CATHERINE KERR

TRANSLATING "MIND-IN-BODY": TWO MODELS OF PATIENT EXPERIENCE UNDERLYING A RANDOMIZED CONTROLLED TRIAL OF *QIGONG*

ABSTRACT. This study explores two conflicting models of how patients experience mind-body therapies; these models frame the design of a clinical trial examining the effects of *qigong* (a traditional Chinese movement therapy) on the immune systems of former cancer patients. Data consist of ethnographic research and in-depth interviews conducted at the Boston teaching hospital where the trial is to take place. These interviews, with biomedical researchers who designed the trial and with the *qigong* master responsible for the *qigong* arm of the trial, reveal two fundamentally different understandings of how *qigong* is experienced and how that experience may be beneficial. The biomedical team sees *qigong* as a non-specific therapy which combines relaxation and exercise. The *qigong* master, on the other hand, sees *qigong* as using specific movements and visualizations to direct mental attention to specific areas of the body. Thus while the biomedical team frames *qigong* as a "mind-body" practice, the *qigong* master frames it as a "mind-in-body" practice.

This research suggests that the biomedical notion that mind-body therapies work by eliciting mental relaxation is only one way of thinking about how patients experience modalities like *qigong*: indeed, characterizations of mind-body therapies which emphasize a mental sense of relaxation may be specific to biomedicine and the cultures which surround it. More broadly, the paper argues that gaps in understanding between researchers and practitioners may be hindering scientific efforts to assess therapies like *qigong*. It concludes by proposing that clinical trials of traditional and alternative therapies build ethnographic inquiry about practitioner experience into the design process.

KEY WORDS: cancer, embodiment, *qigong*, randomized clinical trial

Over the last decade, biomedical researchers have increasingly trained their gaze on native or traditional medical systems. They have begun to regard these systems as possible repositories of healing remedies and practices that may be directly translatable into cures for maladies such as cancer and AIDS. Much of the interest in and money for such research has come on the heels of David Eisenberg's 1993 report in the *New England Journal of Medicine* that vast numbers of Americans were turning to a range of alternative health practices, including different types of traditional medicine – usually without informing their physicians. This surprising finding has helped catalyze the explosive growth of budgets ($20 million in FY1998; over $100 million for FY2002) made available by the National Center for Complimentary and Alternative Medicine (NCCAM) (Straus

Culture, Medicine and Psychiatry **26:** 419–447, 2002.
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2001a, 2001b). NCCAM (formerly known as the Office of Alternative Medicine), now a fully funded center at the National Institutes of Health (NIH), has identified research into the therapeutic potential of "indigenous healing systems" as one of its central mandates (NCCAM 2000).

While medical anthropologists have focused on the many different forms that the encounter between western biomedicine and traditional healing systems have taken, this research typically has taken place "in the field," that is, in the home-ground of healers and patients. And while some studies have begun to look at North American practitioners of Traditional Chinese Medicine (Barnes 1998), there has been relatively little ethnographic work which examines the assumptions that biomedical investigators of traditional healing systems bring to their subject.

This absence of ethnographic interest in biomedical investigations of traditional medicine is well matched by medical scientists' lack of engagement in anthropological approaches to questions of culture and healing. Indeed, in the modern scientific era, biomedical investigators have not taken a strong interest in culture or local practice, except as they are seen to intersect with well-recognized public health problems. Instead, when biomedical researchers have "gone into the field" to examine the therapeutic potential of traditional practices, they have sought to grab hold of generalizable, physiological mechanisms. Understanding these mechanisms, it is thought, will lead to therapies which may be deployed across different populations and cultures.

This search for *generalizable* therapies is guiding current research into traditional healing remedies and practices, as NCCAM director Stephen Straus has stressed in testimony before a senate subcommittee:

> The development of culturally sensitive studies will enable NCCAM to establish methodological feasibility and *strengthen the scientific rationale for proceeding to full-scale, randomized, clinical trials on the application of traditional, indigenous systems* [emphasis added]. (Straus 2000)

As a first step towards rationalizing traditional medicines, Straus described NCCAM's programmatic goal of "developing a broad-based international research program that reaches out to CAM practitioners across the world" and seeks to document traditional practices as they are carried out in their native contexts.

But is such "culturally sensitive" research really compatible with efforts to design a "full-scale" randomized controlled trial? A randomized controlled trial (RCT) is designed to validate "gold standards": therapies not dependent on time, place or context. For example, in a pill trial, investigators pit a "real" active compound against a placebo sham pill (a "dummy" pill that is shorn of any active ingredient). The

efficacy of the placebo sham is seen to arise from the *healing context* that surrounds the administration of a sham pill (which might include the ritual of visiting a doctor and receiving a diagnosis and a prescription). The difference between the effect of the real pill and the effect of the sham pill is seen as the difference between the drug's true "specific" formulation and the contextual cues that surround its administration. Thus, the randomized controlled trial is set up to allow researchers to *subtract* context from physiology in order to discover if a particular active therapy does better than placebo. If Straus's aim is to mount "culturally sensitive" studies of traditional therapies, these studies will be laying the foundation for clinical trials whose purpose is to subtract out all of the meaning surrounding a therapy in order to reveal its "true" physiological effect.[1] This approach begs the question: How should investigators seeking therapies not dependent on time or place come to understand traditional healing practices, which exist in (and may, to some extent, derive their efficacy from) the rich and irreducible contexts which shape patient experience?

This article will give an account of the planning of a clinical trial of *qigong* – a traditional Chinese movement therapy – which is scheduled to take place in late 2002 at the Dana-Farber Cancer Institute in Boston.[2] In particular the article focuses on the process by which researchers came to have hypotheses about what it is that *qigong* might be able to do, and hypotheses about the mechanism through which it might work. An examination of the design phase of this clinical trial reveals what happens when a quick drive to rationalize and specify an active ingredient is brought to bear on a practice such as *qigong*. A fundamental issue confronted the Dana-Farber investigators as they constructed the trial: in order to form a hypothesis, they first had to specify what properly belongs to the 'context' surrounding *qigong* and what properly forms the 'active' part of the practice.

From this preliminary process of separating 'active' ingredient from inactive 'context' there emerged important unstated assumptions about what *qigong* means for its practitioners, and how the bodily feelings that it may elicit should be interpreted. But in the case of the Dana-Farber trial, as is typical in the construction of most RCTs, there was no process for investigating or evaluating such experiential questions; problems of practitioner motivation and experience never received formal consideration during the course of planning the trial (although there were informal exchanges between the *qigong* master who designed the *qigong* arm of the trial and the biomedical team that would be assessing the results of the *qigong* practice). Ultimately, one of the questions this article poses

is whether gathering information about the meanings and experiences that practitioners attach to a therapy might help researchers devise better hypotheses and more salient clinical trials.

