The Secular Heretic

ART, BIOLOGY, HERESIES, METAPHYSICS, PHILOSOPHY, SCIENCE

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The Observer Observed

written by **Gary Lachman**

In the following essay Gary Lachman critiques the scientific doctrine of objective observation, traces its origins in Galileo's thought and considers Goethe's heretical approach to observation—"active seeing."

Objectivity: Qualia vs. Quanta

In a book I wrote some years ago—*A Secret History of Consciousness*—a reader can find this statement: "We can characterize the advance of science as the sole arbiter of truth by seeing in it the gradual expulsion of human consciousness from its object of study."[1] What I'd like to do here is to explore what I mean by this, to see where the "reality" behind this dictum has led the human mind and to look at a possible alternative to the methodology that such a view argues is unavoidable.

This excising of the purely human or subjective from scientific study was most clearly expressed in the 15th century in the differentiation Galileo made between what he called *primary* and *secondary* characteristics, which, for convenience's sake, we can call the *quantitative* and the *qualitative* aspects of our experience. Primary characteristics can be measured with certainty and will remain constant, regardless of who is observing them; speed, position, and mass are examples here. Secondary characteristics are all the "purely subjective" aspects of phenomena, the sensual side of reality: colour, smell, taste, etc. When Galileo dropped his spheres from the Leaning Tower of Pisa in order to test his theory that their different masses would not affect the speed of their descent, it made no difference what colour they were, how they felt to his touch, or, if he had bothered to find out, how they tasted. So, when I look at a blazing sunset and am awestruck, that is subjective; I am responding to secondary characteristics which, technically are not in the sunset itself but in me. When a scientist measures the electromagnetic waves emitted by the sun and which make up the "really real" aspect of the sunset, he is interested in the primary characteristics, to which we are generally oblivious. A recording device can measure wavelengths but it cannot feel awe, nor can it measure it. A recording device has no subjectivity, that is to say, it has no organ or means to register *value*. Hence, from the perspective of primary characteristics, the awe I feel is not "real," or at least it is purely "subjective." Why we are made in such a way that we do not blandly record electromagnetic wavelengths but instead see fiery reds and glorious yellows that we discover to our chagrin are not real, is a question yet to be answered.

In *Science and the Modern World* the philosopher Alfred North Whitehead remarked that when Galileo made this distinction, reality "bifurcated," that is, it split in two. Real, "objective" reality, was concerned with measurable wavelengths. Subjective reality—the one most of us spend most of our time in—was concerned with beauty, awe, wonder, and the other qualities that make up the world of value which cannot be measured. According to this view, nature, Whitehead said, is "a dull affair, soundless, scentless, colourless, merely the hurrying of material, endlessly, meaninglessly."[2] This led Whitehead to remark that when the poets sing the praises of beautiful nature, according to science they really should be patting themselves on the back, as it is the subjective human mind which *adds* any beauty they may perceive to a world from which it is distinctly absent.

