



Reflections Regarding Science, Technology, and Worldview

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Abstract

Views of science and technology are worldview dependent. Worldviews, especially as our tacit, embodied visions of the world and life rooted in the heart, must be carefully examined as the source of our scientific and technological viewpoints. Science and technology permeate and enrich contemporary society. But we must never forget that for every person, regardless of profession, academic discipline, or personal beliefs or non-beliefs, presuppositions prevail and values have consequences.

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“There is a presuppositional basis for life.” I received this idea from journalist, educator, and foreign policy consultant David Aikman at a conference at which he was speaking several years ago (at Cambridge or Oxford, I forget which). I don’t know where he got this idea. Perhaps he thought of it himself. Regardless, just as a train rolls along its tracks, so too, our biggest convictions and positions, including those about science and its application in technology, are guided by hidden, taken-for-granted, presuppositions that shape our view of life and the world (and everything in it).

For example, Stephen J. Gould, in his book, *Ever Since Darwin* (1977), affirmed that Darwin’s theory prompted this response, which Gould embraced, from H. J. Muller: “Evolution is purposeless, nonprogressive, and materialistic” (1). Is this a scientific statement, established in a laboratory? Or is it a chosen perspective, Gould’s presumably, even a kind of philosophical and/or religious outlook? Hence, mathematician Dave Pruett’s issues this important point in one of his articles: “Science, be careful what you assume, for in addition to limiting your vision, assumptions carry unintended consequences, some of

which are deleterious” (2). There is, indeed, a presuppositional basis for life. Theologian Carl F. H. Henry (1913-2003) in his magnum opus *God, Revelation, and Authority* (1976-1983), devoted six volumes to the study of ideas and presuppositions noting: “No historian or scientist actually proceeds without presuppositions. Empiricists always operate on presuppositions which they cannot prove by their methodology” (3). He argues:

Whatever method of investigation is employed, we must of course abandon all claims to its absolute neutrality, since a presuppositionless methodology is an absurdity and, in fact, an impossibility. Every methodology has its presuppositions, and no interpreter is wholly—nor is he ideally so—free of presuppositions. No method is without underlying axioms and assumptions or aims or goals. Reliance on any given methodology involves a certain preunderstanding about the nature of the subject being investigated. The use of a method presupposes that the matter studied can be handled adequately by that method (4).

To say there is a presuppositional basis of life means there is an assumed or presupposed, even an “unconscious,” (5) worldview basis of beliefs (our ideas have antecedents!) about how we understand God, the universe, ourselves, and our world and its science and technology, that is, what God, the universe our world and human life—its investigation and its machines—are for and all about. This was exemplified, especially so, in ideological clashes over human disabilities during World War II.¹ The Nazi perspective on disability clashed strongly with the stance of a genuine religious persuasion. In that war, “The status of disabled life ... became a focus ... in exposing ideological conflicts” (6). This clash of worldviews over disability was especially seen in the conflict over the appointment of the first bishop of the unified Protestant Reichs Church (Deutsche Evangelische Kirche, and colloquially Reichskirche) in 1933. The nomination of Friedrich Bodelschwingh, Junior (1887-1946, also known as Friedrich Bodelschwingh the Younger) to the bishopric as the head of the Christianly-oriented Bethel Institute for the Physically and Mentally Handicapped (v. Bodelschwinghische Anstalten Bethel) stood in sharp, symbolic contrast to the Nazi outlook. Bodelschwingh and colleagues were for treating the disabled helpfully as fully human. The Nazis decided, for example, on euthanasia, that is, getting rid of the undesirables as at Bergurg (7). After all, Bethel was clearly seen “as a social embodiment of Christian anthropology” (6). Bergurg and the practices there (and elsewhere) were ultimately rooted in an alternative perspective.

Indeed, at the center of this conflict was the matter of a theological or philosophical anthropology, that is, ideological perspectives (or worldviews) on human beings and human nature. Disability immediately raised (and raises) this clash of perspectives. As Brian Brock, in commenting on this topic of disability, has written, “What does it mean to be human? Any approach to the topic of disability leads inexorably toward the ‘problem of the human.’ Westerners face this problem, however in an intellectual universe that has kept its distance from sustained attention to what we now call disabling conditions” (8).

