality. [I lay no claim to great spiritual achievement, being merely an open-minded explorer and seeker.]

The technological/ business/ capitalist world

Meanwhile, after many years in the business world, first as engineer, later as manager, I became aware that both these disciplines are heavily dominated by that simple materialistic paradigm of my schooldays. Science and engineering are the drivers; science discovers technology, engineering puts it to work, management makes it happen. Money making is the object. And measurement of quantity is the 'scientific' management tool *par excellence*. Highly paid managers 'persuade' less highly paid managers to do things by setting them quantitative objectives which they have to achieve to earn respect, bonuses, salary increases and promotion.

Unfortunately, awareness of the uncertainty principle seems low - although it appears to be applicable. The act of measuring changes what is being measured. Thus I observed many a meaningless numerical target 'achieved' to no good purpose.

I gradually became more concerned about the quality of what was being done, and delved into the 'quality' movement. I discovered that, under the influence of quality gurus such as Philip Crosby^{viii}, qualities were essentially reduced to measurable objective things in order that they could be 'managed'. Qualitative things such as ethics, values, meanings and aesthetics were rarely stressed in business, except when it came to marketing the company.

We can observe that such qualitative factors are often not taken into consideration by many companies. Hence companies do bad things - ENRON and Worldcom being but recent examples of a very long list. Individuals are faced with the choice of achieving the approval of their bosses, and money and career, or following their own personal values where there is a conflict^{ix}. Since the action is often 'at a distance' from the real human effects, such as the persecuted community in Nigeria or Indonesia, it is not surprising that the senior managers mostly get their way, to keep happy the shareholders of the even more 'at a distance' limited liability company.

Governments also increasingly treat government as management, with a similar quantitative emphasis. Not surprisingly, the current UK New Labour government is running into problems with its long list of numerical targets, and seems to have difficulty in articulating its values.

So we have a 'system' of science, technology, business and government (and economics and law etc.) that is dominated by this rather simplistic pseudo-scientific way of looking at the world, quantity dominating over quality, with self-interest and money predominant.

World crisis and its roots

As a result, as is now widely understood by scientists, the world is in crisis^x - stressed environments, species loss, global warming, social deprivation and poverty, weapons of mass destruction etc. The result of our selfish materialistic system, and its irrational over-dependence on oil^{xi}, threatens to destroy our civilisation completely. Recent environmental catastrophes such as oil and chemical spills and widespread floods, and political catastrophes such as wars and terrorism, are but some of many recent warning signs.

The symptoms suggest a collective mental dissociation from the emotional and physical effects of our actions. Just as in my own life-threatening crisis, the battle between material desires and spiritual values rages. It seems a reasonable analogy^{xii} to suggest that we need to collectively grow up, beyond the simple certainties of selfish materialism, to integrate our human mind, heart and body (the planet) and build a world based on spiritual values, to the benefit of the common good.

Just as I needed to integrate my own neglected feelings, we need to connect with our hearts. We know that it is things of the heart that really matter, whilst the glimmers and illusions of today's transient desires for consumer goods and money soon pall and fade^{xiii}. If we will but listen, our

hearts are in anguish over the state of our planet and the threat to our children, and to our children's children and future generations. But, as Al Gore has persuasively argued, we are collectively still in denial^{xiv}!

Only with inspired creativity and wisdom can we solve the many divergent problems of the world crisis. The mind alone acts out of the power-based balancing of interests we see in world politics today, leading eventually to the relative neglect of concerns of body, heart and spirit that we also see. Mind, heart and spirit in concert can harness intuition to act with wisdom, doing what is best for all^{xv}.

