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The Good, the True, and the Beautiful: Insights from Ken Wilber and Michael Polanyi on the Integration of Religion and Science

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COLLEGIAL CONVERSATIONS – Feb 8 2012

THE GOOD, THE TRUE AND THE BEAUTIFUL:
INSIGHTS FROM KEN WILBER AND MICHAEL POLANYI
ON THE INTEGRATION OF RELIGION AND SCIENCE

In his book *THE MARRIAGE OF SENSE AND SOUL* (1998), biochemist-turned-philosopher Ken Wilber makes a comprehensive and courageous attempt to do what he regards as one of the essential tasks of our time: the integration of knowledge from science and religion. This talk will examine and critique his proposal, setting it alongside other views – some of which suggest that any such integration is impossible. Against this, Wilber and others see goodness, truth and beauty as residing “from the very beginning” in “the faces of Spirit as it shines in this world.”

Bee in my bonnet for a long time re: science and religion as very different, but nevertheless complementary, ways of seeing reality. My teaching and research in this area led me to write a book that was published by Liturgical Press last year – *THE BIBLE AND SCIENCE* I am reasonably happy with the book, but after I had finished writing it, what I really wanted to do was start again, because the process of thinking and writing had only raised more issues, and suggested different ways that I might approach the problems I was wrestling with. So, I have continued researching, and one of the books I have found most helpful is **(SLIDE) Ken Wilber’s *THE MARRIAGE OF SENSE AND SOUL: INTEGRATING SCIENCE AND RELIGION* (1998)**. So, much of this talk will be about that book, but since I wrote the blurb for this lecture several months ago, I have also done a lot of other reading and thinking on this topic, so the focus tonight will not only be on Ken Wilber, but also on an old favorite of mine, MICHAEL POLANYI, whose amazing theory of epistemology still fascinates me, and I am still trying to understand it more deeply.

I have some disagreements with Wilber’s book, *MARRIAGE OF SENSE AND SOUL*, but with regard to my central thesis, I find myself in essential (though by no means complete) agreement with Wilber. My central thesis is this: **reality is more mind-like than matter-like; mind (or perhaps better, Spirit) precedes matter.** This, of course, is consonant with a philosophy of idealism, and is opposed to a philosophy of scientific materialism, also sometimes called naturalism. Wilber also vigorously rejects naturalism, but I should admit that he also (properly, in my view) rejects 19th century idealism as a way to reintegrate science and religion.¹ Nevertheless, towards the end of his book, his language suggests the possibility of an idealism which strikes me as much more fruitful. This is the language I used in the blurb to describe the topic of this lecture, where Wilber sees goodness, truth and beauty as residing “from the very beginning” in “the faces of Spirit as it shines in this world” (201). Whereas the 19th century idealism, that Wilber rejects, puts the focus on spirit *as identified with evolution and progress*,

¹ However, the idealism he rejects, which he derives apparently from Johann Fichte (1762-1814), Georg Hegel (1770-1831) and Friedrich Schelling (1775-1854), is not the idealism I wish to espouse. Their idealism – if I may trust Wilber’s description of it – conceives of Spirit in what I would call rather vapid terms, being too identified simply with progress and the rise of the human mind. A more robust idealism is needed, in my view, in which Spirit, “from the very beginning,” both initiates and attracts creation into greater and greater being.

and on a sequence of development “from nature, to humanity, to divinity” (108) such that he can speak of “God-in-the-making” (110), the idealism I will argue for, and which I think he suggests toward the end of his book, will be more robust in that it envisages Spirit as both agent and attractor of creation “from the very beginning,” and therefore as always embodying the “goodness, truth and beauty” toward which creation is forever being drawn. An important distinguishing feature of idealism in this latter sense is that Spirit is not simply to be identified with progress or evolution. Though nature clearly has its own patterns of emergence, increasing complexity, and evolution that leads to transcendent mind, there is no inevitable, natural progression toward goodness, truth and beauty. The latter always remain as vision and possibility, and human progress toward them always has to do with choice and striving at least as much as it has to do with any natural tendencies. In any event, in broad terms, that is the type of idealism for which I will argue.

This is the central question of the debate: what is the nature of the universe and of the encompassing reality which brings it into, and sustains it in, existence? Since you know I am a theologian, and a religious believer, you might imagine that my answer to that question is simply: GOD, and that that settles the matter. But that is not the case. I do, of course, believe in God – in other words, I take it for granted that ultimately the best way to account for existence is the free and sovereign action of the eternal Mystery which people generally designate by the term, God. I fully own up to my biases in that regard. But the true theological question is not whether God is the source of existence as we know it – that is something theology takes for granted. *[[Therefore, trying to prove God’s existence is something I regard as both illogical and impossible]]* The real theological question is: what is the nature of this existence, and therefore who are we as creations of God, and how are we to understand God, and creation and ourselves? Theology, therefore, shares with all other domains of knowledge the fundamental question: WHAT IS THE NATURE OF EXISTENCE? Germane to this talk, theology shares this question with the natural sciences, which raises the question: what should be the relationship between theology and science?

