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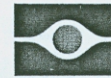
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The Oxford Handbook of Psychology and Spirituality

Edited by

Lisa J. Miller

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To Margo and Sid. Thank you for awe, wonder, and love.

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Spirituality, Connection, and Healing With Intent: Reflections on Cancer Experiments on Laboratory Mice

William F. Bengston

Abstract

Data from 10 experiments that tested the effect of healing with intent on cancerous laboratory mice are selectively summarized to address the question of whether there is a connection between spirituality and healing. Volunteer healers with no previous experience or belief in healing with intent were successful in producing full life-span cures in cancer models that are normally fatal. Successful healing has been produced by volunteers who have experienced a wide range of subjective sense of connection to their experimental mice. While it may initially seem reasonable to conclude that connection may not be necessary to affect healing, methodological complications resulting from an apparent resonant bonding between experimental and control groups render interpretation problematical. These resonant bonds are interpreted as fluid, with the potential of being both strengthened and weakened by consciousness and shared experience. Some implications of these experiments for the study of the connection between healing and spirituality, and for the mechanistic tradition within science, are discussed.

Key Words: healing with intent, cancer, spirituality and healing, resonant bonds, placebo effects

Introduction

In 10 experiments testing the efficacy of “healing with intent” or “hands-on healing” on laboratory mice infected with fatal cancers, nonbelieving volunteer healers were able to produce an unprecedented high percentage of full cures in the animals (Bengston & Krinsley, 2000; Bengston & Moga, 2007). Participant healers in these experiments have included the author, as well as faculty and student volunteers who had no prior belief or experience in hands-on healing. These experiments were carried out in five different traditional biological laboratories by conventionally trained scientists with extensive experience with these mice, whose cancer normally results in 100% fatality. Additional anomalous results include an apparent “resonant entanglement” between the experimental and control mice, so that a significant percentage of nontreated control mice are also cured under some conditions.

The list of questions and challenges to conventional wisdom generated by these experiments is extensive. The purpose of this paper is to reflect on some of these implications for the study of spirituality and health, and what has been called postmaterialist conceptions of reality. Because the volunteer faculty and student healers in these experiments were prescreened so as to be completely inexperienced as well as nonbelievers in the efficacy of healing with intent, and the mice as healees presumably were the same, the importance of belief in the enhancement of health conditions may be somewhat called into question. In addition, interviews and logs by the volunteer healers themselves indicate a wide variation in their sense of “spiritual connection” to either the mice or to the specific hands-on techniques used in these experiments (Bengston, 2007, 2010). Because all volunteers have had some success in curing their cancerous mice, perhaps the relationship

of spiritual connection to healing so prevalent in the literature has also been stated too simply. Finally, the question of whether these healing data bring a significant challenge to materialist science will be discussed, with special attention being given to the methodological implications of the apparent non-local resonant entanglement among the treated and untreated mice.

The Study of Spirituality

One of the classic definitions of *religion* comes from William James, who regarded religion as the “feelings, acts, experiences of individual men in their solitude...in relation to whatever they may consider divine” (James, 1961, p. 42). This individualistic view is counterpoised by the more communal definition of *religion* as a social and institutional phenomenon (Durkheim, 1965; Weber, 1963).

The conceptual relationship of religion to spirituality is unclear, though religion is usually envisioned as bounded by socially recognizable institutions, and spirituality or transcendence is normally seen more as a personal, subjective experience. About the latter, it must be acknowledged at the outset that there are many definitions of *spirituality* in the literature, perhaps having so much variety as to have no real empirical utility. As just one example, Holmes writes that “Hazarding a definition of spirituality, one can treat it (very inadequately) as the human search for meaning, particularly relationally, and that for many today this incorporates a supernatural/corporeal dimension that suggests many of us have discovered we are more than our physical biology” (Holmes, 2007, p. 24). Indeed, the very vagueness of the use of *spirituality* has probably resulted in a widespread leap of faith among researchers; although it is hard to define, most agree that we can recognize it when it occurs. Similarly, like respondent self-reporting of internal subjective states such as happiness, measures of self-reported spirituality assume that all agree on operational decisions about its extent at any given time. Measures rarely question whether someone who self-classifies as, for example, “somewhat spiritual” has variations in that amount over the course of even short durations of time, or whether the criteria for operational self-diagnosis varies among disparate groups (e.g., Hill, 1999; Hill & Hood, 1999).