Origins

Many commentators have suggested that it was around the time of the emergence of modern science in the 16th/ 17th centuries that the current split in our consciousness occurred^{xvi}. Simplistically, Descartes split our mind (*res cogitans*) off from the world (*res extensa*). The disembodied intellect (*cogito ergo sum*) controlled the world. Francis Bacon clarified the separation of science and religion, stating that the scientific method has no moral significance. What sounded at first a reasonable separation of concerns and striving for objectivity became a flight from qualities and values. By the 18th century *Enlightenment*, science "seemed to have dispensed with the need for God as a necessary factor in its explanation of the universe"^{xvii}.

The resulting paradigm of scientific materialism has proved to be inadequate to describe the world we live in. With its fellow, capitalism, it has in some parts of the world created wealth and technology undreamed of. On the other hand, it has destroyed and exploited communities on a grand scale and is instrumental in the world crisis. Humanity would seem to have a choice - to transcend this simplistic paradigm, or to create an environment that is increasingly unsympathetic to the existence of human beings, perhaps to perish.

Our collective human psyche needs to be healed from the 'Descartian' split and re-inspired.

Levels of Being

In the 1970s E.F.Schumacher^{xviii} was one of the voices crying in the wilderness for humanity to change direction. He diagnosed the basic philosophical problem underlying the 'Western' world view, suggesting that the breakthrough attributed to Descartes represented a break with the traditional wisdom of earlier societies, and its essential truth that there are different Levels of Being. These Levels are represented in the physical world by the essentially different natures of mineral, vegetable, animal and human - and by the corresponding mysteries of matter, life, consciousness and self awareness. And the wisdom tradition indicates that there are also higher levels of soul and spirit that we humans can aspire to.

This seems fundamental. If we do not recognise the possibility of higher Levels of Being then we voluntarily impoverish ourselves. Schumacher makes it clear: "The level of significance to which an observer or investigator tries to attune himself is chosen, not by his intelligence, but by his faith... his fundamental presuppositions and basic assumptions." It seems clear that the materialists had thrown out the baby of human potential with the bath water of the religious faiths whose dominance they were trying to break away from.

Since lower Levels of Being are not aware of higher Levels, or of their significance^{xix}, this has encouraged the majority of people to stumble along in a materialistic trance, lemmings approaching the cliff edge of the end of the world. And all in accord with a simplistic and restricted materialistic faith, known as scientism^{xx}, that does not recognise our true potential.

In the world of my upbringing the word 'faith' was always coupled with the word 'irrational', conveniently ignoring the faith that underlies the materialistic view itself. An optimistic faith based on the premise of the existence of higher Levels of Being, for which there is so much testimony from our forebears and contemporaries, seems the rational response to the situation we find ourselves in. Higher Levels of Being generally correspond with a more inclusive and less selfish approach to the world (for example in my earlier heroes, M.K.Gandhi and Martin Luther King).

If we do not choose to follow the quest for those higher Levels we will certainly never achieve them, instead continuing along our present destructive path.

Accepting the concept of Levels of Being, we can see religions as being potentially in the role of providing alternative paths towards those higher spiritual Levels^{xxi}. There is a strong attraction to the idea that there is this common core at the heart of all the world's religions, as confirmed, for example, by Huston Smith's extensive research^{xxii}. Religions become different paths towards a common aim, which is to connect with that which is highest in humanity. Each religion provides its own approach for following the path to this common spirituality, like a crutch which can be discarded when we are able to stand on our own spiritual feet.

The Four Fields of Knowledge

Schumacher goes on to consider the question of what can we know about the world. He identifies four fundamentally distinct fields of such knowledge^{xxiii}, corresponding with combinations of the two pairs 'I / the world', and 'inner experience / outer appearance'. These four fields are each different and require different approaches to gaining knowledge - and in each field knowledge can be gained about the Levels of Being.

The 'inner I' is the field of the subjective - of inner psychological and spiritual development. Here applies the Delphian inscription 'know thyself'.

The field of 'inner world' relates to our understanding of (and empathy with) the inner world of others, and our culture. The traditional wisdom says that we can understand other beings only to the extent that we know ourselves, so there is a crucial relationship with the 'inner I'.