In his book, *SCIENCE: A HISTORY*, John Gribbin (**SLIDE**) takes 1543 as “a convenient marker for the start of the scientific revolution” (xvii). 1543 was the year of publication of both Andreas Vesalius’ study of the **human body**, and of Copernicus’ book on **THE REVOLUTION OF CELESTIAL BODIES**. Both books were sufficiently revolutionary that they occasioned great controversy, but there is no evidence that either Vesalius or Copernicus saw their investigations as incompatible with their religious faith. In fact, scholars like Copernicus, Kepler, Galileo, Descartes, Newton, and many others, were people of faith who saw their science as exploration into the wonders of God’s creation. This was possible, because the early modern scientists still held to the ancient view that **reason**, by which humans are able to investigate and discover the physical laws, **is a gift of God** that *precedes* the laws and their discovery. In other words, they were closer to idealism than to naturalism. To a large extent, it seems to me, the modern western world is the opposite; it is closer to naturalism than to idealism.

We have gone from a time when the possibility of integrating the knowledge of religion and science was comparatively easy to a time when such integration is seen by many as highly unlikely, if not impossible. In fact, there are those who can envisage the relationship between religion and science (**SLIDE**) only in terms of **conflict** (Dawkins, Dennett, Harris – see a fuller

account in ECKLUND, *Science v. Religion: What Scientists Really Think*). Others these days prefer what John Haught calls “**Contrast**” as the way to see that relationship. This is the notion – famously advocated by the late Stephen Jay Gould (great Harvard biologist) – that science and religion belong in separate domains (NOMA – *non-overlapping magisterial*) that should be kept separate. Science deals with facts; religion deals with values, and never the two should meet. But for all kinds of reasons, very few think that such separatism can really last – or even SHOULD last. Far preferable to those who actually engage in the science-religion dialogue are what John Haught calls “**Contact**” and “**Convergence**.” The latter is what Wilber calls “**integration**”; it is also what he argues for. I will briefly describe his vision of integration, as well as some critique of it. For now, what I wish to focus on is that transition – from a time when science emerged from the scholarship of the medieval world, and which at least had the possibility of seeing science and religion as aspects of one another to a time when they seem hopelessly adrift from one another.

The crucial period in the transition is the 18th century Enlightenment, what is often called “The Age of Reason.” The modern world is, of course, also the product of the Renaissance, the discoveries of Columbus, and the Reformation, but it is the 18th century Enlightenment which has given us what we call “the modern world,” and what Wilber calls both the **DIGNITY** and the **DISASTER** of modernity. In general, we mostly think of the advantages, the **DIGNITY** of modernity.

Prior to the 18th century, not only were there no refrigerators, A/C, electric light, central heating, I-pods, smart-phones, airplanes and all the conveniences of mod. tech., there was also no such thing as democracy and the establishment of individual human rights. **Women** were commonly presumed to be less capable than men both physically and intellectually, and **slavery** was practiced and defended as a matter of course. It is part of the great **DIGNITY OF MODERNITY** that we have, for the most part, moved beyond such evils.

With respect to the expansion of knowledge and reason in this era, the great **dignity of modernity**, says Wilber, (**# 22**) was the **DIFFERENTIATION** of spheres of knowledge: art-aesthetics, empirical-science and religion-morals. In the Middle Ages, these spheres of cultural value were not only undifferentiated, they were also almost exclusively controlled by the Church, usually supported by the local prince or king. Indeed, Church and State were themselves largely undifferentiated. Well into the 18th century – as the American Revolution against the British attests – there was largely no such thing as the separation of Church and State. Thus, Galileo’s science was still seen in the early 17th century as a threat to the world of religion. But the same lack of differentiation obtained in other areas. The art of Michelangelo (1475-1564) was constrained by Church tradition – not to mention the demands of Pope Julius II – in a way that would be unthinkable today.

With the Enlightenment, however, art, science and morals began to be clearly differentiated. A person could pursue the truth in one area without interference from the authority of the others. You could look through a telescope and no longer fear papal wrath for reporting your findings. You could devise a philosophy that no longer conformed to Church tradition – (think, Spinoza, Kant and David Hume) – and you were no longer in danger of running foul of the Inquisition. We today look back on these accomplishments of the

Enlightenment, these differentiations of knowledge, with the clear conviction that they represent human progress.

