

EPILOGUE

The Many Worlds of Buddhism and Science

IN THE PROLOGUE, I commented that in Buddhism grasping onto one's own views, or vision of the world, as being uniquely true and superior to all others is regarded as a fundamental delusion. The preceding chapters have sought to demonstrate that such dogmatism is as common today among scientific materialists as it is among religious believers, East and West. Christian belief in the unique truths of the faith is rooted in history. Devout Christians believe that the words of the Apostles, as recorded in the New Testament, were blessed by the Holy Spirit. Likewise, the hand of God is believed to have been guiding the Synod of Hippo in 393, when a council of Christian bishops listed and approved a canon of sacred scripture, recognized since that time as the New Testament. Many believe in the infallibility of subsequent ecumenical councils, an article of faith that was first systematically discussed by Theodore Abu-Qurrah in the ninth century. Belief in the divine guidance of the Roman Catholic Church was expressed once again in 1870, when the First Vatican Council endorsed papal infallibility as a dogmatic revelation of a Truth about the Papal Magisterium. The First Vatican Council concluded its decision with the declaration: "So then, should anyone, which God forbid, have the temerity to reject this definition of ours: let him be anathema."

The German philosopher Ludwig Feuerbach (1804–72) was among the earliest nineteenth-century atheists to utterly reject this view of Christianity and its origins, giving his own novel account of the relation between

God and man. In part I of his extraordinarily influential book, *The Essence of Christianity*, he develops what he calls the “true or anthropological essence of religion.” He argues that Christians project onto God qualities that are the perfections of the human species. In short, God is nothing else than the outward projection of man’s inward nature. The whole of Christian doctrine is therefore best understood either as an objectification of certain distinctively human qualities or as an imaginative expression of human aspirations and feelings. He summarizes this point with the words, “Man—this is the mystery of religion—projects his being into objectivity, and then again makes himself an object to this projected image of himself thus converted into a subject.”¹

In part II of this work, Feuerbach discusses the “false or theological essence of religion,” namely, the view of God as having an existence separate from and independent of man. He argues that we alienate ourselves when we objectify our nature in the Divine, and that the very act of attributing human qualities to an external divine being necessarily withdraws these same qualities from the human species. Humans unconsciously project their desire for meaning and immortality onto the universe, giving the name “God” to what they themselves have projected. By the end of his career in 1871, Feuerbach considered himself to be an atheist, materialist, and communist. His projection theory had an immense impact on the development of European atheism in the nineteenth century, deeply influencing the thinking and writing of Karl Marx and Friedrich Engels, who catalyzed more confusion and human misery than any other intellectuals in modern times.

The establishment of the Church Scientific in the late nineteenth century was an attempt to replace Christianity and all other religions with a new, all-encompassing vision of reality. With the many advances of science since the sixteenth century, the role of God in nature was replaced by a series of scientific discoveries, first in the fields of physics and astronomy, then in geology, and finally in biology. Only those areas that could not be explained scientifically were left to theology and a “God of the gaps.” At the start of the twenty-first century, many believed that there was simply no need for God or religion of any kind to explain the whole of the natural world.

The historical development that has resulted in this triumph of the scientific worldview began with the first great scientific revolution in the

physical sciences, launched by Copernicus, Kepler, Galileo, and Newton. The second great revolution took place in the biological sciences, ignited by Darwin and Wallace's theory of natural selection. Only after these two great scientific developments was a science of the mind initiated in the late nineteenth century. In light of this historical evolution of science, it was inevitable that the Church Scientific would come to insist that all mental phenomena emerge solely from biological processes, that all of life emerged from inorganic physical processes, and that the universe as a whole inexplicably emerged from a mindless, lifeless singularity at the dawn of time.

By the mid-nineteenth century, the methods and theories of physics were well established as the dominant paradigm for the natural sciences as a whole. So it was only "natural" for biologists to conclude that life originally formed from the inorganic stuff that is the domain of physics. And by the time the mind sciences began to develop, psychologists, behaviorists, and cognitive neuroscientists naturally concluded that the mind is formed from the organic matter that is the domain of biology. In the scientific worldview, the universe began with the emergence of lifeless, unconscious configurations of matter and energy; over the course of billions of years, these gave rise to living organisms, which gradually evolved into conscious, sentient beings. Although many fundamental questions remain concerning the origins of life and of consciousness, scientists take a "matter-of-the-gaps" approach, assuming that any future discoveries will necessarily take place within their familiar, materialistic framework. Anything else is unthinkable.