It was the presence of the *qigong* master on the biomedical research team as a kind of dissenting voice (with a very different understanding of how *qigong* might work) which first alerted me to the way in which the Dana-Farber researchers' assumptions were becoming embedded in the trial. Over the course of a series of team meetings in which I sat as a participant-observer, I came to see that the *qigong* master and the biomedical researchers – led by the biostatistician who conceived of the study's overall structure – had profoundly different conceptions of what counts as the active part of *qigong*. It gradually became clear that the *qigong* master and the biostatistician possessed two different explanatory models for understanding how a mind-body intervention such as *qigong* might prove therapeutic. As Kleinman points out, explanatory models are often tacit rather than expressed (Kleinman 1980). Within the research setting at the Dana-Farber, I was surprised to find that these working models were quite underarticulated, even as they framed the hypothesis testing that takes place within a clinical trial.

I made it my project to make these implicit formulations explicit by interviewing the two principals in order to tease out fuller articulations of their differences. In these interviews, the biostatistician and the *qigong* teacher each laid out their explanatory models by which they understand what *qigong* consists of, what the experiences that it elicits might mean to its practitioners, and how it might be beneficial for patient-practitioners such as those in the Dana-Farber trial. The biostatistician's explanatory model relies on a sense of *qigong* being the same as generalized relaxation plus movement – a formulation in great part derived from Herbert Benson, the Harvard physiologist, and his work on the "relaxation response" (Benson 1976, 1985, 1997).

The *qigong* master's more experientially based explanatory model arises both from his observations of the practice's effects on himself and his students, and from the rich description of *qigong*'s effects offered by some of his teachers (who are internationally published *qigong* experts). What follows is an account of these explanatory models of healing. But while the focus throughout is on the incompatibility of these two separate visions of *qigong*, the article concludes by considering a brief moment of connection which flowed from the biomedical team's openness to the *qigong* master's way of thinking about how *qigong* might positively affect patient-practitioners' experiences of their own bodies. This small moment of successful translation may offer a further rationale for a more concerted

investigation of how practitioners experience and come to understand the efficacy of traditional therapies.

SPECIFYING THE CONTEXT

Before turning to the design of the Dana-Farber trial, the reader needs some preliminary accounting of *qigong* and its "context." In the Chinese tradition, *qi* is a term which refers to a kind of vital energy. The term *qigong* is usually used to describe to what the Chinese call *qi*[3] practices, which cultivate the *qi*, using slow movements matched to breathing exercises and meditative visualizations. The term itself is of relatively recent vintage (it means, roughly, "working with *qi*"), having been coined in 1953 by Lui Guizhen in *qigong liaofa shijian* ("Practice of *qigong* therapy") (Xu 1999). Xu explains that this act of naming was itself part of the canonization of a range of *qi* practices that accompanied the massive government-sponsored institutionalization of traditional Chinese medical practices in the 1950s. But while the naming of *qigong* as such emerged out of a specific historical moment in Communist Chinese political history, the practices described by the term are extraordinarily diverse: they include practices designed to aid fighters engaged in martial arts, practices working with sound and sight, meditations which focus on centers in the brain, and practices designed to increase health and vitality or to achieve spiritual purification. Because of this incredible diversity, several "*qigong*" teachers with whom I have spoken feel that the term itself is somewhat meaningless.

As in China, in (an increasingly pluralist) North America one finds an incredible diversity among *qigong* practitioners and types of *qigong* practices. Yet the North American context does differ from the Chinese setting in two principle respects: first, the powerful historical and mystical resonances that the idea of *qi* evokes in the Chinese setting are both dampened by an American public's ignorance of the practice and heightened by the public's interest in an exotic import. A more important contrast, however, lies in the absence of a *qigong* infrastructure comparable to what one finds in China. In the absence of *qigong* institutions (such as hospitals and large practice groups), much of the context for North American *qigong* has been supplied by a small loosely knit community of *Tai-Chi Chuan* teachers.

Although he has for the last decade taught medical *qigong*, Ramel Rones, the master teacher chosen to design and lead the Dana-Farber's *qigong* protocol, comes from this *Tai-Chi* martial arts community. Rones, who arrived from Israel in 1983 to study with Dr. Yang-Jwing Ming a well-known author on both medical *qigong* and *Tai-Chi*, derives a sense of belonging and identity from his relation to what he calls "the art," by

which he means to invoke an imaginary unbroken line of martial practitioners which he traces back to the Bodhidharma (also called Da Mo), the legendary sixth century A.D. monk credited with founding both the Shaolin style of martial kung fu and Zen Buddhism. Rones' sense of connection to this "lineage" is paradoxical because he is not Chinese and does not describe himself as a descendant of a specific Chinese internal lineage or tradition as some North American *qigong* masters have styled themselves. Rones' sense of himself as the inheritor of a tradition is also self-fashioned: he sees his claim to authority as rooted in a vision of *qi* which foregrounds diligent practice above all else.

It was this sense of a *qigong* as made up of a prosaic set of practices that led the Dana-Farber researchers to choose Rones as their first alternative medicine research collaborator in 1998. In the final round of decision making, the choice came down to Rones and another *qigong* practitioner, an East-Asian biomedical postdoctoral researcher at the Dana-Farber who had led *qigong* research efforts in his native country. The Dana-Farber team was attracted by two aspects of Rones' presentation. First, they liked his suggestion that *qi* cultivation be viewed not as a mystical process, but rather as a humble set of foundational exercises – breathing, stretching , relaxed quiet sitting, muscle resistance, and mental focusing exercises – similar to the types of exercises trained by generations of martial artists. This straightforwardness was in contrast to his competitor, who had planned to have his teacher, a young East Asian master said to be vested with special secret powers, lead the study. Secondly, unlike the postdoctoral fellow, who insisted that the DFCI team replicate his earlier work, Rones, as a neophyte researcher, seemed to be a more flexible collaborator. For his part, Rones saw the collaboration with the Dana-Farber as a kind of "seal of approval" that would help him develop and promote his own brand of medical *qigong*; he saw himself and "the art" as beneficiaries who would receive publicity and validation from the connection with the Dana-Farber.

THE TRIAL

In late 2002, following analysis of data generated by a pilot study, the Dana-Farber is slated to enroll former cancer patients in a randomized fourteen-week clinical trial of *qigong*. The trial will compare the effects of *qigong* with the effects of low impact aerobic exercise. Both *qigong* patients and exercise patients will practice three times a week in a class with an instructor for fourteen weeks. At the end of the trial, data will be gathered on three different types of endpoints. First, researchers

will compare how *qigong* and exercise affect patients' immune systems. Because these trial participants will be former cancer patients, the Dana-Farber team is particularly interested in how exercise and *qigong* affect the activity level of Natural Killer cells circulating in the immune system.

The Dana-Farber team's choice of Natural Killer (NK) Cell Activity as an outcome measure has its own history within cancer and mind-body medicine (Natural Killer Cells, which were first identified in the 1970s, are distinctive for their ability to recognize and kill tumor cells which other immune system components fail to recognize as dangerous [Lowy 1996]). The choice of NK activity has been driven by the imperative to show quantitative results. It derives specifically from a reading of three recent sets of research observations. First, a number of researchers have observed that a low NK activity level seems to be identified with a higher risk of relapse in former cancer patients (Levy et al. 1991). At the same time, other researchers discovered that people suffering from depression seem to have lower NK activity levels than normal controls (Maes et al. 1994). Further studies in the new discipline of psychoneuroimmunology disclosed that in healthy subjects NK activity was mediated by emotional response to stimuli (Futterman et al. 1994). Normal test subjects experience a spike in NK activity when they are exposed an immediate stressor. These three findings led investigators studying mind-body therapies and cancer to suggest that NK activity may be a biomarker of positive response in cancer patients engaged in therapies such as relaxation training or support groups.