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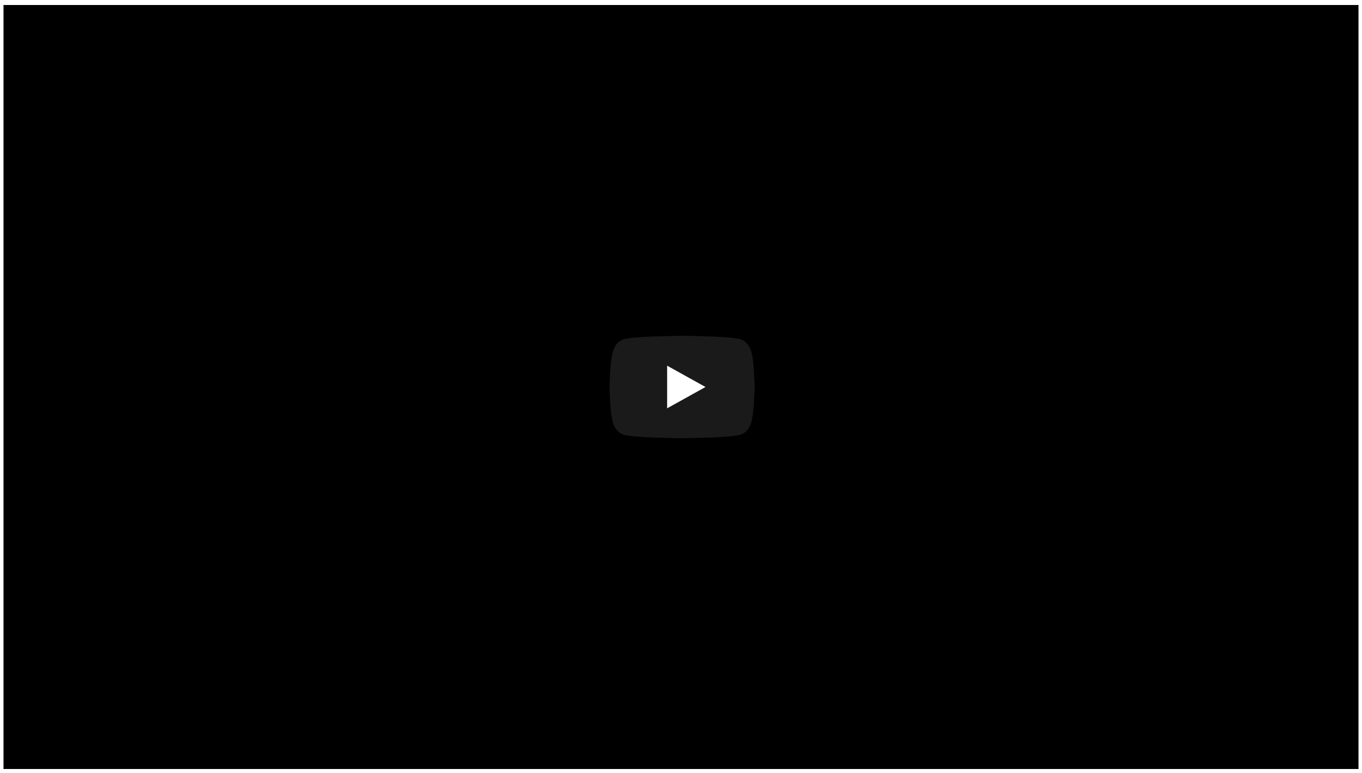
– Alfred North Whitehead

A later development of Galileo's "bifurcation" is the "fact/value" divide recognised by the social scientist Max Weber in the early 20th century. A more recent one is the problem contemporary neuroscientists and philosophers of mind have in reconciling the *qualia* associated with subjective experience—our sense of things having value; i.e. beautiful sunsets—and the *quanta*, the physical neurons and electrical exchanges of the brain associated with that experience. How many neurons does it take for us to feel that something is beautiful? The jury's still out on that one, and there's no reason to think it will be back any time soon. My own belief is that we can pile the neurons up until doomsday; they will never amount to a thought or to the feeling of "the beautiful," just as no matter how many oranges you gather, they will never produce an apple.[3]