Many researchers believe that we cannot study spirituality directly because it is so intangible (Holmes, 2007), though those who study the physiological correlates of spiritual experience would typically adopt at least an implicit reductionist

approach to the personal reports of spiritual experience (Glock, 1973). In this case the former would arguably retort that the study of spirituality had been reduced to its outcomes and symptoms, while a more holistic approach of necessity would include the element of mystery and connection to something larger than self (Holmes, 2007).

And so while the argument has been made that we cannot or should not study spirituality scientifically, these often stem from a priori assumptions that if the larger experience cannot be adequately studied, then the effort is for naught. Yet at the same time there is not only a large body of psychology and sociology on the subject, but entire journals have been devoted to its study for decades (e.g., *The Journal for the Scientific Study of Religion*). The argument that spirituality is not amenable to scientific investigation often stems from a materialist perspective. That is, science, by virtue of its method, cannot study spirituality because spiritual tenets are themselves neither observable nor effable (Thomson, 1996). In opposition to this are all the working scientists who routinely study nonobservable phenomena in many disciplines. In reality, of course, the social and behavioral sciences routinely deal with subjective states of consciousness, even including such apparently ineffable personal and profound experiences as mystical union with all of creation (Greeley, 1975).

In recent years the experience of spirituality has been linked to both physical and psychological health (Koenig, 1998; Koenig, Larson, & McCullough, 2000; Miller & Thoresen, 2003). Indeed, a wide variety of academic journals have by now devoted entire issues to the personal and social effects of spirituality. And while authors may differ on specific operational measures of spirituality or transcendence, it is generally the case that these experiences are interpreted as having beneficial effects (Cecero, Bedrosian, Fuentes, & Bornstein, 2006; Greeley, 1975; Miller & Thoresen, 2003).

Spirituality and Healing

The alternative and complementary community has enthusiastically embraced spirituality as a positive corollary to healing. The transcendent experience of wonder is often taken as a sign that a larger force can work through both the healer and healee to produce medically verifiable improvements that would not otherwise occur. Similarly, it is widely assumed that the state of mind can have direct and powerful implications for healing (Benor, 2002;

Cunningham, Stephen, Phillips, & Watson, 2000; Dossey, 1999; Fitzpatrick, Berger, Calabrese, Kim & Polissar, 2007; Lipton, 2008; Sothill et al., 2002).

There are by now long-standing professional societies that regularly have meetings to reinforce such beliefs. For example, the International Society for the Study of Energy and Energy Medicine (ISSEEM) and the Association for Comprehensive Energy Psychology (ACEP) both endorse and celebrate the liberating effects of energy medicine for physical and mental health, although it should be acknowledged that no conventional "energy" has been isolated or shown to have the properties necessary to produce the effects that are purported to occur (Oschman, 2000; Tiller, Dibble, & Kohane, 2001). The lack of traditional scientific acceptance about the existence of these subtle energies demonstrates to the adherents only that traditional science has not kept up with alternative and superior interpretations about the way the world really works. Conventional scientists, by and large, are not aware of this alternative energy medicine world, just as the energy medicine adherents are not necessarily trained in traditional scientific methods of analysis. The energy medicine adherents, however, often seek the mantle of scientific respectability; they hold conferences with such titles as "The Science of the Miraculous" and invite luminaries to address their membership.

There are now numerous peer-reviewed academic journals devoted entirely to the study of alternative and complementary approaches to healing. *The Journal of Alternative and Complementary Medicine* and *Alternative Therapies in Health and Medicine* are probably the oldest, with relative newcomers such as *Explore: The Journal of Science and Healing* following suit. There are numerous online electronic journals that also regularly publish articles on healing, as well as peer-reviewed journals devoted to the scientific study of anomalous phenomena, such as the *Journal of Scientific Exploration*, that also devote some space to healing studies.