In *Crafting Science*, Joan Fujimura (1996) gives us a context for understanding researchers' drive for such a biomarker: investigators at research institutions such as the Dana-Farber are constantly engaged in a search for "doable" problems – problems that will yield solutions that are both novel and replicable. Only a study in which there is a consistent meaningful quantitative biomarker, such as NK activity, is there the promise of constructing such a "doable" problem. NK activity's appearance as a marker has been especially auspicious because the study of mind-body therapies in cancer patients had until recently been considered a very unpromising field for quantitatively focused cancer researchers.[4] Its true clinical significance is unclear, however, as several studies have found no correlation between changes in NK activity resulting from a mind-body intervention on the one hand and survival or maintenance of remission on the other (Weiger et al. n.d.).

After NK activity, the second type of outcome that the team will look for is the difference between the two groups' "Quality of Life," which will be determined through standardized psychological surveys. The third and final set of endpoints, which will compare how exercise and *qigong*

produce changes in physical functioning, was added at the last stage of the design process, at the instigation of Ramel Rones, the *qigong* teacher. The changes in physical functioning will be captured by goniometry, a measurement practice used by physical therapists to measure range of motion in joints. The significance of this late addition will be made clear at the conclusion of this paper. For now it is enough to see the ways in which Dana-Farber researchers initially marked out the separation of mind and body in the choice of two distinct endpoints – physiology (through measurement of NK activity), on the one hand and mental/emotional attitudes (through measurement in psychological surveys), on the other. It is also important to know that there is an implicit hierarchy at work here in favor of what are seen as the "hardest" and least subjective endpoints – immune physiology measured in a laboratory. That the study will look at such measurable and tangible hard endpoints has helped to legitimize it to clinicians and researchers at the Dana-Farber.

TWO CROSS-CULTURAL ENCOUNTERS

I want to describe two cross-cultural encounters between biomedical researchers and practitioners of Asian healing systems which illustrate how far some biomedical researchers have come in their interest in and respect for other healing systems. The first encounter is Herbert Benson's dramatic trip from Harvard into the Himalayan highlands in 1981 to test Tibetan Buddhist monks' legendary abilities in controlling their body temperatures and metabolism, both of which biomedicine regards as the province of autonomic rather than intentional processes. Benson found that even in forty-degrees Fahrenheit weather, the monks who practiced "fierce woman" yoga were able to channel their own body heat to raise the temperatures on the surface of their skin in order to dry soaking wet sheets. Here is how Benson describes the encounter:

> Within three to five minutes of applying the dripping three by six foot sheets to their skin, the sheets began to steam! Within 30 to 40 minutes, the sheets were completely dry and they were able to repeat this process two more times. (Benson 1997: 163; see also Benson et al. 1990)

Here is how he explains what he observed:

> [The monks] were comfortably sustained by their practice of *g Tum-mo* yoga, "fierce woman" or heat yoga. Practitioners elicit the relaxation response and then visualize themselves having an inner channel passing from the center of their skulls through their torsos through which a heat drawn from the universe can travel. (Benson 1997: 164)

I will return to this interesting explanation over the course of the paper; for now it is important to attend to the way that Benson *translates* from one healing system to another: the *g Tum-mo* system is equivalent to what Benson calls a "relaxation response" – a mind-body process that he himself was the first to identify – followed by a particular visualization. And it is this general formula of relaxation response plus visualization that produces the physiologically measurable, knowable effects of heat. He ascribes the entire sequence, including the "mind-boggling physical feats" that the monks performed, to what he calls the "faith factor" (Benson 1997). This is a particular style of biomedical translation that is marked by the exuberant confidence of discovery – what the monks could do – and confirmation – their actions validated Benson's earlier finding of the relaxation response.

That was in 1981. In the summer of 1998 another encounter took place at the heart of the Harvard medical complex at the Dana Farber Cancer Institute. The location alone suggests something about what has changed between then and now. At the Dana-Farber, an ad hoc group of research physicians, administrators, nurses, and patients gathered to learn from Madame Gao Fu, an 81 year-old *qigong* practitioner from Beijing whose lifelong dream was to visit Harvard and contribute to the world's medical knowledge by demonstrating her practice.[5] The trip was brought about by a student of hers, Dr. Steven Friend, a pediatric oncologist and researcher, formerly of the Dana-Farber, who set up the meeting, because, he explained, he really wanted his colleagues to see if they could "feel" *qi*.

After introducing his guest, he turned the meeting over to Madame Gao Fu and her translators. Even before she spoke, the audience could see that Madame Gao Fu was quite healthy looking for her years, with radiant skin and a full head of hair. And when she moved she demonstrated a sense of ease and balance that also seemed very youthful.

In her brief talk, it was clear that Madame Gao Fu wanted to give the audience specific information about her *qi* practices *and* that she wanted to instruct them in a larger framework for understanding the relation between *qi* and health. She explained that she had been working out five to six hours per day for over twenty-five years. She had initiated her practice because of health problems that had long since ceased to bother her. She demonstrated a short section of the Chen style *Tai-Chi* form (a form that contains many twists and a few startling stomps). And then she began to describe her practice in some detail: *nei gong*, she explained was the key to the practice. She wanted everyone to know about her *nei gong*.

The audience was already bewildered: what, they wanted to know was the difference between *qigong* and *Tai Chi*? Is one a version of the other? and how did they relate to this new term, *nei gong*? She had trouble

answering the first question and instead was very focused on the second as she struggled to explain the deep importance of *nei gong*, which she told us meant "internal work" and consisted of rotations of her "*dantien*," which she identified as an area inside her body located two inches below the navel. *Nei gong* was so important, she explained, and the only way we could understand it was by coming up and feeling her belly, where she hoped that we could actually feel her *dantien* gently rotating and pulsing out the *qi* energy. At this point, audience members excitedly went to the front of the room and took turns laying hands either on Madame Gao Fu's belly (some actually felt her back) or some 2–3 inches away from her belly where it was hoped that we might feel the pulsing waves of *qi* more purely without the physical sensation of actually touching her body. The experience was quite strange for most of the audience; the participant-observers were not sure what they were supposed to be feeling: "some feel heat, others feel static," Dr. Friend explained. Over two-thirds of the audience came away frustrated and confused, not having felt much and not really sure what the purpose of the exercise was (a few did manage to feel a sense of heat). Why was it that feeling waves on a woman's belly would lead in any way to an explanation of her good health? Madame Gao Fu was not able to articulate a connection, what biomedicine calls a mechanism that might take us from here – an older woman who does internal belly rotations, a sort of constant, invisible hula hoop of the internal muscles of her abdomen coordinated with her breathing – to there – an older woman in remarkable health operating at a high level of functioning despite having lived through China's difficult century.

