

Contents

Preface	iv
1. Stars Are Us The Astrophysics of Cosmic Unfolding	1
2. Piping with Heaven Particle Physics and Subtle Energy	21
3. From Chaos to Consciousness The Evolution of Humanity	40
4. The Flowing Mind Senses, Emotions, and Neuroscience	71
5. Breathing to the Heels Body Cultivation and Behavioral Kinesiology	108
6. Way to Sit The Neuropsychology of Meditation	131
7. Smile at Your Heart Visualization and Cell Biology	152
8. I Alone Survive The Physics of Immortality	172
9. Be as Gods Self-Realization and Cognitive Science	195
Bibliography	229
Index	283

Preface

“But that goes against everything we know and understand in Western science. It defies the biophysical laws . . . You don’t emit energy! That’s not the nature of things.” Thus Bill Moyers exclaims in *The Mystery of Chi* video when confronted with Master Shir, a martial arts and qigong practitioner who uses his thoughts to direct *qi* 氣 or “life energy” toward people, either warding them off or pushing them over. Moyers’s position is symptomatic for the traditional Western approach to Daoist claims—be they cosmological, philosophical, physiological, or practical in nature. It not only reflects a general disdain of science-based thinking for anything odd, strange, or unexpected, but also continues the age-old contempt of the Confucian establishment for Daoist religious visions and techniques, which was duly transmitted to early sinological pioneers, such as James Legge (1815-1897; see Girardot 2002), and from there entered the mainstream of Chinese studies.

However, since the video’s production in 1993, we have come a long way, and the interface between Daoism and science has unfolded in numerous, often unexpected ways. Rather than developing a “Taoistic” science as described by Abraham Maslow, characterized by harmony, receptivity, patience, and non-interference, free from all “presupposing, classifying, improving, controverting, evaluating, approving, or disapproving” (1966a, 13, 96, 100), scholars are using discoveries and evidence of the sciences to show a strong confluence of traditional Daoist visions with modern understanding.

The sciences in this context are the hard natural sciences, such as physics, biology, astronomy, chemistry, medicine, and the like, that work with three strands of valid knowing, based on empiricism and experimentation: hypothesis, experience of data, and falsifiability (Wilber 1998, 190). That is to say, the scientific method sets out with a hypothesis or idea it wants to test, an initial “instrumental injunction,” a practice, an exemplar, a paradigm, an experiment; this always lays out a particular way toward verifiable knowledge. Second, it works with “direct apprehension,” the immediate experience of data assembled based on the practice or experiment. Third, it strives for “communal confirmation (or rejection),” a double-checking of results by replicating the experiment (Wilber 1998, 155-56). Typically, the three strands give rise to a new paradigm—a theory combined with “a particular technique taken as an exemplar for generating data” (1998, 158)—which leads to a yet higher, different level of knowing.

For example, in the 19th century, it was official dogma that, as Thomas Jefferson stated in 1807, “it is easier to believe that two Yankee professors would lie than that stones should fall from heaven” (Kwok 2013, 15; Beaugard 2012, 138). Chemical analysis and microscopic examination of meteorites gradually convinced the scientific community in the 20th century that rocks did in fact fall out of the sky. By 1969, only 2100 meteorites were known; by 2012, that number had increased to over 45,000 (Kwok 2013, 15). Today every child knows that stars are made of condensed gases or solids that are in constant motion and, yes, fall on us at regular intervals; watching meteor showers is a prime pastime that keeps numerous people up well into the wee hours. By the same token, “there is today almost no scientific theory which was held when, say, the Industrial Revolution began about 1760. Most often today’s theories flatly contradict those of 1760; many contradict those of 1900” (Bronowski 1965, cited in Beaugard and O’Leary 2007, 202).

The emergence of new theories and paradigms has speeded up in the last few decades, due mainly to advanced technologies that allow insights into farther and farther realms of the universe (e.g., the Hubble telescope) and explorations of smaller and smaller units of the bodymind (e.g., fMRI brain imaging; DNA analysis). It is also due to the increasing acceptance of quantum physics and string theory, as they move far beyond the Cartesian and Newtonian paradigms and present a powerful understanding of what reality is like, a reality that—as pioneering visionaries already noted in the 1970s (Capra 1975; Zukav 1979)—looks more and more like what Daoists (and other Asian thinkers) have described all along.

However, even within this overall atmosphere of rapid change, there are still dominant paradigms that only shift under great duress and with much resistance (see Kuhn 1970). An example is the belief that human health and disease are largely determined by genes, still dominant in the medical profession, which stands in stark contrast to increasing evidence for epigenetic impact and the biological adaptability of cells (Chopra and Tanzi 2015; Lipton 2008; Francis 2011). It is often difficult, even for the brightest and most learned, to “sever emotional attachments to old ideas, discard familiar tools, argue with superiors and people of authority, or risk one’s position and security, in order to fight for the elusive truth. As a scientist today, it is much easier to go with the flow and ride the bandwagon, especially when research grants and tenure are at stake” (Kwok 2013, 207).

This means that breakthroughs, especially those relevant to Daoism, tend to come from the work of iconoclastic, visionary, and often disdained—and even persecuted—scientists. They are outsiders or mavericks, people who overcome the limitations of dominant models, do not shy away from unexplored territory, or let themselves be scared off by apparent absurdity (see

McTaggart 2003). Forced into organized institutions for reasons of funding, many end up following the dominant mode during the day but, driven by curiosity and the search for truth, work on issues of personal concern or unexplained oddities in their free time. “Some live long enough to see their ideas vindicated” (Kwok 2013, 208), others remain in the shadows of the dominant doctrine and even lose their positions and standing.