More recently, both Christopher Reeve’s “naturalism” and Joni Eareckson Tada’s Christian “theism” illustrate the relationship between competing ideologies or worldviews, science, and the development and use of, especially, various bio-technologies. In May 1995, Christopher Reeve, a.k.a., Hollywood’s earlier “Superman” (1978) was thrown head-first from a horse in a riding accident, suffered a broken

neck, and was paralyzed from the shoulders down. He was confined to a wheelchair and dependent upon a ventilator for nearly every breath. At the time of his tragic accident, doctors predicted that he would never breathe on his own again, or regain any motor ability. Sadly, they were right. He died on October 10, 2004.

Not long after his accident, Reeve became an outspoken spokesperson in public and political forums supporting specific areas of scientific research and technology, particularly human embryonic stem cells and somatic cell nuclear transfer, a.k.a. therapeutic cloning. His goal was support for the curing of a multitude of dreaded diseases and afflictions, including those of the spinal column, like, and including, his own. Deploying arguments that were primarily utilitarian in character, Reeve said in an America Online (AOL) interview that “religion should not play a role as governments around the world debate the ethics of any kind of medical research. It is likely that a cure for spinal cord injury as well as a wide variety of other diseases and conditions will be the result of a combination of rehabilitative and regenerative therapies. That is why all reasonable approaches need to be funded and explored” (9).

Of course, his use of the word “reasonable” in this citation must be defined. In the same interview, Reeve was asked if he had just five minutes to spend with the then (and ideologically- and worldview-opposed) President George W. Bush, what would he say to him? Reeve responded as follows: “I would like to make sure the President knows that the US is in danger of losing its preeminence in science and medicine possibly due to pressure from social and religious conservatives who do not represent the majority in this country. I would like to convince him that the best way to stop reproductive cloning, which is abhorrent to all of us, is to support legislation that would permit the government to fund therapeutic cloning while imposing severe criminal punishment on anyone who attempts reproductive cloning” (9).

The counterpart to Christopher Reeve is Joni Eareckson (Joni is pronounced “Johnny”). In 1967, at the age of seventeen, Eareckson jumped into shallow waters in Chesapeake Bay during a boating excursion, and broke her neck. She was paralyzed from the neck down. Since that time she has been confined to a wheel chair as a quadriplegic, unable to use her hands or feet. She requires daily assistance to bathe, dress, and take care of the daily routines of life. In her situation, Joni Eareckson married

Ken Tada in 1982 (hence, Joni Eareckson Tada), and became well known as an author, actress, artist (using her teeth to hold a paint brush and pencil), and advocate for those with disabilities.

Tada has also for years been involved in the cutting-edge issues of the science and technology of bioethics. As a quadriplegic and a Christian theist, she is deeply concerned with how abortion, euthanasia, embryonic stem cell research, and other anti-life phenomena have distorted the notion of what it means to be human. Indeed, she opposes taking of human life through stem cell research and therapeutic cloning even if it might alleviate her own suffering and the suffering of other people. She believes it is unethical to take a life in order to save a life. Tada also recognizes that the disabled have never fared well in cultures that view life as a commodity, as Nazi Germany just some 70 years ago showed most clearly.

In a speech, she stated: “The first to be carted off down the long, dark, midnight hallways of institutions were the defective, or the handicapped, or the mentally disabled” (10). She added “the lives of all of us are jeopardized when life can be bought and sold, copied and replicated, altered and aborted and euthanized. Thus, she said: “We are all vulnerable in a society that thinks nothing of creating a class of human beings for the purpose of lethal experimentation and exploitation” (10).

Christopher Reeve and Joni Eareckson Tada found themselves in very similar situations as wheel-chaired-bound quadriplegics. But they have two very different positions about the technology of medical science and research, that is, about the use of various bio-technologies that could quite possibly alleviate the suffering of countless numbers of people, as well their own.

Why do they have and promote such widely different outlooks on these matters? Don’t forget, there is a presuppositional basis for life. Thus, I would submit to you that the reason is this: because of the fundamental differences in their underlying assumptions or premises about reality, that is, because of their different worldviews.

Reeve was a naturalist; Tada a theist and Christian. They illustrate for us, quite vividly, the difference that fundamental presuppositions, assumptions and worldviews make in our approach to matters scientific and technological. Otherwise, we hold to our technological viewpoints *unpro-*

legomenously, that is, without giving proper attention to underlying, preliminary, and highly determinative matters.