The frustration that the biomedical researchers felt when they failed to sense *qi* – which they were told would be a very subtle sensation – may be a product of the gap between two very different ways of grasping knowledge about the body. On the one hand, Good describes biomedicine as being highly invested in practices of *seeing*; thus he suggests that the medical school anatomy lab has become a privileged site for producing doctors who are defined by their ability to see deeply into the body (Good 1994). Contrast this emphasis on seeing into the body with *sensing*, the qualitative mode of knowledge and representation which Kuriyama describes as characteristic of traditional Asian medical practices (Kuriyama 1999). Here, the healer's observation of the patient is understood to be an active process of sensing highly subtle aspects of his or her presentation.[6] At the Dana-Farber, frustration emerged out of the distance between Mme Gao Fu's hope that her audience would "sense" the subtlety of her *qi* manipulations and the audience's desire to grasp *qi* in a direct and non-subtle way.

From these two encounters we can generate a brief historical account of biomedical investigations into traditional healing practices over the past twenty years: in 1981 we see Benson taking confident pleasure in verifying his biomedical findings on a group of practitioners in a distant land engaged in an esoteric, mysterious process. In Madame Gao Fu's case we see the opposite: the practitioner has come to Harvard not to be measured but to try to teach what she knows. In the first case, Benson was the knower in charge of producing verifiable information, the monks were believers and test subjects, exercising the "faith factor." In the second case, Madame Gao Fu stood in the position of knowledge, but the biomedical researchers, despite their good intentions, were unable to hear her. On the surface, anyway, it seems that the first case is illustrative of a successful translation from one system to another, while the second case seems to illustrate a failure to translate: something like a fundamental incommensurability seems to be blocking the movement of explanation from Madame Gao Fu's *nei gong* lesson to a larger conclusion about how *qigong* works and what we can learn from it. These two different models of encounter and translation will be instructive in the analysis of the process by which the Dana Farber *qigong* trial was designed and endpoints selected for the study – including the two endpoints that I have already described, immunologic parameters and psychological quality of life.

DESIGNING A TRIAL

The study is a product of two different architects: a biostatistician, Donna Neuberg, who is a professor of biostatistics at the Harvard School of Public Health, and is responsible for the overall design, and a *qigong* master, Ramel Rones, who designed the *qigong* part of the protocol. (The western exercise control arm was designed by an aerobics instructor fairly late into the process and was constructed to match the already planned *qigong* protocol.)

Neuberg has helped to design a wide range of oncology protocols. She is interested in bringing rigorous scrutiny to alternative medicine because she is convinced that, fundamentally, there is no real difference between research into alternative and conventional modalities. As she put it in my interview with her: "I think there are people who will say, 'we need a completely different paradigm' [for research] and I'm not sure we do." She feels that the research paradigm really consists in a broadly applicable set of questions: "What do you think this could do? And what do you compare it to that convinces you that you understand what's going on, what's your hypothesis?"

For Neuberg, the context for the *qigong* study was supplied by a growing medical literature on the effects of mindfulness, relaxation and spirituality on different diseases and on the immune system in general. These studies, many of them carried out by Benson and his colleagues, form the basis for her understanding of *qigong*. Most importantly, these studies give the Dana-Farber team a backdrop from which they can generate hypotheses about the effects of *qigong* on cancer patients in remission. Benson's approach to mind-body research has served as an implicit frame of reference for Neuberg even as she has refined his work on the "faith factor." In the case of both Benson and Neuberg, it is important from the outset to see that both feel themselves to be sympathetic to complaints about bio-medicine's hostility towards different healing systems; both believe there are possible benefits to patients to be gained by studying practices like *qigong*.

Neuberg breaks down *qigong*'s combination of movement, breathing and visualization into physical exercises plus an additional mental/spiritual component. Thus she has structured the study as a comparison of exercise with *qigong*. In essence, one could say that her comparison imagines a contest between exercise and "exercise plus." At various points during the interview, she gave several names to this "plus" – exercise plus spirituality, exercise plus mindfulness, exercise plus relaxation, exercise plus prayer. The fundamental "value added," according to this view, is *qigong*'s infusion of some form of mental relaxation into conventional low-impact exercise. Her view of *qigong* as "exercise plus" leads her to a series of hypotheses about what the trial will show. The biostatistician explained to me, "I quite frankly do not anticipate that we will see a difference in immune improvement between *qigong* and straight exercise."[7] Because low-impact exercise has already been shown to be generally beneficial, she anticipates that patients in the western exercise arm will benefit, and that the "exercise plus" arm, *qigong*, will show similar benefits.

For Neuberg, the real payoff of the study will come out of a comparison of the different effects felt by patients with different belief systems and coping strategies. In particular, she envisions that patients with a strong spiritual sense – especially those predisposed to self-help and new age beliefs – will especially benefit from *qigong*. As she puts it, "It will be interesting to see if people who report a stronger pull towards spirituality to begin with" show more improvement in quantitative physiological measures if they are randomized to *qigong*. To add another twist to her spiritual hypothesis, the biostatistician also suggests that resolutely secular patients may also report greater well-being from *qigong*. She suggests that *qigong* might give the less spiritual a forum in which they can feel some of

the deep emotions associated with spirituality – the same emotions which some researchers, Herbert Benson being one of the most prominent, now see as conferring health benefits to patients who have regular spiritual or devotional practices.[8] With the *qigong* investigation, Neuberg is hoping to open up the category of faith and spirituality to include a wider range of practices than previous studies, which have focused on church-going and religiously oriented prayer. Yet despite Neuberg's attempts to widen and redefine Benson's "faith factor" (Benson 1997), her basic understanding of *qigong* as "exercise plus" relaxation relies on an understanding of relaxation which is clearly derived from Herbert Benson's early work on the relaxation response.

DRAWING ON HERBERT BENSON'S "RELAXATION RESPONSE" – A UNIVERSAL "HARD-WIRED" MECHANISM

Benson characterizes the relaxation response as a counterpart to the fight-or-flight instinct described at the beginning of the twentieth century by Walter Cannon. It is an "innate" hypometabolic state of relaxation, controlled by the hypothalamus, in which subjects' blood pressure and respiratory rate decrease, as does the rate of blood flow to the muscles, while alpha waves in the brain are increased.

Before turning to Benson's discussion of ways to evoke this response through meditation and prayer, it is very important that we understand what he means when he describes the relaxation response as innate and "hard-wired" within the brain. In *Relaxation Response*, Benson (1976) describes the sequence of experiments that led to the discovery of the hypometabolic pathway. First, his team carried out experiments targeting the hypothalamus of cats and rats. Then he used this animal data as a starting point for work with humans, out of which emerged the relaxation response. Embedded in Benson's jump from a physiologic response in animals to an innate response in humans we find a fascinating episode in the history of biomedical translation. As he tells the story in *Relaxation Response*, while he was in the midst of researching monkey behavior and blood pressure, several Transcendental Meditation practitioners approached him with the request that he study their TM technique to explore whether it could lower blood pressure. That a TM-like meditation practice eventually became the "gold standard" of meditation research was both something of an accident and deeply overdetermined. TM was particularly appealing to medical researchers for its simplicity. As Benson puts it, TM does not require "intense concentration or any form of rigorous mental or physical control. As a result, practically all initiates can easily 'meditate' after

a short training course" (Benson 1976: 85). Simplicity was important because only a simple technique could be presumed to be drawing on a universal innate mechanism.