The general assumption seems to be that it's simply a coincidence that the evolution of the cosmos has followed the exact same sequence as the evolution of modern science since the sixteenth century. Was it a logical necessity that the first great discoveries within the natural sciences took place in physics and were followed by discoveries in the life sciences? Or do members of the Church Scientific believe that the hand of Nature caused the first pioneers of modern science to be physicists and caused them to be followed by biologists and finally by psychologists? Historians have clearly shown that the origins of modern science, beginning with astronomy, were deeply rooted in Christian beliefs and ideals, as natural philosophers like Copernicus, Kepler, and Galileo sought a "God's-eye view" of God's own creation.² Had it not been for these Christian influ-

ences, the scientific revolution might never have occurred, or it might well have been rooted in biology or psychology, which could have given rise to an entirely different kind of worldview.

The reductionist view of human existence has been given a status within the Church Scientific that is tantamount to infallibility. With the recent emergence of “postgenomic biology,” materialists triumphantly declare that there is no longer room for doubt that anything more is needed to fully understand all living organisms than an understanding of their physics and chemistry. The goal of the new biology is to thoroughly understand every living organism in terms of its anatomy, physiology, and behavior; this, it is hoped, “will result in the ability to manipulate animals, plants, fungi, and bacteria to human ends. It will explain the history of life. And it will reveal, in pitiless detail, exactly what it is to be human.”³ Any biologist who has the temerity to reject this belief is likely to be denounced as “anathema” to the scientific community and risks being excommunicated from publishing in peer-reviewed scientific journals.

Materialists reject theism, but matter—as it exists in and of itself, independent of measurement—is as unknowable to the human intellect as God, who exists in and of Himself. The materialists’ belief—that the entire universe, as it exists independently of the human mind, consists solely of physical entities—entails a wild leap of anthropocentric faith. They are avowing that reality, as it exists independently of human concepts, fits neatly within the human conceptual construct of “physical,” as we define this term in the twenty-first century. This is an expression of blind faith in something that can never be verified or even put to the test of experience. If the term “metaphysical” denotes “the transcendent, or a reality beyond what is perceptible to the senses,” then the physical world as it exists independent of all systems of measurement is metaphysical and therefore “supernatural.”

Virtually all neurobiologists agree that there can be no nonphysical influences on the brain, for this is impossible according to the seemingly inviolable and universal principle of the conservation of mass-energy. Sometimes expressed in terms of the “closure principle,” this states that in any closed system, the total amount of mass-energy is conserved. When the closure principle is applied to the universe as a whole, this means that all influences on the universe occur due to mass-energy transformations within this system—there is absolutely no possibility of nonphysical,

supernatural influences on the universe from outside, such as from angels, demons, or God. The same principle is then applied to the brain: all events occurring within the brain can be attributed only to mass-energy processes inside and outside the brain. There is no possibility of any non-physical influences, such as from nonphysical virtuous or nonvirtuous mental processes or a soul. The macrocosm of the universe and the microcosm of the brain interacting with the body and physical environment can therefore be likened to a bank and its financial transactions with clients: the accounts of mass-energy transactions are always balanced, with nothing entering from the outside or leaving from the inside.

In fact, according to the energy-time Heisenberg uncertainty principle, the closure principle is violated regularly, and the shorter the violation, the greater it can be. Whether there are any such quantum effects in the brain remains an open question. Leaving this point aside, serious qualms may be raised about “balancing the accounts” of the conservation of mass-energy in the universe at large. According to the latest astrophysical reports, only about 4 percent of the total energy density in the universe is accounted for in the sense of being measurable. In fact, 22 percent of the gravitational force in the universe is unaccounted for, so it is attributed to “dark matter.” The word “matter” is simply a placeholder, and the word “dark” means scientists know nothing about it: a classic case of “matter-of-the-gaps.” The gravitational pull of dark matter has a weight 60 times that of the stars and 7 times that of all ordinary matter, including gas and solid material in space.