The link between healing and spirituality in much of the literature is nicely exemplified by a widely cited reference book in the field, entitled *Spiritual Healing* (Benor, 2002). Though the title contains the word *spiritual* in it, the contents are devoted to an analysis of the quality of the published work on healing. Both in vitro and in vivo studies are examined, and it is instructive that empirically based analyses on the effect of conscious intent on

cell cultures is contained within a book entitled *Spiritual Healing*. It is therefore not clear where the boundaries between "spiritual" and "nonspiritual" healing might be located, unless it is simply assumed that all healing is spiritual.

The Cancer Healing Experiments

The data from five of the ten cancer healing experiments referred to in this chapter have been published elsewhere (Bengston & Krinsley, 2000; Bengston & Moga, 2007), as have the descriptions of the healing techniques used (Bengston, 2007, 2010). And so it is not my intent to summarize all of the technical details here, but rather to generally describe the patterns of healing data with particular emphasis on the role of belief, the subjective sense of connection while healing, and the apparent anomalous resonant entanglement that occurred between the treated experimental mice and the untreated control mice. The subjective sense of resonance will be complemented with objective measurements of brain entanglement that seems to occur during the healing process (Hendricks, Bengston, & Gunkelman, 2010).

In 8 of the 10 experiments (total N = 200), mice with mammary adenocarcinoma (code: H2712; host strain: C3H/HeJ; Strain of Origin C3H/HeHu), which had a predicted 100% fatality between 14 and 27 days subsequent to injection, were treated using various "dosages" of what could be considered "healing with intent." The normal progression of the disease involves nonmetastatic tumor growth until the mouse dies from some combination of malnutrition or the crushing of the internal organs.

When given healing with intent by the volunteers in these experiments, the treated mice developed a blackened area on their tumors, which then ulcerated. Some of these stages can be seen in Figures 35.1 through 35.4.

On days subsequent to these photos, the tumor ulcerations continued to implode without any discharge or infection to full life-span cure.

In two of the experiments, mice with methylcholanthrene-induced sarcomas (strain Balb/C; Background H-2d) were used. The host survival for these mice is unknown, but probably around 45–50 days subsequent to injection, thus making this model also fatal but slightly less aggressive than the mammary model.

When given healing in these experiments, the mice tumors sometimes imploded (see Fig. 35.5); but at other times the tumors simply remitted by shrinking to full cure. At all stages up to the full

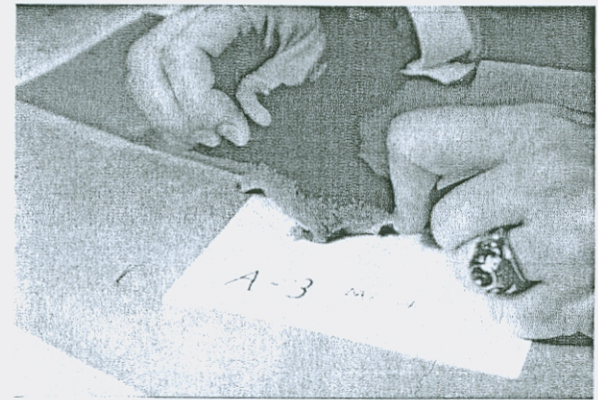


Figure 35.1 A mouse 14 days after being injected with mammary adenocarcinoma.

disappearance of the tumor, histology indicated viable cancer cells present.

This process of cancer cure has been produced both with the volunteer healers in the same room as the treated mice, and by a combination of proximal and distant administrations of healing for various lengths of time and frequency. Among 10 experiments, treatment length varied from 30 minutes to 60 minutes per day until cured. Treatment frequency varied from one treatment per week to daily. The number of mice treated simultaneously in a healing session varied from 1 to 10. The proximity of healer to infected mice varied from hands placed around a cage of mice to healing intention delivered from approximately 600 miles away from the cages.

None of these changes in the parameters of healing seemed to matter in regard to the percentage of mice cured, which generally was in excess of 90%. The only external variable that made any difference was the absolute number of mice in a given experiment. The greater the number of mice, the faster the remission process. This will be discussed in some detail in a later section, and it will involve some speculative ideas about resonant entanglement among experimental mice, as well as the conditions under which resonant bonds are created and destroyed.