Benson describes his team's initial review of meditation research on what he called a "bewildering" variety of eastern systems:

> We found that subjects, particularly practitioners of various forms of Yoga, varied greatly in meditative techniques, expertise and performance. All sought a 'higher' consciousness but in different ways: some through a fully rested, relaxed body and a fully awake relaxed mind; some through strenuous physical exercise; and still others by concentrating on controlling certain functions such as breathing. The need for rigorous discipline and long training allowed even greater variability in results. Who were the experts and how could we assess their expertise? Fortunately, from a scientific standpoint, Transcendental Meditation, developed by Maharishi Mahesh Yoga is a simple Yogic technique carried out under reasonably uniform conditions. (Benson 1976: 84)

Here we see Benson's path. In order to replicate animal studies in humans, Benson needed *one standard* approach. Moreover, because it was postulated that this single standard was "innate" and therefore universal to all humans, the technique itself had to be relatively transparent – that is, it had to be simple and it had to closely approximate aspects of human daily life among non-meditators. TM, being simple and easy to learn, provided such a transparent technique while other schools – Yoga, Tantric Tibetan practice, etc. – were simply too esoteric and complex and too particular to be illustrative of a universal physiologic pathway such as relaxation. In their rigor, these other systems were inherently non-standardizable. And in their proliferation they did not seem to offer one clear path. Instead, such a bewildering array of teachers and techniques led Benson to wonder, "who were the experts and who could assess their expertise?" The simplicity of TM, in which no one need be an "expert" for the practice to work, seemed to finesse such questions – but with lasting consequences for mind-body research.

In *Timeless Healing*, Benson describes the relation between "top-down" and "bottom-up" capacities of the brain (Benson 1997). According to biomedical orthodoxy, the brain receives sensation through the nervous system; when, for example, you burn your finger, nerve cells send a signal to the brain via neurotransmitters, ultimately producing a sensational reaction of pain. Benson notes that science has long appreciated the brain's capacity for interpreting such "bottom-up" events. Only recent mind-body research has revealed the extent to which "top-down" messages, thoughts and images or memories from the brain, have an observable physiological effect. This research has documented how meditation and other purposeful efforts of evoking the relaxation response can have measurable physiologic effects.

In this model of "top-down" and "bottom-up" events, we can see the binary structure of the Dana-Farber's research effort to distinguish between exercise and "exercise-plus" – whatever the plus is, meditation, spirituality, or an evoked sense of calm; we also see the marks of the earlier TM research paradigm. The "plus" roughly corresponds to the relaxation response in that it is thought to be a universal and *non-specific* mechanism. Again, Benson leads us to understand the relaxation response as a *non-specific* response that can be evoked by a vast swath of meditational techniques, thoughts, feelings or spiritual beliefs:

> It is important to remember that there is not a single method that is unique in eliciting the Relaxation Response. . . . There is no educational requirement or aptitude necessary to experience the Relaxation Response. (Benson 1976: 161)

And most importantly, he writes, "we claim no innovation but simply a scientific validation of age-old wisdom" (Benson 1976: 164).

By now, we can return to Benson's work with the Tibetan monks. Recall the way he characterized the technique by which they dried the sheets:

> [The] practitioners elicit the relaxation response and then visualize themselves having an inner channel passing from the center of their skulls through their torsos through which a heat drawn from the universe can travel. (Benson 1996: 164)

Here the sequence is clear: an initial and generic elicitation of the "relaxation response" followed by a specific visualization. Elsewhere Benson describes the power of visualization as a meditative technique when he speaks of taking advantage of the fact that "top-down thinking . . . makes visualization very powerful in our minds/bodies" (Benson 1997: 143). It functions by sending "signals to the brain that arise not from the body itself, not from the environment, but from your imagination or memories" (ibid.). Visualizations, in Benson's schema, seem to function rather generically, through the established top-down pathway. What are we to make, then, of the mysterious effect generated by the monks' visualization of "an inner channel passing from the center of their skulls through their torsos through which a heat drawn from the universe can travel." How could such a non-specific mechanism, a simple "top-down" mental visualization, elicit such a vivid and *specific* tangible effect?

Benson explains *qi*-based practices such as *qigong* using the same formulation – the non-specific "belief" pathway is what generates practitioners' specific *qi* experiences:

> Other than the physiologic changes I had already reported, I could not track the source of the energy people described, nor could I say whether they projected a feeling of spirituality onto the experience. Often, all that people could say about the experience was that it felt inherently sacred to them. They could not always say which came first – the physical or

> emotional reaction. And knowing something about how the brain works – that emotion is an organic contributor to mental function *and thus* physical function [*emphasis added*] – it makes sense that sensations are intertwined and that people cannot distinguish between the two. Again people seemed disposed to call upon belief in a higher power for soothing physical effects (Benson 1997: 157–158).

The one concrete feeling that people doing *qigong*-type practices reported to him (other than that it felt "sacred") was that the physical and mental felt "intertwined." But lacking a category for treating the mind and body as "intertwined" – the indicators that he tests for are mental feelings and physiologic effects – Benson interprets this experience in an interesting way. He dismisses subjects' reports and returns to his model of mind-brain-body sequencing, suggesting that *qi* practices are similar to *g Tum mo* yoga in deriving their efficacy from a universal emotional "top-down" response. But as Benson himself allows, this is not how people actually described what happened. Instead they recounted their experiences of mind and body as being "intertwined": what light a term like this might shed on larger questions in meditation research is unclear. That it might mean something, however, is worth considering.

"MIND-IN-BODY" AS AN ACCOUNT OF EFFICACY ROOTED IN CHINESE MEDITATIVE PRACTICES

Holding in mind this question of how specific effects and experiences are elicited, let us turn to Ramel Rones, the *qigong* master who designed the *qigong* portion of the Dana-Farber protocol, and his explanation for how *qigong* might work. Rones is in his late thirties and has studied the martial arts for over twenty years. He is not Chinese but has been named a "disciple" of a Dr. Yang Jwing-Ming, a prominent martial artist from Taiwan now based in Boston who is also a noted authority on *qigong* and the allied art of *Tai Chi* (see, for example, Yang 1995). He has been teaching medical *qigong* for over ten years. In the past six years, he has developed a special practice teaching *qigong* to people with cancer.[9]

It isn't quite fair to compare Benson to Rones, the *qigong* master, because Rones is not a scientist, and he is also very circumspect in hypothesizing how *qigong* might work – for instance, he does not stress the exotic elements of *qigong*. Instead he often focuses on the more homely explanations for how it might be therapeutic: he is especially interested in ways that good posture and proper physical alignment can be healing practices in themselves – that they also facilitate the flow of *qi* energy is something that he does not stress unless you ask him directly. Rones tries to make his ideas about health both concrete and tangible: rather than

focusing on esoteric energetic practices, he tries to get his audience to imagine ways that actual physical stress and tightness around vital organs might limit their efficiency. When he meets with researchers, he often offers them a version of one of his favorite lines at meetings, saying, "You look relaxed, but is your liver relaxed?" For Rones, concrete practices such as "massaging the organs" through slow movement, "increasing lung capacity" with breathing exercises, "stretching the fascia and the connective tissue" give *qigong* an almost automatic sense of efficacy: the purpose of *qigong*, he feels, is to create the best "environment" for one's organs and overall system to function in. People stretch, move and *feel* their bodies and in so doing feel better. Underlying this simple approach, however, is a belief that a deeply cultivated awareness of the body – the ability to feel or "put one's mind" into one's internal organs or inside of one's bone marrow – is intrinsically healing. He sees this act of putting the mind into the body as at the same time both deeply physical and deeply mental work.