With all of these accomplishments, how could anyone speak of the **disaster OF MODERNITY**? Potentially, we might think of various disasters: e.g. of how science and technology quickly allied with the military-industrial complex to produce the most horrendous **WMDs** the world has ever known, and then used them against one another in the most violent **wars** the world has ever known OR furthermore of the way in which the powers of Europe turned their technological advantages against native peoples all over the world, from Australia to Africa, from the Americas to Asia. Though Europe was in the *process* of discovering human rights for its own people, it certainly did not apply the same learning to the people they colonized. As the philosopher **John Caputo (# 23)** has said: *“Because the Enlightenment had too narrow an idea of what ‘reason’ means and too chauvinistic an idea of where it is to be found, for the longest time it placed the crown of reason on white male European heads, whose duty it was, it said with its eyes cast heavenward, to spread Euro-white maledom around the globe”* (PHILOSOPHY AND THEOLOGY, 38). There are many disasters of modernity.

The particular disaster I want to focus on this evening, however, has to do with what happened to the differentiations of art-aesthetics, empirical-science and ethics-religion which I mentioned a moment ago. Those differentiations were significant accomplishments; they are part of the **DIGNITY** of modernity. But it is also the case that the differentiations quickly went too far – they became **dissociations**. **Ken Wilber** says it well: *“Not only did art, morals and science differentiate – which was necessary and beneficial – they soon began dramatically to dissociate or fly apart, ... This was ... a disaster, ... for it very soon allowed a powerful monological science to colonialize and dominate the other spheres (the aesthetic-expressive and the religious-moral), mostly by denying them any real existence at all!”* (Marriage of Sense and Soul, 55).

We can see why this has been a disaster if we consider the general presumption about the human reality which dominated most cultures for thousands of years prior to the Enlightenment. Wilber appropriately calls this **“THE GREAT NEST OF BEING”** (8). Traditional human cultures have always recognized the fragility of physical nature: In Genesis, God made humans from the dust of the ground, in other words, from the same material as God made the animals. After the rebellion, therefore, humans are told: “Dust you are, and to dust you will return” (Gen 3:19). But the Bible, like other ancient cultures, always also presupposed that there are deeper realities to human existence than just our physical nature. We are also **MIND, SOUL and SPIRIT** – and not only we, but all of reality is suffused with mystery, with depth, with eternal beauty, with Spirit – in other words, with God. Not all cultures have been theistic, of course, but all cultures – until the modern, post-Enlightenment west – have envisaged and lived by a multi-layered reality. I am not claiming that modern society has totally lost this vision, but I am saying that it is severely under threat, and that the disaster of modernity has been the dissociation of these levels from what many regard as genuine knowledge. Science not only has nothing to do with the other levels, worse than that, in the minds of many, science eliminates the other levels; we have come to the point of the domination of **SCIENTISM** – the view that science alone provides true knowledge. **(#26) Ken** Wilber says appropriately: *“Full of itself and flush with stunning victories, empirical science became SCIENTISM, the belief that there is no reality save*

that revealed by science, and no truth save that which science delivers. The subjective and interior domains – the I and the WE – were flattened into objective, exterior, empirical processes, ... Consciousness itself, and the mind and heart and soul of humankind, could not be seen with a microscope ... and so all were pronounced epiphenomenal at best, illusory at worst.” (56).

With respect to thinking about God, this shift toward scientism has had very clear consequences. The shift began with the very beginnings of the scientific method in Galileo and Descartes. Neither of them intended any such shift, but sometimes ideas lead to results far beyond what their originators can possibly envisage. Galileo had no intention of denying the reality of mind, soul and spirit, but in 1623, 10 years before his trial for teaching the Copernican system, **Galileo said: (#28)**

I think that tastes, odors, colors and so forth are no more than mere names so far as pertains to the [human] subject wherein they seem to reside, and they only exist in the body that seems to perceive them. Thus, if living creatures were removed all these qualities would vanish and be annihilated” (Galileo – “The Assayer” [1623], quoted in Shea & Artigas, *Galileo in Rome*, 118-119).

Notice here, the “removal” of the subjective mind, and the focus on the objective alone. Descartes followed Galileo in this regard: **(#29)**

*Descartes said that, much as we love the odors and colors and feels of physical objects, as strictly rational beings we have to give them up and concede that the only thing that is “really out there,” “objectively” (this was an entirely new way to talk) is mass and velocity, while such pleasant things as blue or sweet are strictly subjective or private sensations.*² (Caputo, Phil & Theo, 26).