Healing, Belief, and Spiritual Connection

Volunteer healers were asked to keep logs of their subjective experiences when practicing the

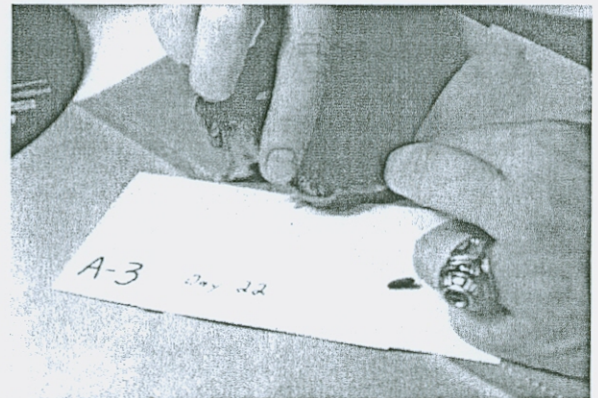


Figure 35.2 A blackened area begins to develop on the tumor.

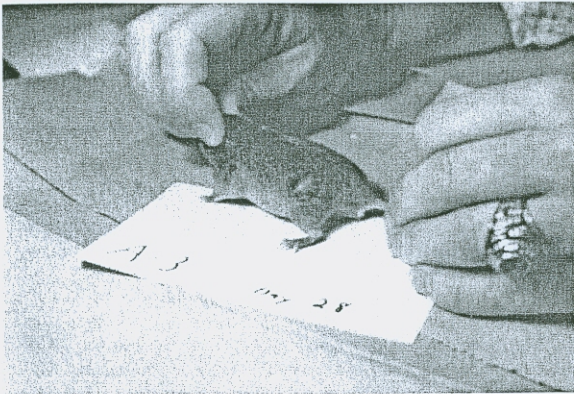


Figure 35.3 Tumor ulceration begins 28 days subsequent to injection.

healing techniques and when actually treating the mice. Student volunteers tended to comply with this request; faculty volunteers less so. In regard to the latter, though, extensive informal conversations were conducted in lieu of written logs.

It is uniformly the case that none of the volunteer healers, including myself, could be characterized as a “believer” in the efficacy of the healing techniques. Student and faculty volunteers were prescreened to exclude anyone who had any previous experience with healing or who in any way indicated a priori acceptance of the reality of the phenomenon. The volunteers were trained collectively in weekly meetings for approximately 6 weeks before the arrival of the experimental mice.

Extensive drilling of the techniques was done, and volunteers were asked to practice during the week.

By self-report, the amount that the volunteer healers practiced before and during the experiment varied widely, ranging from not at all to regularly with concerted effort and attention.

All volunteers were encouraged to try to articulate any subjective sensations that they had either while practicing the techniques or during the healing sessions themselves. Here, too, there was a wide range of responses. Some healers felt nothing at all either in the practice sessions or in their healing interactions with the mice. Some felt quite emotional when their mice began to develop tumors, and this experience was only exacerbated during the

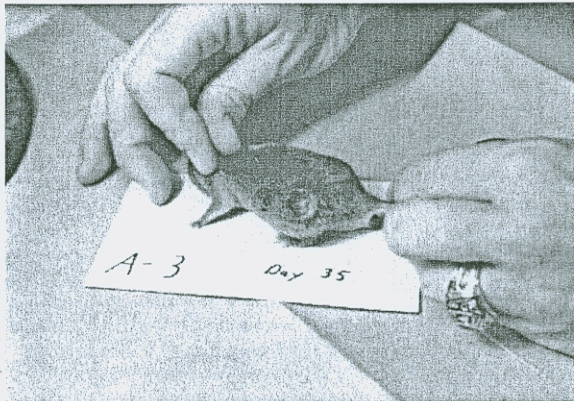


Figure 35.4 Tumor in full ulceration 35 days subsequent to injection.