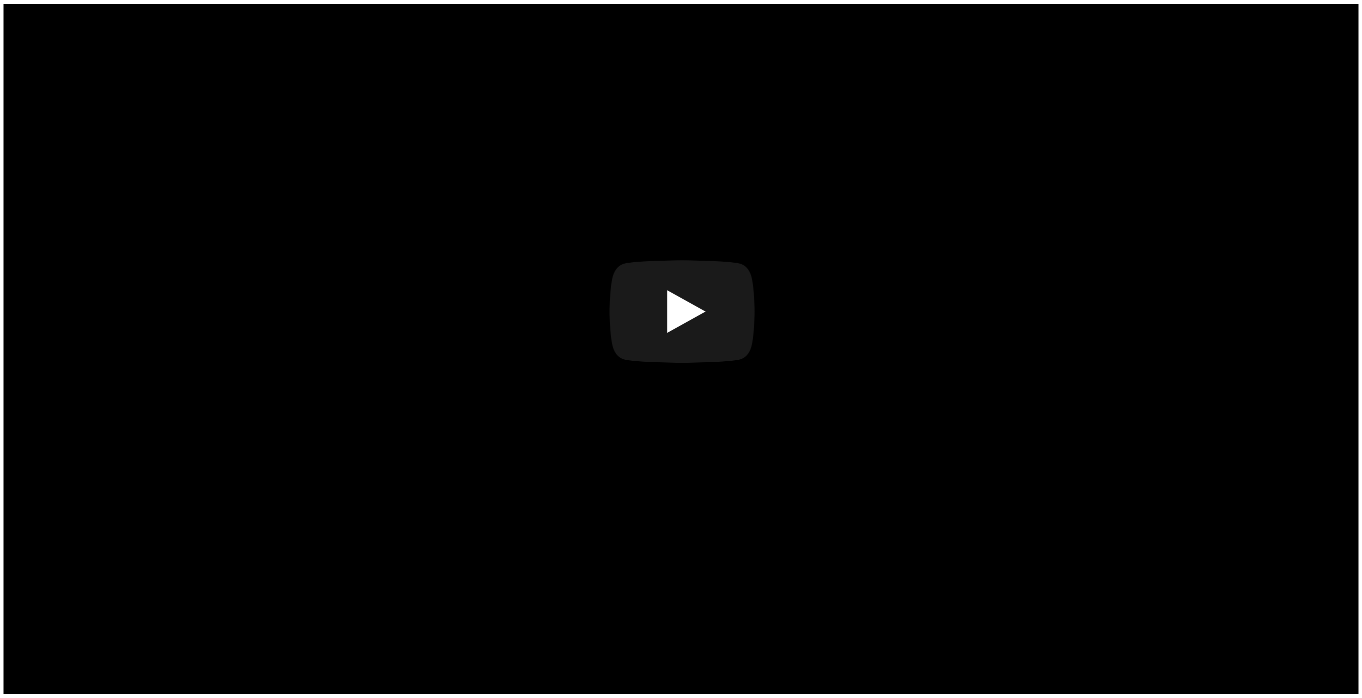
Now, this excising of the subjective from our attempt to understand the world scientifically was on the whole successful, at least in practical terms. To understand the laws of planetary motion, we had to kick the angels off the planets. To understand how nature worked—that is, physically, mechanically, in terms of cause and effect—we had to give the gods their walking papers. But while in terms of our ability to control the world, to predict what would happen where and when, Galileo's bifurcation worked like a charm, it led to some less than cheery conclusions. From Galileo's shunting of his secondary characteristics aside, we have arrived at astrophysicist Steve Weinberg's remark that "the more the universe seems comprehensible, the more it also seems pointless."[4] Comprehensible here means measurable. So, the more wavelengths we measure, the more Whitehead's remark about a soundless, scentless, colourless, meaningless nature seems spot on.

Heisenberg's Uncertainty

Oddly, by the time Weinberg made this assessment, the kind of detached, objective position that the scientist was supposed to enjoy had been for some time undermined, although the consequences of that undermining had not yet been fully appreciated, nor are they still today. In 1927 this detachment was breached by the physicist Werner Heisenberg, who introduced what has come to be known as the Heisenberg Observer Effect. Heisenberg discovered that rather than observe his elementary particles from some detached, uninvolved position, the scientist in the very act of observation alters what is being observed. This led to what we know as the Uncertainty Principle. This means that in trying to learn what an elementary particle is up to, we can only know either its position or its speed, but not both. We can know where it is, but not how fast it is moving; or we can know how fast it is moving but not where it is. This was not a problem that could be resolved through more acute observation via finer-tuned instruments, nor through ever more stringent measures taken by the scientist to preclude any interference on his part. It was part and parcel of the act of observation itself. It is rather as if a particle, catching wind that we are looking at it, decides to play hide and seek. Try as an observer may to extract himself from what he is observing, the very act of observation makes what is being observed aware of him and it says "Ha! Fooled you again!"