In these two 'inner' fields we find 'my own' and 'shared' values respectively, and Plato's divine qualities of the *beautiful* and the *good*^{xxiv}, the aesthetic and moral dimensions. These are the fields neglected by the obsession with objectivity, and here lie today's neglected qualities and values.

The 'outer I' is the field of 'myself as known to others', and the 'outer world' is the physical world around us. Here objective science has established its domain. We can describe, form theories about, and experiment on the world, so long as we remember that this supposed objectivity has its reflection in the inner fields. These two outer fields are the domain of Plato's third divine quality, the *true*.

Schumacher makes the useful distinction between the 'descriptive' sciences such as botany, which ask "what do I encounter", and the 'instructional' sciences such as physics, which ask "what must I do to obtain a certain result".

The instructional sciences are the domain of 'proof', and only effectively operate with lower Levels of Being (higher Levels of Being have too many degrees of freedom for such strict causality). Instructional sciences are only relevant to the 'outer' fields. The descriptive sciences, he suggests, are sterile without ideas from inner experience, hence are not so confined. (Goethe pointed the way many years ago with his science of wholeness^{xxv}.) However, there is no concept of 'proof' in the descriptive sciences. For example, we can never conclusively 'prove' the Theory of Evolution.

Ken Wilber suggests that science needs to operate with awareness of the Four Fields of Knowledge - and scientists operating within the subjective fields will change themselves - no longer the objective observer, but participatory in nature^{xxvi}. For example, future astronomers may reconnect with the ancient knowledge of astrology that their some of their 20th century equivalents have so assiduously denigrated^{xxvii}.

Synthesis

So we have the framework of the Four Fields of Knowledge which encompasses objective science, but is not dominated by it. It demonstrates the restricted scope of scientific materialism, and the 'inner' fields it wilfully excludes.

And we have the previously almost universally accepted Levels of Being, which provide a coherent framework for a universal spirituality. The Four Fields of Knowledge indicate the necessary scope of that spirituality in terms of how we relate to, and are seen by, others - and indicate different ways in which science can seek to understand spirituality.

For me, these provides a convincing and satisfying framework within which science and spirituality can happily co-exist. Wilber discusses this reconciliation in more depth^{xxviii}, suggesting that both sciences and religions need to release their attachment to the belief that their myths are the only valid ones.

Of course, the adoption of such a framework has implications on growth and transformation for everyone on the planet, and for humanity as a whole. When we have faith in it, it will become reality, and humanity will become more than it is today.

Practice

We would hope to find common ground in the methods and principles which lie at the heart of scientific and spiritual practice.

What is the essence of the approach of science? Its main characteristics seem to be an aim for growth of a body of knowledge through exploration or experiment; an insistence on evidence and repeatability; a body of validated recipes that can be followed; some concept of peer review and consensus; and an openness to change as new ideas and evidence come along to change the current consensus paradigm^{xxix}. And a certain humility - remember Gödel - no model is the last word.

What is the essence of spirituality? Its main characteristics are perhaps an aim for growth of an individual or group through inner exploration, experience and service; an insistence on inner evidence, reinforced by repeatability; a body of validated recipes (yoga) that can be followed; validation of the consensus of others by oneself; and an openness to change as new ideas and experience/ evidence indicate the need to further develop. And a spiritual humility - we can never assume that 'that's it, I/ we finally made it'.

Not a lot of difference really! And each is 'scientific' in its own way.

David Lorimer^{xxx} suggests that a similar spirit inspires the search for truth in both science and spirituality: "*Exploration* expressed in wonder and curiosity; *Creativity and imagination* - bringing forth new models and discoveries; *Critical and analytical rigour* - applied to methods and procedures; *Practice* - through experimental prediction and testing; *Openness* and awareness of metaphysical assumptions."