Here is how he describes a Taoist scanning exercise that he learned from B. K. Frantzis, a noted *qigong* master:

> You scan your body from the top down. You learn to sense the difference between the different plateaus along your body, using the mental mind to go into those plateaus actually changing physical tissues, relaxing them with a mental thought . . . ice to water, water to gas.

Mental and physical are deeply intertwined in such practices in which one is trying to very softly dissolve physical tissues with a thought and a directed awareness or feeling of mind-in-body. By doing this, Rones explains, you actually "expand" your sense of your body's own boundaries by extending the feeling of relaxation out beyond the body into the space around it. This very concentrated and specific procedure for "expanding" the body experientially beyond its usual felt boundaries contrasts with Benson's more generalized relaxation response exercise.

Consider two practices which are particular to Chinese *qigong*: the first, called embryo breathing, is derived from the ancient Taoist canon of *nei gong* practices, while the other, called various names, including "Embrace the Tree" and "Stand Straight like a Pole," is a product of more recent vintage. First, let us consider the "embryo breathing" *nei gong* exercise. (Recall Madame Gao Fu's repeated attempts to talk about her *nei gong*.) Rones has programmed the Dana-Farber trial to include several different *nei gong* exercises that are focused just below the navel in the lower *dantien*, the as yet unverified center of Chinese energetic anatomy. Embryo breathing is a central part of these exercises: it consists in bringing all of one's awareness "down" from one's head into the lower *dantien* and then

using the breath to gently pulse the sides of abdomen as if the breath were feeding an embryo located at one's center.

Here is what Frantzis says about the lower *dantien* as a site for cultivating heightened awareness within the body:

> The tantien[10] is the single most important gate with regard to physical health. Located at approximately the center of the body, all energy lines related to physical health and well-being connect here. This area is the first main focus of all Chi Gung and Taoist alchemical practices. (Frantzis 1993: 70)

In fact, the Dana-Farber *qigong* study will include primitive versions of the energy generating exercises which Madame Gao Fu practiced as she asked us to feel her belly *qi*. What we see here is that unlike Benson, Madame Gao Fu and Frantzis are not at a loss for explaining the efficacy of *qigong*. For both, it is an established system with its own specific practices designed to be carried out at specific locations in the body and to elicit specific physical and more subtly energetic effects. If evoking this healing response were a simple matter, then it probably would not be very difficult to study – just as TM proved to be very amenable to study by biomedicine. Yet Madame Gao Fu trained herself five to six hours a day for twenty-five years; Frantzis recalls fourteen-hour sessions in which he dissolved internal physical tensions by tuning his internal body awareness with the phrase "ice to water, water to gas."

Indeed, for Rones and Frantzis, the very difficult and specifically focused work of *qigong* lies in attuning mind and body by actually feeling parts of the body soften or "dissolve" (rather than using the disembodied visualization mechanism Benson has studied, which involves forming mental pictures that then act through the "top-down" relaxation pathway on the body). Frantzis explains, "In doing your internal review, you may not have directly felt your body but merely visualized it, which is an infinitely easier task. . . . You need to allow yourself to feel the actual state of your insides" (Frantzis 1993: 55). It is through this felt awareness brought to the body that certain seemingly metaphoric meditations become experientially real. Consider, for example, the *Tai Chi Chuan* concept of "rooting," which Dr. Yang Jwing-Ming describes in his *Root of Chinese Chi Kung* (Yang 1995). In order to increase his sense of groundedness, balance and connection to the earth, Yang instructs the adept to "feel" the ground under her feet such that it feels as though roots are growing down through her feet six inches into the ground. Rooting is not strictly visualization or a "metaphor." Instead it is crucial that the adept experience the root as phenomenologically real rather than symbolic or removed from reality.

We can see here that *qigong* healing practices are the products of Chinese cultural notions of health – some of them quite ancient, others the

products of *qigong*'s more recent popularity in China – with very different understandings of what bodily feelings *mean* from that of biomedicine. *Qigong* practitioners such as Rones and Dr. Yang Jwing Ming have struggled to translate notions such as embryo breathing into a language with more immediate currency. But our current notions of "belief" and generalized relaxation make this task difficult.

Consider, for example, Donna Neuberg's justifiable skepticism at being told that putting one's mental awareness in one's belly could prove to be an important healing practice: how do I measure something like "mind-in-the-belly," she asked. She suggested that "feeling a great deal of calm, feeling that Jesus is truly with me, feeling my mind in my belly – maybe those are all the same thing." Rather than conceiving of mind-in-the-belly as an experientially real feeling, something felt in the body, she thought that it might be more productive to regard "mind-in-the-belly" as a kind of spiritual belief. Similarly, recall Benson's description of the mechanism which the Tibetan monks use to produce the effect of sheet drying in similar terms: the "faith factor" and the "relaxation response."

Yet, it is possible that the monks' form of visualization is more complex and embodied than the simple visualizations that Benson has encountered in his Boston-based research. If, as I suspect, the monks' form of visualization arises out of an experientially real sense of "mind-in-body," in this case an experientially real sense of a central channel down the center of the body drawing in heat from the universe, a crucial question is raised which carries high stakes for both philosophers and biomedical researchers: how can mind-body investigators begin to study the effects of such embodied, phenomenologically real visualizations?

One method would be to ask the monks what they know about their own practice: how do they elicit such highly specific effects? One might ask them what specific exercises they engage in to channel heat to the skin. How long do they have to practice in a given session to feel a result? Can they recall sessions in which they experienced very palpable results or in which they experienced very weak results? What was distinctive about such moments? What is the sequence of physical effects that they feel? What kinds of preparatory exercises must one engage in before embarking on the skin heating exercise? Over how long a time (months? years?) before one is ready? How does a practice like "fierce woman Yoga" relate to the spiritual work they are engaged in? Yet even with such a retinue of questions, this problem of how to deal with experientially real sensations induced through meditation is genuinely difficult. But it is not addressed by the current "top-down" and "bottom-up" method of conducting research.

Medical anthropologists, on the other hand, have long treated this intermediate phenomenological ground – between thoughts and emotions, on the one hand, and physiology on the other; they are already in possession of methods for analyzing how people learn to think and talk about their bodily or somatic experiences of different healing practices.[11] Thus Csordas has set forth a "postural model" for explaining the efficacy of Catholic charismatic healing which, like *qigong*, seems to operate on or transform the way that the supplicant's somatic experience is nested within his or her own body (Csordas 1994a).