This insistence on being “strictly rational” is perhaps the defining characteristic of the Enlightenment, but as Caputo says, “reason” was being defined in a very narrow way. Whereas, prior to modernity reason was the God-given capacity to search for understanding in all areas of knowledge, during the Enlightenment reason was increasingly seen as having simply to do with objective analysis of the physical world.

Descartes’ thinking about God was particularly devastating. He was a sincere believer; indeed, as Karen Armstrong says, God was “necessary” to Descartes, **“because without God he had no confidence in the reality of the external world” or in the mind’s capacity to perceive it accurately.**³ For Descartes, God was still the origin of all things, including of the mind’s capacity for reason. The problem was that he tried to prove God’s existence by principles derived purely from reason, and in the process he subjected God to reason’s scrutiny, as though it is for humans to decide whether God can be permitted into the realm of existence. As John **Caputo says it: (#30): “From a theological point of view, no matter how high you heap your**

² Caputo, *Philosophy and Theology*, 26. John Locke (1632-1704), the British philosopher and statesman, also follows this distinction in Book II of his *Essay Concerning Human Understanding* (1690). The idea has ancient roots in the Greek atomists, such as Democritus (c. 460-370 BC). On the latter, see Lindberg, *Beginnings of Western Science*, 29-31.

³ Armstrong, *Case for God*, 196, with reference to Descartes, *Meditations*, 6.80.

*praise of God, if that praise is based upon measuring God by the tests written and administered by reason, you are debasing God.*⁴

The contrast with the ancient world could not be more dramatic. Whereas, prior to modernity, God was the beginning and end of all things, and of all contemplation, for the scholars of the Enlightenment, God became one object of inquiry among others. The pre-Enlightenment world presumed that there are numerous levels of reality; our science-dominated world collapses all things to one level. That is the disaster of modernity. It is not just that our science and technology have led to global warming, species extinction at an unprecedented rate, industrial pollution, WMDs and wars of the most horrendous kind. In addition to all of that, and perhaps lying at the base of it, has been the loss of the human subject, the diminution and even exclusion of mind, soul and spirit – even more so of “God” – from our discourse and understanding. [[e.g. Robert Wright, *EVOLUTION OF GOD*, 444 – “*In modern intellectual circles, speculating seriously about God’s existence isn’t a path to widespread esteem.*”]].

Since our history suggests that we have come to this point of the DISSOCIATION OF RELIGION AND SCIENCE by collapsing all of our knowledge to one level, and by muting the mystery of human subjectivity, then presumably our way forward has to do with rediscovering the multi-layered character of knowing, and with reasserting the central role of human subjectivity.

With respect to the multi-layered character of reality, let me begin with an illustration by Ken Wilber **illustration (#32)**. In his attempt to integrate science and religion, Wilber did extensive research on the hierarchies which exist in numerous systems of knowledge from many cultures, from systems of modern science to the ancient idea of the Great Nest of Being (Body – Mind – Soul and Spirit). He noted that all of these hierarchies fall “into one of four major types” (63). They are called hierarchies because the earlier and more basic elements are embraced by the later and more complex. So, for example, in the hierarchy of the natural sciences (*top right in this diagram*), atoms are embraced by molecules, which are embraced by minute organisms, which are embraced by larger more complex bodies, and so on up the scale from physics to chemistry, and biochemistry to biology. **ORIGINAL DIAGRAM FROM W. BUT UNREADABLE – IN A MOMENT I’LL SHOW YOU EACH QUADRANT IN TURN, BUT FULL DETAILS ARE NOT ESSENTIAL.**

The four types of hierarchies are what Wilber, rather instructively (I think) calls “THE FOUR CORNERS OF THE KNOWN UNIVERSE.” The diagram makes a vivid point about the different types of knowledge and how they relate to one another. It also, I think, illustrates how foolish it is for any quadrant of knowledge to deny the importance, not to mention the EXISTENCE, of other quadrants of knowledge. The **upper right** quadrant represents the realm of the natural sciences. It describes aspects of the exterior world. Wilber refers to it as

⁴ Caputo, *Philosophy and Theology*, 28. See also Armstrong, *Case for God*: “There was no awe in Descartes’ theology: indeed, he believed it was the task of science to dispel wonder. In the future people should look, for example, at the clouds, ‘in such a way that we will no longer have occasion to wonder at anything that can be seen of them, or anything that descends from them’” (197, quoting Descartes, *Les Météores*), and Alister McGrath, *The Twilight of Atheism: The Rise and Fall of Disbelief in the Modern World* (New York: Doubleday, 2004), 31, says, “To his critics, Descartes merely managed to show that, by his own criteria, God’s existence seemed rather unlikely.”