Lorimer suggests that it is in the last of these that history shows scientists falling down, remaining too attached to their current theories and basic assumptions - and we could add that the same is true

for religions. Both can only make the progress needed for integration through openness and the recognition of an expansive metaphysics such as the ontology of the Levels of Being and the epistemology of the Four Fields of Knowledge^{xxxii}.

Reflection

I began by describing my own growing up, embedded in the materialistic dream that science has been a willing accomplice in imposing for hundreds of years. Mine is one of the last generations in the West to live the dream.

Analogous to my own experience, I suggested that we need to collectively embrace our spiritual potential - growing beyond our current Level of Being and gaining the wisdom to save our world. Failing which it will surely fall apart in crisis and conflict. Either way, the dream is over.

We need a new story of our place in the universe and what Thomas Berry calls the *Great Work*^{xxxiii} we are called to achieve at this critical period in history - "to carry out the transition from a period of human devastation of the Earth to a period when humans would be present to the planet in a mutually beneficial manner".

A new dream of resolving the world crisis through the spiritual growth of humanity is surely so powerful that, once understood, many will join its cause. Indeed, understanding of the need brings responsibility for helping to make it happen. The evidence of Paul Ray and Sherry Anderson's research^{xxxiiii} suggests that millions of 'cultural creatives' are already engaged in the task. We may not be far from the 'hundredth monkey' effect^{xxxv} when our common perception is changed, the Berlin Wall of materialism tumbles, and we later wonder what all the fuss was about!

The young adult emerging from a future education system will be comfortable with both science and spirituality, recognising their roles and their potential through models such as the Levels of Being and the Four Fields of Knowledge. They may choose to engage in science, still an important field of endeavour, with full understanding of the limitations of the stance of 'objectivity'. And they will choose some sort of spiritual path, perhaps from a myriad of forms and guides available, eventually growing to become just their true spiritual selves.