With this in mind, our task and topic is to take a look at the issue of worldview in general, with Reeve’s naturalism and Tada’s Christian theism as illustrations, and the bearing of presuppositions, assumptions and worldviews on science and technology.

So, first of all, consider a little background on the concept of worldview itself. Worldview (or the German *Weltanschauung*) first appeared in Immanuel Kant’s *Critique of Judgment*, published in 1790, in which he invented the term. For Kant, the word was an incidental coinage. Though Kant is proverbially difficult to understand, for him, it seems that *Weltanschauung* referred to perception of the world through the five senses. Though to Kant the term was of minor significance, yet his “Copernican revolution” in philosophy (shifting cognition and ethics from the outside to the inside world) with its emphasis on *knowing and willing self* as cognitive and moral center of the *cosmos*, created the conceptual space for the notion of worldview to flourish.

From Kant, the term prospered in German idealism and romanticism in the late 18th and early 19th centuries. In this setting and under the Kantian spell, the term took on highly personalized and subjective connotations. During this time, *Weltanschauung* also became part of the standard vocabulary of the educated German. Evidently, it was an idea whose time had come. After Immanuel Kant, Friedrich Schelling (1775-1864) gave the word its standard philosophical definition. According to Martin Heidegger, Schelling defined worldview as “a self-realized, productive as well as conscious way of apprehending and interpreting the universe of beings” (11).

It’s most important to know about many things, and perhaps, worldviews should be at the top of the list. As the late Professor Ninian Smart (1927-2001), formerly of the University of California, Santa Barbara, and the University of Lancaster, England, has said: “An educated person should know about and have a feel for many things, but perhaps the most important is to have an understanding of some of the chief worldviews which have shaped and are now shaping human culture and action” (12). For Smart, this involves knowing “the geography of human consciousness” in general especially one’s own, particularly in its doctrinal, mythic, ethical, ritual, experiential, and social aspects (12). In this light, we shouldn’t forget

Socrates' famous admonition: "The unexamined life is not worth living" (*Apology* 38a).

In any case, the notion of worldview was adopted by writers using other European languages either as a loan word, especially in Romance languages (languages developed from Latin—for example, Spanish, Portuguese, French, Italian, and Romanian), or as a calque or copy word in Slavic and Germanic languages (Czech, Dutch, German, Hungarian, Polish, and Russian). Worldview, or the German *Weltanschauung*, eventually crossed the English Channel and the Atlantic Ocean, and found its way into English both as loan word and as a copy word by the mid-19th century.

A Scottish Presbyterian educator and theologian James Orr (1844-1913) defined worldview as one's "whole manner of conceiving of the world and man's place in it; the widest view which the mind can take of things in the effort to grasp them together as a whole from the standpoint of some particular philosophy or theology" (13).

The Dutch politician and polymath Abraham Kuyper (1837-1920) said that worldview was one's "life system, or fundamental principle of life." He illustrated the notion botanically: "As truly as every plant has a root, so truly does a principle hide under every manifestation of life. These principles are interconnected and have their common root in a fundamental principle; and from the latter is developed logically and systematically the whole complex of ruling ideas and conceptions that go to make up our life and world-view" (14).

Before these thinkers, G.W.F. Hegel (1770-1831) noted the importance of "worldviews" as expressions of Spirit or *Geist*, taking various forms of consciousness, ensconced in the basic principles of the times, or in the *Zeitgeist*, producing definite conceptions of the world, outlooks on life, a national spirit, and in general, views of life.

Similarly, Søren Kierkegaard, a Dane who lived from 1813-1855, focused on lifeviews (Danish: *livsanskuelse*), a concept which fit in nicely with his existential philosophy. He emphasized the importance, even the duty, to understand one's self, one's premises and conclusions, one's conditionality and freedom, in short, do discover the purpose and meaning of one's life.

This brings us to the father of worldview theory in the German philosopher Wilhelm Dilthey (1833-1911). Dil-

they believed that worldviews were rooted in lived experience. They essentially were intuitions about life that emerged from standing in the middle of life (I wonder to what extent one's rituals or regular patterns of behavior contribute to the shape of a person's worldview? This raises the question: Are worldviews shaped by nature or by nurture? Probably views of the world are derived from a combination of both *nature and nurture* if some recent, paradigmatic studies have weight) (15).