“individual and behavioral” because it points to those aspects of our universe which comprise our physical bodies – this includes the animal bodies from which we have evolved and proceeds all the way to the immensely complex brains of human beings.

The **lower right** quadrant also belongs in the realm of the natural sciences (particularly astronomy and astrophysics). It comprises the exterior collective and so is also the realm of agriculture, environmental studies, political science and sociology. It includes the hierarchy of the environments in which we live, from galaxies, to planets, from ecosystems to cities and nations.

The **upper left** quadrant is the realm of mind, soul and spirit, and so conforms in part to the old-world “Great Nest of Being.” This is the area of interior, individual space where sentience and intelligence develop, and where intentionality, and human free will, can flourish. It also comprises emotions, symbolic meaning, prayer and contemplation, and so is the preserve of disciplines as diverse as psychology, the fine arts, and theology.

The **lower left** quadrant is the interior collective; it is the realm of shared interior values, and thus comprises cultures and histories, religions and worldviews – worldviews as diverse as the Biblical creation stories and modern cosmology, magic and mysticism.

Notice that these four quadrants complement and correspond with one another, and are not strictly separable. Everything in the two right quadrants is an observable, physical thing. It occupies exterior space. Those two quadrants together are what our reality looks like from the outside, everything from galaxies to cells, from cities to brains. Everything in the two left quadrants is non-physical, and is not so easily observed, though much of our lives is lived in these two quadrants. In fact, **in the absence of these two quadrants, there would be no science enabling the observation of the two right quadrants.**

The two left quadrants are what our reality looks like from the inside, everything from subjective opinions and emotions to cultural ideas, from meditation to cosmology. Each of these quadrants has been the subject of extensive study by scholars in numerous fields (**Wilber, Fig 13-1**). As Wilber describes them, they are “*intrinsic aspects or features of the Kosmos itself*” (73). It would be foolish to deny the reality of any of the quadrants – they are all fundamental to human existence. The point WILBER MAKES here is that all of reality has to it both an outside and inside. In the aftermath of the Enlightenment, the western world lost touch with the inner aspects of reality, reducing it at best to a position of secondary importance.

The INTEGRATION of religion and science, therefore, begins with both science and theology recognizing the reality and importance of all of “the corners of the known universe.” The further and very crucial step, which Wilber envisages, is that all the disciplines in each of the four segments must agree to the same essential methodology, what he calls “**the three strands of broad science**” (176). By “broad science,” he simply means REAL science (e.g. 169) over against the false ideas of science resident in scientific materialism; for the latter, only the top right segment exists. Nevertheless, “The 3 strands of broad science,” are derived purely from the scientific method. (**SLIDE**) They are 1. “Instrumental Injunction” – 2. “Direct Apprehension” and 3. “Communal confirmation or rejection” (155-56). #1 refers to the method of inquiry suited to the thing which you wish to investigate – if it’s the meaning of a Shakespearean play, you have to read carefully. If it’s the workings of a cell, you have to learn biological principles and how to use a microscope. In any field of inquiry, proper method will

lead (#2) to “direct apprehension,” which means genuine knowledge of the thing being investigated. This is as true, thinks Wilber, of investigating the reality of Spirit as it is true of determining whether the sun revolves around the earth or vice versa. And indeed, so real is this knowledge attained that it can be (#3) confirmed or rejected by others who are willing to enter into the same discipline of investigation.

Though there is much to admire in this proposal, it strikes me as the least convincing aspect of his book for reasons which I suspect are probably already occurring to all of you. I agree with Wilber that knowledge, seriously sought in ALL disciplines, is GENUINE KNOWLEDGE; I also agree that such knowledge can be APPREHENDED and to SOME degree even be tested by others. However, steps 2 and 3 are so tenuous in so many areas that I think Wilber is fooling himself imagining that everyone, in all disciplines, will be able to meet around “the 3 strands of broad science.” Further, Wilber’s method, tied as it is to the empirical method, flattens all knowledge to that which can *in some way* be measured or tested, but there are types of knowledge that resist all such efforts. Indeed, most of human existence, including much scientific endeavor, is lived at the level of commitments, passions and relationships that are very real – indeed they are determinative of how we live – but they are utterly resistant to measures or tests of any sort. And finally, Wilber suggests that what he is asking science and religion to give up for the sake of this integration is only “a little” (160-61), but this strikes me as hopelessly naïve – especially from the perspective of religious believers, since “the little” he expects them to be able to abandon are all of their myths and dogmas, which make no scientific sense. I don’t think Wilber truly understands how religion, and specifically how religious *doctrine*, works. In the last part of this talk, therefore, I think I can better focus my efforts on returning to the question of why IDEALISM is a better way to understand the universe than is scientism. And in that regard, I think the philosophy of Michael Polanyi, deriving as it does from a mind that for many years contemplated what human knowing is, is our best guide. DEEP BREATH!!