Watch this short video explaining the Double Slit Experiment, first performed by Thomas Young in 1801. Originally this experiment revealed the wave nature of light. As the video explains however further experimentation firing single particles through the slits has suggested that subatomic particles distribute themselves along wave-determined probability lines, as though even as individual particles, they know to distribute themselves according to wave patterns. Follow that up with the video below explaining the even more mind-blowing Delayed-Choice Experiment first proposed by John Wheeler in 1978 and the Delayed-Choice Quantum Eraser Experiment first performed in 1999. Here we discover that observation interferes directly with the outcome of particle choice. In fact, the particle will retroactively change its position as though erasing its original choice and history along with it.



One consequence of this arrangement is that the elementary stuff that physicists are interested in behaves in contradictory ways that are resolved only through the intervention of the scientist. This is the wave/particle conundrum. This means that depending on the type of experiment, the elementary whatever-it-is will act as a particle or a wave and only decides which it will be when the scientist tries to observe its behaviour and “collapses the wave function.” How the ‘wavicle’ knows what side of its character to show is another question yet to be answered.

Fascinating, puzzling and disturbing as this development was, it didn’t alter the primary/secondary dualism that Galileo had set in place. The alterations in the behaviour of electrons introduced by the act of observation did not have much to say about the distinction between the kinds of things we can measure and those we can’t. To be sure, much has been made of the strange behaviour of elementary wavicles and their supposed parallels with various elements in Eastern metaphysics; books like Fritjof Capra’s *The Tao of Physics* and Gary Zukav’s *The Dancing Wu Li Masters* are the best known works spelling these out. But although these developments put paid to the 19th century picture of a clockwork mechanical universe, and later insights into the science of “chaos” and “complexity” went on from there, they still accept that the “really real” things in the universe are these measurable whatever-they-are. They behave in crazy and unpredictable ways, to be sure, but they still have very little, if anything, to say about the sort of things that really interests us, like beauty, awe, or meaning.

Now although Heisenberg's Observer Effect sent shock wavicles through the scientific community, an earlier observer of the effects of observation on the observed had come to conclusions a century or so before that were even more remarkable. Or they would have been, had anyone paid attention to them. A handful of people did.[5] Heisenberg was one of them (much later of course) and in an interview in 1932 he lamented the fact that the science of his day—and of ours—did not bring "the phenomena of nature to our thinking in an immediate and living way" as his predecessor wanted it to do. And so according to Heisenberg it did little to help our "understanding of the world," a strange remark to come from someone whom we today consider to have done just that.[6]

Goethe's Active Seeing

Johann Wolfgang von Goethe (1749-1832)

The person who wanted to bring "the phenomena of nature to our thinking in an immediate and living way" was Heisenberg's countryman, Johann Wolfgang von Goethe, Germany's most renowned poet but also one of its most interesting scientists. Scientist? Yes. Along with writing *Faust*, *The Sorrows of Young Werther*, and other works of world literature, Goethe was a scientist, although his approach to science was rather different from that of his time, and of ours. Although Goethe's contributions to science are controversial—his disagreement with Newton's ideas about colour are considered the most egregious—there is one at least that is incontrovertible.[7] Long before Darwin, Goethe spoke of evolution, although again, his idea of evolution is not what we usually understand by that term. In 1784 he presented evidence for humankind's kinship with the so-called "lesser animals" in the form of the intermaxillary bone. Prior to this the perceived absence of this small bone in human anatomy—it resides in the jaw—was taken as evidence that humans were something apart from the rest of creation. They had a special dispensation from God and were set apart from the other animals, which had the bone. Goethe discovered the presence of the intermaxillary bone in humans by observing and comparing human and animal skulls. After paying careful attention to the differences and similarities between these, he *saw* the bone. "Eureka," he wrote to his friend, the philosopher Johann Herder: "I have found neither gold nor silver but something that unspeakably delights me." It was the intermaxillary bone.

Darwin paid credit to Goethe's discovery by calling it the starting point of our real understanding of evolution. But Goethe's notion of evolution was not Darwin's. "Natural selection" had very little to do with it. Evolution, for Goethe, was propelled not by the pressure of the environment and the chance mutations that aid an organism in its attempts to deal with it. It was the work of an *intelligence* working from within outward, not the result of mindless forces impinging on a passive, plastic stuff. But Goethe did not come to this conclusion via religious dogma or faith in Paley's watchmaker. He came to it through observation.