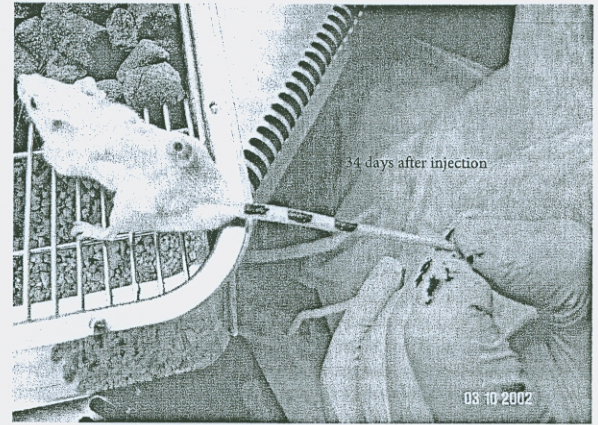


Figure 35.5 Methylcholanthrene-induced sarcoma 34 days subsequent to injection.

stages of ulceration. Some reported an intermittent sense of personal connection with their mice that was both surprising and pleasant. In these latter cases, though the word *spiritual* was never explicitly used in a diary or conversation, it would be fair to say that it was implied at least through a sense of an extraordinary “connection” to the mice, though that was usually accompanied by some embarrassment.

The rate and speed of remissions were not related to the presence or absence of either healing technique practice or the subjective sense of spiritual connection to the mice. Upon first inspection this would seem to at the very least minimize the importance of anything approaching a sense of spiritual connection for healing. But a closer examination of the overall patterns of remission presents a serious methodological complication that may have widespread implications.

The Control Group Problem

The traditional model of experimental design randomly separates subjects into experimental and control groups, with only the former receiving any kind of planned stimulus. The postexperimental difference between the two groups is presumed to be due to that active agent. It is universally assumed that the control group represents “what otherwise would have been” had not an active agent been applied, just as it is universally assumed that the experimental and control groups are independent of one another.

Among the more perplexing findings of these experiments has been the pattern of control group

cures. In all experiments, there were control mice that went through the same stages of remission as the experimental treated mice.

Since there are innumerable published studies on these mouse models, and since all the experimental biologists were very experienced with these models, it is very much known “what otherwise would have been.” All the mice should have died. Furthermore, in some of the experiments, the mice were given twice the known lethal dosage, and at times doubly injected with twice the lethal dosage. There was virtually no chance that any of the mice should have survived without some sort of unprecedented extraordinary intervention.

And yet many of the seemingly untreated control mice also went through the remission stages to full cure, and the patterns of their remissions raise many serious questions. In brief, the control mice would die as predicted unless or until someone who was practicing the healing techniques saw them. Although no conscious healing treatment was ever given to any control mice, the simple occurrence of being seen by a volunteer healer was apparently sufficient to begin the stages of anomalous healing patterns in these mice.

In several experiments, the control mice were dying on schedule, well within the predicted time frame. When either a student or faculty volunteer healer secretly broke protocol and out of curiosity briefly looked at them, the remaining control mice would begin the healing stages of blackened area, ulceration, and tumor implosion despite not being consciously or deliberately treated using the healing

techniques. In two experiments we used a second control group sent to another city so that they could not be discovered by any volunteer healers, and these mice all died within the predicted time frame.

In two experiments, a second control group of mice was located inside the same building with the experimental mice and first control group. The healers knew of the existence of the first control group, but not the second. Yet in these experiments the second control group also was cured.

Overall, the percentage of control mice remissions was approximately equal to the percentage of experimental mice remissions subsequent to their being found by a volunteer healer. With one exception, the control mice that were not seen by a volunteer healer died within the predicted time frame, as did the control mice that were sent out of the building and to another city.

Resonant Bonding

These patterns of cure make no sense if the traditional assumption of experimental and control group independence is accurate. The only way that any descriptive pattern emerges is if under some conditions, the experimental and control mice, however spatially separate, are not in fact independent of one another (Bengston, 2004; Bengston & Moga, 2007) but instead are somehow bonded. If that is the case, a healing treatment given to any experimental mouse would in effect result in a treatment being given to all mice in the experiment. Even while the actual mechanism of the healing action remains a mystery, conceptually envisioning the mice as bonded together accounts for the patterns of cure. And it is likely that these resonant bonds are themselves fluid, so that under some conditions they are reinforced and under other conditions they are weakened or broken. The discovery of the conditions of bonding and unbonding might go far in explaining not only the results of these cancer healing experiments but also on other mysterious phenomena such as placebo effects. These same conditions might shed light on potential misinterpretations of experimental data, particularly those that might involve type II errors (Bengston & Moga, 2007).