(SLIDE) Polanyi was born in 1891(-1976) into a non-religious Jewish family, in Budapest, Hungary. He was a polymath, and probably a genius. The entire first part of his life, well into his fifties, was entirely absorbed with science, specifically with chemistry. He had well over two hundred technical publications to his name, and was internationally recognized in his field. *He was a practicing scientist in the 1930’s when he encountered “the Soviet ideology under Stalin which denied justification to the pursuit of [pure] science.” Under Stalin, science was made to serve the interests of the State; it had to be practical, and therefore was wedded to technology. The pursuit of science for its own sake was seen “as a morbid system of a class society.”⁵ Science had to serve social ideology, which was dominated by “scientific skepticism”; religion and all things spiritual were to be utterly repudiated – “scientific certainty” alone was the source of knowledge. Polanyi was alarmed that such an outlook produced “a mechanical conception of [humanity] and history in which there was no place for [pure] science itself,” and which in its outworking led to the annihilation of millions.*

Just over a year ago, I gave a Friday Forum talk on Polanyi and described there some of the elements of his epistemology. In this talk, I will focus on some further aspects of his thought, particularly as they relate to what Wilber calls “the four corners of the known universe.” As both a scientist and, in the later part of his life, as a philosopher, Polanyi was concerned with

⁵ *Tacit Dimension*, 3; see also *Science, Faith and Society*, 7-9, and Mitchell, *Michael Polanyi*, 13-14.

the quest for reality. His philosophical stance in that regard is probably best described as “critical realism.” As described by Mark Mitchell (MICAHEL POLANYI: THE ART OF KNOWING, 83), one of Polanyi’s best commentators, **Polanyi’s views on reality include four essential points:** **1.** First, reality is external to the knower. Though he was convinced that minds shape knowledge, he never thought that they invent it. **2.** Second, reality is knowable, but never exhaustively, which leads to **3.** The third point: our apprehension of reality is gradual. For our success, we are utterly dependent on those who have gone before us, as surely as we lay the groundwork for those who will follow. True knowledge, therefore, requires INDWELLING, rather as an apprentice learns from an expert. Polanyi, therefore, repudiated the Cartesian ideal of pure skepticism; he regarded it as both impossible and undesirable. **4.** Fourth, reality manifests itself in indefinite and unexpected ways, so that when we accept a discovery as true, we also inevitably commit ourselves to further “as yet undisclosed, perhaps as yet unthinkable, consequences” (TACIT DIMENSION, 23).

On the surface, these seem like fairly obvious points, but for Polanyi they lead directly to the assertion that **what is most real is not the material stuff of the two right quadrants in Wilber’s diagram – Polanyi was convinced that “deepest reality is possessed by higher things that are least tangible”** (“Modern Mind,” 15). This puts Polanyi in the middle of the debate which Wilber was also concerned with, in his concerns about the “disaster of modernity.”

To understand Polanyi’s argument that the least tangible things are the most real, we need to recall what both Polanyi and Wilber find most disastrous in modernity: that is, scientific materialism’s view that reality can be reduced to particles in motion. This mechanical view of the universe that derived from Galileo, Descartes and Newton led in the 18th century to the (SLIDE) famous assertion of **Pierre Laplace** (1749-1827) – a French physicist deeply inspired by Newton – that if a great mind could know both the laws and the motions of particles of matter, then it could calculate all events of both the past and the future, ~~“a knowledge of all things to come, to the very end of time”~~ (OMM 13). The supposed truth of that notion has mesmerized generations of thinkers, but for Polanyi, it is an utterly nonsensical notion. Reality, he argues, is far, far more than particles in motion, and he dedicated a great deal of his writing to making his case. The main problem others have seen in Laplace’s assertion is that, if true, it would call into question the reality of free will. Polanyi, however, points out that (slide) such a worry overlooks “the more massive fact that a Laplacean atomic topography would tell us virtually nothing that is of interest to us,” not even, for instance, “the definite temperature” of some region of the universe we might inspect (OMM 13). Only **“the action of our sentient self, responding to the atoms impinging upon our senses, can supply”** any truly meaningful information (OMM 13).