Presumably, according to Dilthey, worldviews were explications of the enigma of life. They offer answers to the questions that comprise life's riddles: where did I come from? What do I do in the world? Why am I in the world? What will become of me? How will my life in the world come to an end? Dilthey thought there to be three basic or typical worldviews, each specifying conflicting ways of articulating humanity's relation to nature, either in *Naturalism*, in which humans see themselves determined by nature, or in the *Idealism of Freedom*, in which people are conscious of their separation from nature by virtue of free-will, or in *Objective Idealism*, in which human beings are conscious of their harmony with nature (16).

In simple terms, we can say that the heart of the matter of worldview is that a worldview is a matter of the heart. In other words, life proceeds "kardiologically," that is, out of a vision of the *embodied* heart (not free-floating Cartesian thinking only). Christopher Reeve had a worldview; Joni Eareckson Tada does too; so do you; so do I. Everyone has a "world hypothesis" (17).

From this brief and abbreviated historical survey of worldview definitions, we reach three basic conclusions. First is the *perspectival nature of human life and knowledge*. That is, we all see things aslant, including science and technology, that is, from a particular point of view, from a vantage point, under the general jurisdiction of a set of presuppositions and assumptions about the basic make up of reality.

This is true for the ditch-digger and also for the professional thinker. Some kind of faith precedes all understanding, to put it in Augustinian or Anselmian terms. In Latin, *credo ut intelligam* (I believe so that I may understand). As the Bulgarian-born, now French philosopher and novelist, Julia Kristeva has argued, there is *This Incredible Need to Believe* (18). Similarly, as the American church historian George Marsden has said, more and more people are recognizing the "pretheoretical conditions of knowl-

edge” (19). Faith of some kind, then, must be a universal component of human nature. Indeed, faith, we might say, suffuses human nature. The question is: which or what kind of faith?

This leads to a second point: *the myth of objectivism and neutrality* (academic or otherwise). That is, there are no immaculate perceptions of the world around us, and the issues within it, science and technology included. It is impossible to dispossess oneself of one’s primary attitudes, beliefs and commitments about any enterprise, including scientific and technological ones. Do we even know ourselves well enough to discard ourselves?

Neither is such self-dispossession even desirable. “Spockian” (that is, a purely scientific, value-neutral, non-emotional approach to things as seen in the famous *Star Trek* character Spock, played by Leonard Nimoy) approaches to theorizing are not desirable for human beings who are constituted as physical, intellectual, affective, volitional, fiduciary, situated, ethnic, gendered, class-based people. All these personal realities would have to be sacrificed on the altar of neutrality, if a *pure, scientific, arch-rationality* is the desideratum. Since this is neither possible nor desirable, I conclude, then, that academic or personal objectivity is out of the question. The only question, then, is not whether faith of some kind fashions our outlook and will lie at the basis of our reflections, including reflections on science and technology. Rather, the real question, once again, is simply, “which or what kind of faith”?

Finally, it is safe to say on the basis of the two preceding points that *views of science and technology, one way or another, will be influenced significantly by a diversity of worldview outlooks*, as both Christopher Reeve and Joni Eareckson Tada have indicated and illustrated. Technology itself is not neutral; neither are we neutral about it.

In relation to this last point, we must see how worldviews affect various basic activities, cognitive and otherwise, in some philosophical reflections on worldview. Worldviews are best understood *sub specie semiotica*, as a system of signs, irreducibly narratival in form, that comprise an essential framework within which we reason about things, as well as interpret and understand God, others, ourselves, and the world. Rationality, hermeneutics and epistemology, in other words, all are affected to a greater or lesser extent, by worldview presuppositions and assumptions (including the ways in which science and technology can help and hurt us).

For example, how might the respective creation stories of the Babylonians (*Enuma Elish*) and the Hebrews (Genesis 1-2) shape the mind- and heart-sets of young people in Babylon and Israel (20)?