Seventy-four percent of the force in the universe that opposes gravity and causes the acceleration of the expansion of the universe is also unaccounted for, so this is attributed to “dark energy.” The nature of this so-called energy is unknown, hence the qualifier “dark.” In effect, it has a weight almost twice that of all matter, observable and unobservable, or “dark.” Although physicists don’t know the nature of either dark matter or dark energy, they are confident that these unknown entities, existing in the objective universe independently of our measurements, fit within our human notion of “physical.” The designation is clearly tautological: if something exists, even if its nature is completely unknown, it is declared to be “physical.” This approach to preserving the principle of conservation of mass-energy by simply assuming that there are no nonphysical influences on the universe is nothing less than “cooking the books” in or-

der to preserve the constancy of mass-energy in the universe. If a bank had such problems balancing its income and expenses, it would be forced into default, or it might receive a massive bailout from the government, thereby exporting its problems from the private sector to the public sector. In summary, if the term “metaphysical” refers to things that lie beyond the observable universe, then 96 percent of reality is metaphysical, which materialists regard as “supernatural.” The metaphysical beliefs of scientific materialism turn out to be bankrupt: they are neither true nor meaningful.

The materialists’ worldview is fundamentally rooted in physics, so before we invest too heavily in the belief that all biological and mental phenomena must be emergent properties of lifeless, unconscious matter, it would be worthwhile to assess where cutting-edge physics stands today. The field of quantum mechanics is the most fundamental branch of physics, with the deepest insights into the nature of matter and energy. In his recent book entitled *Quantum*, science writer Manjit Kumar cites a poll about the interpretation of quantum mechanics, taken among physicists at a conference in 1999. Of the ninety respondents, only four said they accepted the standard interpretation taught in every undergraduate physics course in the world, thirty favored the “many-worlds interpretation” formulated by the Princeton theoretician Hugh Everett III (1930–82), and fifty replied, “none of the above or undecided.”⁴ The real implications of quantum physics seem to be hidden in a cloud of uncertainty.

To investigate more recent advances in physics and where it is headed, we may look to a conference held at Caltech at the beginning of 2010, the Physics of the Universe Summit, which was designed to set the research agenda for the rest of the twenty-first century. This was intended to provide a setting in which physicists from around the world could avoid “groupthink” and “be daring (even at the expense of being wrong),” according to the instructions of Maria Spiropulu, who organized the event. But the results were not what the organizers had in mind. Joseph D. Lykken of the Fermi National Accelerator Laboratory, who helped coordinate the meeting, commented, “We’re confused, and we’re probably going to be confused for a long time.” Lawrence Krauss, a cosmologist from Arizona State, added that not only are most contemporary theories wrong, but most data are also wrong—at first—subject to glaring uncertainties. The recent history of physics, he said, is full of promising discover-

ies that disappeared because they could not be repeated.⁵ The mysteries surrounding the real meaning of quantum physics may be clarified only when the ideological shackles of scientific materialism are discarded and scientists come to grips with the role of consciousness and meaning in the universe.

One direction to explore in this regard is Everett's "many-worlds interpretation" of quantum mechanics, which has recently grown in popularity among physicists. First presented in 1957 in his doctoral thesis, which he developed under his advisor, John Wheeler, Everett called his hypothesis the "relative state interpretation of quantum mechanics."⁶ But ever since Wheeler and Bryce DeWitt wrote papers on this theory, it has been known as the many-worlds interpretation.⁷ According to Everett's hypothesis, in the act of measurement, the quantum world is divided into alternative classical worlds, each of which is equally "real." The observer, however, subjectively perceives only one classical world, namely the one that arises in response to the specific measurements chosen by him or her. In any one of Everett's worlds, because of the internal principles of quantum-mechanical evolution, all valid observers within the same cognitive frame of reference see the same thing, so their observations are consistent with one another. The selection of reality by each conscious observer is made in relation to those aspects of reality they consider to be most vital.

This view bears a strong similarity to the hypotheses presented by John Wheeler, Stephen Hawking, and Thomas Hertog, to which I have referred earlier. The gist is that there is no absolutely objective history of the universe as it exists independently of all systems of measurement and conceptual modes of inquiry. Rather, there are many possible histories, among which scientists select one or more based on their specific methods of inquiry. If we apply this insight from contemporary physics, we are led to a remarkable conclusion, similar to Ludwig Feuerbach's projection view of Christian doctrine. In essence, quantum cosmology can be interpreted to imply that *the current scientific, materialistic view of the origins and evolution of the universe is a projection of the origins and evolution of modern science over the past four hundred years*. This may be called the "true or anthropological essence of scientific materialism." It points to a "false or materialistic essence of scientific materialism," namely, the view of Nature, *as we experience it and conceive of it*, as having an existence separate from and

independent of humanity. We alienate ourselves when we project human history onto the physical universe, and the very act of attributing human qualities to the brain alone necessarily withdraws these same qualities from the human species. Materialists unconsciously project their desire for meaning and immortality onto the universe, giving the name “Nature” to what they themselves have projected. History repeats itself, from one Church to another.