Polanyi was aware that such an argument only left most of his readers and hearers with furrowed brows and fuzzy calculations running around in their heads, so he illustrated what he meant by various analogies aimed at making clear that we have to conceive of **reality as comprised of numerous layers**, analogous to what Wilber calls **“The Great Nest of Being.”** The most fundamental level is that of particles in motion, the realm of physics and chemistry. But now think of a simple machine, say, the watch on your wrist. The watch runs on mechanisms and “operational principles ... which define its construction and working,” but these principles “cannot be defined” by the laws of physics and chemistry. Everything about a watch –

or any machine – is “artificially shaped and connected to perform its function.” (SLIDE) **“Physics and chemistry cannot reveal the practical principles embodied in a machine, any more than the physical chemical testing of a printed page can tell the content of its text”** (OMM 14). The level of inanimate physics and chemistry is one thing; the level of the operational principles which enable a machine to work are something entirely different, as is clear from the fact that physics and chemistry might account for a watch’s failure, but they can never account for its success. And what is true of watches is all the more true of “the machine-like functions of living beings.” (OMM 14). The analogy of the watch’s two levels of operation illustrates **“a hierarchy in which the distinction between things essentially higher and essentially lower”** becomes clear (14).

The hierarchy is perhaps even more clear in the case of “the production of a literary composition” (14) which was one of Polanyi’s favorite analogies. In the production of a speech, for example, there are five levels. At the lowest level is the sound of a voice, then the pronunciation of words, and third, “the joining of words to make sentences” (14). Fourth is the working of sentences into a style, and finally, at the highest level, the composition of a text. With any complex thing – whether a machine, like a watch, or something more complex like a speech – the principles of the lower level are subject to the ordering principles of the next higher level. The higher level establishes order on what Polanyi calls the “boundary conditions” left open by the operations of the lower level. (SLIDE) So, in the case of a simple machine, **“there is an upper, comprehensive level embodying the operational principles of the system [like a watch] and a lower more primitive level, controlled by the laws of physics and chemistry. The lower level is formed as it were by the unorganized mass, the higher level by the principle that controls its organization ... This higher level represents the joint ‘meaning’ of the parts”** (OMM 14).

When Polanyi writes of intangible things having deeper reality than tangible things, he is not of course denying reality to the tangible. By ‘deeper reality,’ he designates things which are most significant and meaningful to human existence, and he is reacting against scientific materialism which claims that reality is comprised only of materiality. Polanyi complains eloquently of the consequences in his time of such thinking in the areas of the social sciences, politics, and how such thinking worked itself out in Marxism-Leninism. *[[I came across a vivid example of how materialist, one-level thinking makes itself felt in very ordinary communications toyesday. My son sent me a brief article from the online magazine WIRED SCIENCE (Jonah Lehrer, December 6, 2011). It’s a simple article about good nutrition, but it begins with this: “John Updike, in his short story “Plumbing,” summarized human nature thusly: “We think we are what we think and see when in truth we are upright bags of tripe.” This is a tragic fact that we spend most our lives trying to forget. Although we like to imagine ourselves as the driver – our consciousness is in full control – that belief is a lovely illusion. In reality, we are mere passengers aboard the body, strapped to a fleshy engine that is driving us.” After giving some good scientific advice about how to care for your “upright bag of tripe,” the article repeats the philosophy: “we really are just big bags of tripe, seeking sustenance.” Of course, the article is really about good nutrition, but it is stunning how the author takes it for granted that we should all shed ourselves of the illusion that we have a consciousness that enables self-control, and substitute for that “illusion” the truth that we are in reality “bags of tripe.”]]* What Polanyi seeks, and tries to work out, is **“a theory of knowledge which tells us how we can both know**

and experience the higher intangible levels of existence, which a positivistic empiricism refuses to recognize” (OMM 18).

BUT BY ‘DEEPER REALITY,’ Polanyi does also mean that the higher level, ordering principles, which control the principles of the lower levels, are more significant and meaningful to human beings, ***because they bring things into existence which the lower levels in themselves can never accomplish.*** The Laplacean universe of moving particles – no matter how well known and computed – can never produce of itself any meaningful entity or information for the human world. The particles are only of value – are only **real** in that sense – when they are organized by higher principles and thus bring into existence atoms, molecules and organisms. But this also means that the things produced by the higher principles are not reducible to the fundamental laws of physics and chemistry, even though they are dependent on them. A watch is not reducible to the physics and chemistry of the parts which make up the watch, since a watch *as a watch* is made up of organizing principles that have nothing to do with physics and chemistry. And this also applies, of course, to a human being. It is a travesty to imagine that a person is just so much physics and chemistry, and so to suggest, at least implicitly, as many scientific materialists do, that consciousness, purpose, values and free will are illusory realities. As far as Polanyi is concerned, all such notions are “absurd conclusions” (OMM 13). Indeed, in his view, the very opposite of what scientific materialists argue is the case. It is consciousness, the human capacities for the arts, sciences, philosophy and theology – the most distinctive and transcendent human qualities – which point to the fullness of reality. The tangible is real, but it is least real because of itself it produces nothing. Only when higher ordering principles come into operation do lower levels of reality produce more complex entities. This takes us finally into some brief thoughts on emergence and evolution, and to why idealism (as described at the beginning) provides a better basis for understanding reality than does scientism.