Here is my conclusion overall about worldview:

A worldview, then, is a semiotic system of narrative signs that creates the definitive symbolic universe which is responsible in the main for the shape of a variety of life-determining human practices. It creates the channels in which the waters of human reason flow. It establishes the horizons of an interpreter’s point of view by which texts of all types are understood. It is that mental medium by which the world is known. The human heart is its home, and it provides a home for the human heart. At the end of the day it is hard to conceive of a more important human or cultural reality, theoretically or practically, than the semiotic system of narrative signs that makes up a worldview (16).

Worldviews are, indeed, that influential with scientific and technological implications. What might those implications be? What is a Christian worldview perspective (or another faith tradition worldview perspective)? There are a limited number of mutually exclusive ways of construing reality in worldview terms, three in total: *theism* (and the derivatives of deism, modernism, postmodernism, Islamism, Judaism, and Christianity and its sects), *naturalism* (and its offshoots of existentialism and nihilism) and *pantheism* (and its offshoot of panentheism).

Theistically-speaking in the Judeo-Christian tradition, a God exists and is the immanently involved maker (and redeemer) of heaven and earth whose commands exist and are to be obeyed. Naturalistically speaking, there is no God (or god or goddess or spook or fairy, or demon) of any kind, anywhere. In naturalism, nature pure and simple is the “whole-show”.ⁱⁱ

Reeve and Tada are representatives of these first two outlooks, and so are their views of science and technology. The former opens the door to all sorts of enterprises unhindered by any God, god or religion; the latter is for science and technology, but also closes the door in some cases, limiting these endeavors in light of God’s existence and commands.

Pantheistically-speaking, God and the cosmos are in some way identical or, at least, immanently and intimately related, whether absolutely or developmentally, or immanationally. Robb Miller, creator of *Pantheist Net/UPS* website is a representative of a pantheism that believes, in general, that in some sense the cosmos is God and the earth is holy. Hence, what is needed is a “more ethical science and better public control over science and technology—not an abandonment of science [and technology]” *per se* (21). Pantheists in general wish to regulate science and the use of technology in light of the fact that divinity is equated, in some way, with the world.

Some interesting research was produced by University of Michigan sociologist Elaine Howard Ecklund regarding the belief dispositions of American scientists in comparison to Americans in general. (22) Ecklund reports: “Almost all Americans believe in God. But only a third of elite scientists believe in some sort of God. How about religious practice? Just over half of elite scientists say they never attend religious services, compared with 22% of the general public . . . But there are also many religious scientists, even a few outspoken evangelicals—like Francis Collins, who headed the prestigious Human Genome Project (1993-2008), and was appointed last year [2009] by [President] Obama to head the National Institutes of Health” (23).

While nearly fifty percent of scientists are religious in some way or another, many are what Ecklund calls “spiritual entrepreneurs,” that is, those who are seeking creative ways to work with the tensions between science and faith outside the constraints of traditional religion (22). It is true, then, that “... scientists are less religious than the general [American] population” (23).

Regardless, the primary points I wish to make are these: 1) Views of science and technology are worldview dependent. 2) Worldviews, especially as our tacit, embodied visions of the world and life rooted in the heart, must be carefully examined as the source of our scientific and technological viewpoints. Science and technology permeate and enrich contemporary society. But we must never forget that for every person, regardless of profession, academic discipline, or personal beliefs or non-beliefs, presuppositions prevail and values have consequences.

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Competing interests

The author declares that he has no competing interests.

Notes

- i. According to the World Health Organization, the UN Development program and the Journal of Religion, disability worldwide is staggering: over one billion people are currently living with a disability (liberally defined), 80% of the disabled are unemployed, 25% of disabilities in some countries result from injuries or violence, 95% of babies diagnosed with Down syndrome are aborted in countries where abortion is available, 80% of people with disabilities live in developing countries, 1.7 times annual rate at which violence against children with disabilities occur when compared to the rate at which violence happens to their peers without disabilities. Source: *Kindred Spirit* 37 (Spring/Summer 2013), p. 11.
- ii. For a definition of naturalism, see C. S. Lewis, *Miracles: A Preliminary Study* (New York: Macmillan Publishing Co., Inc., 1947), p. 11 where he states “What the naturalist believes is that the ultimate Fact, the thing you cannot go behind, is a vast process in space and time which is going on of its own accord.” On page 12, Lewis uses the phrase “whole show,” to describe naturalism as a worldview which precludes miracles.

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