Goethe had a lifelong interest in alchemy.[8] Transmutation, development, growth, were central to his world view and he brought the kind of close attention the alchemist paid to the metamorphoses taking place in his alembic to those taking place in the great laboratory of Nature. This was a kind of observation in which the observer *does not* try to be as detached as possible, but rather puts as much of himself into what he is observing as he can. It is the kind of observation an artist or poet puts into the subject of his work. Or the kind that a lover bestows on the beloved. Goethe called it "active seeing," and it involves a kind of presence that the "objective" scientist shuns like the plague.[9]

Strasbourg Cathedral in Strasbourg, Alsace, France

Strasbourg Cathedral & the *Urpflanze*

As an example of "active seeing," consider Goethe's experience observing Strasbourg Cathedral. In 1770 Goethe was studying law in Strasbourg, and while there he was struck by the sight of the cathedral, a not uncommon experience, given that at the time it was the tallest structure in the world.[10] The cathedral fascinated him and he observed it under a number of different conditions and at different times of day. He even climbed its tower, no small feat as Goethe suffered from vertigo at the time; climbing the tower actually cured him of it. In the form of the cathedral, Goethe said that "the sublime had entered into alliance with the pleasing." But there was something else. Just before leaving Strasbourg for Frankfurt, Goethe mentioned to some friends that he believed the tower was incomplete, and to illustrate what he meant, he made a drawing of how the tower would have looked, had the builders stuck to the original plan. One friend knew of the original design and told Goethe he was right. But how did he know, given that the original design was not common knowledge? Goethe replied that the cathedral itself told him. "I observed it so long and so attentively and I bestowed on it so much affection that it decided at the end to reveal to me its manifest secret." As Hans Gebert, commenting on Goethe's experience, remarked, "Through observation, exercise, and mental effort, he had penetrated to an imperceptible reality, the idea of the architect."[11]

> **"I observed [Strasbourg Cathedral] so long and so attentively and I bestowed on it so much affection that it decided at the end to reveal to me its manifest secret."**
>
> ***– Johann Wolfgang von Goethe***

On another occasion, Goethe's active seeing made him privy to the designs of an even greater architect, Nature herself. During his Italian Journey (1786-88), while in Palermo, Sicily, Goethe discovered something he had been seeking for some time, what he called the *Urpflanze* or "primal plant," the essential, archetypal plant form from which all others have emerged. He published his findings in 1790 in *The Metamorphosis of Plants*. Goethe's "primal plant" was not a physical form, whose remnants could have been discovered fossilised in stone, but the non-sensory "blueprint" that eternally exists in a realm that the phenomenologist and scholar of Persian mysticism Henry Corbin later called the *imaginal*, to differentiate it from the "imaginary."

We tend to conceive the imaginary as unreal, as a world of "make believe." This is not what Goethe had in mind, literally. For Corbin and for Goethe the imaginal was very real indeed; in fact it was the source of the physical world the senses reveal to us. It is the world we perceive through our imaginative—not imaginary—engagement with the elements of the sensory world, the kind of engagement Goethe experienced with Strasbourg Cathedral. For Goethe, the imagination, which most scientists want to excise from their efforts, is an organ of knowledge. It is a way of grasping reality, not of avoiding it, but a reality larger and more complex than the one we perceive solely through the senses, or which scientists map with their measuring devices. It is a reality in which the secondary characteristics, that Galileo austerely ejected from our attempts to know the "truth" about the world, were given at least equal, if not higher billing, with the primary ones.

For more on exactly how Goethe conceived of his "primal plant," readers can consult my book *Lost Knowledge of the Imagination*.[12] Here let me conclude with what Goethe's discovery of the "primal plant" meant to him and his method of pursuing science.