In the final chapter of PERSONAL KNOWLEDGE, Polanyi applies the concept of multi-layered reality to the evolution of human beings (“The Rise of Man”). Expressed negatively, his purpose is to show that human existence can never be accounted for by the principles of physics and chemistry: ***“My argument will be based on a different conception of life. I shall regard living beings as instances of morphological types and of operational principles subordinated to a centre of individuality and shall affirm at the same time that no types, no operational principles and no individualities can ever be defined in terms of physics and chemistry”*** (PK 383). The positive expression of his argument is also intimated here. Polanyi asks whether random genetic mutations can ever give rise to a “new set of operational principles” (385) and answers emphatically in the negative. “[I]t is not in their nature to do so,” he says (Ibid). His idea here is that evolution and natural selection are NECESSARY, but NOT SUFFICIENT, to account for “long-range evolutionary progress” (Ibid). Polanyi takes it as common sense that life and mind emerging from inanimate matter represent progress, a progress that has taken place by virtue of the higher ordering principles which enabled life to emerge from inanimate matter, and life itself to evolve to higher and higher states of being. But where do these “higher ordering principles” come from? Do they emerge with random genetic mutations? This is impossible, he says, since ***“the ordering principle which originated life is the potentiality of a stable open system; while the inanimate matter on which life feeds is merely a condition which sustains life, and the accidental configuration of matter from which life had started had merely released the operations of life.”*** (HIS italics) This is dense stuff, but you can see the point he is

making: for life to begin in the first place, certain conditions, including environment and “configuration of matter” in line with some “ordering principle” had to be in place. Polanyi then goes on to say that **“evolution, like life itself, ... originated by the action of an ordering principle, an action released by random fluctuations and sustained by fortunate environmental conditions” (PK 383-84).** Two things are noteworthy here. First is the fine ***balancing*** of *order* in the ordering principles with *randomness* in the fluctuations of a system and in environmental conditions. Second, and most important for our purposes, is the necessary preexistence of the ordering principles.

We can see both of these things operative in the maturation, discoveries and creativity of the human mind: **“If we ask whether Euclid’s theorems existed before they were discovered, the answer is obviously No, in the same sense as we would say that Shakspeare’s sonnets did not exist before he wrote them. But we cannot therefore say that the truth of geometry or the beauty of poetry came into existence at any particular place and time, for these constitute the universal pole of our appreciation, which cannot be observed non-committally like objects in space and time” (PK 396).**

This brings us finally to the point with which I began, that “goodness, truth and beauty” reside “from the very beginning” in “the faces of Spirit as it shines in this world.” Polanyi, for the most part, is far more subdued in his suggestions of idealism. I should emphasize that Polanyi, very rightly, does not in any way suggest that the preexisting ordering principles are to be identified with God. But he does conclude PERSONAL KNOWLEDGE with a remarkable thought. “So far as we know,” human beings are, “the only centres of thought and responsibility in the visible world,” and as such they are “the ultimate stage in the awakening of the world,” which long before us, has been striving for “the aim now achieved by us up to this point.” All of the “myriad centres” of striving that have preceded us, **“are all akin to us ... We may envisage then a cosmic field which called forth all these centres by offering them a short-lived, limited, hazardous opportunity for making some progress of their own towards an unthinkable consummation. And that is also, I believe,”** Polanyi concludes, **“how a Christian is placed when worshipping God” (PK 405).**

Religion and science are both manifestations of the striving human mind to make some progress towards a consummation none of us can imagine. Like all disciplines, they are **aspects** of the universe which provide clues to the **nature of the universe**. What the convergence or integration of the two might look like is beyond our ability to say at this point, but the notion that **goodness, truth and beauty** are in some way **built into the very fabric of the universe from the beginning** is a concept to which all disciplines can give some consideration, and indeed from which they might derive some inspiration. That at least is **my thesis to this point**. Thank you.

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