ⁱNotes

- Austrian mathematician Kurt Gödel's theorem is discussed in *The Emperor's New Mind*, Roger Penrose. Of course, chaos theory has more recently demonstrated that non-linear systems can exhibit inherently unpredictable emergent properties, but that's another story...
- ii A modern perspective on Quantum Theory is in *Schrödinger's Kittens*, John Gribbin
- iii *The Outsider*, Colin Wilson was a strong early influence.
- iv *Siddhartha*, Hermann Hesse is a particularly sublime work.
- v See e.g. *The Book on the Taboo Against Knowing Who You Are*, Alan Watts
- vi The most influential of my guides have perhaps been the extensive works of Paul Brunton and Alice Bailey. See e.g. *The Wisdom of the Overself*, Paul Brunton, *A Treatise on White Magic*, Alice Bailey. There are many others.
- vii A more modern description and approach to personal development is in *Psychosynthesis*, Roberto Assagioli.
- viii Philip Crosby's 'system' of quality is described in *Quality is Free*, Philip Crosby. More comprehensive approaches to quality, such as the model of the European Foundation for Quality Management, now address more qualitative factors, but generally strive to reduce the result to numbers in the end.
- ix Why even good companies do bad things is the subject of *When Good Companies Do Bad Things*, Peter Schwartz & Blair Gibb
- x The world crisis is documented in many places, notably in the annual *State of the World* reports by Lester R. Brown for the Worldwatch Institute.
- xi For an inspiring work on the problems of the oil economy and what we need to do, see *The Last Hours of Ancient Sunlight*, Thom Hartmann.
- xii 'As above, so below.' Analogy and correspondence are tools of the traditional wisdom.
- xiii For discussion of glammers and illusions see *GLAMOUR, A World Problem*, Alice Bailey
- xiv A good analysis of the state of denial of our dysfunctional civilisation is given in *Earth in the Balance*, Al Gore. The failure of the 2002 Earth Summit in Johannesburg to produce coherent action plans illustrates the continuation of this denial.
- xv In *A Guide for the Perplexed*, E.F.Schumacher distinguishes between 'science for understanding', which he equates to wisdom, as primarily directed towards the True, the Good and the Beautiful, with the modern 'science for manipulation' primarily directed towards material power.
- xvi The evolution of Western ideas is brilliantly captured in *The Passion of the Western Mind*, Richard Tarnas. There is also a concise summary in *Earth in the Balance*, Al Gore.
- xvii Quoted from *The Enlightenment*, Norman Hampson.
- xviii E.F.Schumacher is most well known for his work *Small is Beautiful*. His philosophical ideas (discussed here) were published posthumously in *A Guide for the Perplexed*.
- xix Schumacher explains the Great Truth of *adaequatio* - nothing can be perceived without an appropriate organ of perception, and nothing can be understood without an appropriate organ of understanding. "If a man persuades himself that the only 'data' worth having are those delivered by his five senses, and that a 'data processing unit' called the brain is there to deal with them, he restricts his knowing to that Level of Being for which these instruments are *adequate*, and this means mainly to the level of inanimate matter."
- xx Scientism - a materialistic faith that everything will be explained by objective science; "the religion that thinks current equations are revealed truths agreed by God... at the beginning of the universe" (Charles Tart, tongue-in-cheek at a Mystics & Scientists conference)
- xxi The role of religions as paths to higher Levels is discussed in *The Marriage of Sense and Soul*, Ken Wilber.
- xxii The abbreviated conclusion of Huston Smith's extensive researches of the world's religions is in *Forgotten Truth*, Huston Smith. For illustrative texts from all the major religions see *Universal Wisdom*, Bede Griffiths. The 1993 Parliament of World Religions produced a draft of core values *Towards a Global Ethic*.
- xxiii The Four Fields of Knowledge, or four quadrants, have more recently been extensively explored by Ken Wilber in his various works such as *A Theory of Everything*. Wilber uses the similar (but not identical) split 'individual / collective', rather than 'I / the world'.
- xxiv In *A Brief History of Everything*, Ken Wilber relates Plato's 'big three', the Beautiful/ Good/ True to the four quadrants and to similar major concerns of philosophers such as Popper (subjective/ cultural/ objective), Habermas (subjective sincerity/ intersubjective justness/ objective truth) and Kant (critiques of judgement/ practical reason/ pure reason).
- xxv Goethe's approach to science is outlined in *The Wholeness of Nature: Goethe's Way of Science*, Henri Bortoft. For discussion of a science of quality see *How the Leopard Changed Its Spots*, Brian Goodwin.
- xxvi For an extended discussion of participation see *The Participatory Mind*, Henryk Skolimowski
- xxvii Indeed astrology is today used as a tool to help in psychological development. See e.g. *Astrological Psychosynthesis*, Bruno Huber.
- xxviii Reconciliation of science and religion is discussed at length in *The Marriage of Sense and Soul*, Ken Wilber
- xxix The word 'paradigm' was first coined in *The Structure of Scientific Revolutions*, Thomas Kuhn. Its common

meaning now is a body of knowledge that is generally accepted. In its original formulation I understand that Kuhn was more precise in including the recipe or approach as part of the paradigm.

^{xxx} David Lorimer's reflections on science and spirituality are in his introduction to *The Science of Spirit*, ed David Lorimer.

^{xxxi} *Metaphysics*: theoretical philosophy of being and knowing

Ontology: department of metaphysics concerned with the essence of things or being in the abstract

Epistemology: theory of the method or grounds of knowledge

So ontology is about the world as it is, and epistemology is about what we can know about the world.

^{xxxii} See *The Great Work*, Thomas Berry

^{xxxiii} See *The Cultural Creatives*, Paul Ray and Sherry Anderson.

^{xxxiv} In a Japanese study in 1952 the knowledge of how to wash sweet potatoes was invented by one monkey, spread to a number of individuals, and then suddenly they could all do it. I was recently reminded of this in *The Prophet*, Thom Hartmann.