Csordas' sense of postural efficacy, of changing an enduring pattern of postural persistence and thereby effecting healing, resonates with detailed ethnographic descriptions of Chinese practitioners' bodily experiences with *qigong*. Ots, in his discussion of the *qigong* craze in the People's Republic of China, focuses on practitioners' somatic and emotional experiences with an exercise which he calls "standing like a pole" (Ots 1994: 120) (Rones teaches his students a similar exercise, which he calls "embrace the tree"). "Standing like a pole" is a very simple exercise in which a practitioner experiences her own postural alignment by standing straight with her arms outstretched in a circle. The practitioner, standing straight for up to thirty minutes, is instructed to "feel" the flow of *qi* moving from the heavens down through the crown of the head, through the body, and then down through the feet into the earth. Ots finds that "standing like a pole" commonly produces involuntary or spontaneous movement; and among his informants he finds that this spontaneous movement has led some practitioners to a cathartic emotional release.

Csordas' discussion of therapeutic efficacy being brought about by changing a patient's somatic experience might give us a way to think about efficacy in *qigong*. Indeed, through the slow accretion of many hours of mind-in-body awareness and centering in specific exercises like "embryo breathing," "embrace the tree" and sending your roots down into the ground, it may be that *qigong* practitioners re-map their experiences of their own bodies, using embodied visualization in a focused, concentrated and positive way. (This process also resonates with the somatic experiential mode of healing described by Desjarlais in his observation of Nepalese healers' attempts to change how a sick person feels "by altering the sensory stimuli around that person" [1996: 160].) This sensory re-mapping can bring about a kind of immediate healing of small strains – what Rones calls stagnation – through stretching and dissolving, and these small healings may in turn encourage the practitioner's sense that a deeper healing is also taking place.

If this description of "mind-in-body" transformation turns out to resonate with *qigong* practitioners, it has the potential to re-orient our understanding of how efficacy works in a range of healing systems. Thus rather than conceiving of a mind-body therapy as working straightforwardly through a top-down pathway, we might look at the ways in which it elicits somatic feelings (e.g., the monks' feelings of warmth) which could be associated with a range of mechanisms: they might affect the practitioner's subjective state or they might reflect an underlying physiological process; or a somatic feeling may trigger the operation of a feedback loop by eliciting a new set of expectations that in turn produce an alteration in physiological processes. A research program that looked at the somatic aspects of *qi* experience might profitably gather both somatosensory physiological data (for example, using fMRI imaging or heart rate variability measurements) and deeply qualitative accounts of what a given *qi* experience feels like (some practitioners have reported that *qigong* produced feelings such as tingling, senses of heat, or even a sense that one's bodily ego was expanding or contracting).

But before undertaking any grand projects, we would need to explore and test whether this notion of mind-in-body is meaningful to practitioners. From an ethnographic perspective, we have to test whether this sense of mind-in-body helps us to characterize more adequately the *experience* of *qigong* practitioners; whether it helps us understand what it is that they feel they are doing. From a biomedical research perspective, we have to probe to see whether the notion of mind-in-body can lead to a different set of research hypotheses. It may turn out that the answers to these two questions are related, and that a deeper understanding of the *experience* of *qigong* may lead us to a different kind of research agenda.

The Dana-Farber effort is really only a beginning. Donna Neuberg does not expect to see dramatic differences in the comparison of *qigong* and western exercise's effects on the immune system and the quality of life for cancer patients in remission. Ramel Rones is hopeful that the *qigong* patients will demonstrate some positive changes in their immune profiles compared to the exercise patients, but he notes that the fourteen week time frame is very short – he feels that a year or more would have been a more realistic period in which a real difference could be demonstrated. As he puts it, with only fourteen weeks and working with people who have had cancer, "they may be asking us to do the impossible" (An earlier study on which this one was modeled took a year or longer with healthy subjects [Ryu et al. 1996; Ryu et al. n.d.]). Also, Rones is concerned that the western exercise arm, which is very low-impact, uses slow breathing exercises and is also led by a charismatic teacher, may also elicit meditative

awareness in the body and thus confound the results. Neuberg, for her part, also does not expect to see dramatic differences.

TRANSLATING "MIND-IN-BODY"

So it will probably be that this gap between two very different understandings of *qigong* will not really matter within the context of this particular study. But it is important to notice the gap between the Chinese notion of mind as awareness flowing about the body and a western biomedical notion of mind as a non-physical consciousness that is translated into physical reality by the brain, and to notice that the gap does not come from the bad intentions of researchers or a more generalized biomedical hegemony. Instead the gap emerges from real differences between two different healing paradigms – Chinese *qigong* and bio-medicine. And this brings us to the issue of what happens and what should happen when two paradigms collide. Are different paradigms – which correspond to different modes of being in the world – simply incommensurable, that is, deeply untranslatable at some level, as some have asserted?

Let us review this seeming incommensurability: Madame Gao Fu and Dr. Yang Jwing-Ming hold a different view of reality than does Donna Neuberg. They think that there is something called vital energy or *qi*, which follows a distinct and universal anatomical pattern within the body. Donna Neuberg, a biomedical scientist, is thrown back on her heels by such beliefs – the energy anatomy described by Gao Fu and Yang seems to correspond with no known anatomical features in the human body. On the one hand, philosophers and anthropologists have puzzled over the question of whether it is ethnocentric for a social scientist to evaluate the beliefs and knowledge claims put forward by members of other cultures when these claims seem to the researcher to be utterly non-sensical (e.g., a belief in witches, or that the earth is flat).[12] On the other hand, biomedical scientists have focused on the promise of the rational method of a randomized controlled trial (RCT) as a way out of such debates over the merits of non-western belief systems. From the biomedical point of view, the (RCT) is a universal, unbiased system for evaluating truth claims: by this light, it is not "ethnocentric" to use western technical standards, specifically the RCT, to judge whether a non-western practice such as *qigong* has therapeutic efficacy for a given condition.

As this article has demonstrated, however, the problem with using RCTs to evaluate traditional therapies lies not in the great abstract philosophical questions that they pose, but rather in the detailed conceptual apparatus that is necessary for the implementation of a trial. An RCT only

works as a rational method for answering scientific questions when a series of steps are followed: a question is asked, a hypothesis is formed, and at least some rough-and-ready sense of a mechanism is proffered by which this hypothesis can be said to make sense. As Neuberg puts it, "What do you think this could do? And what do you compare it to that convinces you that you understand what's going on? What's your hypothesis?"

Building the RCT apparatus means formulating hypotheses, describing a mechanism in which is encapsulated an explanatory model of how healing works. In the case of traditional therapies which engage mind-body interactions, biomedical scientists' efforts to construct a trial are necessarily dependent on how they come to understand a therapy: what is it and what does it *mean* for its practitioners? Deeper inquiries into such questions may produce more salient hypotheses and better descriptions of therapeutic mechanisms. In particular, an examination of how a practitioner experiences a therapy – what it feels like in her body and what such bodily feelings come to signify – may constitute a practical point of contact for biomedical researchers looking for richer explanatory mechanisms. For example, going beyond Benson's "just-the-facts" procedure (e.g., recording the skin temperatures and metabolic rates of his subjects) to ask Tibetan monk practitioners of *g Tum Mo* yoga to give their own accounts of how they produced the skin-heating effects that Benson recorded might deepen our understanding of mind-body therapies more generally.