On 17 January 1787, Goethe was in the Public Gardens in Palermo, ostensibly meditating on a poem he was trying to finish, when something caught his attention. He remarked that here, where "plants were allowed to grow freely in the open and fresh air"—unlike under the hothouse conditions in Weimar—they could "fulfil their destiny" and become more intelligible. Could he not here discover the Primal Plant, that elusive but ever present form of all plants for which he had been searching? Goethe believed he could and in order to do so, he graced the plants he saw in Palermo with some of his active seeing. Goethe observed them, not with the cold detachment of the mechanical scientist, but with the warmth and involvement of the artist. He directed an inner warmth and attentiveness to the objects of his observation. He had observed plants in all the stages of their development, from seed to flower, and by doing so had *participated* in that development, just as he had participated in the design of Strasbourg Cathedral. We can say that where the quantitative approach takes very precise snapshots of natural processes at selected moments, freezing their flow into a fixed form so it can be "pinned down," Goethe's way was to slow down his consciousness, so that he could experience the growth of his plants as a whole. In this way not only is the observed affected by the observer, but the observer is affected by the observed. And just as Goethe intuited the original design of Strasbourg Cathedral through the warm attention he bestowed on it—thus perceiving an “imperceptible reality, the idea of the architect”—so too his discovery of the *Urpflanze* showed him, as he wrote to his friend Herder, “the secret of the reproduction and organization of plants” so that “it will be possible to go on forever inventing plants and know that their existence is logical.” Such plants would not be “the shadowy phantoms of vain imagination,” but would “possess an inner necessity and truth.”[13] The “truth,” that is, of their architect, Nature herself.

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For Goethe this meant that “truth” was not “out there,” as the objective scientist and *The X-Files* tell us. Nor was it “in here,” as the mystic and poet maintains. It is found in “a revelation emerging at the point where the inner world of man meets external reality.” “It is a synthesis of world and mind,” he said, brought about because “there resides in the objective world an unknown law which corresponds to the unknown law within subjective experience.”[14] Such truth as may be arrived at without this, by objective methods alone, may indeed prove remarkably practical and useful, as our conquest of nature makes clear. But it is a truth, as Goethe recognised, which exercises “those of our faculties which have the least bearing on what we are as people”—that is, on reality’s “secondary characteristics”—and which only “digs away at the gulf between us and the good life.” Such pursuits, Goethe believed, would condemn us to “fret away our days in the narrowest and most joyless limitation.”[15]

A science that arrives at the observation that the more we understand the universe, the more pointless it seems strikes me as condemning us to such joyless fretting. But a science that did not excise the “subjective” aspects of reality—that is, the contribution of the observer—but included them in its pursuit of “truth,” could, I think, avoid it.

Gary Lachman is the author of twenty-one books on topics ranging from the evolution of consciousness to literary suicides, popular culture and the history of the occult. He has written a rock and roll memoir of the 1970s, biographies of Aleister Crowley, Rudolf Steiner, C. G. Jung, Helena Petrovna Blavatsky, Emanuel Swedenborg, P. D. Ouspensky, and Colin Wilson, histories of Hermeticism and the Western Inner Tradition, studies in existentialism and the philosophy of consciousness, and about the influence of esotericism on politics and society. He writes for several journals in the UK, US, and Europe, including *Fortean Times*, *Quest*, *Strange Attractor*, *Fenris Wolf*, and his work has appeared in the *Times Literary Supplement*, *Times Educational Supplement, Guardian*, *Independent on Sunday*, *Sunday Times*, *Mojo*, *Gnosis* and other publications. He lectures regularly in the UK, US, and Europe, and his work has been translated into a dozen languages. He has appeared in several film and television documentaries and on BBC Radio 3 and 4 and is on the adjunct faculty in Transformative Studies at the California Institute of Integral Studies. Before becoming a full-time writer Lachman studied philosophy, managed a new age bookshop, taught English Literature, and was a Science Writer for UCLA. He was a founding member of the pop group Blondie and in 2006 was inducted into the Rock and Roll Hall of Fame. Lachman was born in New Jersey, but since 1996 has lived in London, UK.

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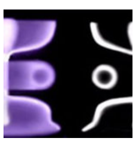

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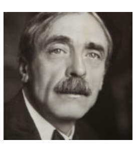

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