Consider some facts:

- As already mentioned, upon being observed, the control mice begin the remission process; otherwise they die.
- Traditional dose-response tests show no difference in variability of treatment time. That is,

multiple treatments per week have the same effect as single treatments per week. However,

- The larger the number of mice in the experimental group, the faster all mice go through the remission process. This may be an indirect indication of a dose effect to healing. That is, the larger the number of mice, the greater the number of treatments necessary to administer healing treatments to them. If the mice are in fact bonded together, then the absolute number of "pooled" treatments given will be greater, thus indirectly suggesting a dose response.

If the mice are seen to be members of a bonded group, then these facts make some sense. However, there are more anomalies to consider:

- All experimental mice failures have been associated with biology student volunteers.
- The biology student volunteers who could not cure their lab mice were in fact able to cure mice at home.
- In the experiment where the biology student volunteers failed to cure their lab mice, they were the only ones to stumble upon the control mice. Those control mice began the process of remission, even while their laboratory experimentally treated mice died.
- Adjacent to the biology students' mice cages were the other cages being treated by nonbiology student volunteers, who were successful in curing their own mice. All of the cages were regularly and repeatedly seen by all healer volunteers. Yet the biology students' mice died, even as the biology students were the only ones to see the control mice, which were cured.

If the problem is the condition of bonding and unbonding of individuals to a group, and the nonbiologists were able to cure their mice, why wasn't there a bonding with the mice of the biologists who were not able to heal their mice? And if the nonbiologists could not heal their mice, why did the control mice remit when only seen by the biologists?

Speculatively, the answer may lie in the bonding/unbonding power of the state of mind and with consciousness itself. The biology students were, by the accounts in their own logs, nervous about being seen in a biology lab, with white coats on, putting their hands around cages of mice. Simply put, they had their professional status on the line in a way that the nonbiologist student volunteers did not. Could this anxious state of mind break the bond of their mice to the group? If so, the successful healing effect produced by the nonbiologists on the adjacent mice

cages could not affect their mice, as they had been broken off from the collective.

In one experiment there was a second control group unknown to the volunteer healer that was cured. How to explain this? Obviously, conscious awareness on the part of the healer is unnecessary for healing to occur, but could the consciousness of the other experimenters who knew about the previous control remissions have bonded the mice together? If that is the case, then a treatment given to any mouse would still be a treatment to all. Or, alternatively, could it have been the consciousness or collective experience of the mice themselves, which were raised and shipped together, that somehow bonded them together? These are testable questions that deserve further study.

One final anomaly: Two of the experiments were carried out in a medical school that had many active labs investigating a single mouse model. In these experiments, the experimental mice were always at least 100 meters from the control mice, and there were at least a dozen labs doing more conventional work on the same cancer model between the experimental and control cages. In these experiments, both the experimental and control mice were cured, and there were no reported anomalous healings in any of the labs doing conventional work. A second control cage of mice unknown to the volunteer healer was also cured.

If these healings were done in a way analogous to a morphogenetic field effect (Sheldrake, 1995, 2009), then it follows that the labs which were between the experimental and control cages in the healing experiments would likely have had some anomalous effects. Yet there were no anomalous results reported by any of these labs. Rather, the bonding was selective, increasing the likelihood that bonds are made not necessarily by nondiscriminating field effects, but rather through some specific targeting by consciousness itself. The challenge is to elucidate the laws and patterns of consciousness in binding and unbinding groups together.

Implications for Spirituality and Mechanistic Science

The methodological complications that flow out of the resonant bonding of groups are formidable. Two obvious examples come to mind. The first are the well-known but only relatively recently studied placebo effects (Benedetti, 2009; Guess, Kleinman, Kusek, & Engel, 2002; Kapchuk, 2001; Zajicek, 1995). Could placebos not simply be the consequence of suggestion, but instead possibly be the

effects of resonant bonding between experimental and control subjects? When an experimenter administers an active agent to one group, are the consequences of that administration also felt by the bonded control group? Is the strength of the placebo effect directly proportional to the strength of the bond between subjects? What is the difference between those subjects who have a strong placebo response and those who don't? Instead of simply looking at psychological effects, perhaps there are some underlying physical mechanisms of bonding at work.