Usually an RCT is conceived of as a kind of *contest* between different hypotheses (usually the hypothesis and its opposite – the "null hypothesis"). In carrying out studies of mind-body therapies which are derived from specific non-biomedical contexts, it may be more useful to think of the effort of building an RCT as one of translation rather than contest. The Dana-Farber effort actually gives us some sense of what translation might look like. I have in mind one particular act of what Davidson, the philosopher, calls the principle of charity, which says that for translation to work you must believe that the person that you are trying to understand is reasonable and possesses something intelligible and cogent to say, even if what you are hearing seems, for the moment, unintelligible (Davidson as quoted in Lukes 1997).

Here was a brief moment of translation. Neuberg and Dana-Farber researchers were responsible for selecting the study's endpoints – immunologic parameters and quality of life scores. Pondering these objective and subjective outcomes, Rones became concerned. What about the body, he asked of the researchers? What about the body's physical functioning? How will these outcomes get at whether patients can twist, stretch or feel

stronger, and have more lung capacity? At first, the Farber team did not really know what to make of his question. But when Rones researched and documented an entire school of outcome measurement known as goniometry – objective measurements of the range of motion of the major joints of the body – they agreed to add a series of physical functioning tests to the study. Neuberg and the other researchers have come to understand the physical measurements as a supplement to quality of life measurements – this is a real change, given that they had never heard of goniometry before. (It is normally used by physical and rehabilitation therapists – my preliminary search suggests that it has never before been employed in an immunologic study.) And while Rones' principle objective here was to use the study as a first step in building a larger repertoire of physical quality of life measurements, he also has another set of what might be called postural hypotheses in mind: do changes in the gross physical body – which has been stretched and stimulated through mind-in-body exercise – predict changes in immune physiology? This is a fascinating question that for biomedical researchers might seem more in the realm of science fiction than fiction, yet because the Dana-Farber team trusted that Rones made sense, and because he laid out for them the prospect of taking measurements of patients' physical quality of life, they have given him rein to pursue his own research agenda.

So while the Farber effort is replete with gaps in understanding between the biomedical researchers and the *qigong* master, one might say that it is in the very process of noticing gaps and feeling the sense of opacity that prevents mutual understanding that translation takes place. In other words, one might say that the experience of incommensurability is itself constitutive of any ongoing effort at translation. This sense of alternating understanding and misunderstanding can be seen in Herbert Benson's earlier efforts at translation, upon which this team is building. Translation is a task of confronting and reconfronting failures in understanding. It is a slow iterative and incremental process that is built on a foundation of failure. And each failure to understand is an opportunity to build more effective understandings.

Right now, after Benson's trip to the Himalayas and Madame Gao Fu's visit to Harvard, what may be demanded of biomedical researchers is openness to the possibility that current understandings of mind-body interventions working through a "top-down" pathway are culturally specific rather than broadly generalizable. Other traditions – such as the Chinese practice of *qigong* described here – have complex models of mind-body interaction. These models matter because they may actually help to constitute practitioner experience. Ignoring non-biomedical frameworks such

as the "mind-in-body" or "flowing mind" associated with *qigong* may vitiate efforts to understand how healing systems such as *qigong* really work. However, this task of delineating practitioner frameworks and practitioner experience may require different skills than have traditionally been deployed in the construction of clinical trials. As NCCAM researchers embark on missions to develop "culturally sensitive studies," an account of the planning of the Dana-Farber *qigong* trial clearly suggests that investigators should build processes of dialogue and translation into their inquiry rather than simply using studies of context as a means for pushing quickly to "full-scale randomized clinical trials on the application of traditional, indigenous systems."

ACKNOWLEDGMENTS

A much earlier version of this article was delivered at the Asian Medical Working Group Seminar at Harvard University in December 1998. I am indebted to the members of that seminar and to Byron Good, who both convened that meeting and offered his suggestions on how to transform that paper into the present work. I am grateful for critical readings of various versions of this work given to me by Bridie Andrews, Linda Barnes, T.J. Hinrichs, Lida Junghans, and Eric Jacobson . I would also like to thank Dr. Paul Richardson, chair of the research subcommittee of the complimentary therapies task force of the Dana-Farber Cancer Institute, for generously allowing me to sit in on that group's working meetings. My greatest debts are to Donna Neuberg, the Dana-Farber biostatistician, and Ramel Rones, the *qigong* master teacher.

NOTES

1. For a discussion of the history of the Randomized Controlled Trial and the implications of its widespread use in biomedical research see Kaptchuk 1998.
2. The author took part in two years of regular *qigong* research meetings (1998–2000) chaired by Dr. Paul Richardson of the Dana-Farber Cancer Institute. These meetings took place under the auspices of the research subcommittee of the complementary therapies task force at the Dana-Farber.
3. *Qi* is a concept that does not directly correspond with biomedical notions of anatomy or physiology (see Eisenberg 1995).
4. Luhrmann gives us a picture of the constraints on the types of questions that can be asked by researchers within a quantitative framework (Luhrmann 2000: 170).
5. In an interview with *Tai Chi Magazine*, Madame Gao Fu (who is also featured on the cover) describes her practice in detail (Smallheiser 1997).

6. The doctor gazes at the patient in order to sense subtle changes in the patient's internal "weather." As Kuriyama puts it, the wise doctor gazes in order to "know things before they had taken form, to grasp 'what is there and yet not there' " (1999: 179).
7. The biostatistician's hesitancy comes from the fact that cancer patients in remission following chemotherapy may have non-standard idiosyncratic immune profiles, making it difficult to generalize their reactions to a mind-body trial.
8. See, for example, Koenig et al. 1997.
9. He has worked especially closely with several students, most of whom have experienced very encouraging results. Two of his students with non-Hodgkin's' lymphoma used *qigong* to help them with bone marrow transplants, practicing as much as six hours a day over a period of three years.
10. This is an alternate spelling.
11. For different perspectives on the anthropology of the body in medical anthropology, see Scheper-Hughes and Lock 1987 and Csordas 1994b.
12. This is the question that animates a well-known debate between the social theorist Alastair MacIntyre (1979) and the anthropologist Peter Winch (1979): MacIntyre thinks it imperative that scientists and social scientists bring their own standards to judge the truth claims made by members of other cultures, while Winch argues that we should view practices such as *qigong* as "expressive" in nature, and thus not evaluable by scientific or technical standards. But if we see *qigong* as merely a symbolic practice and not as an effort to achieve control over a practical problem, we may also be falling into the ethnocentric trap, as the philosopher Charles Taylor (1997) reminds us. From Taylor's point of view, it would be *ethnocentric to disregard* practitioner claims about how energy works and how the energetic anatomy connects humans to heaven and earth.

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Department of Social Medicine
Harvard Medical School
Boston, MA 02115
USA

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