Science being continuous exploration, more and more far-out ideas and practices, however unorthodox, are coming under its scrutiny leading to a new and more open understanding. As scholars and scientists take Daoist claims seriously, moving toward an increased integration of science and religion, they begin to explain why its cosmological visions make sense in scientific terms and why specific practices have certain concrete, measurable, physical effects. For example, biochemical and hormonal studies have shown that the particular food choices, herbal supplements, self-massages, and visualization techniques used by followers of women’s alchemy (*nüdan* 女丹) do in fact lead to the “decapitation of the red dragon,” i.e., the ceasing of menstruation, which in turn creates stronger health and vitality (see Réquena 2012).

Far from demystifying the religious claims of the Daoist tradition, exploring the scientific correlates of its cosmology, physiology, psychology, and practices enhances its credibility and makes it more accessible to modern people. At the same time, it offers additional perspectives to scientific understanding as well as new dimensions of practical application. In other words, the project represented in this book is a new and enhanced level of translation—of Daoism into Western science as well as of theory into practice—with beneficent effects for both.

I myself have been involved in the academic study of Daoism as much as in its self-cultivation practices for most of my career, beginning with taiji quan at Berkeley in 1976. For the most part, the urge to practice came from books, thinking and theory leading the way toward concrete experience. This work, however, came about the other way round: practice stimulating questions and leading to academic inquiry.

After suffering a shoulder bursitis in 1999, I joined a gym and began taking yoga classes. I was so enamored with the practice that I signed up for teacher training at the Kripalu Institute in the summer of 2002. Besides ample practice, the course taught the history and philosophy of yoga and offered classes in anatomy and physiology, linking ancient techniques with modern medical understanding. Not only opening my eyes to the possibility of integrating science and religion through practice, the training inspired the question: Where, then, is yoga in China?

This resulted in several years of research on Chinese body cultivation, focusing specifically on the tradition of healing exercises (*daoyin* 導引), the precursor of modern qigong, in its medical and Daoist dimensions. Over time, this

led to the publication of an edited volume (Kohn 2006), an analytical study (Kohn 2008a), and an anthology of translations (Kohn 2012). In a next step, I moved on to apply the methodology to forms of meditation—looking at various practices in terms of history, worldview, current status, and matching science, and developing a model of six distinct types (Kohn 2008b).

From here, I proceeded to revise and expand my earlier work on medieval Daoist meditation, centering on “sitting in oblivion” (*zuowang* 坐忘) (Kohn 2010a). While researching the comparative dimensions of the practice, I came across the work on behavioral kinesiology by John Diamond (1979) and David R. Hawkins (2002), highly creative and radically inspiring mavericks in the field of psychiatry. I was stunned not only by the closeness of their body and energy vision to the Daoist model, but also by the practicality of their approach, the measuring of *qi*-flow via muscle testing. This was the starting point of the current book. It also resulted in a first related talk on “Daoist Body Cultivation and Behavioral Kinesiology” at the First International Summit on Laozi and Daoist Culture in Beijing in 2009.

Two opportunities arose in 2011 that set me more firmly on the path toward this work. I agreed to translate a study relating qigong to quantum physics from the German, which gave me a good grounding in the basic concepts and terminology of modern physics (Bock-Möbius 2012). And I encountered Core Health, a quantum- and kinesiology-based way of releasing, expanding, and directing the flow of life energy that not only closely echoes Daoist cosmology but also applies visualizations quite similar to the Inner Smile. Deeply impressed with the practice, I took all the classes offered, underwent facilitator training, and co-authored the book *Core Health* with the founder, Dr. Ed Carlson (Carlson and Kohn 2012). In the process, I learned about more and different dimensions of science as relevant to self-cultivation, including most importantly Bruce H. Lipton’s work on the immediate impact of beliefs and emotions on the functioning of human cells (Lipton 2008).

While presenting talks along the lines of “Daoist Cultivation in the Light of Modern Science” in various formats and venues, I responded to a request from the Daoist College Singapore and wrote a lengthy analysis of the *Zhuangzi*, discussing the text in terms of both historical development and philosophical content (Kohn 2014). Gaining a deeper insight into Zhuangzi’s worldview and his understanding of how the mind works and how we can work with it, several questions arose: How does all this play out in the brain? What does mind-fasting mean in terms of neuropsychology? It is possible to be free from emotions? If so, how does it work neurophysiologically?

At that point, I envisioned a project on “Zhuangzi and the Brain.” Reading up on neuroscience, I started by examining the practice of sitting in oblivion in relation to the functioning of memory and the process of forgetting, presenting my findings at the 9th International Conference on Daoist Studies in

Boston, June 2014 (published in Kohn 2015). Receiving a great deal of interest and an overall positive response, plus some insightful comments, I continued the work, but soon realized that the brain alone would not do the trick. There are, after all, so many different aspects to Daoist cultivation and so many different dimensions of science! Expanding ever further, the inquiry mushroomed into the multifaceted volume before you.

My heartfelt thanks go to all the scientists and scholars cited in the bibliography, without whose work I would have no ground to stand on. I am much indebted particularly to my academic colleagues for their helpful comments on papers and presentations as well as to the Core Health crowd—teachers, fellow facilitators, and participants—for their ongoing inspiration. I would also like to thank the members of Florida Qigong for their participation in various seminars that allowed me to test out connections between Daoist practice and scientific understanding, as well as my husband Tom for his continued patience and loving support.