And if a placebo group has a strong effect, and there is a bond between the groups, then there will be a diminished chance that data analysis will indicate a difference between experimental and control/placebo groups. In statistical terms, that is known as a type II error, concluding that nothing has occurred when in fact it has. An alternative possibility in the context of resonant bonding is that an effect has occurred to all bonded participants, even those not directly administered a stimulus. Concluding that nothing has occurred might miss elucidating the conditions of bonding and unbonding. In the context of resonant bonding, it would be interesting to examine the data from previous experiments in a wide variety of fields.

The methodological complications extend to the question of whether healing and spirituality are connected. Some of the volunteer healers in the cancer experiments experienced nothing approaching what could be considered spiritual; others from time to time felt a sense of connection to their mice. The methodological conundrum of course is in the context of resonant bonding: Did the actual healing come from only those who felt some sort of connection? Was each volunteer healer actually responsible for healing his or her own mice? Is healing a correlate to the sense of spirituality?

Over the course of the last several decades, there have been attempts to correlate subjective states of connection with more objective physiological and physical measurements. Jahn and Dunne (2005) have widely reported that operators can significantly alter the output of random number generators when there is a feeling of a "resonant bonding" to their machine. Researchers have measured correlations between the brains of spatially separated people to determine whether the subjective sense of connection is associated with measurable alterations in brain activity, and they have found it to be so (Duane & Behrendt, 1965). Is this the same as a spiritual connection?

Of course, the fact of anomalous connection at a distance does not demonstrate that healing actually occurs during these times of connection, nor that this is the same as the subjective experience of spirituality. In a recent study, a volunteer healer and healee were physically separated yet were found to have intermittent brain entrainment that would last between 4 and 14 seconds per interval (Hendricks et al., 2010). While this may be taken as a potential example of a nonlocal physical connection, it does not demonstrate that the moments of brain entrainment correlated with moments of healing.

A further complication is that in the Hendricks study, neither volunteer healer nor healee reported any conscious sense of spiritual connection. It is possible, for example, that although spirituality is by definition subjectively experienced, that actual nonlocal healing is independent of conscious awareness. It is also possible that any conscious experience of healing is experienced as simply the delayed effect of a more autonomic process of healing. Until the moments of healing can be measured, this will be difficult to untangle.

Finally, what are the implications of these experiments for a mechanistic view of reality? Science traditionally assumes that phenomena can be reduced to its material correlates alone, and that there is a world out there that is objective in its existence and independent of the observer. The observer's consciousness, in turn, is really nothing more than an outgrowth of complex nerve firings in the brain.

There have been strongly made arguments (Jahn, 2001a; Tart, 2009) and empirical challenges (Greyson, 2010; Jahn & Dunne, 2005) against such a mechanistic approach to scientific inquiry from many disparate fields, too numerous to survey here. Do the patterns of cancer cures in these mice experiments reinforce these challenges and call into question this mechanistic view?

In the cancer healing experiments reported here, it is consistently the case that the consciousness of the observer affected the disease process, profoundly altering "what otherwise would have been" in both the experimental and control groups of mice. These effects were not dependent on belief, nor necessarily on deliberate intent, and it remains an open question whether those volunteer healers who sensed a "connection" with their mice produced a greater effect than those who did not feel such a connection.

The simple insertion of consciousness, even devoid of intent, clearly altered the outcome of the experimental data reported here, and this is perhaps the greatest challenge to mechanistic science (Jahn,

2001b). In addition, these effects were at times brought about from a distance that defies conventional understanding, and the apparent nonlocal bonding of groups further adds to the conceptual and theoretical challenges.

How are group bonds created and destroyed? How are they strengthened and weakened? How do they challenge the methodological underpinnings of the way we investigate and the way we interpret empirical data? These cancer experiments clearly raise more questions than answers. The good news is that most of the questions will yield testable hypotheses.

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