Everett’s many-worlds hypothesis bears a striking similarity to a pluralistic view of the universe proposed by William James more than a century ago. Everyone, he declared, is “prone to claim that his conclusions are the only logical ones, that they are necessities of universal reason, they being all the while, at bottom, accidents more or less of personal vision which had far better be avowed as such.”⁸ James’s generation witnessed the modern shift from dualistic theism to a monistic pantheism more or less disguised, and he noted with dismay the effect this had on society at large:

From a pragmatic point of view the difference between living against a background of foreignness and one of intimacy means the difference between a general habit of wariness and one of trust. One might call it a social difference, for after all, the common *socius* of us all is the great universe whose children we are. If materialistic, we must be suspicious of this *socius*, cautious, tense, on guard. If spiritualistic, we may give way, embrace, and keep no ultimate fear.⁹

Regarding the role of universities, and especially departments of science, in the rising domination of materialism, he wrote, “most human institutions, by the purely technical and professional manner in which they come to be administered, end by becoming obstacles to the very purposes which their founders had in view.”¹⁰

To escape from the monolithic domination by a single worldview, we may recall James’s pithy aphorism, “for the moment, what we attend to is reality.”¹¹ Materialists attend to physical reality, and it becomes all that is real for them. Contemplatives attend to multiple dimensions of consciousness and its relation to the rest of reality, and it becomes real for them. This reflects the ancient Greek theme of Protagoras that “Man is the measure of all things,” implying that knowledge is invariably related

to the knower.¹² This is also reflected in the Hermetic aphorism “As above, so below,” attributed to Hermes Trismegistus, which proposes that what happens on any level—physical, mental, and spiritual—happens on every other level.

The many-worlds theory implies that the particular world we experience ourselves as inhabiting is illusory in nature; it appears to be absolutely real and objective but is in fact essentially relative to our own subjective modes of measurement, or observation. This bears a striking similarity to ancient Indian thought. The Sanskrit term referring to the world of appearances is *maya*, literally meaning “illusion.” It stems from a verbal root with the dual meanings of “to measure” and “to create illusions.” Like quantum physicists, Indian contemplatives connected the act of measurement to the manifestation of illusory appearances. To draw another parallel, the word “meditation” traces back to the Indo-European verbal root “med-,” which means “to measure” or “consider.” The recurrent theme here is that the act of meditation, or measurement, divides up the seamless fabric of reality, giving form to manifold worlds of illusory, dreamlike appearances, which are then deludedly reified as existing “out there,” independent of our measurements.

In this series of essays I have focused primarily on breaking the ideological chains of materialism that shackle the minds of scientists and the modern world at large. Dogmatism and closed-mindedness creep into science as they do into every other tradition of inquiry, and Buddhism is no exception. But among scientists and Buddhists, there are many who are truly open-minded and willing to question their most deeply rooted assumptions, in terms of both beliefs and valid methods of inquiry. With mutually respectful collaboration between scientists and contemplatives of all traditions—not just Buddhism—a true revolution in the mind sciences may be launched, with profound repercussions for biology, physics, and our view of the universe at large. Such individuals are our hope for the future.

The essential message of this epilogue is that there is not one absolutely real world out there, whether it is described by science or by any other discipline of inquiry. The human tendency throughout history has been to reify one from among multiple worlds of possibility, thereby conceiving of a “universe,” literally meaning something that has been “turned into one.” As long as we are caught up in human conceptual theories, we

are confined to one anthropocentric view of reality after another. As James concluded, “Thought deals thus solely with surfaces. It can name the thickness of reality, but it cannot fathom it, and its insufficiency here is essential and permanent, not temporary.”¹³ There is a way to escape the limitations of the human intellect, but it requires us to leave thought behind. This brings us to the practice of meditation and to the possibility of transcending the worlds of illusion. With this in mind, I return to meditation and leave the last word to William James:

I think it may be asserted that there *are* religious experiences of a specific nature, not deducible by analogy or psychological reasoning from our other sorts of experience. I think that they point with reasonable probability to the continuity of our consciousness with a wider spiritual environment from which the ordinary prudential man . . . is shut off.¹⁴